THE

AMERICAN

AGRICULTURIST.

FOR THE

Farm, Garden, and Household.

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

VOLUME THIRTY----FOR THE YEAR 1871.

NEW-YORK:
PUBLISHED BY ORANGE JUDD & CO.,
245 BROADWAY.

CONTENTS OF VOLUME THIRTY.

☞ *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.*

Recipes.

INDEX TO ILLUSTRATIONS IN VOLUME THIRTY.

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THE FAITHFUL GUARD.—*Drawn and Engraved for the American Agriculturist.*

It is exceedingly interesting to study the development of intelligence in the dumb animals, and though it is not difficult to cultivate it to a moderate degree, it requires the exercise of the greatest patience and persevering effort on the part of the trainer to develop it extraordinarily. The germs of intellectual and moral faculties certainly exist, and this fact is brought out in the engraving we use this month as a frontispiece. The natural instincts of the Skye Terrier would make short work with the trout and rabbit. The natural instinct of the Setter leads him to watch live game intently, and very gradually to approach it until it starts, when he follows it. Training has made him willing to sit upon the point, for hours, sometimes. The dog in the picture knows he should not touch the game, and he would resolutely defend it against all comers. We see similar traits in all well trained dogs. The knowledge of "mine and thine,"—that is, of what is his own and what belongs to some other dog, or cat even, is almost instinctive. The recognition of his own master's property is generally very easily taught. The sense of importance when a trust is imposed is frequently ludicrous; and that of shame for failing to resist temptation, or in fulfilling the trust, is often painful to witness. This satisfaction and sorrow which are clearly exhibited in the dog, are, so far as we can judge, entirely distinct from either fear of punishment or hope of reward. However important threats and coaxing, whipping and rewarding by petting or bits of food may have been in the training, love of commendation from the master is the most powerful motive to control the dog.

Contents for January, 1871.

INDEX TO "BASKET," OR SMALLER ARTICLES.

Unanswered Letters.—Just at this season an immense number of letters are arriving along with subscription lists. Those on business will, of course, be promptly attended to, but many on personal matters, soliciting donations, etc., etc., will necessarily wait until we have a little more leisure, after the holidays. It is simply *impossible* to respond promptly to all, just now.

Calendar for January.

Day of Month.	Day of Week.	Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon. Sun rises.	Sun sets.	Mo'n sets.	N. Y. City, Ct., 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	S	7 30	4 38	2 31	7 25	4 43	2 28	7 19	4 49	2 26
2	M	7 30	4 39	3 28	7 25	4 44	3 25	7 19	4 50	3 22
3	T	7 30	4 40	4 28	7 25	4 45	4 24	7 19	4 51	4 20
4	W	7 30	4 41	5 26	7 25	4 46	5 21	7 19	4 52	5 16
5	T	7 30	4 42	rises	7 25	4 47	rises	7 19	4 52	rises
6	F	7 29	4 43	4 40	7 25	4 48	4 45	7 19	4 53	4 51
7	S	7 29	4 44	5 36	7 25	4 49	5 41	7 19	4 54	5 46
8	S	7 29	4 45	6 38	7 24	4 50	6 42	7 19	4 55	6 47
9	M	7 29	4 46	7 43	7 24	4 51	7 46	7 19	4 56	7 50
10	T	7 29	4 47	8 49	7 24	4 52	8 51	7 19	4 57	8 54
11	W	7 29	4 48	9 55	7 24	4 53	9 57	7 19	4 58	9 58
12	T	7 28	4 50	11 4	7 23	4 54	11 4	7 18	4 59	11 4
13	F	7 28	4 51	morn	7 23	4 55	morn	7 18	5 0	morn
14	S	7 28	4 52	0 13	7 23	4 56	0 12	7 18	5 1	0 11
15	S	7 27	4 53	1 24	7 22	4 57	1 22	7 18	5 2	1 20
16	M	7 27	4 54	2 36	7 22	4 59	2 33	7 17	5 3	2 30
17	T	7 26	4 55	3 51	7 21	5 0	3 47	7 17	5 5	3 43
18	W	7 26	4 56	5 8	7 21	5 1	4 58	7 16	5 6	4 53
19	T	7 25	4 58	6 12	7 21	5 2	8 7	7 16	5 7	6 1
20	F	7 24	4 59	sets	7 20	5 3	sets	7 15	5 8	sets
21	S	7 24	5 0	5 52	7 19	5 4	5 57	7 15	5 9	6 1
22	S	7 23	5 1	7 8	7 18	5 5	7 6	7 14	5 10	7 10
23	M	7 22	5 3	8 11	7 17	5 7	8 13	7 14	5 11	8 16
24	T	7 22	5 4	9 16	7 17	5 8	9 17	7 13	5 12	9 19
25	W	7 21	5 5	10 19	7 16	5 9	10 19	7 12	5 13	10 20
26	T	7 20	5 6	11 19	7 16	5 10	11 19	7 12	5 15	11 18
27	F	7 19	5 8	morn	7 15	5 11	morn	7 11	5 16	morn
28	S	7 18	5 9	0 19	7 14	5 13	0 17	7 10	5 17	0 15
29	S	7 17	5 10	1 19	7 13	5 14	1 16	7 9	5 18	1 13
30	M	7 16	5 12	2 17	7 12	5 15	2 13	7 8	5 19	2 9
31	T	7 15	5 13	3 15	7 12	5 16	3 10	7 6	5 20	3 6

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.....	6	4 39 ev.	4 27 ev.	4 15 ev.	4 3 ev.	3 33 ev.
3d Quart..	14	2 13 m.	2 1 m.	1 49 m.	1 37 m.	1 7 m.
New Moon	20	7 48 ev.	7 36 ev.	7 24 ev.	7 12 ev.	6 42 ev.
1st Quart.	28	8 30 m.	8 18 m.	8 6 m.	7 54 m.	7 24 m.

AMERICAN AGRICULTURIST.

NEW YORK, JANUARY, 1871.

We all enter the New Year cheerfully and hopefully. It is an excellent thing that once a year at least, we bury our disappointments, and gloomy feelings, wipe out the old scores and begin afresh with a clean slate, and confidence in the future.

Farmers as business men should employ the beginning of the year in making settlements of a business kind. Pay every debt that is on your books, collect every one that is due, or settle it in some way as soon after the first of January as possible. It is a great deal better to come to a direct understanding about these things, than for both debtor and creditor to grow cool and half unfriendly because one owes the other a few dollars, or a few hundred dollars, and cannot pay. There is no friendship lost by coming to a direct and clear understanding about debts, and it will oftener than not happen that things may be turned in some way to lessen the account, or gradually to cancel it. A man who has a practical, common sense turn of mind, and has had a little mercantile training, having been a few years in a country store or in business in the city, or in some manufacturing establishment, will almost invariably prove a more successful farmer than one who has been trained solely upon the farm. We ought to regard farming more as a business than as a trade, more as work for the head than for the hands and teams only.

People have so much to do usually in autumn and early winter in preparing for Christmas, getting the pigs and poultry killed and marketed, and doing other fall work, that that time is not favorable for neighborhood gatherings, for forming farmers' social clubs and libraries, but after the new year begins we have more leisure, and it is not difficult to accomplish such organizations. They are very useful, and at a very small expense to individual members, great enjoyment may be had, and many useful and entertaining books obtained for general circulation. Every farmer's family should have besides a regular *news*paper, a sound agricultural journal. At the club reading-room, if it should be established, a dozen of the better class of the agricultural periodicals of the country ought to be taken, that a just comparison of views and teachings may be made. An efficient Secretary, well sustained, will make such a club a source of great pleasure and improvement in any tolerably settled district.

Hints about Work.

Building, etc.—January is a very good time to work in the wood lot, to haul timber to the sawmill, to prepare for building, to plan and get out frames, etc. The men who can swing an ax with skill and vigor, are becoming hard to find, at least in the Eastern States, and it is well to look out ahead to secure such labor, and when engaged, to see that there is no lack of work.

Frost.—Our cold weather held off so long that doubtless when the cold snap came, many were unprepared. The winter is the more likely to be intensely cold for beginning so mild, hence it is important to see that stables, cellars, root pits, and water pipes, are very thoroughly protected.

Icy Paths.—The constant danger to man and beast from icy paths about the house and barn, must not be overlooked, sawdust, tan-bark, coal ashes, etc., offer easy but temporary means of security. Salt, if used upon steps or any where, should be cleaned away, as it is bad for animals to step in the brine and then into the snow, as a temperature of nearly zero is produced upon the foot.

Feed for Live-stock.—Many barns will be low in fodder before the end of this month. Buy corn-meal or corn, and feed that rather than hay at the high prices. Corn-meal is cheaper at $2 a hundred than hay at $30 a ton. Bran, middlings, and other forms of feed, usually bear relatively high or low prices, so that we can have our choice between them and vary the feed occasionally. For pigs, *slightly* damaged flour or other feed, may be fed without harm, and very economically. It should be mixed with mashed boiled potatoes and water, and allowed to ferment before feeding. It is a poor plan to feed fattening hogs upon too liquid food. As a rule, the drier the better, provided it is so that they can eat it easily. For other stock all kinds of grain feed should be sound. The best way to use the finer kinds of feed is on cut hay or straw.

Horses.—Keep all work and road horses sharp shod, or if there is no ice, keep them upon strong caulks, which may be sharpened at short notice. Sharp caulks wear dull very soon on bare ground, and become dangerously smooth. Spavins, splints, besides sprains and bruises, capped hocks and knees, etc., frequently come from slipping on the ice.

Cows in Milk should have succulent food as well as oil-meal, bran, or corn-meal, to give quantity as well as richness to their milk. There is little danger of a milch cow becoming too fat no matter how much she is fed, and it pays to feed well. The driblets of poor milk which most farmers get from cows which have nothing but poor hay, and not half enough of that, do not pay for keeping the cows even on the poor fare they get. Well fed, they would pay in milk, and besides the calves would be larger and finer, and the milk much more abundant when the cows come in.

Dry Cows should be well fed, and allowed to get into good beef condition. Every pound of flesh and fat laid on extra will come back in cream.

Calves.—Keep young cattle, especially calves, growing all the time. They should not be exposed in bleak yards, but in warm stables, and be fed more or less meal daily. Their growth and thrift will be surprising and effect their whole lives.

Vermin on Cattle.—A few warm days in January will bring the lice to sight, if they are present. A strong solution of carbolic soap will check, if not destroy them. The use of mercurial ointment ("unguentum") is not to be recommended, although more certain in its effects than any thing else. When applied it should be used only in small quantities. Say for an ox a mass as big as a hazle nut, mixed with a tablespoonful of lard, and rubbed in well upon the neck and spine. If animals thus treated are exposed to cold and storms, they are very apt to be seriously and sometimes fatally affected. Lice and poor feed are hardly less fatal.

Sheep ought to have open yards of good size or

the range of farm lanes or small pasture lots besides roomy, well-littered sheds into which they should be shut at night. Ewes should have some grain daily, and be constantly improving in condition until yeaning time. Fattening sheep should be kept in closer quarters, and as quiet as possible. See that all get their just portion of the feed. There is more danger of overfeeding in giving corn-meal, than oil-cake.

Swine must be kept dry and warm to do well in winter. Brood sows need to be kept nearly fat enough to kill; the brood will thrive for it. Store pigs need more feed in proportion than brood sows even, for they grow rapidly and require some exercise to keep them healthy. They will eat a good deal of hay—clover hay—if it is fed to them. We give it when they begin to be impatient for feeding time to come, and find a few small locks will keep them busy and contented.

Fowls.—Good feeding and warm quarters will produce eggs. Keep the houses clean and dry. Use kerosene upon the roosts to kill lice, and some disinfectant if the fowls look dumpish and have colds; giving some tincture of iron in the water and Cayenne pepper with the food.

Manures.—Work up all the litter, leaves, muck, sawdust, and every thing that can decay, in liberal quantities into the manure. The heaps should be worked over and mixed, so as to give the mass the greatest uniformity, unless indeed it is desirable to keep different kinds of manure for especial purposes. The careful saving of poultry-house manure mixed with a little, say twice its bulk of earth, or with sawdust and plaster, well rammed into old barrels, will afford a fair quantity of excellent guano, equal to that of the Peruvian Islands. Allowing fowls and turkeys to roost on trees and under out-buildings and sheds, which are in constant use for other purposes, involves a total loss of this.

Ice.—In gathering ice, be sure there is a deep bed of straw to place the first layer upon. Wheat chaff is said to be excellent. The object being to bed the ice upon a non-conductor of heat, which will let the water pass off freely. Cut the cakes as even as possible, so that little space will be wasted by chinks; brush the cracks full of ice chips and dust, free from dirt, especially round the sides. The more solidly ice is packed upon the sides, which are exposed to thawing, the better.

Tools.—Send for Catalogues of tools and implements. If possible, visit large establishments with a view to see improvements and whatever there is that is new, whether you buy or not. Pursue the same plan in regard to

Seeds.—Get seedsmen's Catalogues, and in some particular every year improve, or endeavor to improve, the crops you raise by introducing superior kinds. With painstaking, one's own stock may be constantly improving, but this requires much care. Keep seeds in bags, nets, or baskets, hanging up so as to be out of the way of mice. Stone jars, tin or any close boxes are very bad for seeds, as they gather moisture and therein become spoiled.

The Markets.—The close of the war can hardly have any other effect upon our grain and produce markets than to send prices up. Those who are likely to need meal or bran would do well to buy; while we can but think that it will pay those who want to sell to hold a while for higher prices.

Draining may be done in many places during almost the entire winter. Springy ground never freezes deep, and this crust is soon thawed by the warm water underneath. In ditching, begin at the outlet and work up, carrying the drain half its depth or less at first, thus drawing off a good part of the water, after which it will be easier to deepen it.

Surface Rocks, or those which have been dug under and exposed, may be broken to pieces very well by blasting in any but the coldest weather. The drilling will create so much heat that water will not freeze in the holes, even when it will upon the surface.

Cutting off Bogs.—When the surface is only partly stiffened, swampy land may be entered and conveniently worked upon, either in grubbing out roots or in cutting off bogs, leaving the surface smooth and level; and, if properly drained, a slight top-dressing of sandy loam with a very light seeding of red-top and timothy in the spring will insure good pasturage after it has half a year's start.

Work in the Horticultural Department.

Our notes upon work and the hints we throw out from month to month, of course vary with the season in their applicability to different latitudes, and of course always some part of them is applicable to the conditions of some part of the country; but, as a whole, they will prove fresh and valuable reading to all interested in garden work in its many branches. They are intended to point out the things necessary to be done, and give suggestions as to the way of doing them. Even the most experienced need a reminder of this kind, especially when there are many details to be looked after. One of our largest gardeners has a record made of each day's doings at his establishment; and with all his extensive experience he finds it necessary to refer frequently to this diary as a guide. In making up these notes we are obliged to have several distinct classes of readers in mind; those who cultivate entirely for profit, and those who grow plants for the love of it, and without regard to gain; those who are familiar with the ordinary operations of horticulture and only need to be reminded of the season in which to do them, and those who essay the simplest operation for the first time. Besides the routine directions, it will be found that each month we incorporate much that is new under the different divisions, and answer in general terms many letters of inquiry. Horticulturists have always been in advance of farmers in availing themselves of the recorded experience of others; and we now have, not only general treatises, but many excellent works upon special subjects, in which the various processes are treated more in detail than they can be by general writers. Every intelligent gardener will have some standard work upon the subjects in which he is specially interested. A glance at our book list will show that there are a plenty of such works. He is a poor gardener who does not do better this year than he did last, whether his operations extend over acres or are confined to the narrow limits of his dooryard.

Orchard and Nursery.

The setting of a tree or plant of any kind involves a promise to take care of it. Unless these conditions are accepted, plant no more trees.

Young Trees, from the beginning, need constant supervision. Were the trees properly planted, no stakes will be needed; but if from careless planting or accident, any tree has been thrown out of the perpendicular, straighten it up and tie it to a stake, or tie the tree between two strong ones.

Order Trees early; if one lives near a nursery it will sometimes pay him to give an extra price for the privilege of digging his own trees.

Rabbits are troublesome, especially when the snow is on the ground. Among the various preventives blood has been found the easiest of application, and as efficacious as any. One sprinkling will last all winter. If blood cannot be obtained readily, rub the trunks of the trees with liver or bloody meat, but this is more troublesome.

Mice work under cover; keep all rubbish away from the trees, and tramp down light snows. When there are not many trees it will pay to clasp the base of the trunks with a girdle of old tin, or sheet iron.

Horses or Cattle often do much damage in young plantations, and must be kept out; indeed, hogs are the only animals ever to be allowed in the orchard. There are some annoying wild animals.

Insects can now be successfully headed off. The eggs of the tent-caterpillar seem to be especially arranged with a view to their ready removal. If a swelling is seen near the end of a twig, it should be looked to, as it is likely that there is a deposit of eggs glued in a band around it. These clusters are readily seen while the trees are leafless, and may be removed by the aid of a step-ladder, on trees of moderate size; and on larger ones a pair of shears may be arranged at the end of a pole to work by a string. Any time and labor required to remove these eggs will be profitably expended.

Nurseries.—The young stock is to be headed back and brought into shape. Never let two limbs start so near together as to form a crotch. Make every preparation for the spring trade, and have all packing material and labels ready for use.

Manure may be carted out while the ground is frozen, and be ready to spread in spring.

Labels on trees received from the nursery are, for safety, bound on tightly. In this time of leisure go over the orchard and see that no strangulation can result from tight wires.

Cions are to be cut at any time in winter when the trees are not frozen. Be careful to tie the sorts in bundles and to label every parcel.

Root Graft at any time during winter, and set the grafted roots in boxes of sand or earth.

Fruit Garden.

Whoever contents himself with a single variety of strawberry, currant, or other fruit, gets only half the satisfaction his garden is capable of affording, or, if he cultivates for market, only a portion of the profit he might otherwise receive.

Grape-vines that were not pruned in autumn, do now in mild spells, and do the same with

Currants and Gooseberries.—Keep the bush open and shorten in the new growth. Cuttings may be made of the prunings by dipping the lower ends in mud and setting them in a cool cellar. See that the

Winter Covering of strawberry and other plants is not blown or washed off. If leaves are used, they may require a little soil to be thrown over them.

General Work, such as protecting trees, removing the eggs of insects, is hinted at under Orchard.

Kitchen Garden.

The amount of out-of-door work will be governed by the season and the locality; wherever any thing can be done to facilitate next spring's operations, it should be attended to while work is not pressing. At least the one important article of

Manure—the key to success—can be accumulated and hauled to where it is to be used. Fresh manure for hot-beds, and composted manure to apply to the ground, need different treatment. Well decomposed manure may be taken to the spot where it will be needed, and left in small heaps, while that for hot-beds should not be in so small heaps that it will be chilled through, but it should be kept in a state of fermentation. As soon as a heap shows signs of heating, it should be turned over, and each turning will much improve its quality. Plants which are growing in

Cold Frames will need attention. If the weather is very cold and the plants are frozen, it is not necessary to remove the snow from the frames, but a light fall of snow, followed by mild weather, must be immediately removed. Give air abundantly, as it is the object to keep the plants as hardy as possible.

Hot-beds for raising seedlings are to be started about six weeks before the time at which it will be safe to set out the plants. Sashes should be got ready; paint, if need be, and replace broken lights.

Straw Mats are of great use in covering hot-beds and frames at night. There are several ways of making them; they should be a foot longer than the sash and of its width and a half wider, so that two mats may cover three sashes.

Covering of celery and roots in pits, do now. At the time we write, the middle of December, it seems as if this might be delayed for some time.

Lettuce, where there is a demand for early plants, may be forced in a hot-bed. The bed should be excavated at least 2½ feet deep, and this be filled with fermenting manure and covered with soil.

Gardening at the South.—In the Southern States, whenever the condition of the soil will allow it, the hardy, early vegetables are sown in succession from January to April. The hardy vegetables include beet, carrot, parsnip, parsley, radish, turnip, onion, leek, lettuce, cress, cauliflower, cabbage, spinach, etc. Tender vegetables, such as cucumbers, melons, beans, tomatoes, etc., can only be sown with safety in the open ground, at corn planting time, or when the peach is in full bloom. These rules answer for any latitude.

Seeds.—Their quality and integrity are of the greatest importance. It is better to be at any trouble and expense to get good seed, true to its kind, than to take that which is doubtful for nothing. Purchase early of reliable dealers only. Seeds go by mail at the rate of two cents for four oz.; if in doubt about the quality offered by home dealers, send to those of known reputation.

Tools are to be overhauled and repaired, and those needed made or purchased. A home-made roller, marker, reel for a garden-line and the like, are great helps, even in a small garden.

Flower Garden and Lawn.

But little can be done out of doors. Where improvements are contemplated, a plan should be drawn to a scale, and sufficiently large to serve as a guide in working.

Evergreens are now appreciated, and the present is the season to discover where they may be introduced into the grounds to the best advantage. Many are injured by

Snow, there are many close growing deciduous shrubs injured by this. Shake it out before it becomes icy. Drifts around low-branching evergreens are apt to break off the lower branches as they settle, and should be shovelled away.

Hedges may have their winter pruning in mild weather and in southern localities.

Rhododendrons, Hollies, and other of the broad-leaved evergreens may be made to contribute largely to the cheerful winter aspect of the grounds, and some of them, such as the Kalmias and Rhododendrons, serve the double purpose of making them gay with their flowers in spring and summer.

Pits, need air in mild weather. Water only when they seem to actually need it. Keep mice from pits.

Seedling Perennials in their first winter will do all the better for protection, no matter how hardy the old plants may be. A mulch over the bed will prevent the roots from injury. Leaves may be used.

Trellises, Stakes, and all the little appliances that will be needed in spring, should be made and repaired while there is leisure.

Greenhouse and Window Plants.

Temperature with house plants is less readily adapted to their wants than in the green-house. It is not well to let any collection reach a temperature much below 40°. Plants cannot, as a general thing, be expected to flower at much below 60°. For stove plants proper, more heat is needed, according to their tropical character.

Air is to be given in the green-house whenever the ventilators can be opened with safety. Window plants need a change of air, and should have it whenever it can be given without chilling them.

Violets and other half-hardy plants in cold frames, need plenty of air when the outside temperature will allow.

Bedding Stock of scarce kinds may be multiplied by starting the stock plants into growth and taking cuttings, which, after they are rooted, will in turn furnish cuttings for later propagation.

Insects are easily kept under by fumigating.

Dust.—Arrange some kind of a shield of cloth or paper to put over house plants while sweeping.

Bulbs, that were potted last autumn and kept cool, may be brought to the warmer atmosphere of the green-house or dwelling, and will soon flower.

Camellias need an even temperature, one rather low with a moist atmosphere. If necessary, thin the buds. Keep the foliage clear by use of syringe.

Cactuses should, generally, have rest and dryness.

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. 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	535,000	3,184,000	1,540,000	76,000	1,212,000	1,936,000
26 days *last* m'th	511,000	3,196,000	1,574,000	89,000	874,000	1,716,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days *this* m'th	547,000	3,451,000	4,116,000	67,000	456,000	1,743,000
26 days *last* m'th	329,000	3,437,000	1,519,000	61,500	239,000	1,856,000

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

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days 1870	535,000	3,184,000	1,540,000	76,000	1,212,000	1,936,000
24 days 1869	519,000	3,173,000	729,000	56,500	1,588,000	2,147,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days 1870	347,000	3,451,000	1,416,000	67,000	456,000	1,743,000
24 days 1869	336,000	3,018,000	1,609,000	47,000	763,000	1,656,000

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

	Flour.	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
1870	1,855,876	17,773,810	417,328	92,431	——	27,786
1869	1,512,929	17,903,887	1,619,970	142,542	——	48,538
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.
Dec. 15	3,060,762	208,319	148,069	500,397	2,085,137	231,129
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	237,453
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	23,816	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	2,509,608	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	38,289	34,900	1,310,935	85,405
1869.						
Dec. 11	3,810,562	833,909	50,043	285,906	1,386,591	77,097

5. *Receipts at head of tide-water at Albany each season to Dec. 7:*

	Flour, bbls.	*Wheat,* bush.	*Corn,* bush.	*Rye,* bush.	*Barley,* bush.	*Oats,* bush.
1870	446,700	18,192,000	4,898,300	630,500	4,645,000	6,348,600
1869	532,600	18,425,000	7,039,400	267,000	3,440,800	5,084,800
1868	467,900	14,085,200	16,990,400	869,500	3,628,700	12,184,000

CURRENT WHOLESALE PRICES.

	Nov. 14.			Dec. 15.		
PRICE OF GOLD	111¼			111		
FLOUR—Super to Extra State	$4 75	@	6 15	$5 10	@	6 65
Super to Extra Southern	4 85	@	9 25	5 15	@	9 00
Extra Western	5 25	@	9 25	5 80	@	9 25
Extra Genesee	6 15	@	8 75	6 65	@	8 75
Superfine Western	4 75	@	5 15	5 10	@	5 45
RYE FLOUR	4 00	@	5 50	3 95	@	5 50
CORN-MEAL	3 80	@	4 75	3 80	@	4 50
WHEAT—All kinds of White	1 40	@	1 75	1 40	@	1 80
All kinds of Red and Amber	1 05	@	1 42½	1 12	@	1 48
CORN—Yellow	82	@	95	75	@	85
Mixed	86	@	90	72	@	82
OATS—Western	56	@	63¼	58	@	62
State	Nominal.			60	@	60½
RYE	90	@	1 20	90	@	1 12
BARLEY	85	@	1 15	78	@	1 12
HAY—Bale ₩ 100 lb	1 12½	@	1 45	1 05	@	1 35
STRAW, ₩ 100 lb	75	@	1 15	75	@	1 15
COTTON—Middlings, ₩ lb	16½	@	16¾	15	@	15¾
HOPS—Crop of 1870, ₩ lb	10	@	19	8	@	16
FEATHERS—Live Geese, ₩ lb	75	@	85	75	@	85
SEED—Clover, ₩ lb	10	@	10¾	11	@	11¼
Timothy, ₩ bushel	4 50	@	4 75	4 50	@	5 00
Flax, ₩ bushel	2 10	@	2 25	2 10	@	2 20
SUGAR—Brown, ₩ lb	8¾	@	11¾	9¼	@	11¾
MOLASSES, Cuba, ₩ gal	18	@	36	18	@	33
COFFEE—Rio, (Gold, in bond)	9¼	@	13	9½	@	13
TOBACCO, Kentucky, &c., ₩ lb	5½	@	13	6	@	12½
Seed Leaf, ₩ lb	8	@	75	10	@	75
WOOL—Domestic Fleece, ₩ lb	43	@	56	44	@	56
Domestic, pulled, ₩ lb	25	@	45	27	@	44
California, unwashed	23	@	33	—	@	—
TALLOW, ₩ lb	8¼	@	9	—	@	—
OIL-CAKE—₩ ton	39 50	@	40 50	41 00	@	41 50
PORK—Mess, ₩ barrel	24 50	@	25 00	19 55	@	24 00
Prime, ₩ barrel	20 00	@	21 50	17 00	@	17 50
BEEF—Plain mess	10 00	@	15 00	10 00	@	15 00
LARD, in tcs. & barrels, ₩ lb	13½	@	15¾	11¼	@	12¾
BUTTER—State, ₩ lb	20	@	42	20	@	42
Western, ₩ lb	15	@	35	13	@	33
CHEESE	5	@	15¼	5	@	16½
BEANS—₩ bushel	1 75	@	2 75	1 75	@	2 60
PEAS—Canada, free, ₩ bu	1 20	@	1 35	1 25	@	1 30
EGGS—Fresh, ₩ dozen	28	@	34	30	@	36
POULTRY—Dressed Fowls	18	@	20	15	@	18
Chickens, Spring, ₩ lb	18	@	21	15	@	18
Turkeys, dressed, ₩ lb	21	@	23	18	@	20
Geese, ₩ pair	1 50	@	2 25	1 85	@	2 25
Woodcock, ₩ pair	75	@	85	80	@	1 00
Partridges, ₩ pair	75	@	1 00	80	@	1 12
Ducks, ₩ lb	16	@	20	16	@	19
Prairie Chickens, ₩ pair	87	@	1 12	75	@	1 12
Quails, per dozen	—	@	—	1 25	@	1 50
Venison, per lb	—	@	—	8	@	18
POTATOES, ₩ bbl	1 75	@	4 00	2 25	@	4 00
SWEET POTATOES, ₩ bbl	2 25	@	3 00	2 50	@	3 00
TURNIPS—₩ bbl	1 00	@	1 25	1 00	@	1 50
CABBAGES—₩ 100	7 00	@	10 50	5 00	@	10 00
ONIONS—₩ bbl	3 00	@	3 50	2 75	@	3 25
CRANBERRIES—₩ bbl	8 00	@	12 00	8 00	@	12 00
BROOM-CORN—₩ lb	3	@	8	3	@	8
APPLES—₩ barrel	50	@	2 50	1 00	@	2 75
GRAPES—₩ lb	6	@	9	8	@	12

Gold fluctuated slightly since our last, the extremes of the price having been 110½@111½, and the closing quotation on Dec. 15, 111... . There has been a fairly active business reported in Breadstuffs. The dealings in Wheat and Flour have been most extensive, largely for shipment, at improved prices. There has also been considerable speculative inquiry for shipping grades of Flour, and for red and amber, winter, and prime new crop spring Wheat. At the close, the market for both Flour and Wheat was tame, but steady. Corn has been offered much more freely at reduced figures, and has been in good request, chiefly for home use, though to a limited extent for export at the lower rates. There has been a fair demand noted for Oats within our revised range. Barley has been very quiet and much depressed. Rye has been scarce and wanted at our quotations. The available supply of wheat in store and afloat at this port is given at a little over four million bushels....Provisions have been much less sought after, and have been quoted lower, particularly hog products, which have been pressed for sale. The business in Bacon and Lard has been mainly for forward delivery.....Cotton has been in less request at easier rates.....Wool has been held with comparative firmness, but has been quiet....Clover seed has been purchased with unusual freedom, mainly for shipment, at firmer prices.....Hay has been salable at our quotations....Hops have been depressed and quoted cheaper, but have been without activity....A very moderate trade has been reported in Tobacco at irregular figures.....The closing of canal navigation has had the usual effect of greatly diminishing the receipts of produce at this point.

New-York Live-Stock Markets.—

WEEK ENDING.	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	*Tot'l.*
Nov. 14th	8,160	107	1,988	39,929	21,395	71,579
do. 21st	6,796	108	1,672	38,937	23,561	71,064
do. 28th	6,686	72	1,311	31,524	28,586	71,179
Dec. 5th	6,684	80	1,457	32,620	24,527	65,368
do. 12th	6,594	81	1,115	27,446	23,836	59,072
Total in 5 Weeks	34,920	448	7,543	172,446	121,905	338,262
do. *for prev. 4 Weeks*	33,612	447	8,557	165,226	104,826	314,468

	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per Week	6,984	89	1,509	34,689	24,381
do. do. *last Month*	8,403	111	2,139	41,306	26,206
do. do. *prev's Month*	7,921	62	3,203	36,007	75,745
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	1,499,509	798,199
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	288,880	4,885	62,420	1,040,000	672,000
Total in 1865	270,271	6,161	71,991	826,733	573,190
Total in 1864	267,609	7,603	75,621	782,462	660,277

Beef Cattle.—After the heavy run of late grass cattle reported last month, receipts naturally fell off. When cattle are put upon winter feed farmers prefer to keep them a month or two, the first few weeks not telling upon their condition. In addition to this reason of the lighter supply now, is the fact that on December 5th the freights were nearly doubled—$1.00 per cwt. from Chicago, instead of 60c.—and this at once shut down on much of the thin stock. Instead of 2,500 Texans received one week previous to the advanced tariff, we had barely 377 of the wild breed last week. New Yorkers may thank the railroads for better beef. Choice Christmas cattle begin to arrive, and are selling at 18c.@19c. per lb., net weight of the beef. One pair went at 20c., weighed, to make 64 lbs. per cwt., live weight. In the absence of very poor quality the prices obtained show quite an improvement. There has been a real advance of about ½c. per lb. during the month, with an upward tendency at the close. Below we give the range of prices, average price, and figures at which large lots were sold:

Nov. 14th, ranged 7 @16 c. Av. 13 c. Large sales 11 @14½
do. 21st, do. 7 @16 c. do. 13 c. do. do. 11 @14½
do. 28th, do. 7½@16 c. do. 13 c. do. do. 11½@15
Dec. 5th, do. 8½@16 c. do. 13 c. do. do. 11 @15
do. 12th, do. 10 @16½c. do. 13½c. do. do. 12 @15¾

Milch Cows.—There is a gradual tendency towards a removal of the fresh cow trade from the city, as the large swill stables—those mills which grind cows up in about one year—are broken up. More country, and less city, produced milk is now used. The few good fresh cows sent in bring better prices, an advance in beef adding to the market value of cows. Very poor cows are selling at $45@$55, fair to good at $70@$85, and prime to extras $90@$110.....**Calves.**—Fell off to 11c. for the best, with heavy receipts of dressed, and bad weather forcing them to a quick sale. Now, prime 125 lb.@160 lb. milk calves are worth 12c., with ordinary to fair at 8c.@11c. Grass, or hay calves of large size, sell at 4½c.@6½c., or $10@$15 each.....**Sheep.**—The few lambs now sent in are generally weighed with, and sold at the same price as the sheep. In fact there is little call for lambs alone. The demand runs upon extra holiday sheep, and some lots of 150 lb.@160 lb. long-wool Canada sheep are selling at 8¼c.@9c. per lb., live weight. One lot of 125 head, averaging 157¾ lbs., went at 9c. Poor sheep are neglected; a car very thin, 61 lbs., selling at 4c. Most sales are from 5c.@6½c., and the market is very good.....**Swine.**—These run down soon after last report, live selling at 7c.@7½c., but with lighter receipts just now, and cold weather, they vary from 7¾c.@7¾c. The weights are too heavy to suit the fresh trade. Hogs are unusually fat this season. The bulk are still sold after killing, and range from 8¾c. for 200 lbs. and up, to 9¼c. for 180 lbs., and 9¾c.@10c. for 120 lb.@160 lb. pigs.

The New Jersey Agricultural Society Record has been received through the Secretary. It contains a list of all the prizes awarded at the last (12th) Annual Exhibition, together with the address of Hon. Orestes Cleveland and a list of the officers.

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.

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.

FREE.—The very Best Table Cutlery—Silver-plated Table Articles—Gold Pens—Children's Toys—Flower and Garden Seeds—Nursery Stock—Sewing and Washing Machines and Wringers—Melodeons—Pianos—American Watches—Shooting Irons—Tool Chests—Drawing Instruments—Barometers—Astral Oil—Hay Mowers—Horse-Forks and Hoes—Pumps—Family Weighing Scales—Cyclopedias—Dictionaries—Books—Grape-Vines—Toy Steam Engines—etc., etc., etc., *are among the things that we are distributing very largely all over the country to our friends who send in clubs of Subscribers.* Some report getting as many as fifty Subscribers a day. Others get one, two, three, or more as opportunity serves. Some make this their sole business, and sell their premiums received, and thus get large wages. There is no humbug, or clap-trap about this. At least *Eleven Thousand* persons have received these premiums with great pleasure, and still, not one in ten of those who ought to read the *American Agriculturist* and *Hearth and Home* for their own pleasure and *profit*, are yet supplied with it. So there is abundant room for thousands of others to obtain these valuable premiums. This work can go on all winter. Full particulars will be found in the Advertising Columns, pages 33, 34, and 35.

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 33 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.)

Reliable Advertisements.—It is a standing rule to admit no advertiser into the columns of this paper to whom we would not be willing to send cash in advance orders if wanting his goods at the price asked; also to exclude advertisements of a deceptive character, and of wares believed to be injurious. We believe our readers may more confidently patronize us a whole those whose advertisements are admitted into this paper, than it would be safe to do in any other paper published.

Beware of Silver-Plating Peddlers.—Last month a man pretending to be an English silver-plater called at our neighbor's, and claimed that he had brought over with him a valuable plating powder. He exhibited some work, and plated a copper penny in half a minute. The lady of the house paid him for replating a lot of spoons, and allowed him to polish up some pure silver ones. He directed her to wrap them in paper and let them lie four days for the plating to harden well. When the four days expired, and he was at a safe distance, she examined the articles and found them entirely blackened, and the silver spoons ruined. We suppose he and others are on their travels elsewhere. They should be arrested as swindlers. We often see venders of similar powders and liquids on the city street corners, brightening the boys' pennies, and selling their vile materials, which consist of a little cheap mercury, mixed or held in solution with clay or other substance. The mercury or quicksilver is deposited on the surface of the metals, and when fresh it rubs up as bright as a mirror; but it quickly tarnishes, and when applied to silver, gold, and some other metals, it eats into them and destroys their texture. Applied to door knobs or any other articles plated with silver or gold, it ruins the plating in a day. Mercury (often called quicksilver) dissolves gold, silver, tin, lead, zinc and bismuth the same as water dissolves salt or sugar. It is largely used by miners who crush the gold and silver bearing rocks, and mix them with the mercury, which dissolves out the precious metals. The mercury is then evaporated by heat, leaving the gold or silver behind. The mercurial vapor is cooled, and caught in a condenser, and used again and again. This is called the "amalgamation process."

Cheap Advertising.—Every Advertisement in the *American Agriculturist*, we have good reason to believe, is *read* by at least 300,000 people. To print 300,000 cheap circulars, and mail them to the same number of persons, would at least cost for printing $300; envelopes, $400; addressing, $300; Post-office stamps, $600. Total, $1,600. A whole page in the *American Agriculturist*, at $666, would certainly be a better investment, not only as costing less, but as being in a form to insure preservation and frequent reference.

One of the Grand Enterprises of the age is the Northern Pacific Railway, which is not only to open a second Pathway across the Continent, but to bring into occupation and cultivation a region of fertile country capable of supporting an enterprising population exceeding that of many single European Nations. The entire people of Norway and Sweden might well come in a body and possess this region, with a manifest gain in climate and soil—and there would still be room for another Nation or two. Our attention was specially called to this by the announcement on our last page of a New 7-30 Loan, now being negotiated by Messrs. Jay Cooke & Co. Few will forget the immense benefit conferred upon our Nation by this same firm, in securing for our government the first really large sum raised during the war—which was then, we believe, the largest single amount ever borrowed by any people in the world. The New Loan is in very convenient form for any amount, from $100 upwards, pays a large interest, and the security would seem to be ample. It will be worth while to read the advertisement, and to send for the descriptive maps and pamphlets.

Drive Him Out.—In our humbug column last month, we mildly alluded to one calling himself Dr. Jesse Wright, as a disgrace to the good people of Salem, Ohio. On further examination of his circulars, and reading some letters from correspondents, we are convinced that it is the duty of the people there to take some measures to expel from their midst this villainous being who is coining money through private circulars which propose to diminish the increase of population, and which allure the young on to vice. He ostensibly addresses only married people, and tells a semi-plausible story, but addresses his private circulars to "*all.*" Such a man is more dangerous to a community than forty thieves and burglars. We have too high an opinion of the people of Salem, and all that region, to believe they will tolerate any such trafficker in the souls of men. A villain, calling himself Mrs. M. Wood, recently hailing from Williamsburg, now from a N. Y. P. O. Box, is in the same line of "business."

SUNDRY HUMBUGS.—The newspapers just now contain, under displayed head-lines, quite sensational reports of the overhauling and conviction of two of the pretended money swindlers. Passing over the fact that some of these same newspapers are *particeps criminis*, having opened their advertising columns to all the bogus operators who would pay for space, does it not show an unworthy timidity to keep silent over these swindles until the fellows are safely in jail? It looks like locking the stable door after the horse is stolen. In one prominent New-York Journal that "pitches in" to these swindlers, we counted the advertisements of ten different humbugs. If one-fourth of the newspapers of our country had followed the outspoken course of the *American Agriculturist* for a dozen or more years past, the whole people would have been so thoroughly informed that there would have been no verdant victims left to be preyed upon by thieves in disguise. We venture to say that very little of the vast sums that have gone into the pockets of these operators has come from any of the million readers of this journal; and we do not mean any thing shall be obtained from them, in this way, if a persistent continuation of our notes and exposures will secure the end....An alphabetical list of the humbugs discussed in these columns during the year just closed, contains no less than 217 references! The letters and circulars received from all parts of the country would fill many large baskets. We can not of course acknowledge beyond a small portion of these, by pen or in type, but they have served a very useful purpose. As soon as one of these new schemes or new names comes to hand, the delivery of letters to parties is stopped at the Post-Office, and tens of thousands of dollars have been returned to the unwise or over trusting senders....We are happy to report that two of the photographic money, saw-dust-parcel swindlers have come to a little grief: they are sent to prison on Blackwell's Island for six months. They ought to have had at least sixty years in state-prison! We refer to Dailey and Waters, who operated under the names of William Howard and William H. Jackson, *alias* "Logan & Co.," *alias* "Owen Brothers," *alias* "Howard & Co.," *alias* "Fisher & Co.," *alias* "Williams & Co.," *alias* "Joseph R. Lee," *alias* "Holt," "Kane," "Allison," and twenty or thirty other *aliases*. There are two other prominent operators, under a great variety of assumed names, whom we hope to see soon brought up. An examination of the "shop" of Dailey and Waters (Logan & Co.) brought some curious revelations to light. Their memoranda showed they had taken in as much as **$7,000** in a single day! Many letters, sending for counterfeit money, were found, several of them from persons in different parts of the country, who, while keeping up a hypocritical show of honesty at home, were none too good to slyly engage in circulating the "queer." We have a list of names of such persons, which, if published, would create a commotion in many a neighborhood. We will withhold them for the time being, hoping that the parties will reform in manners and morals. Perhaps it may yet be deemed best for the people at large to print the names of a few hundred of those whose letters are proof positive of their wish to palm off bad money upon laborers, upon "freedmen," and upon their neighbors generally.....As we predicted, the California Library Lottery has helped to start up sundry other similar enterprises.....J. C. Derby is bringing reproach upon the publishing fraternity; we are sorry to see some newspapers puffing his "Gift Enterprise" on the ground of his connection with the press. We fail to see how his "Aiken Land Scheme" differs from a "Havana" or "Kentucky Lottery." True, he offers a picture to each subscriber of $5. *Suppose*, for argument, the picture to be worth $4. In that case the investor pays $1 for the *chance* in the *lot*, or lottery, distribution of land. *The Havana Lottery* would accomplish the same thing by reducing the price of their tickets. Mr. Derby asks us to "see what $5 will do." We can tell him, that however much he may give for each $5 sent to him, every $5 invested will do something towards creating a taste for lotteries. The good sense of the country has long since put a ban upon lottery dealing, and justly so.....We have hundreds of letters received within

a few days, exposing attempted swindles, many of which have already been referred to. We wish our *new* readers could see our last dozen articles. We can not well go over the old ground again.....A widely circulated advertisement offers to "give $5,000 to any respectable person who will adopt a fine healthy child five months old," as a temptation to ever so many thousands of unwary, childless, or impecunious persons to send 25 cents each for a photograph of the said child—an ingenious *humbug*, surely! The Brooklyn Postmaster, under instructions from the P. O. Department, now sends all their letters to the Dead Letter Office.....A May-fair man in Brooklyn confesses the sins of his youth, in a plausible story told to get $2 from various people for his medicines. Bah!... An unknown villain, who gives his address as "Box 356, Jersey City, N. J.," is baiting boys and young men on to ruin by his private circulars, offering them villainous books, pictures, etc. Parents, watch what your *children* get through the Post of this sort. ....A "short-hand writing" professor is scattering his circulars widely, and earnestly pleading for *farmers*, merchants, clergymen, etc. etc., to invest $2 in his system. We doubt its value to farmers or merchants, no matter how perfect it may be. As the professor gives no location, except a Post-Office box, and as—after inquiries of leading short-hand reporters—no one appears to know him, we can give no opinion of his work; but it is nonsense for any man to expect to become an expert or even a proficient in short-hand in one month. Short-hand writing or reporting is an art, to be acquired only after long and patient practice; and it is not worth while for any one to undertake it, except as a business pursuit requiring much time and practice.....GETTING NAMES OF PEOPLE.—Many persons wonder *how* the Swindlers have obtained their names. Very often some one thinks his name could only have come from *our* subscription books. Never! We carefully guard against this. These swindlers send out circulars to Postmasters and others asking for the names of different classes of persons to be inserted in a pretended "Business DIRECTORY," and offering 5 to 10 cents for each name—which is seldom, if ever, paid. Again, numerous dealers, advertising doctors, and patent medicine men, by offering free circulars, etc., get hundreds of thousands of letters, and these they sell by the thousand. One made a fortune by offering a wonderful book to any one sending him two 3-cent postage stamps for postage on it. He pocketed the stamps and sold them, making no reply to the letters. He then sold the letters to swindlers at 5 to 8 cents each, thus clearing about $12 on every hundred names, or $36,000 on 300,000, out of which he paid $6,000 for advertising—leaving him a net profit of $30,000! In the above and other ways, the names and address of a large proportion of all the people throughout the country have been secured by the swindlers. One operator boasted of having distributed **1,200,000** circulars of a single kind....A dealer in patent medicines is "coming the pious dodge" by sending a very confidential circular "TO THE PREACHER," and addressing him as "Dear Brother," etc. He has a great deal to say about the piety of the inventor—all of which should lead the "Dear Brother" to look out for the wolf's claws under the sheep's skin, before he sends any money, or orders any C.O.D. packages, or advises any body else to do so, notwithstanding the tempting offer of ever so many hundreds and thousands of dollars a year commission or profits ... RECIPES.—A large pile of letters before us contain very plausible propositions to people to buy recipes for making soap at 2 or 3 cents a pound; honey ditto; vinegar at a trifling cost, etc. etc. If the half that is stated in these circulars be true, there are a thousand persons in every county in the country making immense fortunes by selling these recipes. In every case the swindlers require a certain sum of money in *advance*. Every person sending a dime to a single one of these recipe operators, does so foolishly. Their circulars and printed sheets in newspaper form are *very* plausible, but as a rule they are a fraud....We can't spare Mr. Gayler from hereabouts, though Cincinnati needs him badly. The swindlers by mail are getting thick out there. Lotteries, *alias* Gift Enterprises, are widely and largely advertised in the newspapers, and by circulars. A. B W. Taylor, L. D. Sine, Lewis A. Bell, etc., fairly rival the "Royal Havana" and "Covington, Ky." lotteries, in the gorgeousness of their prize-lists, and in what they promise to do. They operate in Cincinnati, but have their *drawings* in St. Louis. Only very foolish people will invest. You are far more in danger of being struck by lightning than you are of drawing one of the $2,000 or $5,000 or other valuable prizes, or an Aiken farm; so if you have any spare change, better invest it in a lightning-rod.... "C.O.D."—A great many swindlers gain confidence by offering to send packages by express C.O.D.—that is, money not to be paid until the articles are delivered. But it must be paid for *before* the Express will deliver the parcels, and allow them to be opened and examined; and so, how is one better off than if he had forwarded his money direct to the swindler at first?....Wise ladies will buy their articles of known responsible dealers, instead of risking money forwarded to "Garland & Co.," Brooklyn, E. D., or anywhere else, especially where the circular issuers fail to give street and number. (We expect a new subscriber from Hamlet, N. Y.! and she will probably get more particulars about certain parties who are under investigation. If she don't find that $25 badly invested, we hope she will let us know it.)....Oroide Watches.—There is so much swindling in articles under this name, that we advise letting them alone entirely, unless you choose to try something bought and warranted by a well-known, reliable, and responsible dealer always within your reach.....James T. Barton, 599 Broadway, N. Y., seems to be running a "Spanish Lottery" right here in New York. None but consummate fools will send a dime to his address....."Aluminum Watches" at $3, or $5 each, are humbugs.....Ditto every $5 sewing machine.....S. D. Benson, 77 Nassau street, N. Y., is trying to humbug "Dear Lady" and other people into the idea that for a dollar or two he can send them a sure prize ticket in an Havana Lottery.....The Empire Watch Company is a fraud; and the use of the names of Bradstreet & Co., Rowell & Co., Pettengill & Co. as references, entirely unwarranted. These parties know no such company.....A gentleman in Louisville, Ky., writes us complaining bitterly, and *justly*, of Harper's Weekly for admitting an advertisement of Brooks & Co.'s Music-boxes. Relying upon the character of the publishers, and not dreaming that they would admit a swindle even into their advertising columns, he sent $5 for a box to play 24 tunes, and received a 10-cent harmonicum. To say nothing about any conscience in the matter, if these and other publishers will shut out humbugs from their columns, they will soon gain more in subscriptions than they will lose in advertising money..... We have taken an unusual amount of space on this subject, but have not nearly exhausted the mass of letters and material before us. To sum up part of the balance, we add, avoid: "Journal of Beauty;" Hill & Co.; Cheap Bourbon Whiskey Distillers; unknown, and not well-known advertising agents; *all* advertising Doctors: and the following money swindlers (concerning whom we have over 300 letters just at hand): Bell & Son, Thos. W. Pierce, Owen Brothers, Jas. Fisher & Co., Wm. J. Fergusen, Williams & Co., B. B. Walker & Co., John B. Forrest, John F. Hamilton, Jas. R. Lee, S. B. Parks, H. Colter & Co., Rufus Stocktoo, Charles Humble, Horace Madden, P. Mayhorn & Co., Ed. F. Dickinson, Jas. P. Barker & Co., Henry E. Merton, King & Co., etc.....P.S.—A professedly benevolent individual calling himself "Mrs. Mary C. Leggett," hailing from the "National College of Health, N. Y." (where's that?), offers a free recipe for deafness, catarrh, and scrofula, which she (he) does send, but no mortal can find the materials, and of course must send the dollars to her (him) for the medicines, if foolish enough to have any faith in them. This is of the (Rev.) Edward Wilson class....Gift Book enterprises are not quite out of date, because the fools are not all dead. ....The "$1,000 a Week," of Rood & Co., is undoubtedly the counterfeit money swindle referred to above.... Certain "Family Association" circulars, ostensibly to look after family estates in England, have come to hand, which have a "Fishy" look, but we have not time to investigate. In each of these, some one man's bread is to be "buttered" on both sides, certainly. We never heard of anything but *expense* to come from such efforts. ....C. C. Corey & Co.'s ticket enterprise is an outright swindle. Money comes in but nothing goes out.

Water-tight Cellar Floors.—When floors are not subjected to a great pressure of water, a good hydraulic cement or water-lime will form a tight cellar bottom and sides; but when the whole soil is full, and the cellar is like a basin in it, as in a case proposed to us, the pressure of the water upward will surely find crevices where it will ooze up. The cure for this state of things is to get drainage, if possible, and if this cannot be had and repeated patching will not stop the leaks, in a very dry time take up the top of the floor, and after covering the whole with a layer of gravel, pour into it melted asphaltum, which should be rolled and pounded down while warm, and one or two more layers applied, topping with sand. If the gravel can be hot also, it will make a much better floor; but if it can not be, some coal tar may be mingled with the asphaltum, and the gravel coated slightly with it before the hot asphaltum is applied.

Secret Manure Recipes.—We see continually in the agricultural papers very attractive advertisements of secret recipes, for sale for $1 to $5, for compounds which will restore fertility to worn out land, bring orchards into bearing, drive away insects, save labor, produce great crops, and do wonders generally for the farmer. We are often pressed to advertise these things and always refuse. Not because the venders of the secrets are not or may not be honest, and not because the recipes are worthless, but because the real information is readily obtained from other sources at a much lower price, and because the effects are *always* overstated. A judicious mixture of lime and salt, with ashes, and bone-dust, will do wonders almost any where, if properly applied. The admixture of hen dung, or other highly nitrogenous manure will greatly increase the effects. Any of our careful readers ought, we think, to be able to make a compost for grass, potatoes, corn, or roots, out of the above ingredients which would be worth more than any one of these 5-dollar recipes.

Fowls Poisoned by Lead.—D. S. Hartman, of Winfield, West Va., suggests that the fowls of "G. K. T.," mentioned on page 405, (Nov.) are poisoned by lead. He says: "I have lost several in this way, and in every instance I have found a shot or piece of lead in the crop. As yet I have found no cure."—Fowls pick up many insalubrious things, like lead, putty, glass, etc. When this is surmised, and several fowls are ailing, it would probably be worth while to open the crop (an operation which may be easily done), the contents taken out and examined, and the crop sewed up again, after being washed out. Crop-bound chickens are frequently cured in this way.

Swivel Plows for Level Land.—L. B. Green writes: "In your last issue of the *Agriculturist* I notice an advertisement of swivel plows for level land and side-hill, leaving 'no dead furrows, etc.' I think such a plow is just what we need on farms where machinery of various kinds is used, and many of my neighbors are thinking the same thing. We would venture to purchase if we were sure that they were all right."—The plows referred to are indeed "all right," even for level land. The writer considers them almost indispensable on his own farm.

Whiffletree Yoke.—R. K. Fowle. We have considerable confidence in the principle involved in this harness for horses; but there seems to be lack of energy in the parties who own the patent, or something defective in the construction, or it would have been before this put upon the market.

Training Bird Dogs.—"Subscriber of 1871."—A good pointer or setter must not only have good blood, but be well trained. Sufficient training will make an inferior dog tolerably good—but the time wasted upon him would train two or three good ones! A good trainer will tell within a few days what a dog's capacities are, and it will never pay to train a stupid one if another can be got. A professional trainer will train a dog much better than any one else; and it will always pay to employ one, or to buy a well-trained dog.

When to Dry a Heifer.—"W. R," Maine. It is generally conceded nowadays that to raise a cow which will give the most milk in proportion to the amount of feed she gets, the heifer should come in at 2 years old, or earlier; that for months previous to her calving, her udder should be frequently manipulated, so as to cause a tendency of blood to it, and its larger development; that she should calve fat; that after calving, she should be milked three times a day, as near eight hours apart as possible; that this should be kept up as long as her udder fills, and after this twice a day; that she should be milked close up to her second calving, which should take place at the end of a year. All this is to develop to as high a degree as possible the milk producing tendency. Of course the growing, young bearing, and milk producing animal should be fed with nutritious food in abundance, and be warmly stabled in winter.

Grade Essex Pigs.—A farmer at Troy, Ohio, writes that he thinks the advice given in "Harris on the Pig," to select large, common sows, and breed them to a refined, small-boned, thorough-bred boar, is correct. He bought an Essex boar, but the farmers in the vicinity did not think much of him. They thought him small, and were prejudiced against the color. Since they have seen his stock, and observed how rapidly he improved (at a year old he weighed nearly 400 lbs.), many of them began to change their minds. All the strong, healthy sows that were brought to him had fine litters of pigs, some of them jet black, and all more or less colored, showing that he strongly impresses his characteristics upon his offspring, as all thorough-bred male animals do when crossed with common stock. Crossed with a Berkshire sow, more or less pure, he got pigs that "have grown faster than any pigs he ever saw." The hogs mostly raised in his neighborhood are of the large Magie breed. At the County Fair, last fall, he exhibited his Essex boar, and it attracted much attention, being something new to most present. Knowing that his boar would be considered small, he put a tape-line in his pocket. "There was the best show of hogs ever had in the

county," he says, "but all belonged to the large breed. My hog, being quite a curiosity, was well discussed, but was most always dismissed with the remark that he was too short or too fine. Says I, 'gentlemen, here is a tape-line, get in and measure him, and then measure any of these large pigs.' They did so, and he was only from 1 to 2½ inches shorter than the large breeds, and about the same in circumference around the heart. It opened their eyes. He was decidedly the best proportioned hog on the grounds."

High Wages, Light Crops, and Low Prices have made the past year a very unprofitable one to many of our readers. Let us keep up our spirits as best we can. "It is a long lane that has no turning." Wages will probably be lower, prices are almost certain to advance, and we shall have better crops if we use the proper means. It should be understood that, no matter where we live, whether land is cheap or dear, or whether we adopt high farming or slow farming, we cannot hope to make much profit unless we raise large crops per acre. This is the central truth of American agriculture, and it is our aim to have it thoroughly understood by all our readers.

Clover for Hog Pasture.—Wm. T. Strickland, of Indiana, writes: "Say to your 'Kentucky farmer', who wants to know how to start 'a hog pasture,' that he may sow *red* clover seed on his wheat field—say from February 1st to May 1st, owing to the season—with the prospect of having a pasture ready for use by the 1st of the May next following. The better time to sow clover seed, as a general rule, is in March. There are not usually a sufficiently number of successively warm days in February, to sprout the seed, but in some seasons there are, and when the germ has sprouted, it requires very little cold to kill it. It matters but little about the condition of the ground, only that it should be *free* from weeds. It is the better plan not to pasture clover until it is 13 or 14 months old. It is very frequently large enough to make fine pasture in the fall, after having been sown the spring previous; but fall pasturing not unfrequently assists the following winter to destroy your next spring's crop."

Oil-cake for Pigs.—"A. S.," Iowa, asks "If it will pay to feed fattening hogs oil-cake at $3 per cwt., when corn can be bought for 30 cents per bushel, and hogs are worth 10 cents per lb., dressed."——Most certainly not. When oil-cake costs no more per ton than corn-meal, we should use oil-cake in preference, not because the oil-cake is any more fattening, but because the manure from it is much more valuable. We are ourselves at this time paying $5 per ton more for oil-cake than we can get corn-meal for, partly for the above reason and partly because a little of it helps to regulate the bowels and keep the animals in better health. Fattening hogs should not have much oil-cake, or it will render the pork soft, and so it is said, gives it a disagreeable flavor. Young pigs may be fed one-third oil-cake and two-thirds corn-meal, with decided advantage to the pigs. But it cannot pay to use it when it costs much more than corn.

Mink Breeding.—"J. B. S." A great deal has been written, rather indefinitely, however, about the breeding of mink. So far as we can learn, the facts are, briefly, that minks will do well and breed in confinement, provided they have plenty of water and enough to eat. During the breeding season they are kept in pairs, and in families after the young are brought forth, until they are nearly grown. Adult minks are almost untamable, but young ones readily submit to handling, and are easily domesticated. The time to secure young minks is in May and June, when they begin to run with their dams. The streams must be quietly watched for mink trails, and these tracked to the nest. When they leave the hole the old one may be shot, and the young ones secured, or, they may be dug out. Those who own a breeding stock of minks ask high prices for them; but trappers represent to us that it is an easy matter, with a little patience, to get the wild young ones.

Pin-Worms in Horses.—"A. C.," of Hicksville, L. I., asks: "Can you give me a certain remedy for a kind of worms in horses, which are about one inch in length, of a white color, with glassy-looking heads and pointed tails? At times they come from the animal in his manure. I have tried every remedy that persons have suggested to me, including the one in the 'Hints to Horsekeepers,' but not one of them seemed to avail any thing. The horse is about fifteen years old, has had the worms a long time, and is at present in a very poor condition. He is an excellent work horse, and I want to get him in good order."——The best remedy for pin-worms we know of is the following given us by Dr. Liantard, of the New-York College of Veterinary Surgeons: Give drachm doses of tartar emetic twice a day for three or four days, and follow with a mild purgative, say five drachms of aloes. Precisely the same remedy is good to bring away the long white worm.

Film on a Horse's Eye.—(Wm. Hanna.)—Ask the advice of a veterinary surgeon or of a physician. It is probably caused by bad treatment, such as poorly ventilated stables, irregular feeding, letting the horses stand out of doors in cold storms without a blanket when heated; and then when you bring them home at night blanketing them in the stable instead of rubbing them dry. If you feed *your horses* much corn, work them hard, and do *not groom* them, you must expect them to become blind. Give the horse half a peck of bran or carrots twice a day; groom him thoroughly, and otherwise improve his general health, and his eye will probably get well.

Gypsum.—"C. D. O.," Hampton, N. Y., writes: "In the December Number of the *American Agriculturist*, under the head of 'How much Gypsum per Acre,' you seem to convey the idea that two bushels would be as beneficial, and for as long a time, as four bushels. Is it true that two bushels applied to an acre is as good as four if no more be put on for a number of years? Is gypsum in the soil different from other manures?"——Yes. Gypsum is very different from all those manures which, like bone-dust, superphosphate, ashes, etc., exert their chief action in contributing directly to the nutrition of the plant. They are good because they are plant food. Gypsum is good because, to a considerable extent, it either enables the plants to take more of other food, or because it supplies or retains in the soil for the use of the plant, ammonia, moisture, or something else. There is no subject upon which there is more disagreement or uncertainty in the teachings of agricultural writers of authority than upon the action of gypsum. Experiments have proved that the maximum beneficial amount is soon reached on most soils.

Caponizing Fowls.—This is not a difficult operation to one who is accustomed to it, but the beginner will have difficulty unless he practises upon dead fowls until quite familiar with the mode of operating. If possible, a few lessons should be had of an old caponizer. Instructions accompany boxes of implements, which are worth $6 or $7.

Poultry Raising on a large Scale.—We are in receipt of a number of letters asking advice on this subject. Poultry is cheap this year for some reason—probably because corn is not dear, grasshoppers more abundant; the season was dry, and the weather holds warm. It is therefore easier to buy 1,000 choice pullets than usual; but if any body tries it he will find it a task to do that—if we may judge by the experience of a neighbor. We have no doubt it is profitable to keep fowls by the 1,000; and the experiment in almost every case, where care is constantly exercised, will be successful for the winter and part of the spring, but when we have moist, cool spring weather, damp within and without, colds, roup, and death will surely come to an extent to reduce the profits essentially, unless experience and vigilance, with the closest attention to the wants of the fowls and their sanitary surroundings, ward them off. We advise no one to undertake wintering 1,000 hens, but are glad if discreet people try the experiment. We are learning more about chicken ailments, preventives, and cures; and the time is coming when flocks of 5,000 will be no rarity.

Minerals and Fossils.—It is very desirable for all who are interested in studying the structure of the earth's surface and its geological history, to know some one to whom they may apply for characteristic specimens of minerals and fossils. To such we are happy to recommend our old laboratory friend and associate, Mr. Louis Stadtmuller, of New-Haven, whose advertisement has been for some months in our columns. The study of mineralogy in those sections of the country where it can be pursued among the rocks, quarries, and mines, is interesting and improving. And all who collect minerals in one locality need to be in communication with other collectors, or some dealer with whom they can exchange, or from whom they can purchase specimens.

Pickles.—Mrs. W. A. B., Windham Co., Ct., contributes the following: "Cucumbers should be cut from the vines, a part of the stem left on; observe care not to mar them, if bruised they will decay. Select such as are of suitable size and of good quality, and cover them with boiling water, let them remain until the water is cool; if for vinegar pickles, add a small quantity of salt before scalding. When cold, drain thoroughly, and cover with boiling vinegar with an addition of spice if preferred. If for brine, put a layer of dry salt in the bottom of a barrel, and after thoroughly draining the pickles, put them in with dry salt amongst them. Add no water. Put a weight upon them, they will furnish moisture for brine, and will keep better, besides being more crisp and brittle for having had the gum soaked from them by the boiling water."

Delaware State Poultry Society.—"A. R. Tatnall," of Wilmington, the Corresponding Secretary, writes: "I wish to inform you of the organization of the 'Delaware State Poultry Society,' which will hold its first annual exhibition in this city from the 9th to 14th of January, 1871. Premium lists, etc., will soon be issued. The officers of the society are as follows: President, Th. H. Churchman; Vice-President, R. M. Griffith; Corresponding Secretary, A. R. Tatnall; Recording Secretary, W. D. Bush; Treasurer, N. R. Benson. The Executive Committee includes all the above officers, with H. Morrison, Thomas Macfree, J. Bowers, and S. D. Jennison. Although our members are few, we have promise of a good exhibition."

Black-knot.—L. A. Ide, Claremont, N. H., sends us a specimen of a black-knot with a grub in it. We have frequently seen the same thing. We have also seen apples with grubs in them, but never supposed that the grub was the cause of the apple. It is as well ascertained as any one point can be that black-knot is the result of a fungus, and that no insects have any agency whatever in producing it.

The Glades of the Alleghanies.—C. W. Broad writes: "I have 500 acres of land in what is known as the "Glades of the Alleghany Mountains." The soil is a light, rich, sandy loam; there are hundreds of cattle grazed in this district and do remarkably well. Where the Glades (or open lands) are, there is plenty of natural wild grass, of which cattle are very fond. Do you think I could make a better pasture for stock by plowing up and sowing tame grass, or to sow tame grass on the land as it is, merely harrowing it in? I wish to make a fine permanent pasture, suitable for all kinds of stock."——Let the sod alone; the grass we believe to be Blue Grass, yielding to Red-top on wet spots. If you sow anything, try guano and plaster, and tell us the result.

Squash Seeds.—"S. G. B. G.," Galesburg, Ill., finds it difficult to free squash and pumpkin seeds from pulp. The best way is to put the squashes and pumpkins from which it is desired to save seeds in a room where there is an even temperature, and let them remain until they show signs of decay. In this treatment the seeds receive all the nourishment that they can from the fruit. In any case place the seeds and pulp in a vessel with water enough to cover them, in a warm room and as soon as fermentation sets in the seeds can be easily washed from the pulp.

Large Squash.—C. J. Mills, Gloverville, N. Y., reports a squash which weighed 205 lbs., and was within an inch or so of 9 feet in circumference. We cannot tell what such a squash would be worth, as such monsters have no regular price.

"My Summer in a Garden."—Fields, Osgood & Co. have just published a charming book, by Mr. Chas. D. Warner, of Hartford. There are ever so many funny things in every man's experience of the world, if we can only see just "where the laugh comes in," and how to get the fun out of them. Mr. Warner sees very clearly, and kindly lends us his spectacles. It is not meant for a practically *useful* book, strictly, nor to make you laugh; but it blends so pleasantly useful hints, dry wit, racy fun, and observations of and upon nature and the rest of the world, that when taken up it fascinates one to the very end. Henry Ward Beecher writes a sprightly, chatty, introductory letter for it, and the little book pleases everybody, we believe.

Trees on the Prairies.—A Correspondent thus writes from Holt Co., Mo.: "Can you not devise, or help devise some plan by which our Government may be induced to plant forest trees on these vast plains west of us? If it be true that trees cause rain, to longer neglect it is criminal; for all these treeless regions of almost countless millions of acres are subject to droughts, and once during many years (say twenty) to such a drought as to be frightful in its consequences. Indeed, I tremble to think that the time will come when these prairies, being densely peopled, a whole year may pass without rain. It matters little now owing to the sparse population, though in 1859, during such a time, hundreds of people died in Kansas in consequence. Years of comparative regularity pass and people are deceived, hence the country becomes densely settled; but unless some means be found to secure to us rain, (and a very little

suffices), there must be awful suffering. It is said that it now rains in Egypt regularly, owing to the forest trees planted by a former governor. Now, there is no country in the world where trees grow faster than in these prairies of Kansas and Nebraska; and he will be honorably immortalized who puts in operation some plan by which the object may be accomplished; and I implore you to use your influence towards it. The people of the West, owing to their position, are wholly occupied with the things of to-day, grossly material, and not one man in a hundred thousand ever thinks of these matters. Imagine a repetition of the experience of 1859, with three millions of people in Kansas and Nebraska: the whole world would stand aghast."

Fun Ahead—The Patching Exhibition.—We are as impatient as any one else can be, at the necessary postponement of the Patching and Darning Exhibition, noted elsewhere, for in addition to the great amount of good to come, and that already done to the contributors themselves, we anticipate no little amusement, when on January 9th and 10th we commence to open and prepare the numberless articles of all sorts, sizes, and fabrics, that have already come to hand. Wonder if any two will be alike—coming as they do from hundreds of families, in all parts of the country? For a week past the various express messengers have several times a day come in with both arms piled high up with parcels, and with a broad grin upon their countenances, as if conscious of doing a good deed. Won't it be a pleasant as well as amusing sight to go around to the Five Points Missions, the Howard Mission, the Children's Aid Society, etc., about the middle of January and after, and see the regiments of poor clothed in the contents of these hundreds of parcels? All the parcels are still packed as they came, and will remain so until after Jan. 7th; but a few dozen letters from the contributors, that have come by mail, have given us a foretaste of what these packages will reveal on the day of exhibition. A fine show is already *assured*, but our grand building, with its 25x114 feet, first or office floor, and the twenty new rooms on the five floors above, now being all newly fitted up, but not yet occupied—all splendidly lighted by newly devised skylights, will permit ample room for a supply of clothing for several regiments of the poor. So we invite unlimited further contributions of articles for competition, and for distribution, up to January 7th, when the opening and arranging will begin.

Where the Advertisement was Seen.—Dealers are always pleased to know where the advertisement was published, which brought them a customer. It is also a gratification to us to have our wide-awake readers name the *American Agriculturist*, when ordering from those advertising in it, or writing to them for circulars or otherwise. There is also this advantage, viz.: that as our advertisers know our strict rules, and their danger of exclusion, if not of being shown, if they do not act on the square, they will be all the more careful and will take special pains to give satisfaction, if possible, to those whom they know to have come to them through this paper.

Kansas Crops—Correction.—In our November Number a correspondent in Ottawa County gave a discouraging view of the prospects of the crops, especially of corn, in that State. From a great number of reports in reply, it is evident that "F. P." formed his opinion from too limited an area—colored, perhaps, by his own individual experience. All of these letters from different counties speak in the highest terms of the condition and prospects of the various crops, especially of corn, and of the present prosperity and high hopes of farmers.

A Funeral a Day — Dangerous Light.—It was stated at a Coroner's inquest, Dec. 15th, that 99½ per cent of the petroleum oils used in this city are dangerous—in other words, that only one gallon in every two hundred, is safe! This is a startling announcement, but it was based on a careful scientific examination of a very large number of samples gathered at random from the various dealers. And this city is no worse off than the rest of the country. From an observation of a large number of newspapers (of which about 4,000 are regularly received at this office) we estimate that there is an average of at least one death a day resulting from the use of *poor* petroleum oil or "kerosene." There is no need of this. Good, properly rectified oils do not explode, or even take fire at ordinary temperatures. A few manufacturers remove the cheap napthas, and sell only the heavier, non-explosive oils. Of course this requires the charging of higher prices, and the mass of people will continue to purchase those mixtures which cost a few cents less per gallon, and just here lies the whole difficulty. People *will* buy low-priced gunpowder, whiskey, and petroleum, unless the strong arm of Government is interposed and the sale of dangerous articles is prohibited by severe penalties. The ignorant masses are not proper judges, and competent inspectors should be appointed as much for petroleum oil, as for steam-engines. We commend this subject to the earnest attention of the various legislatures usually assembling this month. A word more. These low-priced oils are not really cheap. The better oils give about as much more light as their price is higher.

How much Salt in Butter.—George Livermore, Broome Co.—The amount of salt in butter varies from none at all to 2 ounces to the pound. Such is the difference in tastes. That which we prefer for our own table, and which is most agreeable to our friends, has one ounce to the pound, worked in at the close of the first working. Of course a small portion of the salt is worked out—more or less according to the amount of buttermilk left in the butter, which varies with the way in which the butter comes—soft or hard, granular or waxy, at the second and final working.

No Pumpkin Seeds for Cows.—"Mrs. N. L. C." The medical action of pumpkin seeds is perhaps not thoroughly understood. They are regarded as almost a specific cure for tape-worm in man. The worm is killed and passes away. They certainly have a strong diuretic action upon man and animals. This alone would account for the decrease of milk. If the blood is used up in the kidneys, the lactral glands will be left with a short supply.

Mechanical Engineering in Yale College.—We have received the *Inaugural Address* of Professor Wm. P. Trowbridge, on taking the chair of Mechanical Engineering in the Yale Scientific School. Mr. Trowbridge is a graduate of West Point, and served with distinction upon the U. S. Coast Survey, and has more recently been connected with the Novelty Iron Works in New York. The address is upon *Mechanical or Dynamical Engineering* in its relations to civilization. It is issued by the Governing Board of the Scientific School.

"Pheasants and Poultry," is the attractive title of a book sent us with the compliments of H. C. Dear, of England. An article by "Path-Finder," a writer in the London Field, cut up into very brief chapters and printed in coarse type, makes a dozen small pages, to which is added hardly any end of notices, recommendations of Dear's food for poultry, cattle food, etc. The price of the book is 2*s.* 6*d.* sterling, about 75 cents—which strikes us as rather dear for an advertising document. We do not and never have believed in the free use of any of these stimulating articles of diet; excellent as medicine they may be, but not as "*food*."

How to Head Off Peddlers.—The peddler nuisance is becoming almost unendurable. Venders of all manner of notions crowd the cars, steam and ferry boats, and over-run stores and offices, to the great annoyance of everybody. The Internal Revenue law stipulates that every one of these pedestrian peddlers shall take out a ten dollar license; a failure to do so makes them amenable to a fine of not less than ten or more than five hundred dollars, in addition to paying the back tax. Any Internal Revenue officer has a right to ask any such peddler to show the receipt for payment of the tax. In case the latter refuses, the officer may seize his wares and convey him to the assessor of the district, who, in turn, may direct a forfeiture and sale. To rid yourself therefore of these illegal peddlers, who, like bad pennies, are always returning, one has but to complain or threaten to complain to the nearest Internal Revenue officer. A few threats of this character, especially if carried out, would serve to make the whole of them scarce.

Present to the Yale Scientific School.—The Managing Board of this School acknowledge in a recent publication the receipt from the Novelty Iron Works of New York of a collection of drawings numbering several thousands, "exhibiting entire and in detail multiform mechanical structures."

The Report of the Commissioner of Agriculture has been for some weeks upon our table, but we have not had time to give it that close scrutiny which its table of contents calls for. We see, however, several subjects which are of great importance and interest at this time, and appear to be well treated and valuable contributions to our knowledge. Besides the reports of the Statistician, Entomologist, Chemist, and Superintendent of Gardens; we have a long and valuable report by Prof. Poëy, on Agricultural Meteorology, which is endorsed in a note by Prof. Henry, "as an elaborate exposition of the latest facts and speculations on the subject." The "Report of the Editor" includes not less than 30 distinct articles, all appearing as if they were original, that is, first given to the public in this form. Every clue to the source whence the information was collected by the editor, with a single exception or two that we notice, is carefully excluded. The information is not original, for some of it has appeared in slightly different form in other publications, if not in precisely the same language, to our certain knowledge. The mere statement that "Mr. So and So reports," means, if it means anything, that he reports to the Agricultural Department, instead of which the editor has probably found the statement in some agricultural paper and appropriated it. This would be in character for the editor of one of our agricultural or stock papers, which is run in the interest of some stock farm, or seed establishment, but beneath the dignity of a national publication of the character of the Agricultural Report. Editors are too apt to forget that persons interested in the most valuable information always want to trace it to its source, and that statistics, tables of results, and scientific statements, lose their value if their source is not clearly stated.

Dairyman's Convention.—The 6th Yearly Convention of Dairymen under the auspices of the Am. Dairymen's Assoc'n is called to meet at Utica, N. Y., January 10th to 15th. Donald G. Mitchell, Prof. Caldwell of Cornell, Joseph Harris who "Walks and Talks," are announced to make set speeches; besides a number of other gentlemen and dairy farmers have agreed to be present and speak on certain important topics. The Secretary, Mr. G. B. Weeks, of Syracuse, or the President, Hon. Horatio Seymour, will give further information.

Professor Agassiz Wants Carcasses of all sorts of pure-bred domestic animals and poultry. He proposes to preserve the skeletons, and, if practicable, the skins (not stuffed), in the Museum of Comparative Zoology, at Cambridge, Mass. Professor Henry A. Ward, of Rochester, N. Y., is co-operating with Prof. Agassiz in this exceedingly important work, and receives the specimens, which are to be prepared under his direction. The accompanying letter from Prof. A. to Prof. W. explains the whole matter. Gentlemen who lose by accident, or are obliged to kill valuable animals or fowls of the pure breeds only, and who wish to co-operate in this work, will ship them boxed or otherwise expeditiously to Prof. Ward. Prof. Agassiz's letter, somewhat abbreviated, is as follows:

CAMBRIDGE, Dec. 13, 1870.

Dear Sir.—I propose to put up in the Museum of Comparative Zoology a perfect skeleton of a male, a female, a half-grown and a young of *each breed*, of all the different kinds of domesticated cattle raised not only in this country but in every part of the world, as a monument to the progress of civilization in that direction. I shall, at the outset, limit myself to the *pure breeds*.....Now that you understand my plan, and are ready with your skilled workmen to undertake the preparation of the skeletons, I can hope to proceed with its execution as rapidly as the misfortune of accidental or natural death may deprive the stock-grower of any of his pure stock. I suppose I am not mistaken in assuming that the man who has lost a valuable animal would prefer to see it put up handsomely in a museum, with a label commemorating the pedigree and history of the same, than to bury it and allow it to be entirely lost. I would therefore make an appeal to the farmers of the country to send to you the specimens of pure blooded breeds, *known to be such*, which they may lose, and to forward them to you by railroad, giving you at the same time, by letter, the necessary information concerning the history of the specimens that I may record the whole in our catalogues. It would be desirable, where convenient, to have them forwarded with the skin, * * * but to lessen the chances of decomposition, the intestines should be removed. Beginning at home I would first call for specimens of all the breeds of cows, horses, sheep, swine, dogs, goats, rabbits, guinea pigs, etc., fowls, turkeys, ducks, geese and fancy birds. As fast as the skeletons can be mounted they will be put up in a special room in the Museum at Cambridge, to remain accessible to every body at all times, all the year round, so that this collection may shortly afford the best means of studying the anatomy of our domesticated animals as far as their skeletons are concerned. * * * Yours very truly, L. AGASSIZ.

Prof. H. A. WARD, Rochester, N. Y.

Feeding Turnips in Kansas.—"E. D. L." When Turnips are worth but a few cents a bushel, it seems a waste of time to spend time to cut them up, but it is important. There is danger of them choking the cattle or horses. We need a cheap root-cutter that will work fast. Chopping with a spade is slow work.

Special Premiums.

For a renewal and one new 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.

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.—Hasbrouck & 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 $2, 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.

IMPORTANT!

Patching Exhibition Postponed*.

to be held January 11th, 12th, and 13th.

We regret the absolute necessity of changing the time of the "Patching and Darning Exhibition" until January 11th, for the following reasons: The *American Agriculturist* Buildings are undergoing extensive alterations and improvements, at a cost of about $30,000, all of which, by the terms of the contract, are to be mainly completed before Christmas; but owing to various entirely unlooked-for delays, it now appears probable that we are likely to be kept in a "muss" until after the time first set for the Exhibition, and, of course, it will be impossible to display the garments properly in the midst of scaffolding, new paint, etc. As people are too much engaged to visit such an Exhibition during the first week of the new year, it seems best to wait until the second week; and it has therefore been decided to hold the Exhibition on January 11th, 12th, and 13th.

We exceedingly regret this delay, because to "postpone" is not a custom of ours; but perhaps it will be just as well for all concerned. The contributions to the poor will be none the less acceptable in midwinter, when previous supplies are exhausted.

The numerous parcels already sent in, and others as they come, will be carefully stored in a room set apart for the purpose until January 7th, up to which time further garments for competition or distribution may still be sent in.

Poultry Show in New York.—The New York State Poultry Society is holding its Third Annual Show as the *Agriculturist* goes to press. It is a great success. The quality of the poultry of the United States is increasing in excellence every year, and this year the Society has on its list of exhibitors some of the first English and Irish breeders. The Show is strongest in games and Asiatics, both of which are superb. French fowls are in good numbers and very good; Bantams never beaten at any show in America. Dorkings fair in numbers and very superior in size and markings. Hamburghs, beautiful and large—of course criticizable, but the best we have ever seen. The *American Agriculturist* Prizes have drawn many entries; and the same is true of the Rural New-Yorker Prize, for native breeds. The foreign exhibitors for President Kingsland's prizes are Henry Beldoo, of Bingley, Yorkshire; J. H. Cryer, of Southport, England; and J. C. Cooper, of Limerick, Ireland. The show of Turkeys is grand; so of water fowls of all kinds, Toulouse Geese and Aylesbury Ducks being especially noticeable. Besides, the Pheasants, and Ornamental fowls, the Conies, Rabbits, Egg-hatching Apparatus of two kinds, and sundry Poultry House and Yard appliances, all add greatly to the attractiveness and instructiveness of the Show.

* See Hearth and Home, No. 40, page 778, and *American Agriculturist*, December Number, page 443.

Working Land on Shares in Virginia.—A correspondent in Clarke Co., Va., writes us that he is working 110 acres of poor, cleared land on shares, paying one-third of all the grain and hay raised, as rent, and, we presume, the same proportion of animal products. He keeps four horses, twenty sheep, and proposes to keep eight or ten cattle, and as many pigs as will make bacon for his own use. The soil is a mixture of clay, limestone, and gravel, slightly sandy; it is entirely free from wet or marshy land, and just sufficiently rolling to prevent any stagnant pools. "My wheat," he says, "brings me in debt two out of three years. The soil runs readily into blue or sward grass. Butter brings on the average about 25 cents per pound. I have no money to help me. I have the farm in five lots, besides a five-acre lot designed for mowing. If you can advise me as to the best rotation of crops or general management please do so."——Working land on shares is a poor system. There is always a temptation to do as little work as possible on the land. We doubt whether a man can find his own teams, stock, implements, seed, etc., and afford to pay one-third of all his produce, and at the same time keep up the fertility of the land and make the necessary repairs. Perhaps this farm is worth $3,000. To work it properly would require the labor of two men the year round, and additional help in summer equal to a man for half a year—say two-and-a-half men, worth, if first-class men, at least $1,000. Then the keep of the four horses would cost at least $300 more. Wear and tear of implements, harness, etc., would be at least $100 more Seed, $100 more, or say $1,500 in all. And you give *one-third* of this sum, or $500, for the use of a farm worth only $3,000. It cannot be done—and in fact is not done. Persons who rent farms on shares do not, and cannot farm them properly. Usually the crops which pay the best are those which require most labor; but out of every three days' labor the landlord gets one, and the tenant is at all times tempted to spend as little for labor as possible. The more labor he expends, and the more manure he uses, the more rent he has to pay, and the better the land will be when he leaves it. Our correspondent loses money on wheat; and, if so, we do not see how he can expect to make a profit on any other cultivated crop. On corn or potatoes he must expend more labor than on wheat, barley or oats. If two-thirds of a wheat crop will not pay him, two-thirds of a corn crop, as a general rule, certainly will not. The same remarks will apply to butter and cheese making. One-third of all the labor of making the butter goes to the land-owner. Better convert the grass into beef than into butter. It requires less labor. Better keep sheep for the same reason. In fact, as you get the house and firewood for nothing, with two-thirds of the fruit for merely picking the whole, better let the land bring forth what it will spontaneously and *go and work for some one else!* Our object in making these remarks is simply to show the tendency of the system of working land on shares. The tenant has many inducements to impoverish the soil, and few, if any, to improve it. As Arthur Young once said, with characteristic exaggeration, "Give a man the secure possession of a bleak rock, and he will turn it into a garden; give him the nine-years' lease of a garden, and he will convert it into a desert."

Foot and Mouth Disease in Dutchess Co.

This disease, which, though not usually directly fatal, often produces death by secondary action or its influence on other morbid symptoms, has caused very great trouble, and loss of property in Great Britain and on the Continent of Europe. It has made its appearance in Dutchess County, N. Y., and the Secretary of the N. Y. State Agricultural Society makes the following statement:

Farmers in all parts of the country, particularly upon the lines of through cattle traffic, should be on their guard, and upon the first indication of disease showing any of the symptoms stated below, should give immediate notice to the State Commissioner nearest them. The State Cattle Commissioners are Lewis F. Allen, (address Buffalo, N. Y.,) M. R. Patrick, Manlius, Onondaga County, and Dr. Moreau Morris, No. 301 Mott street, New York.

The disease is the epizotic aphtha, commonly known as the foot and mouth disease, which is at this time prevailing to a very annoying extent in Great Britain. It is highly contagious, not only by contact with diseased animals, but also by contact with the discharges from the sores, and the contagion may be conveyed by the matter adhering to the clothes (especially the shoes) of persons attending diseased animals, and also by the matter in the dung and litter of animals, on which account there is special danger from the manure or dirt thrown out of cattle cars at stations or in motion. The disease is also readily and frequently (perhaps most frequently) communicated by the discharges dropped upon the highways by sick cattle driven over them, and for this reason the first precaution to be taken is to prevent the moving of cattle attacked by the disease. The disease sometimes affects the udders of cows, and during its course (whether symptoms of its affecting the udder part or not) the milk should not be used as human food or given to any animals.

The Dutchess County infected district has been visited by Prof. Low, of Cornell University, consulting veterinarian to the State Agricultural Society, who sends the following brief statement of the symptoms of the disease, viz: First—From one to two days dullness, loss of appetite, (and of milk in cows,) hot dry mouth, with a tendency to grind the teeth and to slaver, heat and tenderness of the udder and teats and of the feet, with frequent shaking of the feet, as if to get rid of some irritating matter. Second—On the second day, abundant frothing at the mouth, loud smacking of the lips and tongue, lameness and the formation of blisters of various sizes, up to an inch across, on the mouth, udder and teats and between the hoofs. Third—In one or two days more these blisters burst, leaving raw sores and shreds of loose skin inside the upper lip, on the roof of the mouth and the tongue, on the teats and between the hoofs. These discharge an irritating fluid for some time, then scab over and heal up, in favorable cases, in from ten to fifteen days. It should be added that the milk should be drawn by tubes or syphons in case the udder or teats become so sore that the cow cannot be milked as usual, and that the sick beasts should be well nursed and nourished with soft mashes and gruels. Cooling but not purgative medicines should be given, and the sores washed with some mild carbolic acid preparation, or with a weak solution of sulphate of zinc (white vitriol).

Two Important Habits to Cultivate in Your Sons.

It is a generally observed fact that, in this country, a very large proportion of the successful men are either the sons of poor parents, or orphans—or half orphans; and that comparatively few sons of rich men amount to much in any business or profession, notwithstanding the superior advantages they have of education, position, and an inherited capital to start with. The exceptions are usually, of course not always, the oldest children of those who have gradually grown up to wealth—those who received their bent while the parents were themselves too thoroughly occupied to carry their children, and too economical themselves to allow spendthrift habits in their children. Another thing we have observed is, that, other things being equal, successful men come from large rather than from small families. Three-fourths or more of the rich men, and the influential men of this city to-day, have risen to their present positions from very indigent circumstances in early life. Why is this so? Is it necessarily so? Must the well-to-do parent feel that, after all his efforts to acquire for himself and his family the position that wealth gives, there is some compensating decree of Providence which ordains that his sons must enter upon a descending scale?

Our observation has led us to the conclusion that two of the strongest elements of success are, courageous *self-reliance*, and *economy*. The boy left a poor orphan has to fight his own battles. No rich father furnishes him a carriage to ride, and so he must walk—and he learns to walk. No one reaches out a friendly hand to lead him, and he learns to go alone. With a scanty supply of pocket money, he is compelled to *habits* of economy that ever after cling to him. "The boy is father to the man" is a trite saying. The poor boy comes up to manhood, and instead of leaning upon some one to aid him, or of waiting for some one to come to his help, he strikes out with a feeling that, to use a vulgarism, he must "root, hog or die,"—and he roots away. Look where you will, and you will find that ninety-nine out of every hundred successful men are inspired with just this *self-reliant* feeling. It is at the very foundation of the go-ahead and get-ahead-yourself spirit that animates them. The man who was helped by father when a boy, whose school expenses were paid by father instead of having to earn them himself, whose expenses in preparing for his profession, or whose capital in starting business, came from some paternal bank, begins life with a dependent feeling, and it is next to impossible for him to strike out into the world with the feeling that whatever I am I must make myself; whatever I get I must get for myself. The only son, petted and aided as he could not be if he were only "one of several," lacks this element of self-reliance. Even in his "sums" and his other school lessons, he is

helped out by mother or sister, or perhaps by father, or a subserviant teacher. It is a very strong objection to private or home schools and tutors, that with few pupils, the teacher helps the children too much, and they also lack the stimulant of competition. In large families of children they have each to fight his own way along among compeers, and thus a healthful self-reliant spirit is acquired.

We have said enough to illustrate our idea. Let every parent consider the subject well, and see what he can do to cultivate this self-reliant spirit in his children. Let the training begin in very early life. Every time we see a mother sit down to work out the boy's "sums" for him, and help him dig out his other lessons, we feel that she is by so much teaching him to lean upon others, and lessening his manly independence. If he is overtasked to absolute despair, let the task be lessened another time, but in every case let him "paddle his own canoe." Kindly encourage him to do it, but do not do it for him. While still very young, give him full charge of some work that he *must* accomplish entirely without aid from others. We think it well to give every boy on a farm at least a small plot of ground, in the care and direction of which he is to be absolute sovereign, suffering its losses and enjoying its profits. In its management let him have little of your aid or even advice. He will thus both learn self-reliance, and be led to plan and study *for himself*. Though there be a score of servants in the house, the child should not harbor the idea that he can run to them for every thing wanted. In short, whatever the station, let the children have a considerable number of duties and cares that they must attend to without leaning upon any one.

With this courageous self-reliance secured, a habit of *economy*—not a mean or miserly parsimony—will go far to ensure a man's success. We believe every boy should have a money purse, and always have something in it. If you can only spare him three cents a month, let him learn to spend but two of them, and to keep an *account* of the expenditures. It is as important for him to do this, for the habit it begets, as for the millionaire to enter a sale of a hundred thousand. A business man of our acquaintance, possessed of large wealth, came to this city almost penniless, and engaged to work at a very small salary. Himself and wife took apartments which allowed them to save $200 a year. While his fellow clerks took a three shilling noon lunch, he contented himself with one costing half that sum, but quite as nourishing. The money saved by these two economies was just what he needed when a little business enterprise opened to him, that laid the foundation of his present wealth. Getting rich depends not so much upon what a man receives, as upon what he saves. The sons of the rich seldom acquire these habits of economy, but commencing where their fathers leave off, they retrace his steps and they leave off where he began—at the small end of the horn.

Put Water on the Stove Now.

A BIT OF PRACTICAL SCIENCE.

If everybody knew the amount of comfort and health to be derived from it, there would not be a fire lighted this winter without having an open vessel of some kind containing water, upon every stove and in every heating furnace in actual use. Let the reader look a little into the practical science of the matter, for it is not difficult to be understood. If you warm a portion of air it appears to have the property of combining with water, and, so to speak, hiding it. If you cool the air again, it lets go its hold of the water. On a warm day, we say, a pitcher or tumbler of cold water "sweats," for we see moisture on the outside. The truth is, no water passes through the sides, but it cools the warm air, and then this air lets go its concealed water, and it settles on the outside of the cooled vessel. When the air above us by any means become cooled, it gives up its moisture; the hidden vapor or particles of water unite in great numbers until each little mass becomes too large and heavy to float longer, and it falls as a rain drop. Millions of these drops make a rain shower.

A room 10 feet square and 10 feet high contains 1,000 cubic feet of air. When this amount of air is just ice cold, (32° F.,) it will hold 2,350 grains of water—that is, $5\frac{1}{3}$ ounces, or one-third of a pint. [A pound or pint of water weighs 7,000 grains.] Set 10 pounds or pints of water in a dish on the floor, and it will stay there; the air will not take any of it, because it is already just full of watery vapor.

Now warm the air a little—say 8°, or to 40° of the Fahrenheit thermometer, and after a while you will find that the dish has lost 1,300 grains of water, which the air has picked up. Let the air be cooled down again to 32° by cold upon the outside of the windows, and this 1,300 grains of water (nearly 2 gills) will be thrown out by the air and will settle on the window glass. You can write your name on the damp, foggy film of water ...Now heat the air up to 70°—a moderate summer warmth—and after a while your dish of water will have lost 5,540 grains of water, or about four-fifths of a pint, though the air appears no damper than before, because it has hid away this extra water, or made it insensible. If you now cool it again as before, there will be nearly a pint of water on the window glass.. .If you heat the air to 100°, it will pick up and hide more than a quart (16,770 grains) of extra water. Here is a table showing how many grains weight of water air will take up and hide, at several temperatures:

1000 feet of air at	0°, contains	180 grains of water.
1000 feet of air at	32°, contains	2350 grains of water.
1000 feet of air at	40°, contains	3060 grains of water.
1000 feet of air at	50°, contains	4240 grains of water.
1000 feet of air at	60°, contains	5820 grains of water.
1000 feet of air at	70°, contains	7910 grains of water.
1000 feet of air at	80°, contains	10730 grains of water.
1000 feet of air at	90°, contains	14330 grains of water.
1000 feet of air at	100°, contains	19120 grains of water.

The air is always very eager to get just what moisture is natural to it at the different temperatures, and if you don't furnish a supply in an open dish, where it can readily pick up the watery particles, it will gather it from the walls and furniture, and from your skin, and dive down into your lungs, and gather it there, and you will feel dry and parched outside and inside. The lungs, and the voice itself will become dry and husky—and you will feel uncomfortable.

We hardly need now to explain the necessity of keeping a supply of evaporating water on a stove which is constantly heating the air first in the room, and the cooler air that comes in to supply the place of that which has risen and escaped over the doors, through cracks, and through the ceiling. The old-fashioned open chimneys took out so much air, and brought in so much fresh air that we did not feel the lack of moisture. But now, with closed rooms and stoves, there should always be plenty of water evaporating from vessels with wide tops like basins, so that the air can get at the water rapidly.—— We consider warm air furnaces very healthy, because they constantly bring in large volumes of fresh, pure air from the supply pipe coming from out of doors. This air is warmed as it passes through the furnace chamber; it is not de-oxidized, if the furnace irons be not red hot on their outer surface, as they seldom are; so we get a beautiful volume of warmed, pure air coming up through the registers. But to be healthful, and comfortable, there *must* be a broad-top pan or two of water in the furnace chamber, to give the air its natural supply of water as it is warmed, or it will rob our skin and our lungs of their natural moisture, and it will dry out and shrink our doors, and our furniture, causing it to get loose in the joints.

"Shall I Send my Farmer Boy to College?"

Thus asks one of our Ohio readers. He further informs us that he has a good farm, large enough for all three of his sons, and that they intend to follow this business, but that one of them wants first to go through College; that he has the means to send him, but doubts if it will pay. We answer, yes, it will pay, even if the grown lad intends to live only to "make money." The thorough hard study required to master the mathematics and languages of a college course, is to the mind what the discipline of breaking-in a colt is to the true, well-trained horse. Let the student sit down to dig out a hard Latin sentence in Virgil or Livy, or a Greek one in Homer or Sophocles, or let him try to solve a problem in the higher mathematics. It will require close application, steady thought, and the strong exercise of his reasoning powers. At first the mind will fly off like the frisky colt, but the set task is to be accomplished, and the student brings his mind back into the thinking traces again and again—again and again—day after day, week after week, and month after month, in one severe study after another, until he acquires control over it—until he is able to readily concentrate his whole thoughts upon the subject in hand. This is educating the mind. To use another illustration, this hard study is like the discipline undergone by the apprentice blacksmith. He begins to strike with feeble and ill-directed blows at first; but he keeps on striking month after month and year after year until the exercise developes powerful muscles in his arms and shoulders, and he learns to direct the blows exactly to the right spot, and what powerful effective blows he can then deal out! So the blows of the mind upon the mathematical studies and the languages, develope the mind's muscles, so to speak, and increases one's ability to concentrate the reasoning faculties upon any particular topic.

We might here add, parenthetically, that the studies so long maintained in most colleges—the higher mathematics and the Greek and Latin languages—are just the ones best fitted to develope this mind power, aside from any other advantages they possess, and we greatly fear the effect of the present inclination to modify this long-tried course of study, and allow students to choose other studies that suit their whims or caprices. The fact that a child or student does not like, or has not a natural aptitude for, any line of study, clearly shows that certain faculties of his mind are weak, and there is all the more reason why it should be drilled in the very studies he dislikes, if you would give him a well-balanced mind. And for a like reason, we would give the greatest attention to the education of the naturally weaker-minded child of a family—and make up by discipline and cultivation what is not bestowed by nature. It is injustice, nay cruelty, to bestow our educational efforts upon the "smart" sons and daughters, and neglect the weaker ones because they are weak. Exactly an opposite course should be pursued.

To return, does any one doubt that the young man who thus comes forth from college with educated, trained, strengthened mental powers, will not be a stronger and more effective man for it, even in the business of farming? If the whole business of farming consisted in turning over so many feet of ground, sowing or planting so many seeds, reaping or thrashing so many acres, and nothing more, the case would then be a little altered. But farming is now becoming a science. To judge of the capabilities of the soil; of the adaptability of crops; of the effect of season and weather; of the relative values of various products in the home and foreign markets; of the probable prospective supply and demand generally for the different products, grain, roots, meats, dairy, wool, fruits, etc.; of the effects upon the markets of political changes and national disturbances; how and where to market—for after his own food is supplied, a man's success depends quite as much upon profitable marketing as upon good crops—these and a thousand other questions can be best grappled with by that man whose mind is most thoroughly trained to right reasoning, and whose mental powers are the most expanded and strengthened. A man does not go to college solely for what he learns there—he could fill in more mere knowledge by staying at home and constantly stuffing from books—but he goes for the discipline he gets. A collegiate may, on leaving college, forget every word he has learned, and yet have a strong mind—one able to grapple with the facts and business of life.

There has been an idea—until recently almost universal—that because a man was educated, he must of course go into some one of the learned professions, so-called. It is coming to be understood that he is to be educated because it will make him a better and stronger business man, whatever his calling. We are now finding college educated men in the various business callings, farming included, and of fifty we could name, five-and-forty are doing well.

The loss of time is, with many young men, and their parents, a strong objection to devoting four, five or six years to college training. Let us see. Suppose that, at the age of 18, a man has an average probability of living, say thirty years. If he spend five or seven of these years in preparation, will not the remaining twenty-five years be far more valuable to himself and to others, than thirty years spent without this training? We are sure it will.

Bee Notes.—*By M. Quinby.*

Apiary for January.—Bees crowd closely in cold weather to keep warm, and grow more dense as the weather grows colder, occupying that part of the combs where there is no sealed honey, and many empty cells. Small swarms often freeze to death this month. Where there are bees enough to generate moisture, it gathers on the sides of the hive and on the combs. This sometimes freezes, so that no honey outside the cluster of bees can be reached by them. When they have consumed all the honey within reach they must starve, unless warm weather supervene, or they be taken to a warm room for a time sufficient to melt the frost and enable the bees to reach their stores. The sun, if allowed to strike the hive fairly, will often dissolve the most of this frost. Care should be taken that the water thus produced does not run to the bottom of the hive, there to freeze again and stop the air-passages with ice.

Raise the hives occasionally and sweep out the dead bees and dirt. The presence of mice may be known by the nibblings. Exclude them by covering all passages, except a space just large enough for a bee to pass, with wire-cloth. Sweep the snow from the alighting board lest it choke the entrance, except when the whole hive is covered, when it will effectually protect it from the cold.

In my non-patented hives, the space allowed for surplus boxes in summer should be filled with straw in winter, making them warm and safe on the top, except, perhaps, from mice. Bees properly housed will need looking to, only to prevent the ravages of rats and mice.

Ogden Farm Papers—No. 13.

Mr. C. D. Avery, of Syracuse, N. Y., asks for a more explicit account of the manner in which my 28-acre neighbor manages his farm. This I would gladly give had I the details at my own command; but one of my neighbor's peculiarities is an undue modesty, and my relations with him are not such that I could properly ask him to open his agricultural bosom to my inspection. I have frequent occasion to drive past his place, and I sometimes chat with him. I can very well imagine the conversation I should probably have with him. Supposing I asked what he considers the *secret* of his success? He would answer, "Well, I use a good deal of manure," and so he does. He rakes the beach for sea-weed; he charters a slaughter-house hog-pen; he crams his cattle with all the food they will eat, and then crams the manure into his land. No stone is left unturned that has under it the one great object of his agricultural life—manure. Other farmers work for ready cash. He works for manure, knowing that that will bring him cash and interest too. Of course he is a good business man, and understands his market. He finds out what he can sell to the best advantage, and then sets at work to raise it in the best way, always giving preference to such crops as will either take the least from his land, or as will give money enough for the purchase of manure after a fair profit has been realized. Aside from this, I know of nothing in his practice that is exceptional. His success depends on little things rather than on great ones. His place is small and snug, and every rod does its share of the work. There are no wide stretches of pasture, that would support a sheep and a half to the acre, but one splendid grass field, which is heavily top-dressed every spring, and carries two cows to the acre throughout the season. He has capital enough to work in the best way; help enough to keep beforehand with his work, and sense enough to know that the best way is the practical way in every thing that he does. At the same time, I have no doubt that he considers himself an old-fashioned farmer, in contradistinction to the term "book farmer." He is not apt to experiment, and probably knows no more of the chemical constituents of a ton of hay than his grandfather did. He probably regards me, as all of my farming neighbors do, as an infatuated creature, determined to fly in the face of the experience of the whole island, when really we only follow different roads that lead to the same goal. If my success, in the end, equals his, I shall be quite satisfied, and he will, I am sure, be ready to confess that I have attained it in a sensible way.

Mr. Avery, while he is kind enough to compliment my reports, speaks of my "experimental" farm. Whatever Ogden Farm may be, it certainly is not an experimental farm. The trying of experiments is no part of the object with which either Mr. Tyler or myself undertook its improvement. We are acting on our faith that an over wet clay soil, skinned by yearly tenants, could not have had all the virtue sucked out of it; that underdraining, by drawing out the water and letting in the air, would develop new sources of fertility; that the breeding of thorough-bred Jersey stock for sale to the more enterprising butter farmers of the country, would prove profitable; that the manure of a large herd, applied year after year to naturally good and thoroughly cultivated land, will make it so rich that, in time, we can fully support fifty milking cows on our sixty acres; and that when this end is accomplished, we shall be in a position to make money. At the end of three years' trial, I see no reason to doubt that our position is well taken.

Incidentally, as I happen to be one of the writers of the *Agriculturist*, I detail my experiences for the benefit or entertainment of its readers. I never try experiments for the sake of proving or disproving my own theories or those of others. On the contrary, I undertake nothing that does not commend itself, on the most careful consideration, as being the most *profitable* course.

Some failures are of course made, and my readers derive advantage from my experience; but I am not such a philanthrophist as to try experiments for the public good. If the public learns any thing from my ten years' undertaking with this land, it will be by learning the good or bad result of my efforts to attain a certain end by a certain means. Whether I succeed or not in my enterprise, I trust that I shall have so faithfully recorded the details of my work that they, having learned what to follow and what to avoid, will be better off for what is being done at Ogden Farm. Of this I shall of course be very glad; but I cannot claim the credit of having undertaken the enterprise *pro bono publico*. If I get no more tangible reward than the thanks of those who may use me as a beacon light to keep them off the shoals, I shall consider my failure as complete as it well could be; for—to harp again on the old string—there can be no success in farming that does not, sooner or later, develop itself in the form of dollars and cents.

I have just been counting noses in the stables, and the result surprises me. I find that I have 79 head of horned cattle—old and young; 15 horses, mules and colts; 24 sheep, and 16 swine. Of course this stock consumes forage at a fearful rate,—and much of it is purchased from other farmers in the neighborhood and from a grain dealer in New York, calling for a large outlay. Will it pay? That is the question;—and a very serious one. It is a firmly established idea in the minds of nearly all farmers that no one can afford to keep stock on purchased food. If that is true, no one can afford to keep stock at all. A barn full of hay is worth a certain sum—no matter where it came from nor where it goes to. If I can't afford to feed out hay that I buy, I can't afford to feed out hay that I raise. The hay in the barn is worth (as property) just as much in one case as in the other, and it is just as wasteful to feed it out in one case as in the other. Nothing is worth (necessarily) what it has cost, but what it will bring. If I pay more for it than it will bring, I make a bad bargain—otherwise not. Having the hay, my position with regard to it is the same whether I bought it or raised it. If I ought not to sell what I raise, I ought not to sell what I buy. If I can raise hay for eight dollars a ton, and can only buy at sixteen, I lose the profit on the raising of it; but if I can't afford to feed it when it costs me sixteen dollars, I can't when it costs me eight dollars,—for I could sell it for sixteen dollars. "Ah! but you ought not to sell hay off from the farm, it will run it down!" Precisely. Then I ought to *buy* hay and bring it on to the farm,—it will run it up. The manure I *gain* in buying hay is worth just as much as the manure I *save* in feeding my own crop. If it is worth while to keep land from running down, it is worth while to improve it.

Therefore: Manure must be taken into the account in deciding whether it pays to keep stock or not. According to Professor Lawes' tables the manure made from the consumption of a ton of meadow hay is worth $6.43 (gold) per ton. I am satisfied to call it $6 (greenbacks) and I would contract to buy it—delivered on the farm—at that price. My hay costs me $16 per ton. Deducting for manure, as above, it costs $10. Allowing $3 for hauling and handling, it costs, in the mangers, $13 per ton—or six and a half mills per pound. An average cow, carefully fed, will do well if she eat 20 lbs. in a day—receiving no other food. This brings the cost of her keep to *thirteen cents* per day. If this wont pay, the cow is not worth feeding,—and, furthermore, the difference of profit between feeding home grown hay and purchased hay will neither make nor break me. If the cow produces 13 cents per day and pays the cost of her food and feeding, I am entirely satisfied with the manure as my profit. If she can't do that, the sooner I find it out and quit farming and turn wood-sawyer the better. In proportion as grain is added to the feed the amount of hay required is lessened, and the value of the product, whether of milk, flesh or manure, is increased. If by cutting and steaming I lessen the cost of feeding, and I do, I increase my profit.

In England, where the average price of beef rarely reaches 12 cents, farmers holding their farms only as yearly tenants, subject to six months' notice to quit, buy store cattle or cows or sheep, and then buy corn or linseed cake *from America* to feed them on. Surely if they can afford this, we (who have a higher market for animal products) can afford to buy grain for the same purpose, before it has had the cost of transportation to English farms added to it. The Englishman feeds for the sake of the manure. If we will attach equal value to this product of our herds, we shall, I think, come to the conclusion that it does pay to feed stock, and that the more stock we feed the better it will pay. It takes no more machinery to cut and cook for my 134 animals than it would for half the number; and it costs no more for superintendence. If there is any profit at all, the more animals the more profit.

Riding on Horseback.—No. 1.

The interest in the subject of teaching farmers' boys to ride on horseback that has been awakened by the last two of our Horse Paper series for 1870, indicates the propriety of giving the boys the benefit of a series of articles devoted especially to this art.

In a little book, called "Man and Horse," recently published in England, the author, Mr. March Phillipps, gives the most sensible directions for learning to ride that we have yet seen. Most books on the subject are of such a professional character as to be nearly useless to an ordinary reader who wants to learn about riding in a common sense way.

Mr. Phillipps says: "You want to learn how to sit a horse. Very good; then put aside for the present all anxiety about managing and guiding him. Your present business is, wherever he may go or whatever he may do, to continue steady upon his back. Therefore leave it to some one else to take care that he goes where he ought and does nothing which he ought not. You are at present in the situation of a landsman going to sea, and must not think of steering until you have got your sea legs."

This injunction suggests the fundamental principle of the whole art of learning to ride, which is to learn one thing at a time and to

learn that thing well, before attempting any thing else. As there can be no good riding without a good seat, the learner's whole attention should be devoted for days or weeks or months, as may be necessary, to acquiring it, giving no thought to any thing else. Never mind the management of the horse, that will come in due time. Learn to be as perfectly at home in a constantly moving saddle as in a stationary arm-chair,—so that, whether the horse walks, trots or canters, shies or jumps, you will either remain immovably in the saddle or get back to your proper position when disturbed from it, without effort or loss of time. Bear in mind too, that in acquiring a seat, it is just as easy to acquire a good one as a bad one, while only the good seat (and there is but one good seat) will enable you under all circumstances to ride safely and well. Without a good seat, no amount of skill in the management of a horse will be of much use. So begin at the beginning and devote your whole attention to acquiring an easy and secure position under all circumstances. Do not even trouble yourself about the manner of mounting and dismounting.

Fig. 1.—AN INSECURE SEAT.

The proper seat on horseback is one in which the crotch and the hips are as firmly attached to the saddle as it is possible for them to be; the legs below the knees as free and independent as possible; and the body, from the waist upward, perfectly supple and pliable. Whatever movement the horse makes, the hips must conform to it, moving to the right or the left or tipping backward or forward as the case may be. But while they follow the changing position of the saddle, the legs, from the knees downward, must be free to move in obedience to the rider's will; and the upper part of the trunk, keeping its perfect balance, must move easily on a flexible spine and accommodate itself instinctively to every movement.

If a man's body were cut off at the lower part of the waist, the natural pressure of the thighs against the saddle would easily hold the hips in a firm position. If a whalebone rose out of the severed trunk, supporting a heavy weight two feet above it, the hips would still be free to move with the saddle; but if for the whalebone we were to substitute a stiff rod, the movement of the hips would communicate a movement to the weight which in its turn being at the long end of a lever, would wrench them from their position.

The spine of the rider represents the whalebone or the rod, as the case may be, and the chest, head, and arms represent the weight. If the lower spine be kept flexible, the upper part of the body will not, from a sudden motion of the horse, be started from its position by the movement of the hips; but if it be rigid, it will communicate the movement to the heavy mass above, and this movement once started, will be continued, acting on the spine as a lever to remove the hips from their place. This effect can be fully illustrated by standing erect and throwing the weight, first on one leg and then on the other, holding the lower spine, first supple and then rigid I have dwelt thus long on this point, which is probably never thought of by one poor horseman out of five thousand, because it is the foundation of good riding. Until the ability to preserve a supple loin under all circumstances is acquired, the rider is in danger of a fall at any moment; and it will always be impossible for him to ride gracefully or with comfort. But while the supple loin is of the first importance, an erect position of the body is hardly less so. The position on horseback should resemble the position when sitting on a high stool, rather than on a low chair. On the chair, the weight is supported on the seat, *behind* the hips, and the spine has a tendency to curve outward and the shoulders and chest to droop forward. On the stool, the legs hanging down, the weight is supported more directly under the hips, the spine is curved inward and the head and chest are more easily thrown backward. This is the position assumed by a good horseman; the weight of the upper part of the body being supported on an inward-curving and flexible spine. And it is the position to which the learner must so accustom himself that it becomes almost a second nature to assume it whenever in the saddle. As many of our readers are not familiar with the wonderful comic pictures of John Leach, in which the good and bad seat on horseback are better shown than anywhere else, we reproduce here two that will answer our purpose.

Figure 1 shows the stiff and awkward bearing of an unaccustomed rider who has hired a livery stable horse for a holiday. Fig. 2 the upright, lithe position of a good horseman

And now, how to get this seat. Saddle your horse, unbuckle the stirrups and take them out; let the reins lie on his neck and call in the services of a friend to hold and lead him. Divest yourself, in this way, of all responsibility as to his conduct; get into the saddle in any way you please (the manner of mounting is a secondary consideration, and it may be learned later). Turn your toes inward, press your knees against the saddle, but not your calves, and open the back part of the thighs as far as possible. This will bring the flat of the thighs against the saddle and give the largest possible contact with it. Curve the spine inward and throw the shoulders back. This, being an unaccustomed position for you, will seem awkward and will look awkward, and you can at first only maintain it at an expense of a considerable rigidity of the spine. Let your arms hang listlessly by your sides. Holding fast mainly by the knees, shift your seat from side to side with as little swaying as possible to the upper part of the body. Vary the exercise by swinging the body itself from side to side and from front to rear, while the seat is firm. Continue this exercise, no matter how long it takes, until your trunk is pivoted in your hips so that you can move it in any direction while keeping the spine curved inward. Do not at any time hug the horse's sides with the calves of the legs, but let the lower legs hang loosely. The thighs should neither hang too straight up and down nor be raised too high at the knee, but should take that position which gives the firmest hold on the saddle. Having become perfectly at home while the horse is quiet, let him be led at a walk (increasing the speed after a time) and finally let him be galloped with a long bridle rein, until, under all his motions, you feel comfortable and easy and have learned to depend only on your thighs and the flexibility of your body to maintain your position. Boys will learn this in less time than men, and some boys in less time than others; but all must make up their minds to learn it, however long it takes, before they can become thoroughly good horsemen and can really enjoy riding at all paces.

Fig. 2.—A SECURE SEAT.

Primitive Agriculture.

The fairs have been held, and probably there are few of our readers who have not attended one or more of them. They have seen all the new implements exhibited by enterprising manufacturers, and quite understand their merits. Mowers, reapers, straw and fodder cutters, thrashing machines, and even farm steam-engines have been inspected, and each one, in the reader's mind, has been brought down to the inexorable—"Will it pay?" Now, while all these modern agricultural appliances are fresh in mind, may it not be well to look back and see how things were done 3,000 years ago? If we would study the agriculture of ancient Egypt, we have only to study that of the Egypt of to-day, for except in the culture of sugar-cane and some other products, where the government has interfered by introducing new processes, the ordinary operations of agriculture have not changed from the times of the Pharaohs. The two engravings which we give upon this page are copies from pictures by the celebrated Gerome. We cannot give in the black and white of an engraving the peculiar oriental atmosphere so characteristic of Gerome's pictures. Gerome has the great merit of painting every thing just as he sees it, and all the minutest details are given. Take the subject of figure 1, which shows the primitive thrashing machine. The straw is laid in a circle, and the blinded oxen, held by the Egyptian, pass around and around, and thus tread out the grain. This is the way in which wheat was thrashed thousands of years ago, and the way in which it is done to-day. The picture is instructive as a matter of history, but it is also interesting for its details. Look at the costume of the man, the bearing of the animals, and see if it is not a real picture of to-day, as the artist saw it. The second picture is called "The Straw Cutter." It seems to be a ponderous sledge, furnished with knives, for cutting straw, probably to make brick. We only know that the original by Gerome is called the "Hache Paille," which means the "straw cutter;" and that the original is, like other pictures by this artist, a faithful representation of what he saw of Egyptian agriculture. The plows, as well as the few other implements used by the Egyptians, are equally rude in design and make. It is hardly possible to conceive of a wide-awake American using just such an implement or machine as his grandfather did. He would improve them.

Fig. 1.—TREADING OUT GRAIN IN EGYPT.

Fig. 2.—AN EGYPTIAN STRAW CUTTER.

Wintering Breeding Stock.

"There is nothing like the lee of a stock-yard to make them hardy" says the old school farmer. And he practises upon his theory, feeding out at least a third more hay than would be necessary in the barn. His cattle shiver, and grow thin at the stock-yard, but then they are hardy, for every one of them survives the cold. They eat enormously, but who cares? They eat hay and straw that the farmer did not pay for in money. "There is nothing like pine boards for shelter," says the rural improver, who used to be a merchant on Broadway, but now has a country-seat. He makes his barn proof against rats, water, and the winds. There is hardly a crack in it from cellar to roof. It is so warm that it hardly freezes in the coldest weather. Here his cattle stand from November to April, with very little exercise or sunshine. It is true that they grow fat on much less food than would support them at the stock-yard. But is it, on the whole, the best system for animals that are breeding? Horses, oxen and mules that are in daily use thrive on it. A large part of the farm stock, in the dairy regions at least, is made up of breeding animals. The cows are usually with calf, and the best of the heifers are to be raised to supply the waste of the herd, and for sale. We want in these animals stamina, as well as flesh; and they must have plenty of fresh air and daily exercise to keep up that high physical condition, which is so necessary in a breeding animal. Barns, no doubt, may be so constructed as to give perfect ventilation; but they cannot give sunlight and exercise, and with or without barns, these must be provided, to have the best breeding condition. If the model barn is used, there is great danger of sacrificing stamina to flesh and fat. Some tell us that milking cows can be kept confined the year round, without injury. We do not believe this statement. It is not the natural condition of the bovine race. The flow of milk can be kept up for a long time in confinement, we have no doubt, but we should not want calves, bred under this system. We have tried the wintering of young cattle and cows under hovels, and, on the whole, prefer it to any other shelter for a herd, kept mainly for breeding purposes. A good deal depends, of course, upon the thorough construction of the hovel, or shed, and its exposure. For location, then, we want the south side of a hill; and if the hill is covered with wood, and the wood is evergreen, all the better. Make the hovels as tight as may be upon three sides, and partly enclose the fourth, which looks toward the south. The roof may be of boards or of poles, covered with sea-weed or straw. The only essential thing is that it shed rain. In the rear build cheap racks, to which the cattle may be tied. Any farmer can make this kind of shelter for his cattle at a small cost. It is a good plan for saving manure; and for keeping up the health of breeding animals.

Walks and Talks on the Farm—No. 85.

We have heard people complain of our long and severe winters. In fact there are some people who complain about every thing—about the spring, summer, autumn and winter; about the frost, the snow, the rain, the sunshine, the wind, the fog; of the evening and the morning, of long days and short days; the clouds cast a gloom over their spirits and the sunshine brings no joy. They are constitutional grumblers. To "feel grumble" is not very bad. Such a disposition is often associated with great energy and when rightly directed brings about great things. The other day I noticed a locomotive, with steam all up waiting to take the Express train to Buffalo. The steam was escaping through the safety-valve; the fireman with a kind of "shut your mouth" gesture lifted a cover that pressed the valve down again and stopped the escaping steam. In a minute or two, however, the pressure lifted the valve and out came the steam again with a hissing, grumbling noise. This was repeated again and again; the damper was closed, but as long as the engine remained stationary on the track, it kept on screaking. By and by a little bell sounded, the conductor called "all abroad," the engineer opened the throttle-valve and turned the steam on to the piston. The wheels began to move and then the steam came with a grand, heavy puff through the smoke-pipe; it had lost all its complaining, snarling sound, and came out with a kind of good-natured grumble that springs from honest effort. As it settled down fairly to the work the puffs came thicker and faster and soon lost all trace of even the shadow of a grumble.

Discontent that escapes in idle grumbling is wholly bad; discontent that leads to honest efforts to improve our condition is good. To grumble at the weather is simply silly; but discontent with muddy roads, if it leads a man to take a hoe and let off the water, is worthy of all honor. If such a man should ever be nominated for Congress I would vote for him, whether he was a Democrat or Republican, black or white. I never knew but one road master that did it. After every rain he and his man took a horse and buggy and wherever they found a hole with water standing in it they let it off. We had then six miles of as good a gravel road as one could desire. But the poor man died; and his fate, and the character of his successors in office remind me of an epitaph I once saw on an English tombstone:

> "God takes the Good,
> Too good on Earth to stay,
> And leaves the Bad,
> Too bad to take away."

For my part I like our long winters. I like to feed stock, like to see them eat; and do not object to hear the wind howl about the barn when the animals inside are warm and comfortable. It is the pleasantest part of farm life. The days are short and we must work lively; and all who have tried it know that there is a great pleasure in intense activity—and the rest, afterwards, is equally enjoyable. It is said that farm occupations are dull and monotonous. Certainly this is not necessarily so, though it must be confessed that some farmers and many farm men are rather slow in their motions. There is no excuse for this in winter. The atmosphere is cold and bracing and six or seven hours of energetic, systematic labor will usually accomplish all that there is to do. If any one doubts it, let him take a card and write down every thing that he has done to-day. If he has the same work to do to-morrow, let him think it all over and see what is the best order of doing the work, and how he can do it with the fewest steps and in the shortest time and with the least labor. Write it down, and the next morning, card in hand, go to work with energy. Run a little if need be; carry two pails instead of one; do not lose a moment; and if you do not do all the work in half the time, and do it better than you did the day before, you are in the habit of working to much better advantage than two-thirds of my farmer friends, and better than ninety-nine-hundreds of ordinary farmer men.

I have had a man of more than average intelligence who would, month after month, come empty-handed from the barn up to the house to get the milk-pails, and then after he had brought in the milk, walk empty-handed back to the barns to get his swill-pails, to carry the slop to the pigs. It never occurred to him that by bringing the swill-pails when he came up for the milk-pails he might have saved just half the time. The same man would carry hay from the cow-barn past the stack of corn-stalks to feed sheep, and then after he was through feeding the sheep would go an equal number of journeys to get stalks and carry them back to the barn for the cows. And this want of forethought and system characterized the entire day's work. He was an industrious, faithful man, but when a gate sagged he "had not time"—as he honestly thought—to straighten up the post or put a nail in a loose board. No time to sweep out the tool-shop nor sharpen the tools and keep them in their proper place; no time to tighten a hoop on a barrel nor wedge a fork that was loose in the socket; no time to pick up a piece of board that he walked past a dozen times a day; and so with a hundred little things that make all the difference between profit or loss in farming.

As a rule, no excuse is so utterly without foundation as the common one of "want of time." A man may have more work than he can do, but the reason is not a want of time but a want of physical or mental strength and nervous energy. We think too much, perhaps, of economizing time, and too little of economizing strength. What we do we should do with our might—and then rest. And we can rest by using other muscles or faculties, as a tailor that has been sitting on the board all day, takes rest by walking or standing. After writing sharply for three or four hours, nothing rests me more than an hour's tinkering in the barn or tool-shop.

One of the pleasant things to me about the winter season is the increased number of interesting letters I get from farmers in different parts of the country. Here is one from a gentleman in Maryland: "One of your correspondents in the October 'Walks and Talks,'" he writes, "asks for information with regard to the use of straw. There is now in view from the window at which I am writing a wonderful evidence of its efficacy as a top-dressing on grass. We endeavor to work all the straw through the barn-yard, ricking it so as to aid in sheltering the cattle, and to give them something to pick at between feeding times. One rick was only partially consumed and was hauled out in August and spread on an old sod. The effect was striking. The grass has grown with rapidity and vigor, and although the rest of the field is fertile, the green line can be seen as far as the field is visible."

I suppose the effect is due to the efficacy of straw as a *mulch*, rather than to its supplying available plant-food.

In reference to my remarks about fall-fallowing, Mr. J. A. Clark of Jefferson Co., Wis., writes: "In this section fall-fallowing is as old as spring grain. We calculate to do all our plowing as soon as may be after harvest, and we can see a difference of every month's delay on the following crop; and if by bad luck a piece is left over until spring before plowing, we get only two-thirds of a crop of wheat. With oats and barley is does not make so great a difference, but is nevertheless of considerable advantage to them."

"My wheat," he adds, "does not do well after clover, and such is the experience of others in this section. Last year I raised a crop of the big or pea vine clover for seed. It did not fill well and I got only half a bushel of seed per acre—thus not running the land any—and yet this year I got only half a crop of wheat after it."

This is not improbable. The land was in clover only one year, and the whole growth was cut and carried off the land. Had it been plowed under, or eaten off by sheep on the land, the result would probably have been very different. My plan would be to let the field lie in clover two years. Cut it for hay the first year, and then pasture it the remainder of the season until the next July or first of August. Then break it up and "fall-fallow," and sow it to wheat or barley the next spring. So much is said about clover enriching the land that many farmers have got, what I regard, a wrong impression respecting it. Mr. Clark evidently supposed that his field would be richer after it had grown a crop of clover than it was before; while, what we mean is, that the *farm* becomes richer through the practice of growing and feeding out clover—not necessarily and immediately the actual field on which the clover grew. I know Dr. Voelcker has advanced the idea that the actual growth of clover, even when it is cut for hay, and the second crop for seed, leaves the land richer in nitrogen than it was before, and he gives experiments that he thinks comfirms this view; but, while I regard Dr. Voelcker as one of the ablest agricultural chemists of the age, I must be allowed to say that these experiments prove altogether too much—and consequently prove nothing.

Mr. C. adds: "We can raise here nearly as many bushels of barley per acre as we can of oats; and if, as some say, barley is worth $1\frac{1}{2}$ to 2 times as much as oats for feeding horses, had we not better raise barley?" I think 100 lbs. of good heavy oats contain as much nutriment as 100 lbs. of barley. But good barley usually sells for more than oats, weight for weight, and is supposed not to impoverish the soil so much, and is a better crop to seed with. A considerable quantity of Canadian barley is sent to Chicago and Milwaukee for malting purposes. I suppose the fact is that Western farmers do not take as much pains to produce barley of the best quality as the Canadian farmers, and consequently cannot get nearly as good prices. In proportion to the labor, a good crop of barley usually pays us here as well as any other crop we raise.

A farmer in Holt Co., Missouri, favors me with a description of his piggery and his mode of feeding hogs. He is young in the business, but seems to have embarked in it with much spirit and energy. He says: "In 1860, I bought and tried to fatten 300 hogs. Gave them all the corn they would eat, board wallowing pool, and free access to clear water. I sold them at $5\frac{1}{4}$c. per lb., net. I bought them too fat. The corn fed to them netted me

17 cents per bushel, while I sold the balance of my corn at the crib for 50 cents per bushel. This 'salted' me from hog feeding until October, 1869." Without knowing the fact, I should suppose the trouble was not in buying them too fat, but in paying too much per lb. for them. "In October, 1869," he continues, "I went into the business again. I bought 20 sows, and 60 pigs and shoats. During the winter, 60 pigs were born. In the spring I had not 80 left, all told! In March and April 60 more were dropped, of which 30 remain—balance dead. Have had 80 pigs within six weeks—20 dead, and dying daily. I intend to try further. Will have 40 sows to drop their pigs next spring."

This seems bad luck, but I am glad he is not discouraged. When I first commenced to turn my attention to pigs, I had, though on a much smaller scale, quite as "bad luck." I had 3 sows that dropped their litters one night in the yard, and lost nearly every pig—as I deserved to do. I have now some 50 pigs, and by giving them careful attention, plenty of appropriate food, with warm, dry and clean pens, I anticipate no trouble. The last three sows produced 30 pigs, and I saved every one. I know that it is a general impression that you cannot keep a large number of breeding sows on one farm; but I cannot see why, *provided* each sow gets as good treatment as she would if she was the only pig on the farm. If this cannot be done, then do not attempt to keep them, for, as a rule, farmers who keep only one or two sows, do not treat them any too well.

There is one thing that is very important: We should know exactly when we are to expect the little ones, and make provision for their comfort beforehand. Pigs are remarkably sensitive to cold winds. They must have warm, dry, well-ventilated quarters; and my rule is to have the pens cleaned out *every day*, just as regularly as we clean out the horse stable. Why should they not be? "It is too much trouble, and will not pay." This is a great mistake. In the first place, if done every day, it takes only a few minutes' time to remove the soiled litter and shake up the bed; and if it pays at all to raise pigs with the present average rate of mortality, it will certainly pay if we can succeed in saving the entire litter. I am inclined to think that, taking the country through, from one-third to one-half of the pigs die—and this through sheer neglect and mismanagement. One of my neighbors, who is a very good farmer, and takes capital care of his cows, keeps his pigs in a pen covered at one end with some straw, thrown on rails. This is very well. Though open in front, it does afford *some* shelter. But the pen is built on the side of a building, and *all the rain from the roof comes pouring into the pen.* He "did not believe it paid to feed pigs any way," he said, and I presume he spoke from experience.

There are some lucky men in this world. Here is a letter from one at Troy, Ohio. "I have," he writes, "ten acres of land that I design planting with corn. *I can get all the manure I want for nothing*, except drawing it a quarter of a mile. I intend to put on a *heavy* coating of manure; and then I thought of taking two parts of ashes, three of earth, and one of hen manure, mixing well, and putting a little to each hill after it comes up. Now, what I want to ask is, whether you think this will be giving the corn too much? and whether I can continue to grow corn every year, for ten years, without any other crop?"

If I could get all the manure I wanted for nothing, I do not think I should spend much time in making a compost of ashes, earth, and hen dung. If any one would make the compost and put it on for me I would let them. I have no doubt it would do good. Everybody says so that is in the habit of using it.

I would draw out the manure—say 600 two-horse loads—during the winter and pile it in the field. Turn it once or twice, and try to get it thoroughly rotted. It takes about three loads of ordinary stable manure to make one load of well-rotted manure. The 600 loads, therefore, would be reduced to 200, or 20 loads per acre. If the manure is good, this is a fair dressing, and will do to commence with. I would plow from half to two-thirds of the manure under, and apply the remainder to the surface, and work it in with a harrow. With plenty of manure, corn can be grown on the land every year almost indefinitely. But why grow corn? Where a farmer has access to all the manure he wants at a mere nominal expense, he should make his land as rich as possible, and then grow crops that require a large amount of labor per acre, such as onions, carrots, parsnips, beets, cabbages, etc. Or he might grow garden seeds or nursery stock. It requires no more seed, and no more labor in sowing, weeding and hoeing an acre of onions, that yields from 1,000 to 1,200 bushels, than one so poor as to yield only 200 bushels, and those of inferior quality.

Sometime ago I told you that we had drawn out our manure upon a wheat stubble that was seeded down, but on which the clover had partially or almost entirely failed to catch. I said my object in doing so was three-fold. First, if it should prove that there was sufficient clover the manure would help it; second, if it proved to have failed almost entirely I could plow under the manure and what clover there was in the spring, and plant corn; and third, that I could not plow under this manure last fall and sow wheat, because I was afraid that the manure contained the seeds of weeds. I thought by spreading the manure on the land in August and harrowing it repeatedly, so as to break all the lumps, the rains would wash it into the soil and also cause the weed seeds to germinate, and if the land was plowed in the spring, and afterwards thoroughly cultivated with corn, the weeds would all be destroyed; and if on the other hand the land was kept in pasture next year, or mown early for clover hay, the weeds would also be prevented from seeding, and be ultimately killed. My good friend, John Johnston, wrote me at once as follows: "I cannot resist writing to tell you that I don't believe you can kill the weeds in manure by putting it on the land in autumn, and pasturing next summer. I never saw stock that would eat weeds if they could get any thing else. They won't even eat quack grass as long as they can help it. I once knew a farmer that killed a field of quack by pasturing it with sheep, and planting corn the following season, but no *sensible* man would have received the sheep as a gift when taken from the quack. The true way to kill the foul seeds in manure is to get out the manure in September, and spread and pulverize as fine as possible, and plow the land the next spring before the 10th of May [and I suppose plant corn]. *In that way only did I succeed in killing bad weeds.* You will excuse the liberty I have taken, but I have a wish to keep you right, *if I am right!*"

That is the spirit in which to write. This noble old farmer, one of the most experienced and successful in the State, knows that I try a good many experiments and am never afraid to report the result whether a failure or a success. To use a slang phrase, "he has been through the mill." Like every farmer from Jethro Tull to the latest graduate of one of our own agricultural colleges, who deviates from the beaten track, he had to endure the sneers and unfavorable prognostications of his neighbors. They asserted so freely and so frequently that he was a fool, that at times, he says, he almost suspected that they were right, and he used to hide his head in one of the underdrains he was cutting as these wise men passed by.

It is always unpleasant, and for the time being, generally unprofitable, to fly in the face of general opinion. A wise man will listen to all the reasons which can be given against any plan he proposes to adopt. He will think the matter over carefully in his own mind, looking at it on all sides, and if he is satisfied that his plan promises the best results, in the circumstances, he must carry it out as best he may—and let his neighbors talk. If he can give a good reason for his faith and practice, let him not be discouraged at their remarks, for as a rule, all the reason they can offer is: "We don't think so," or "You will never make farmers believe it." They have told me this a hundred times, and I cannot help feeling and, I fear, sometimes saying, "who cares whether they believe it or not?"

I believe I was the first writer who contended, on chemical reasons, that with manure properly treated, there was little loss of ammonia from spreading it out and letting it lie on the surface of the land. John Johnston was the first writer who claimed the same thing as the result of practical experience and observation. Mr. Johnston's plan is to "pile" his manure in the spring and draw it on to the grass land he intends to break up for corn in the spring. The most general practice in this section is to draw out the fresh manure from the yards in spring and plow it under for corn at once. For my part I do not know which is the better plan, so far as the ultimate effect of the manure is concerned. We save a year's time, and the trouble of "piling," and avoid all possible risk of loss from leaching and fermentation. On the other hand the fresh manure will not act as quickly as when fermented in the piles; and if it contains the seeds of weeds there is no opportunity of destroying them until the land is planted to corn four or five years hence. The bulk of the manure, too, can be reduced about two-thirds with little or no loss of any valuable ingredient. It is less labor to draw it out and spread it; and when it lies on the surface six or eight months the rains wash the soluble salts into the land, and the manure is thoroughly mixed with the soil—a point undoubtedly of great importance. Whenever I am asked my opinion as to the best time of applying manure, I always say "when most convenient." The truth is, a farmer must decide all such questions for himself. It depends so much on circumstances that what is best for John Johnston may not be best for me, and what is best for me may not be best for you. I draw out considerable manure in the winter, simply because it is a leisure season for men and horses—and horses are so terribly expensive, not only in first cost, but in keeping, shoeing, attendance, wear and tear, etc., that I aim to keep them employed as regularly as possible. I believe few farmers realize what it costs them to keep horses or they would not let them lie idle so frequently. I know farmers

who are kept poor by keeping a lot of poor horses and keeping them so poorly that when wanted, though they lie idle one-third the time, they cannot do more than half a good day's work, thus doubling the wages of the man that drives them, and otherwise entailing great loss by causing the farmer to get behindhand with his work. Good horses, well kept, thoroughly groomed, and worked steadily, would save millions of dollars to the farmers of the United States.

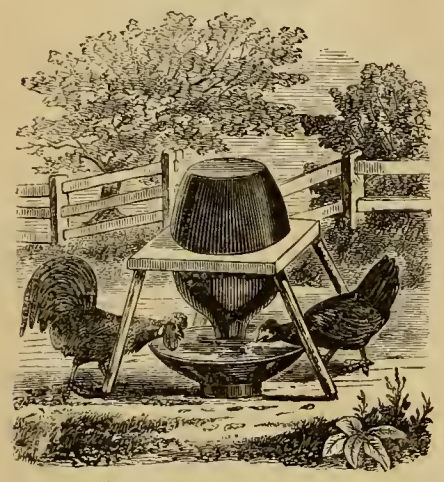


Fig. 1.—WATER FOUNTAIN.

Poultry-Yard Conveniences.

This season is one of more or less leisure, and we may employ ourselves profitably in getting up convenient arrangements for our stables and poultry yards. Poultry yards are apt to lack good watering fixtures. Open troughs are scratched full of gravel and otherwise defiled. Small basins will not hold water long, and require frequent refilling. We give an engraving, (figure 1,) of a large jug, which is filled with water and inverted, the mouth being placed in a basin, which should be also previously filled. The jug is supported by a stool, having a hole in it, into which the jug will fit, while it cannot go through. It is most convenient to have the basin so small that it will go through the hole. Besides, the smaller the basin, the less liable it is to get dirty, and the less is the evaporation. Any potter can make such a "jug fountain" as is shown in figure 2, and similar ones may be bought at agricultural stores. When the jug is first shaped, a hole is made at the bottom, and a little basin formed and attached upon the outside surrounding it. With a tight stopper, this

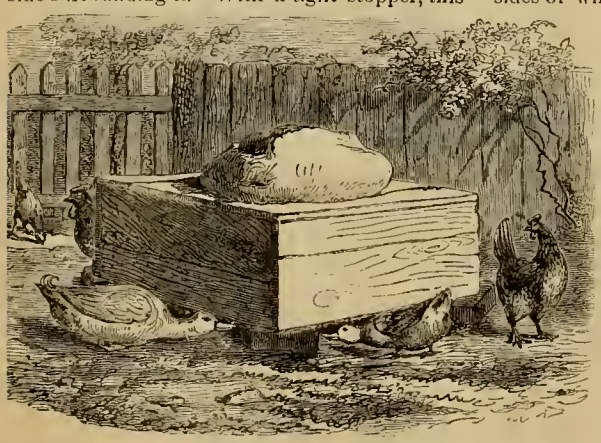


Fig. 4.—FEED BOX FOR DUCKS.

holds the water until the fowls drink it all up. There is almost always some difficulty in keeping fowls supplied with water in cold weather. We have had no trouble since adopting the following expedient. A barrel is sawed into two tubs, and an earthen jug placed in one of the tubs, the bottom of the jug and that of the tub being in contact, or nearly so, and the mouth of the jug close to the rim of the tub. The jug may be fixed in position by a few sticks, nailed across the tub inside. The tub is then stuffed full of horse litter and manure, and strips nailed across the top to keep it in. When this is done we fill the jug with water, put in a cork, and invert tub and all. (See figure 3.) Then the cork is withdrawn at the same time that a small pan is slipped under. The pan remains full during the day, and, if set in the sun, will not freeze so much as a film of ice upon the surface, even out of doors, except on the severest days. At night the pan should be withdrawn, and the water allowed to flow out.

A simple contrivance for feeding ducks and not allowing chickens to share their food, was shown us the other day at the yard of a subscriber, and we have had it engraved (fig. 4). The food was placed in a square, flat pan, in which a few bricks were laid, filling the middle of the pan, to prevent the food being shoved beyond the reach of the ducks. Then a box was turned over the pan and contents, and supported upon a brick at each corner. After a little experience the ducks learned to run their flexible necks under and fill themselves, while the disconsolate hens could get nothing. Ducks will increase rapidly in weight if they have all the soft food they can eat. The best place for them to pass the nights in winter is upon a fresh manure heap, under cover.

If one wishes to feed chickens and not ducks,

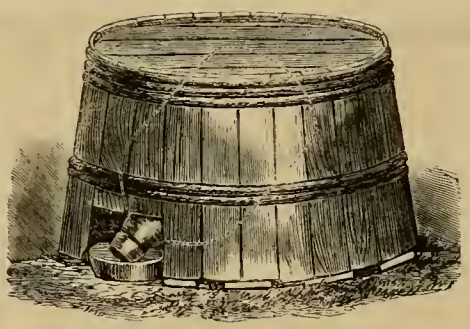


Fig. 3.—WINTER WATER FOUNTAIN.

a convenient way is to lay a board or two, to put the feed on, upon two barrels or wooden horses.

A neat contrivance is shown in figure 5, for feeding fowls or chickens after they can fly. A hopper is placed within a box, two or more sides of which are of upright slats. The mouth of the hopper being very low, so that but little grain can flow out at a time. This is covered by a movable roof, and the whole is placed upon a table, the legs of which, if surrounded with tin for eight or ten inches, or other support, will secure the hopper and its contents from the depredations of rats and mice.

In figure 6 (upon the next page) we have represented a rustic, bark-roofed duck coop, which might be used either to confine an old duck and her brood at night, provided the slat-work was so close as to prevent the entrance of rats or weasles, or to confine a hen with a brood of ducklings, in which case the openings would need to be larger, and the coop would have to be shut up at night by a close front. There is more danger to young ducks from rats, than from any other cause.

Mules for Farm Work.

There is a growing interest among farmers in the Northern States in the subject of substituting mules for horses, for the ordinary work of the farm and road. It seems to be universally conceded that they are much less subjected to disease and better able to withstand the extremes of heat and cold than horses are. Their feet and legs are especially tough, and a lame

Fig. 2.—WATER FOUNTAIN.

mule is a rarity. Another idea in common about them, but which is erroneous, is that they require only scant rations of poor food and that they need but little care. It is true that they will keep alive on wonderfully little food; and that grooming is less important for them than for the nobler animals; but not even a mule can make bricks without straw. With them as with horses, muscular action involves a destruction of muscular tissue, and the loss must be supplied by the products of digestion. We have known a mule to eat a spoke out of the wheel of an army wagon and to make up for the want of forage by a diet of fence rails; but he did'nt grow fat on it and was very likely, after a few days of such regimen, to find his last resting-place in a ditch beside the road.

If any farmer thinks to circumvent the laws of nature by getting a mule to do hard work on a diet of bulrushes and rye straw, he will miss his calculation. But if, on the contrary, he will deal out corn with a liberal hand, he can get an astonishing amount of hard work done six days in the week, fifty-two weeks in the year, for more years than he is likely to follow farm-

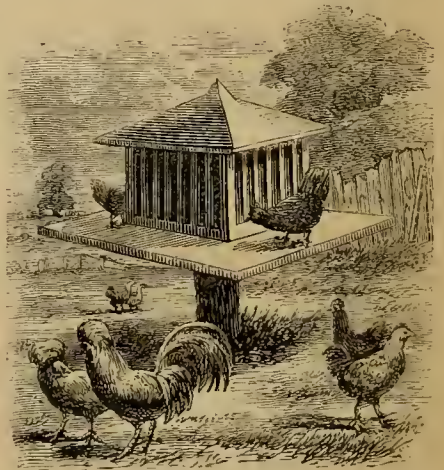


Fig. 5.—FEEDING HOPPER FOR CHICKENS.

ing; and a vigorous and frequent application of the curry-comb and brush will produce the good result that a clean skin and a brisk circulation of the blood effect in all domestic animals.

There is a wide-spread belief that mules are stubborn and vicious, and our agricultural friend, Josh Billings, has almost immortalized every bad quality that a mule can have. Probably these long-eared friends have rather more capacity in the direction of "mulishness" and viciousness than have most of our other domestic animals; but it is a capacity only, and these bad qualities are in all cases the result of brutal and ignorant treatment. The writer has had to do with hundreds of mules, and is convinced that they are naturally more intelligent, more affectionate and more docile than horses. But their

Fig. 6.—DUCK HOUSE.

docility will not withstand abuse; their affection is by no means bestowed on those who abuse them; and their intelligence is often chiefly exercised in devising means for worrying those who worry them. Well fed, well groomed, and gently treated, a mule is a perfect farm laborer; but starved, neglected and beaten, he has about as much badness and worthlessness as it is possible for his four legs to carry.

Soiling Cattle in Illinois.

H. K. Smith, a young farmer of Putnam Co., Ill., writes to us for advice. He says: "I see the once rich farms about me are fast running out by the incessant cropping practised here. Now, I have eighty acres of deep, black prairie soil, almost new, which will give me sixty-five bushels of corn per acre, and propose to keep it so by stocking it with—say eight or ten cows, keeping their calves until four years old, and fat, which will give the farm, after a little, an equivalent of—say twenty-five or thirty head of grown cattle. These I propose to feed in winter by steamed feed, in the most approved way, stabling most of the time, and soiling them in a summer house during June, July, August and September, saving and composting the manure. Now, I want your opinion of soiling in Illinois, bearing in mind that our soil will bring enormous quantities of clover, corn, etc., but is not first-class grazing land. Can cattle be kept in better order if fed by the soiling process, away from flies, etc., the heat and sun, and allowed the run of—say an hour in the early morning—upon a good pasture? Land here is worth $50 per acre."

REMARKS.—A partial system of soiling cattle on land that will produce sixty-five bushels of corn per acre, and an abundant growth of clover, but is not first-class grazing land, can hardly fail of being profitable. But we would advise our correspondent to "feel his way,"—to practise it at first on a small scale on a few acres of the richest land. Soiling requires high farming. It will not do to mow a light crop of clover or corn fodder and cart it green to the stables for the cattle. You want the heaviest crop that the climate is capable of producing. The clover should be top-dressed in the fall or early winter, so as to give it an early start and a large growth in the spring. The corn for fodder should be drilled in rows, 3½ feet apart (not sown broadcast), at the rate of four bushels per acre, and thoroughly cultivated as long as the horse can get through the rows. The land should be made as rich and mellow as possible. The nearer it is to the stables the more convenient will it be to feed out. But a still more important point is to sow at least a portion of it on the dryest, warmest, best and richest land you have. This is the great secret of success in raising corn for soiling. Too many farmers, when they sow corn for fodder, select a piece of land that is too wet to plant with corn, and when they are through their regular planting they turn over a tough sod, sow some corn on it broadcast, and in nine cases out of ten get a crop that costs more to cut and draw to the barn than it is worth. Two years ago, we drilled in two acres of corn on a piece of rich, warm land, while a neighbor *sowed* the same quantity broadcast on a piece of rich, *wet* land. He never harvested any of his, while, from the 1st of July, we fed seven cows all they would eat while in the yard at night, and had more than half of the piece left to cure for fodder. No piece of land on the farm paid us better.

To get the full benefit of soiling, you must not only have rich land, but you should have well-bred cattle, and feed them more or less grain. The great advantage of the system is in providing a liberal allowance of food at all times, keeping the animals comfortable, and pushing them forward rapidly to maturity. Shorthorns and their grades, so fed, should be ready for the butcher at two and a half or three years old, instead of four years, as our correspondent proposes.

We have more faith in soiling in summer than in steaming in winter. Unless you have every convenience, the saving of fodder by steaming will scarcely pay for fuel and labor—at least not in the new sections of country where cattle food is comparatively cheap. We should be glad to hear from our Western readers who have had experience in soiling.—EDS.

A New Cattle Shed at Ogden Farm.

It having been found desirable to have more stable accommodation at Ogden Farm, so as to take full advantage of the existing appliances for economical feeding, whenever the feeding of beef cattle promises a profit in the shape of free manure, a shed 12 feet wide, and 200 feet long, has been built as an addition to the barn.

The barn is 100 feet long from east to west. The new shed starts at the south-west corner, and runs 100 feet to the west, being a continuation of the south front of the barn; then it forms a right angle, and continues 100 feet towards the south. By this arrangement the barn-yard is perfectly protected for a length of 200 feet on the north and 100 feet on the west, which is, of itself, an immense advantage.

The shed has stables for cattle and sheep, and loose boxes for horses on the ground level; and on a floor above these a continuation of the railway track that carries the fodder car from the steaming chamber. This floor also affords

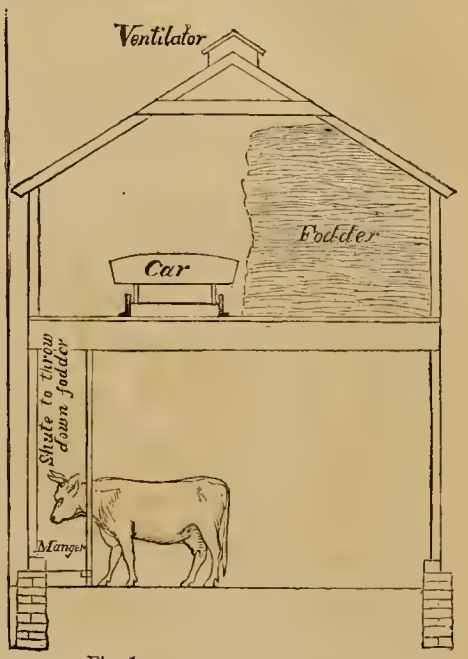


Fig. 1.—PLAN OF CATTLE SHED.

considerable storage room for grain, forage, etc., and has an open space at the side of the track for throwing down fodder. The ground plan of the new building is shown in figure 2. It contains five large compartments and four smaller ones, with doors and windows opening into the barn-yard, and with mangers on the opposite side. The compartment nearest to the barn, (as the ground is higher at this point, and the ceiling lower in consequence,) is appropriated to sheep; the next, which is still lower, to yearling heifers; the next, to cows, and the next two, which are more than 7 feet in the

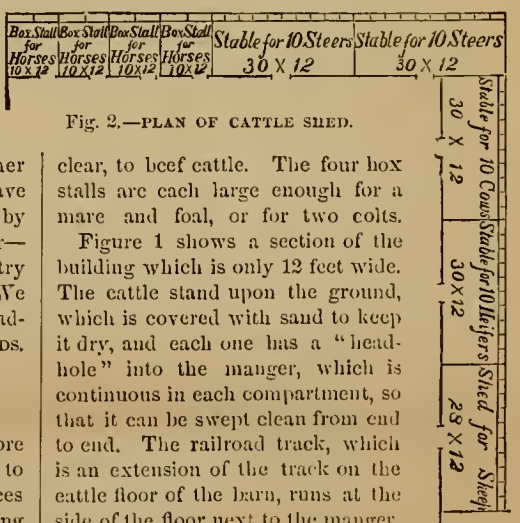


Fig. 2.—PLAN OF CATTLE SHED.

clear, to beef cattle. The four box stalls are each large enough for a mare and foal, or for two colts.

Figure 1 shows a section of the building which is only 12 feet wide. The cattle stand upon the ground, which is covered with sand to keep it dry, and each one has a "head-hole" into the manger, which is continuous in each compartment, so that it can be swept clean from end to end. The railroad track, which is an extension of the track on the cattle floor of the barn, runs at the side of the floor next to the manger, and leaves about 6 feet of the floor available for storage purposes. There are four ventilators at the peak, and six windows in the front slopes of the roof. Ample light is given to the lower story by windows on the front. There is no opening of any kind on the north or west side of the building. The railroad does not run over the horse boxes, because it was necessary to raise the floor 2 feet higher at this point, to give more head room below. The feeding is very easily done, as the car is loaded

at the door of the steaming chamber, and each animal's rations are thrown directly from it into the manger.

An Important Device in Tile Draining.

BY GEORGE E. WARING, JR., OF OGDEN FARM.

I cannot quite say with the old drainer in Talpa, "I've been a-draining this forty year and more; I ought to know summat about it;" but I have been at it long enough to be half ashamed to own that I have only now learned how to protect the joints of drains that are laid without collars. I shall by no means abandon the use of collars, for they have a power to make a drainer sleep comfortably, that nothing else can quite equal. If the tiles are well laid, with well-fitting collars, the most nervous proprietor may rid himself of all uneasiness about them. They are as nearly a certain thing as any human work can be.

In many cases, however, collars cannot be procured, or, the farmer desires to avoid their cost, and some substitute is sought. I have at last found it. After trying tin, shavings, grass ropes, straw, etc., etc., I have made the apparently trifling, but really most important discovery, that *simply a piece of newspaper* laid over the tile, and held in place by a little loose earth at each side, is better than any of them. It fits closely, allowing the earth to pack down well upon the tiles, it is inexpensive and convenient, and when it decays, it yields nothing that can get into the tiles and obstruct them.

All that is needed is that the loose earth used in filling the ditch be prevented from entering the joints. This the paper accomplishes in the most perfect manner.

The Influence of the Moon on the Weather.

There is no "notion" more firmly fixed in the popular mind than that of the influence of the moon on the fall of rain, the violence of the wind, etc. Scientific men, acting on the theory that "where there is so much smoke, there must be some fire," have given much attention to the subject, and have hinted at certain theories as being possibly correct. Unfortunately, the results of different series of experiments have failed to agree, and we are as far as ever from any reliable confirmation of the popular belief, except in the single point of the dissipation of clouds by the full moon. Sir John Herschel believes that "clouds have a tendency to disappear under the full moon," and that "a slight preponderance in respect to quantity of rain near the new moon over that which falls near the full, would be a natural consequence of a preponderance of a cloudless sky about the full."

Arago, who concurs in this opinion, refers to a common expression among French country people, that "the moon eats up the clouds." It has been observed by the writer that a large moon has a tendency to dissipate clouds in dry weather, but has little or no such effect when rain is falling. Beyond this trifling fact, there has thus far been found, even by the closest examination of the relation between the state of the weather and the condition of the moon during a period of six years, not the least ground for the popular belief.

Not only is this belief unworthy of intelligent beings, but it is subject to the oddest contradictions. For instance, in New England, a "wet moon" is one which is so much inclined that it "wont hold water," or on which "you can't hang a powder-horn." At the South, a "wet moon" is one which "lies on its back." It is supposed to be "full of water," and as its center fills up, the water is forced over the edge, and it rains. When we consider that the moon is a sphere, and that its apparent shape depends only on the manner in which we see the sun's light upon it, it becomes even more incomprehensible that any connection should have been imagined between its appearance and the amount of the rain fall. What we call the "changes" of the moon are purely arbitrary. It changes constantly, and as much at one time as at another, and there is no reason for supposing that it will rain more or less at that particular part of its change that the almanac makers have, for convenience, selected to indicate its "quarters." We often hear it said that we may expect rain (or fair weather) pretty soon, "because the moon changes to-night;" so it does; but it changed just as much last night, and is changing constantly, day and night, from one end of the century to the other; it always makes the full change, from new to old, once in every lunar month.

Weeds as a Green Crop.

We shall always have weeds. It is impossible to conceive of an agriculture so perfect that they will no longer exist. They may be killed in their earliest infancy, but still they will come again. Nature abhors a naked surface and is fast to clothe our fields with verdure, even though we may neglect to plant. If it ever becomes possible for farmers to do every thing that is necessary at the exact moment when it ought to be done, they may find in this spontaneous growth a really valuable source of manure. It is proverbial that nothing grows so luxuriantly as weeds; and as no vegetation growing upon the land can be plowed into it without increasing its fertility, weeds might be turned to a good account if we could make sure to plow them well under before they form their seeds. Of course such weeds as propagate themselves by their roots must be rigorously excluded; but all other sorts, and especially the well-known Ragweed (*Ambrosia*) which grows luxuriantly and does not ripen its seeds early, might be depended on for material help.

It is not unlikely that an important part of the benefit of summer-fallowing is that at each plowing, vegetable matter is mixed with soil, and it may even be well, if there are no early-seeding weeds on the field, to allow the crop to attain considerable hight before turning it under. We are not, of course, advocating the careless neglect of weeds, which are the source of more agricultural woe than almost all else besides, but merely hinting at a means by which a judicious and free-handed man may avail himself of the wonderful benefits of green manuring without the cost of time and money that the raising of clover and buckwheat demand; and we desire above all things not to have our suggestion distorted into an excuse for slovenly farming by men who are too lazy or too incompetent to keep their land in proper order. It may be well to remark that we have not been able to think of any way in which the tangle of weeds and briers, that ornament so many farmers' headlands and fence-rows, can be turned to use.

Spreading Manure from the Cart.

Most farmers make their manure in the yards, cellars, and stables. The practice differs materially in transferring the manure from the barn to the field. Some cart it out twice a year, some only once, and others cart it out at all seasons of the year, as suits their convenience, making a thorough cleaning only when the last spring crops are sown. Some heap up the manure in the yard, and let it ferment a month or more before hauling, and others take it in the raw state and transfer it immediately to the fields where it is to be used. Some make large compost heaps on the fields that are to be planted the next season, and others spread every thing directly from the cart-tail. This latter practice is good if the compost is already made. It saves a great deal of labor. The manure is taken from the cart, a shovelful at a time, and spread evenly over the whole surface as the team moves along. It is left just right to be plowed in, or to remain for a top-dressing upon the meadow. If left in large heaps, it must be put into the cart again to be distributed. If left in small heaps, you must stoop with the shovel to get at your work, and here is a loss of labor. But, unless the compost is well made in the yard, there is a loss of manure in spreading it green from the stables. We mean by this that the farmer loses the opportunity to make the best use of his green manures. He wants to mix this green manure with three or four times its bulk of loam, muck or peat, either in the yard or in the field. Oftentimes it can be done to the best advantage upon the field. There is a deposit of muck close by, and it will save a mile of carting to make the compost heap upon the field where it is to be used in the spring. It is much cheaper to bring the green manure to the muck than to haul the muck to the barn, and after six months or a year, haul it back again. The process of fermentation will go on quite as well in one place as in another. To be sure it costs more to handle the manure, but the labor is more than paid for in the increased value of the manure. In spreading green manure upon the surface, and letting it remain, there is a very appreciable loss in the summer, and some waste even in winter. If we take fresh stable manure or hog dung from the sties and compost it with three times its bulk of muck or loam, the whole mass is made into a good fertilizer by spring, for most soils, and quite as valuable, load for load, as the fresh dung. It will not show its effects as quick, perhaps, but it lasts longer, and the labor spent in working over these compost heaps in winter is sure of its reward, and that is what all good farmers want. Some are deterred from this kind of winter work by the apprehension that the heaps will not ferment. It is true the heating is not so rapid as in summer, but it will be found, if a stick or crow-bar is thrust into one of these heaps, it soon becomes warm to the touch. They will "smoke" in the coldest weather, showing that fermentation is going on.

Management of Barn-yard Manure.

A farmer in Pennsylvania asks "How we manage our manure?" It depends on circumstances. Some of us manage it in one way and some in another. Probably no two of the *Agriculturist* Editors manage it precisely alike. A good deal depends on whether we have much or little straw; whether we have access to a good bed of swamp muck; and also whether we are going to use the manure as a top-dressing on grass, or to plow it under for corn, or for root crops. For the latter, we must always have it well rotted, while for corn, if necessary, we can plow it under in a comparatively fresh

state. Our correspondent says: "The universal plan here in this section of Pennsylvania is to throw out all the manure from the stable in front of the barn, and let it lie there through the summer. We then haul it out on to an oat-stubble (generally), and plow it under for winter wheat. Now, would it be a better plan to keep it under cover? Our barns are not suitable for manure cellars, being all built in a bank, in Pennsylvania style. To make a cellar under one of our old barns would cost as much as to build a new barn. Would piling the manure in open sheds be a better plan? Would such manure as is thrown out of our stables, which is more than half straw, rot under cover?"

If piled early in the spring, while the manure is saturated with water or snow, it will undoubtedly rot under cover. But if the manure be dry when piled, and if it contain a large proportion of straw, it will be likely to fire-fang. In this case it would be best to pile it where it would be wet with the rains, or, better still, where liquid manure could be pumped on to it.

In the case of our correspondent, who, we presume, has abundance of straw that he desires to work up into manure, the great point is to convey all the water away from his barn-yard *before it comes in contact with the manure.* If the barn-yard is not unnecessarily large, the rain and snow that actually fall on it will be no more during the year than the manure needs for proper fermentation. But it may be necessary to have a water-tight basin or tank, to hold any excess of water arising from rain and melting snow in the spring; and if so, this water should be saturated with plaster, and pumped or soaked back on the manure heap when it becomes dry. Manure will not ferment if kept in a hole or basin full of water.

Instead of allowing the manure to remain in the heaps as thrown out from the different stables, it should be all wheeled or carted to one large central heap, in or on the side of the basin. If this is done every day, or once a week, the heap would be large enough to keep out the frost, and the manure would slowly ferment all winter. If the manure is wanted for winter wheat next fall, it may remain in this heap all summer, receiving from time to time any additional manure that is obtained from the stables. If it has been properly treated, it will be thoroughly rotted, and in excellent condition for applying to the wheat without turning or piling. And if none of the liquid has been allowed to leach away, the manure will be just as good as if it had been kept under cover.

Where sheep are largely kept, it is usual to "pile" the manure in the spring, the dry manure from the sheds being mixed with the wet manure from the open yards. If it contained much straw, it will be necessary to turn the piles once or twice, at intervals of a month or six weeks, to accelerate fermentation. If the sheep manure can be conveniently carted to the same heap containing the manure from the horse and cow stables, and from the pig pens and poultry-house, and the whole turned over and mixed together in one large heap, it would be much the best plan. As manure heaps are usually managed, this would be a rather formidable undertaking. We have some unpleasant recollections of handling a mismanaged manure heap, with undecomposed corn-stalks running through it in all directions but the right one. But, where the manure has been spread evenly, in horizontal layers, every day, as wheeled on to the heap, it can be cut with a hay-knife into sections, four or five feet wide, and turned with less labor than many would suppose.

The points in managing manure in this way are:

1st. To pick out all loose stones, sticks, boards, etc., from the barn-yard, and see that nothing gets into the heap that will break the forks, dull mowing machine knives, nor add to the labor of handling the manure.

2d. A good wheelbarrow should be provided, and also some planks, for wheeling the manure from the stables to the heap.

3d. The manure should not be scattered over a large area, but should be placed in as compact a heap as possible; the deeper it is, and the more there is of it, the better will it ferment.

4th. The manure should be spread as wheeled out, and not left in barrowfuls on the heap. In doing this, the manure should be worked over as much as possible, and corn-stalks, especially, which should be cut into foot lengths, should be placed in layers. Manure heaps, during the winter, should certainly have this daily attention.

5th. Straw, or the manure from straw-fed animals, ferments slowly. A little bone-dust, fish guano or other animal matter, or the droppings from the poultry-house mixed with such manure in the heap, would induce fermentation, and add much to its value. Pea and bean straw, the straw from clover seed, the manure from animals fed on clover hay, peas, beans, bran and oil-cake, will ferment rapidly, and make a manure of great value. Pains should be taken to mix such with that of poor quality.

6th. If the heap ferments unevenly, and the heat concentrates so as to form a kind of chimney, throw some of the cold manure from the outside on to the top of this chimney where the steam is escaping, and endeavor to distribute the heat evenly through the heap; or pull the heap to pieces, and get out a few barrowfuls of this hot manure and place it where you desire to start a new fermentation, in the cold portion of the heap. With skill, judgment, and without working over, the heap may be put in condition for drawing out for winter wheat, or as a top-dressing for grass land in August or September.

7th. Recourse may always be had to water, which, if pumped on, will check fermentation; but it must be used with care in winter.

Common Sense in Wheat Culture.

The enthusiasm of "new converts" is proverbial and most natural. When a man who has been convinced, against his will or not, experiences the advantage of drilling, in opposition to sowing grain broadcast, he almost always thinks the variety of grain he sows has a good deal to do with his success, but he does not give up the drilling. We have advocated grain drills for years—and the editors and writers for the *Agriculturist* have fairly grown gray in their use. After all there are extensive regions through which one might travel days without seeing a drill-sowed field, and where to hire a drill for $1 an acre would be as impossible as to hire a balloon for an evening airing. There is a great difference in varieties—that we all admit—but we agree fully with Mr. Harris, who in his article on Wheat Culture in Western New York, contained in the *Agricultural Annual* for 1868, says: "I have little faith in improved varieties of wheat unaccompanied by improved farming.—The two must go together"—and again: "The poorer the farmer the oftener he changes his seed. He sees others raising better crops than he does, and hopes by getting seed from them to be equally successful." The Boughton is included by Mr. H. among the best varieties, and one highly approved by the millers on account of its whiteness. It passes under several names, among which "Early May" and "Oregon," are perhaps, best known. These remarks are suggested by the excellent common-sense letter from Mr. S. D. Comfort, of Knox Co., Ohio, which follows:

Mr. Editor:—The farmers of this vicinity have been learning a lesson in wheat culture in the dear school of experience. Many of them during the past few years have lived, a part of the time at least, on flour made from Iowa spring wheat. The careless modes of culture, which forty years ago were sufficient to produce large crops, are still employed by multitudes of farmers. The manure in huge piles against the barn, burns up and wastes its ammonia on the air, instead of being mingled with the soil. Instead of sowing on an inverted clover sod, the corn ground is hastily seeded to wheat. This is sown broadcast instead of being drilled, and put in so late as not to give the plant sufficient time before freezing weather to establish its roots firmly in the soil. The consequence is that the weakly, half-developed plant, is lifted out of the ground by the frost; and I believe it safe to say that half the seed committed to our clay soils in this section is lost. Broadcast seeding and covering with the harrow leaves much of the seed on the surface, and much more, covered so shallow that the first rain washes it bare. It germinates on or near the surface, and is easily destroyed by winter and spring frosts. The farmer who does not own a good wheat drill can make it profitable to rent one at one dollar per acre. Our careless culture has run down the yield per acre so low as to be a standing disgrace; and it ought to shame every farmer who has helped contribute to the result. I venture the opinion that there is an obligation resting on the agricultural press to use all its influence with farmers to induce them to adopt improved modes of culture and improved seed. Our agricultural societies continue to give premiums to the old, red bearded varieties, on the ground that they have been tried and are sure for *half* a crop. My attention was recently called to a crop of thirty-three dozen and seven large sheaves raised from one bushel of seed of Boughton wheat. The heads are large, many of them contain sixty large, plump, white grains; it has a smooth head, a short, stiff straw, and it is believed by those who have grown it that there is no land rich enough to lodge it. It has ripened earlier than any other variety by several days. The Commissioner of Agriculture sent one pound of it into this section three years ago, and it has multiplied to hundreds of bushels; and I think every grain ought to be sowed. The earliest wheat will generally escape the weevil and rust, two of the most destructive enemies of the crop.

Bear-Grass—Yucca.—In September last we published some notes from Mr. J. T. Worthington, of Chillicothe, O., on the uses of the leaves of the Bear-grass, *Yucca filamentosa*, as a tying material, and at the same time gave an engraving of the plant as we have it in cultivation. Mr. W. afterwards wrote us that the engraving did not represent the plant he grows and uses, and sent us specimens of the leaves of his. It proves to be that form of *Y. filamentosa*, known in the nurseries as *Y. flaccida*, but which is regarded by botanists as only a variety of the first named. As the variety has much longer and less rigid leaves than the other, it is much better to use as a tying material; those who wish to cultivate it for this purpose can procure it at the nurseries by ordering Yucca flaccida.

THE SAILING OF AN EMIGRANT SHIP.—*Drawn and Engraved for the American Agriculturist.*

There is a sadness in leaving home by sea that those who have not experienced cannot understand. Those of us who depart, expecting to return soon, watch with the deepest interest for the last glimpse of land. But with those who leave home forever, how inexpressibly sad is the fading away of their native land! The picture above is full of sentiment, and will recall to many a reader the most touching memories. The old country, the fatherland, endeared by so many ties, where so many loves and hopes lie buried; why should not these parting emigrants look lovingly back upon it?

In a few days their faces will be turned with equal earnestness, but with different emotions, to catch the first sight of the new land where they are to make new homes. Speed on, good ship! bear them safely to our shores. We have work enough and room enough for all who will work. There is abundant land which the industrious may possess, and upon which they can make homes that will in time be dearer to them than those they left behind, for they will be their own, and no landlord can dispossess them.

Peruvian Guano as a Lasting Manure.

Much has been said of the injury that has been done by the use of Peruvian guano. The wheat lands of Delaware are a striking instance of such injury. Before the use of guano, the produce was small but sure. The early crops from the use of guano were very large. They soon dwindled to a very low point, and finally not even liberal manuring with guano would enable these lands to produce so much as they had done before guano was known. Had the *guano* exhausted the land? By no means; the wheat had done the mischief. The guano had enabled the crop to take more mineral matter from the soil than, without the guano, would have been possible; and the demand of the increased crop for mineral food was much in excess of the quantity contained in the manure. This excess was taken from the soil, deposited in the grain, and sold away. When the large crops had completely exhausted the available food in the soil, the guano produced only so much crop as its own mineral matters supplied,—not enough to pay the cost of cultivation. The land was exhausted, and guano greatly aided its exhaustion,—but only as it enabled the farmer to convert its most valuable parts into a salable form. If the crop had been allowed to fall and rot on the ground, the soil would have been improved in quality, and the guano would have been a benefit instead of an injury. It is not the *production* of the crop that does harm, but its *removal*. The heavier the growth, the better, if the whole of it is retained on the farm.

On a dairy farm, where the only thing sold is butter, Peruvian guano is the best manure that can be used,—and it is, so far as the condition of the farm is concerned, a very *lasting* manure.

Suppose a grass field of ten acres to be manured with two tons of Peruvian guano, and to produce, in consequence, fifteen tons of hay more than it would have produced without manure; whether it is benefited or injured will depend on the disposition that is made of this hay. If it is removed permanently from the land, it will leave it much poorer than before the guano was used. If, on the other hand, it is

fed to cows whose manure is all reapplied to the same land, it will be improved. The manure made by the consumption of the fifteen tons of hay, in connection with the extra growth of roots in the soil, will be worth more than the two tons of guano, and it will still more benefit the land, causing it to produce still more largely the next year. This crop being made into more manure, and returned to the same field, will again increase its yield, and there is scarcely a limit to the extent to which its fertility may be increased,—all by the judicious *reinvesting* of the original five tons of guano (principal and interest). Of course, the usual requirements of good husbandry (such as rotation and seeding) must not be neglected; but under a good system of farming, with Peruvian guano to start with, the productive power of a farm may be vastly increased. In careless farming guano will be found an expensive manure.

VARIEGATED ROSE OF SHARON.

The Variegated Rose of Sharon.

In quite a large collection of ornamental shrubs none has given us greater satisfaction than the Variegated Rose of Sharon. The ordinary form with green leaves is one of the commonest shrubs in cultivation, and is commonly called in the catalogues, *Althæa frutex*, though it is not properly an Althæa, but *Hibiscus Syriacus*. Its late appearing, single and double hollyhock-like flowers, and its hardiness make it a popular favorite. The variegated one to which we refer was, if we mistake not, introduced by Robt. Buist, who, though he has brought out many fine plants, has sent out none more likely to become a general favorite than this. The variegations of the leaves are well defined, the light portion being of a clear, creamy white. The past summer has put plants with variegated leaves to a severe test. They are regarded, and probably justly, as constitutionally weaker; and many of them lose their foliage in a long continued drouth, or their markings disappear under our July and August heats. The Variegated Rose of Sharon, however, stood it bravely, and was bright and cheering to the end. The plant makes such a show with its foliage that we hardly need flowers in addition; but it produces dark purple flowers which are remarkably double, and furnishes one of several instances of exceptions to the statement that plants with variegated foliage do not bear double flowers. The leaves are represented in the engraving of the natural size, while the flower given there is much smaller than usual, on account of the dry weather. The shrub is now generally kept by nurserymen, and we can commend it as one of the finest of its class.

Job's Tears.—(*Coix Lachryma.*)

It is pleasant to see old and almost forgotten plants turn up occasionally, and when a gentleman brought for a name a specimen of Job's Tears, we were gratified to meet a very old garden friend. There can scarcely be any thing more curious in the way of a grass—for it is a grass that bears this lachrymose name. The engraving will show the singular character of its flowers. A small, egg-shaped involucre encloses the female or perfect flower, and from this proceeds a weak spike, bearing several staminate or male flowers. There is something about the arrangement that reminds one of Indian corn. The involucre, or roundish body, which incloses the perfect flowers, in ripening, becomes very hard and bony, with a smooth, polished surface, and of a gray color. These seeds, if we may call them so, have received numerous fanciful names, of which Job's Tears seems to have become the most firmly attached. When perforated the Tears are strung as beads, and used to make rosaries. The plant is a native of Southern Europe, and in our warm summers it usually perfects its curious fruit, though it would be much safer to give the seeds a start under glass.

JOB'S TEARS.—(*Coix Lachryma.*)

Potato Grafting.

BY JOHN WARCUP.

[The publication of Darwin's "Animals and Plants under Domestication" brought into prominence the fact that hybrids could be produced other than through the medium of the seed. Several instances of graft-hybrids were cited, among the most striking of which was the successful blending of the characters of two varieties of potato by means of grafting. This statement at once set English experimenters at work, and for a while the journals contained numerous accounts of more or less promising results. During the past season, one of the most careful of these experimenters made the announcement, that he had done with potato-grafting as promising no useful results whatever. The following, from our Canadian correspondent, John Warcup, gives the manner in which the grafting is done, and the results he obtained in his experiments last season.—ED.]

I grafted, last spring, an Early Rose on a Garnet Chili, and also a Garnet Chili on an Early Rose, in like manner. I took a Chili and scooped out every eye, then cut from an Early Rose a slice in shape somewhat like a shield, containing a fine germ, or bud. This shield was inserted in a bed prepared for it in the Chili, stuck on with two pins, and bound fast with bass. The bed and shield were made to fit as exactly as possible, and the grafted specimen immediately planted in the usual manner. The two sorts operated upon are both reds—the Chili a little the darker, and round in shape, the Rose paler red, and oblong. All the specimens came up and grew well. They were dug

August 24. The Rose grafted upon the Chili gave a fair crop—about one-half of the Rose type and color, and the other half of the Chili type, but pure white. As to the Chili grafted into the Rose, the vines were extremely large, and, when dug, gave a large yield of beautiful potatoes, but all of them with clear white skins, except one or two to each plant, which were red; both colors were of the Chili type, and no apparent sign of the Early Rose among them. This shows a considerable change is effected by this grafting operation, in that it is capable of so modifying the color as to give a white progeny from red parents; but that it will fulfil all that its advocates claim requires more proof. Their theory is, that by thus bringing together two tubers of different qualities, a race may be obtained partaking in some degree of the properties of both. They think this method a quick and sure way of getting new varieties.

Something for our Inventors to Consider.

In looking over the advertisements of an English horticultural journal an American is struck with the great number of horticultural buildings, or green-houses, that are offered, and usually with the recommendation that they are "portable and easily fixed;" and accompanying them are equally numerous advertisers of hot-water apparatus for heating such structures, each maker vaunting the simplicity, effectiveness and cheapness of his wares. The buildings comprise all styles, from the small, simple lean-to to the elegant span-roof, with transept. "Portable houses for the People," as advertised by one maker, shows not only how generally diffused is a taste for horticulture in that country, but also how readily one having such tastes can procure a glass-house in which to indulge them. It is claimed that tenants can readily take these houses down and move them along with their furniture. In this country how very different. One must get masons, carpenters, glaziers and other mechanics, the chance being that neither of them ever worked upon a green-house before. When the house is built, then comes the great problem of how to heat it. If hot water be used the apparatus costs about as much as the whole establishment complete should cost. There are hundreds of people all over the country who, if they could procure a small house at a moderate cost and without more trouble and fuss than the whole thing is worth, would be glad to put up a glass structure for plants. There is a good chance here for some one to enter an unoccupied field, and we doubt not it would be found a profitable one.

VEGETABLES AND FRUITS.—One of the ever recurring questions met with in looking over our correspondence is: "What articles of food may properly be called vegetables, and what fruits?" —There is no trouble in defining what a fruit is according to the botanist's view—it is a ripened pistil with whatever may be permanently attached to it, whether pulpy and edible or not. Strictly speaking, a poppy-head is as much a fruit as is a pear. But when we come to popular usage it is not so easy to decide which among the fruits shall be called vegetables. We once suggested that those eaten without preparation should be called fruits, and those that are used cooked or dressed should be called vegetables. This very nearly covers the ground, but not completely. In this case the tomato cooked or as salad would be a vegetable, but if eaten, as some prefer it, raw and plain, it then is a fruit. If any one can suggest a better place to draw the line we should be glad to hear from them.

Congress and Horticulture.

A copy of a proposed bill "To encourage the production of new and valuable Fruits and Plants" has been sent to us, together with a form of petition to be presented to Congress asking them to make a law similar in its effect to that proposed by the bill. The bill proposes to give any originator or discoverer of any new variety of "fruit, grain, herb, root, tree, wood, or flower, the sole right of propagating and selling such plant for the term of twenty-eight years." That is the "nut" of the thing, and all the rest of this proposed bill is subordinate and accessory thereto. Congress has done many foolish things in the eighty odd years it has existed, but never any thing so absolutely stupid as to pass such a bill as this. There are many objections to this "bill," but the greatest of these is it cannot be enforced. If we sell apple cions to another, how is it to be proved that they are cions of the "patented" variety until they fruit some years afterwards? and when they do fruit, who could prove that they were the cions sold? Then again, who can swear to the identity of two fruits grown in widely different soils and situations? There is bother enough now in identifying varieties; but what a lovely time it would be if our pomologists were obliged to testify under oath. Suppose that we had patented the Triomphe de Gand strawberry and Romeyn should sell his seedling, what a time we could make by prosecuting Mr. Romeyn for selling our plant. The case would last longer than the celebrated India-rubber case. We do not find the name of any one well known in horticulture concerned in this movement. We are curious to see how many of those who are known as pomologists, florists, and horticulturists generally, will be found to petition for this most absurd—because impracticable and useless law. The second section of this petition states the following: "That most of the varieties formerly cultivated, and which yielded for many years fruits and products of excellent quality, have recently failed in every section; and that very few of the new varieties recently produced have proved equal in quality to those that have been abandoned as unsuited to our soil and climate."—That is, most of the old plants have gone to the bad, and as the new ones are poorer than the old ones, we wish Congress to allow us the exclusive privilege of selling the new ones for twenty-eight years. There is a cat in this meal-tub somewhere. Let horticulturists consider the whole matter carefully before they sign this petition.

Pruning the Grape-vine.

The question, "When and how shall I prune my grape-vines?", which so frequently comes to us each autumn, is one that cannot be readily nor satisfactorily answered, at least that portion of it which asks us to tell how. As to the time of pruning, there is every reason for doing it before spring, and the earlier it is done after the fall of the leaf the better. There are often mild days in January when it can be properly done. In order to prune a vine understandingly one should be familiar with its structure, and the manner in which it grows. The requirements of no two vines being exactly alike, no set rules can be given which can be safely followed. The operator must exercise his judgment and give each individual vine the treatment it requires. The works of Fuller, Husmann, Mohr, and others, give the principles upon which all pruning depends, and in the volume for 1868, we gave a series of ten articles discussing the subject in great detail. We cannot repeat articles like these from year to year; and those who would understand the matter fully should refer to that volume or some of the standard works. The general trouble, with vines pruned without regard to any particular system, is that too much wood is left. The operator should understand that the whole growth of next year will be produced from the buds now upon the vines, and that the fruit will not be borne upon the wood he now sees, but upon new green shoots that will start from these buds. If every cane of the present season's growth be cut back so as to leave but two buds, the probability is that even then there will be many more shoots produced next spring than are needed. It will be seen that one must have an eye to future effects, and in imagination see a shoot in place of every bud now before him. An old and entangled vine, that has been neglected for years is a very unsatisfactory subject to handle. Yet, as such vines are often as much valued for their shade as for their fruit, it is worth while to bestow some labor upon them. Young vines that were set out last spring should be cut back to three buds, and have some earth drawn up around them. One or two of these buds, according to the strength of the vine, will be allowed to grow next year. In pruning, cut an inch or two above a bud, to guard against injury to the upper bud during winter.

House Plants.

At this season of the year a painful wail comes from our correspondents—especially the ladies—concerning their house plants. It is all summed up in the words "bad luck." We believe in bad luck. If a lady makes a cake according to an approved rule and puts it in a cold oven, she will have bad luck. If she undertakes to can fruit without putting on the covers properly, her fruit will spoil, and she will have bad luck. So long as bad luck is taken to express the fact that a thing is not properly done, we accept it for want of a better name. Getting plants and potting them is one thing—properly caring for them is another. The demands of a plant are few; but these being disregarded, failure is sure to follow. In the first place as to watering. Plants must have water; and many thinking that you cannot have too much of a good thing, water all the time, keeping the roots in liquid mud—about as sure a way to kill a plant as can be desired. If a plant gets too dry, it can usually be restored; but we know of no way in which to restore a sodden mass of water-soaked roots. Decay sets in, and the job is done. We lost a fine window-box of plants from telling the house-maid to soak it once thoroughly. She kept it soaked. We thought the earth was a long time in drying out, and upon inquiry found that she had faithfully added water each day to keep it soaked. The consequence was a loss of a lot of nice plants. Plants in open ground are treated to alternations of wetness and dryness. Every one must have noticed how much better plants stand a drouth than a long continued rain. With house plants we must keep up this alternation and allow the earth in the pots to be so far exhausted of moisture that air can penetrate the earth. No plant, unless it be a thorough aquat-

ic, can flourish in sodden earth. The rule should be to water just before the plant begins to need it. A watchful eye will notice the proper time.

Air is another requirement of house plants. We ourselves contrive to survive with an impure atmosphere, but the plants cannot be deceived. They must have proper air or they will perish. In old-fashioned houses heated by wood fires, where there is abundant ventilation, there is no difficulty in growing house plants. In our modern houses, success with plants is the exception. Open the windows whenever there is no danger of freezing the plants.

Dust is the housekeeper's annoyance, and it is also that of the plant. Cover the plants with papers or a cloth while sweeping is going on, and as often as practicable set the pots in a sink or bath-tub and give them a fine showering from a watering-pot.

Heat.—This must be governed by the requirements of the family. When it can be regulated, the temperature for plants at night should be from 10 to 15 degrees less than they have with sunlight. Here is one great trouble with house plants. We keep the temperature of our rooms as high or higher at night than we do in the daytime.

Fertilizers.—Much is written by amateur newspaper writers about the use of ammonia, and this and that specific for making plants flourish. We have raised a great many house plants, and have had about as good success as the average, without recourse to any of this fancy treatment. The plants are put into good, rich, light soil at the outset, and they do not need any thing from the apothecary's shop. Some who write about plants seem to delight in throwing a mystery about their cultivation and ascribe their success to certain fertilizers. Proper watering, judicious airing, and a low night temperature, will do all that can be done for their welfare.

Notes from the Pines.

There was never any thing finer than the frost work the other morning upon the edges of the celery! Each leaf was fringed with a border of pure white crystals which, in contrast with the dark green of the leaf, made a filigree work so beautiful that it seemed a pity that the rising sun should destroy it all. Winter has its beauties as well as spring-time and summer.

Cordon Peach-Trees.—I have taken a great deal of pleasure in a dozen Cordon peach-trees trained against the chicken house. A trellis was made a foot from the house, the trees planted four feet apart. Each was cut back to within a foot of the root, and only a single stem allowed to grow. How that stem did grow! I watched it morning and evening as it kept on growing and growing. Then it put out side shoots, and when they had made eight leaves they were pinched back to four. Here was occupation and amusement, this watching and pinching. Of the pinched shoots, some of them pushed again, and they were treated just as the original shoots were. Now that the leaves are off, I have my trees, nearly all, eight feet high, and for the greater part of their hight, furnished with short branches, which I shall cut in somewhat. Some people see these trees and ask what is the use. Such do not know the pleasures of horticulture. Setting out an acre or ten acres of trees for the profit thereof is one thing. Planting a dozen trees to guide and mould under one's own hands, is another. If I never get a peach I shall have been amply repaid in the enjoyment I have had in pinching and pruning. But if one can prognosticate, I shall get peaches; for my cordon trees are all furnished with blossom buds, and if a frost comes at blossoming time I can protect them with mats, or with newspapers for that matter. One peach so raised will be worth a basket of Delawares, because it will be *mine*. Now this is just the feeling that we lack in this country—the growing of a thing for the sake of growing it. In true horticulture, dollars and cents do not come into the account.

Spinach.—Was there ever such a provoking thing. I had a patch sown in September. It came up and stayed up. I am thankful that it did not go back into the ground again; but it would not grow and give me thinnings for the table. Now in these December days it has taken a start and is growing famously, and gives promise of an excellent crop for spring.

Scolymus.—I don't know any other name for it unless it be the French, *Scolyme d'Espagne*, and that can only be translated into Spanish Scolymus. Well, Scolymus is as good a name as Salsify, and the plant is a great deal better than the one that bears that name. It is one of the new things I have tried this year, and I like it. It bears great thistle-like tufts of leaves—and its root goes down and down; but when you get it up you have got something. It is a long, large, white root, that does not, like Salsify, turn black upon the slightest exposure. It has much the oyster flavor of Salsify, and, upon the whole, I am much pleased with it. A part of the crop has been dug, and the rest left to see how it will winter over. From one season's experience, I am inclined to commend the Scolymus.

Weeds.—It is not usual to talk about weeds in December; but just go into your garden, that you thought was left clean at the clearing up, and see the little green tufts, not bigger than an old-fashioned sixpence, but they are there, and, with the first warm sun in March, they will "blossom and bourgeon" in a way that will surprise you. Botanically, I love weeds, horticulturally, I detest them; and so astonish my man by directing him to do a bit of hoeing in December, when the ground and the weeds are just right.

About Commission Merchants.

Whoever raises a crop, whether it be fruits or early vegetables, poultry or what not, wishes to get the best possible price for it. He thinks, if within reaching distance, he can do best in the New-York market, and as a matter of course sends to the *American Agriculturist* to know who is a "reliable commission merchant." We have done with recommending commission merchants, for this reason: The nature of the business is such that with the best intentions on both sides, consignee and consignor, there is likely to be a misunderstanding. Some of the best men we ever knew in the business have been stigmatized as rascals, and some of the worst ones have been able to show, in certain cases, a clear record. Under the circumstances we do not vouch for the standing of any commission merchant. We know of some with whom we would trust any thing, but others living far away might send them produce and feel that they had not been fairly dealt with. When our friends send to us asking us to recommend a commission merchant, the best we can do is to send the cards of two or three whom we believe to be honest, and there our responsibility ends.

The Edible Polymnia.—Novelties.

In April last, under the head of "A Proposed New Vegetable," we gave an account of the Edible Polymnia (*Polymnia edulis*), and at the same time presented an engraving of the root, which had been sent us by a Prussian seedsman. We stated that we had the seeds, and proposed to try the plant and give a report of it. The seeds, which were carefully sown in a hot-bed, did not come up, and we procured a second lot, but met with no better success. A friend, who is always on the lookout for novelties, sent to Europe for some seeds, which he received by post, but he did not succeed in raising a plant. Thus far we have heard of no Edible Polymnia in this country. Now comes the *Illustration Horticole* with a record of the experience with the plant in Belgium. An account is given of its history and botanical characters, but its value is summed up in the concluding paragraphs, which we translate:

"After all this fine enthusiasm, and after a serious examination, it remains thus: the Polymnia contains 6% of sugar, and no starch at all: it is below mediocrity as an alimentary plant, and should only be planted, like the Jerusalem Artichoke, in poor soils, where its tubers and foliage may be harvested for cattle.

"This is its true position. It has, however, another to fill, and it is this which makes us write to-day upon a plant too much praised and too much defamed: it is that of a plant of ornamental flowers and foliage, for parks and large gardens." Then follows a notice of its usefulness for decorative purposes. We have devoted this much of space to the matter to show the difficulties that surround the introduction of new plants. Our seedsmen, ever on the alert for novelties, import and sell them with the foreign descriptions. A person who buys an untested novelty must not blame our dealers if it turn out perfectly worthless. There is a great pleasure in experimenting with new things, and in watching the development of a plant that we have never before known. Disappointment is the rule; but when satisfaction does attend the trial, we forget the ninety-nine blanks in our joy over one prize. We would not discourage the trial of novelties, for without this, gardening would lose half its charms, but caution our readers to remember that they *are* novelties. If one cannot afford to risk a little money for the pleasure of seeing how they will come out, he had better purchase only well-tested varieties, that can be relied upon.

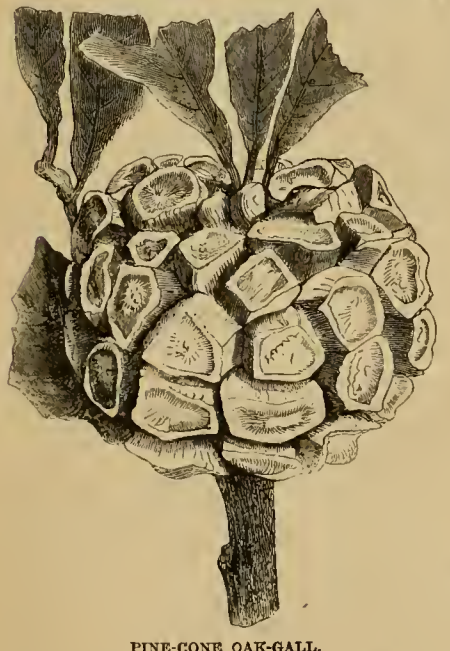
Onions.—Many complain that onions do not keep. The trouble is in keeping them too warm. The onion is a bulb, a plant at rest, and the least warmth starts it into activity. It is much better that onions should remain frozen through the winter, provided they can thaw gradually, than to put them in a cellar or other warm place where their vegetative powers will be aroused. If put in large heaps onions will be sure to spoil; but if spread in thin layers and covered with hay and straw, so that if frozen the thawing may be gradual, they will keep well through the winter. It is the custom with onion growers to get their crop to market as soon as possible. If they were to provide proper storage, they would realize much more for them, when sent to market later in the season.

The Pine-cone Oak-Gall.

The accompanying illustration represents a very singular growth, found by Mr. C. J. Sidell on a white oak twig. It is a gall made by a large gall-fly, described by Baron Osten Sacken, of New York, from a gall found on *Quercus Prinus*, (White Swamp Oak,) as *Cynips quercus Strobilana*, in the Proceedings of the Entomological Society of Phila., Vol. III., p. 690. This is what entomologists call a polythalamous gall, i. e,, one having many cells; for each of the cuneiform bodies composing it contains a hard cell, wherein lies a fat, whitish, footless grub. In the course of the winter this grub gradually assumes the pupa state, the legs, feelers, wings, etc., of the future fly appearing by a sort of budding process. By spring the fly will have matured, when it will eat its way out of the gall through a round, smooth hole, and commence to found new galls. The gall is doubtless produced by the sting of the insect on the leaves of a bud, each leaf growing into the shape represented in our illustration.

The "gall-nut" from which ink is made is produced by the punctures of a closely allied fly (*Cynips gallæ-tinctoriæ*) on the leaves of a species of oak (*Quercus infectoria*), which grows commonly throughout Asia Minor. How few persons ever reflect that they owe so much to a tiny fly, and, to use the words of Kirby, "How infinitely are we indebted to this little creature, which at once enables us to converse with our absent friends and connections, be their distance from us ever so great, and supplies the means by which, to use the poet's language, we can ——'give to airy nothing a local habitation and a name,' enabling the poet, the philosopher, the politician, the moralist and the divine to embody their thoughts for the amusement, instruction, direction and reformation of mankind."

The subject of galls and their architects is a



PINE-CONE OAK-GALL.

most interesting and fascinating one, and we never cease to wonder at the great diversity of form and structure, and at the apparent blending of the animal and vegetable organisms which our different galls exhibit; for there is not one of them that could be produced either by the vegetable alone or by the insect alone, and each particular gall is as invariably found on its particular plant, as are the flowers and fruit.

LILAC-FLOWERED FUCHSIA.

The Lilac-flowered Fuchsia.

There are some forty or more species of the Fuchsia in cultivation; the varieties produced by hybridization and sporting are almost innumerable. Not many years ago a Fuchsia was a rarity, to be found only in choice collections of plants. Now they are multiplied so rapidly that they are the commonest things sold by the street venders of flowers. Each year brings its collection of new varieties, as it does of geraniums and verbenas. Most of those in our collections are so mixed and blended that it is difficult to trace their origin to the original species. The best known varieties are those with pendulous flowers, with the calyx and corolla having their colors in marked contrast. The Fuchsia of which we present an engraving, is so unlike the common type that, at first sight, it would hardly be taken for a Fuchsia. It is called Lilac-flowered; not on account of the color, but from the resemblance to a Lilac in bearing a cluster of small flowers. The blossoms, which are produced abundantly, are of a violet-pink color. It is one of the Fuchsias which bloom well during the winter. The florists usually have it as *Fuchsia syringæflora*, but it is properly a variety of *F. arborescens*. It is a native of Mexico and Guatemala.

RHUBARB FORCING.—In October last Mr. Henderson described the manner of forcing Rhubarb on the large scale, with a hint how it could be done in a small way. Those who have not prepared for a supply of Rhubarb by taking up the roots last fall, can probably do so during some mild spell, such as we frequently have this month. Place the roots close together in a barrel, fill the spaces between with earth and set the barrel near the kitchen stove or near the furnace in the cellar, taking care it does not become too dry. Last winter we partly filled a cask with horse manure and placed the roots upon it and added earth to fill in between them. This was set in the barn and afforded an early supply. The cask or barrel may be closely covered, as light is not needed.

The Gigantic Rhinoceros Beetle.

Mr. J. A. Forney, Brittain, N. C., sent us, some time ago, a large insect for a name, remarking, "They show a great fondness for the light after night. We have found several in the house when a window is left open." The immense brown beetle enclosed is a female of the Gigantic Rhinoceros Beetle (*Dynastes tityus* Linn.), and that our readers may recognize it we present herewith a portrait of the male. The female differs from him in being generally a little smaller, in lacking the horns on the thorax, and in having but a small tubercle on the head. Both sexes are very variable in the ground color, some specimens being glaucous-green, with brown spots, some brown, with glaucous spots, and others again entirely green, or entirely of a deep chestnut-brown, like the one sent. The spots also vary much in size.

This beetle is the largest N. A. species, and though tolerably common at the South, is very rare in the more Northern States. It breeds in the decaying roots of several trees, and Say informs us that a number of them were once found near Philadelphia in the cavity of an old cherry-tree that was blown down by a violent wind. Its larva bears a general resemblance to the common White Grub of our meadows. The specimen sent by Mr. Forney was packed in a paper box, and, for a wonder, came through

GIGANTIC RHINOCEROS BEETLE.

the mail without being crushed. We would ask our friends who send insects for determination, to enclose them in small wooden or tin boxes, or pack them in such a way that they will reach us safely. Three-fourths of those sent us arrive in unrecognizable fragments. A quill, plugged with paper, does for small insects.

THE HOUSEHOLD.

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

What is a Warrener?

BY AN OLD FOGY.

"Was this cooked in the Warrener?" asked the Colonel, as he was carving a piece of meat that looked neither roasted nor boiled, but thoroughly well done and juicy. The good lady replied that it was, and I was "stumped." I thought I knew every cook-in-able thing from the old-fashioned bake-kettle to the latest patent Yankee broiler. "Warrener" was too much to keep silence under, and the matter had to be investigated. I have since seen it described in an English work as "Captain

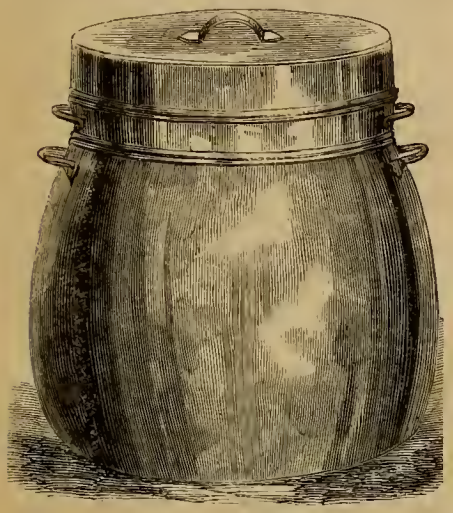


Fig. 1.—A WARRENER.

Warren's Everybody's Cooking Pot," and I don't wonder that the name has been shortened into Warrener. The invention seems to be a capital one, as it allows of cooking by steam, and without either steam or water coming in contact with the meat. The general appearance is shown in figure 1. It is much like a large glue-pot, with the modification shown in figure 2, which gives a section; *A*, is the outer vessel which contains water; *B*, the inner vessel, in which the meat is put; this vessel does not touch the bottom of the outer one, but fits closely enough to it at the rim to prevent the escape of steam. The cover *C*, is double; a tube, *D*, passes from the outside of the inner vessel and projects upwards to meet a tube in the cover; these tubes fit together closely. The cover is also shown, separately, in figure 3. Water is put into

Fig. 2.—SECTION OF WARRENER.

the outer pot, *A*, until it reaches the bottom of the inner one, *B*; the meat is placed in *B*, without any water. The cover, *C*, is then put on with its tube connecting with *D*, and the apparatus placed on the fire. The water in the outer vessel soon boils, and steam is formed which completely envelops the one containing the meat, passes through the tube into the cover, where it condenses and trickles back again into the boiler. The meat is thoroughly cooked in its own juices, without danger of scorching, and is so acceptable that in the family above referred to the Warrener is in frequent use. When the water once reaches the boiling point it requires very little heat to keep it there continuously, as none is lost by evaporation. It would seem al-

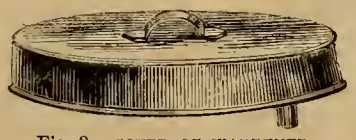


Fig. 3.—COVER OF WARRENER.

most impossible that a dinner placed in this could be spoiled by the most stupid "help." An intermediate vessel is provided, which may be placed between *B* and the cover, in which vegetables may be cooked at the same time with the meat. I do not know if the Warrener is for sale in this country, but if not it ought to be, as it appears to be an economical and excellent household contrivance.

Bridal Gifts.

[There is much to be said on both sides of the custom of giving wedding presents. One of our clerical friends puts his side of the case in strong language in the following article. Still, to our view, he does not touch the point of the fashionable wedding where "tickets" are sent to those who are supposed to give liberally on such occasions, and where, after marriage, friends are estimated by the articles they presented to the bride.—ED.]

Shall we bestow them? They are quite the fashion; and it is almost as much the fashion to decry the usage as a bad thing in itself. Hear one, a woman, on this topic. "The modern fashion of displaying at weddings the bridal gifts, has caused more evils, in divers ways, than its ostentatious originator ever dreamed of; indeed, ostentation is the least of these. Could that wide-spread table, groaning under its costly burden, speak and tell the private history of its precious things, the admiring crowd around it would soon be hushed by its humiliating confessions. It might even tell of sleepless nights; of days passed in contriving how to bring a fit offering there; of screwing and pinching; of cheating some creditor of his due, or poverty out of the contents of the household poor-box, and what is worse, the soul of that blessing which the God of the poor had ready 'for the cheerful giver,' now turned into a purloiner of God's money! Or, of selfish ambition to excel in giving, and be foremost in the praises of spectators; of pride, envy, jealousy, petty strife, extravagance, penuriousness in secret, for hard-earned public commendation."—All this is very eloquent, but not very just. The custom is no doubt liable to abuse, as is every good thing that God has given us. We have attended many weddings among the rich and the poor, where the gifts were very numerous and costly, and where there were none at all: and have had an intimate personal acquaintance with many of the circles that brought their offerings on these occasions. We have yet to learn of the first one that gave beyond his means, or of one that was seriously inconvenienced, or of one whose bad blood was stirred by the sympathy and love of friends and kindred, shown to the bride. There is probably as little danger of giving from wrong notions on these occasions as there is in bestowing our religious charities in church. If we were in the insurance business we would take risks on this kind of peril at very low rates. But shall we abolish missions, ragged schools, and soup houses, because some ostentatious Pharisee gives a thousand dollars for these objects, to see his name in print, and to help his chances at the next election? Shall we tighten our purse strings because Bullion, sitting in the next slip, puts a big roll of greenbacks on to the plate, to astonish the natives? We approve of soup houses, and missions, and shall keep giving, and leave Bullion and other ostentatious people to square their own accounts with their Maker. We approve the custom of making bridal gifts, and shall continue to make them, where personal friends need them. There is a good deal of twaddle and more hypocrisy in the criticism made upon this custom. The real points in the indictment against the usage, are not those named in the communication we have quoted. These are only the apology for stinginess, which, in most cases, is the only objection to remembering the bride. The men and women who make the strongest objections to the custom, are those who have abundant means, and do not love to give to any thing. They love accumulation, and give with as much reluctance to the poor as they do to brides. They have the same opinion of soup houses that they have of weddings; they are conspiracies to rob them of their hard-earned money. We do not expect any thing but croaking and criticism, from such people. Their professed regard for the evils wrought by this custom is a convenient cloak for their own meanness, and should be estimated accordingly. Giving to the bride! When can there be a fitter occasion for giving? She is going out from the home of her youth to a new home, to make new friends and acquaintances. Should not the old ones show their tender regard, and give their keepsakes with their blessing? Should they not crown her queen of the festive hour, and bring offerings that will abide, when the orange blossoms have faded? Those gifts will be prized from their associations, rather than from their intrinsic value. So they be fitting and worthy of the giver, they will be cherished,—not as trophies, but as the tokens of affection, carrying along the precious memories of girlhood into the cares and trials of her new life. A little sentiment still, if you please, O close-fisted critics, on wedding occasions! Let a bride differ a little from a heifer that is sold for the shambles!

System in Housekeeping.

It is easy to see that considerable daily planning may be saved by systematizing the regular work of the week. For instance, devote Monday to washing, Tuesday to baking, Wednesday to ironing, Thursday to odd jobs that require considerable time, Friday to a general brushing and cleansing of the house, Saturday to baking again. Then if you can systematize the daily meals so much the better. I once heard a man laugh because a lady friend of ours had dismissed her boarders, giving as a reason that it "tired her to death" to plan three meals a day for fastidious people. If she had only the *planning* to do, he thought she had an easy time. But this endless planning and contriving are really pretty hard for a woman of delicate health, whose tastes lie mainly in another direction. The woman I speak of was an excellent housekeeper, but a better teacher or writer. Some people seem to think it unnatural and rather disgraceful for a woman to feel a distaste for housekeeping. Why is it more so than for a man to feel no relish for farming? Women who do all their own work are unable to carry out a weekly system as strictly as those who employ domestics, they have so many interruptions from company, sickness, and other causes. When you have once arranged a good system for the week, be determined to let no small causes break in upon it. Your "help" will soon learn to depend upon it greatly, and will be considerably put out by any great deviation. In the arrangement of a system for meals, it is well to leave considerable margin for extra dishes, but some of the main items may be definitely decided. Some housekeepers always bake beans for a part of the dinner on Monday when the wash-boiler occupies the stove. R.

The Use of Apples.

BY A WESTCHESTER CO., N. Y., HOUSEKEEPER.

When the apple first becomes fit for use, it is not quite so easy to spoil it, for its juiciness, tenderness and acidity, triumph over bad cooking. Even then, however, it can be made much better by ju-

dicious preparation. But it is when apples are getting old and withered, and are losing their flavor, that they need special care. The most common errors in making sauce are using too much water, which renders the apples flavorless, cooking them so slowly that they become discolored and tough, and removing them from the stove before they are thoroughly cooked, thus leaving them hard and lumpy. I annex a few recipes which are well tried and proved, and always liked.

Apple Sauce, No. 1.—Pare, core, and cut tart apples, put them in a basin with just water enough to keep them from burning, cover closely and cook quickly. When perfectly tender, stir them down, sweeten and turn out into a dish to cool.

Apple Sauce, No. 2.—Wash, core, and cut out all imperfect places in the apples, but do not peel them. Proceed as above. When cooked, turn into a sieve, and when cool enough for your hand, rub them through. Sweeten and let cool. When apples are fresh and green, apple sauce needs no flavoring; but late in winter and during the spring, a few drops of lemon juice added to any preparation of apples, quite successfully counterfeits the natural acid of the fruit.

Baked Sour Apples.—Greenings are the best. Put them into a deep baking-pan, sprinkle sugar over and around them, fill the pan half full of water and bake quickly.

Baked Sweet Apples.—These require a slow fire. A little water in the pan is an improvement, and a little sugar, also, though they are very good without either.

Preserved Apples.—Peel, core, and halve acid apples. Make a syrup of seven ounces of sugar to each pound of apples. Boil the apples slowly until tender, remove them from the syrup; add to the syrup one lemon cut in slices, for each two pounds of apples, let it boil for twenty minutes. Return the apples to the syrup, let them cook for two or three minutes, and put them up in air-tight cans to be used at pleasure.

Apple Dumpling.—Make a crust of 1 quart of flour, 2 teaspoonfuls of cream of tartar, 1 teaspoonful of soda, 1 tablespoonful of butter or lard, a little salt, and milk enough to make a dough that can be rolled out. Cut this dough in eight pieces, roll them out thin, put slices of sour apple upon them, fold them up tight and steam or bake. Baking will require thirty minutes, steaming an hour. Either hard or liquid sauce may be used. The following is an excellent recipe for

Liquid Sauce.—1 cup of sugar and ½ cup of butter, rubbed to a cream. Then stir in the well-beaten white of 1 egg. Flavor with nutmeg or lemon. Just before bringing to the table add ¼ cup of boiling water.

Apple Pies to be good, should not be more than two days old, and to be in perfection, should be eaten when cool, the day they are made. The contents of an apple pie may be ever so good, but if enclosed in a tough envelope of crust, the result will be a poor pie. The making of good crust appears to me as simple an operation as any in the culinary department.

Pie Crust.—A good rule is ⅔ of a teacupful of lard, well pressed down, to every 2 teacupfuls of flour; a little salt, and only water enough to hold the ingredients together. This makes enough crust for one medium sized pie. Mix quickly and carelessly, not kneading at all.——For mince pies, from ¾ of a cup to a whole cup of lard, is necessary for every 2 cups of flour. This rule never fails to make good, crisp pie crust for me.

Apple Pie, No. 1.—Slice peeled apples upon a pie plate, and cover with a crust. Do not press it down at the edge, but trim it off neatly. Bake quickly and thoroughly. Remove the crust, turn its upper side down upon another pie plate. Mash the apple, sweeten it to the taste, flavor with nutmeg, add a piece of butter the size of a hickory nut, and spread the mixture upon the crust. A little sweetened cream poured upon this when eaten, is delicious; or the pie may be made very nice by spreading the well-beaten and sweetened whites of 3 eggs over the top. In the latter case, the apple should be made very sweet.

Apple Pie, No. 2.—Proceed as in No. 1, but make an upper and an under crust. In this case remove the upper crust when baked, season and sweeten the apple, and cover again.

Apple Pudding, No. 1.—1 pint of stewed and sifted apple, 3 eggs, sugar to make it very sweet, ½ pint each of cream and milk, a little salt, nutmeg, and raisins. Bake with an under crust.

Apple Pudding, No. 2.—1 pint of cream and milk, half and half, 1 pint of sifted flour, a half dozen large apples, four eggs, a little salt. Peel the apples and take out the cores without breaking the apples; steam them until tender, then put them into the pudding dish and pour the batter over them, and bake about 45 minutes. Eat with the liquid sauce, the recipe for which is given above.

Modern Cooking.—Brown Bread.

BY A MODERN HOUSEKEEPER.

I have much sympathy for the "old-fogy," who, in the *Agriculturist* for last September, repeats the merited praises of the "bake-kettle." That he tells nothing but the truth, my father can well attest, for I have often heard him describe both the kettle and his mother's "brown bread." Still, even if I had a genuine bake-kettle, I could never hope to get the good, sound, hickory wood, which our grandmothers used in such abundance to obtain *living coals* for their cooking and baking. So I fancy we must keep watching for the *next best thing*, and for two years past I have been using a "steamer," (at least, this is the only name I know for the article). Brown bread of any kind, cooked in a steamer, and finished with twenty minutes of browning in a modern oven, is not to be despised; indeed, it is a luxury that I seldom see away from home. It has the merit of "long-continued cooking," at an even temperature, "with juices and flavors retained;" and the same applies to a large variety of the articles used for our table. Stuffed meats, vegetables of all kinds, apple dumplings, and even rice, may be cooked by steam, and need only to be carefully tested to be appreciated. In making brown bread, I have combined the best elements of different receipes, and have had excellent success. So many have asked "How do you make this bread?" that I have thought some of your readers may like to try the same.

For Graham Bread, I boil a pint of milk, and thicken with wheat meal (Graham flour), then add cold milk enough to make the whole as thin as light batter. As soon as cool enough not to scald, add half a teacupful of hop yeast, and set in a warm place to rise. When light, I put in a little salt, and half a teacupful of syrup (or rather sweeten to taste), and as much wheat meal (Graham flour) as I can stir in with a spoon. Then I sprinkle a little fine flour on the dough-board, and mould my brown bread until it works clear from my board and hands, but still careful not to get it too stiff and dry, then put it into a round basin (that will fit nicely in my steamer) and return to the warm place to rise. When light enough to bake, I put it into the steamer over *boiling* water, and let it cook an hour, then bake twenty minutes in the oven. By a little practice and good judgment, a housekeeper can alter the size of the loaf and learn the proper stiffness, observing carefully not to open the steamer while the bread is cooking, or the bread will be heavy.

For Corn Bread, I make the sponge the same way, with scalded Indian meal, add salt and syrup, but thicken with *fine wheat flour* altogether. Let it rise, and steam and bake as above described. Indeed, I learned to make corn bread in this way from my mother, before we thought of using Graham bread. Perhaps some of your readers may not know that the quickest and best way to boil milk is to put it into a tin dish and set that into a kettle of boiling water. Thus scorching is avoided.

Domestic Recipes.

BY AUNT HATTIE.

To Make Stewed Oysters Tender.—Turn the oysters with the liquor into a convenient dish. With a fork remove each oyster to another dish, passing it as you do so through the oyster liquor, in order to wash off any bits of shell, etc. When all have been removed, strain the liquor through a fine sieve, which will retain the bits and yellow crabs. Some people eat these little crabs, but I reject them from an oyster stew as they suggest carelessness. Put the strained liquor into the kettle with the quantity of water or milk you think proper, and set to boil. Add rolled cracker and salt. A little mace (only a little) is a great addition, as it brings out the oyster flavor; I do not put in pepper as some guests do not like it, and the color of the soup is not so good. Each person can suit his own taste by using either the black or Cayenne. The clearer and whiter a soup appears, the better it will be relished. I omit cracker in a dinner soup; each guest must be supplied, however, at the table. Keep out the oysters until all the ingredients of the soup are added, and until it *thoroughly* boils. Now add the oysters. As soon as it comes to a good boil, the soup is ready to serve. If you have a very rich stew, a great many oysters and little soup—it may be well to put only a part of the oysters in at a time, waiting until the first lot have had a good scald before adding the remainder. The idea is to give each oyster a good scald on the outside surface; it cooks them sufficiently and avoids the toughness that comes from overcooking. Treated according to these directions the oysters in a stew will be as tender as raw ones. It is very easy to spoil oysters by overdoing them.

Roast Goose.—It should be very fat; remove every pinfeather. Then pass a lighted paper over the outside surface to remove the fine hairs. Make a forcemeat, either as for turkey, of fine bread crumbs seasoned with summer savory, salt and pepper, or, with sage and two onions chopped fine, with pepper and salt. Roast until a fine brown all over. If a nice brown around the legs and wings, you may be pretty sure it is done. Remove every particle of the fat from the pan. It is not fit to eat. Keep it however, for a lubricating oil, and other useful purposes. Make a gravy of the brown sediment remaining in the pan. Apple sauce and onion sauce with potatoes, peeled and boiled whole, are the usual accompaniments.

Roast Duck.—The fatter the better, as it will then be juicy and tender. The feet, neck, gizzard, and liver, must be stewed until tender. See that every pinfeather is removed, and singe off the hairs. Be very careful to remove the two oil sacs from the back, as they will impart a very disagreeable flavor if allowed to remain. Forcemeat the same as for goose. Roast until brown. Remove all the fat from the gravy. Serve with potatoes, apple sauce, onion sauce, and green peas.

How to Skin and Stew a Rabbit.—Make a small incision in the lower part of the belly, being careful not to cut deeper than the skin. Put down the knife and gently tear the skin upwards about three inches. Now take hold of one hind leg and force the hip joint up along the side of the body under the skin. Take hold of the bare joint and pull the leg out of the skin. Do the other the same. Now take hold of the two skinned legs with one hand and grasp the loose skin with the other hand. Use your strength firmly but gently, and separate the remaining skin, including the head and fore feet. The feet joints with a half of the ears must be separated under the skin with a knife, and remain with the skin, as they cannot be skinned. After removing the entrails, soak until white and free from blood. Double the feet under, and secure the head firmly to the back. Tie the body firmly with a nice white string, and stew gently until very tender. I use, to accompany the rabbit, a nice onion sauce, but bread sauce or a mushroom stew may be served, as preferred.

BOYS & GIRLS' COLUMNS.

A New Year's Greeting.

What shall a New Year's greeting be to all our boys and girls but to wish them a "Happy New Year?" Now, it seems not very long ago that we did the very same thing. Bless us! how the years do fly! To you, young people, it seems a very long while from Christmas to Christmas, and from New Years to New Years. When the holidays are over, and you have enjoyed your visits, your presents, your vacation, and all the pleasant things that holiday time brings, and after school has commenced again, and you have talked it all over with your schoolmates, then some of you no doubt say, "Oh, dear! it is so long before Christmas and New Years will come again!" It is not so with us older people; we find the years come around fast enough—too fast, indeed, for all the work there is to do in them. You, too, will find it so when you are no longer boys and girls. A "Happy New Year!" How often at the beginning of the year do we speak that wish to our friends! A pleasant wish it is; but if it is mere empty words, it does n't make any one happy. We must follow up our words by deeds if we would have our wish "come to pass." We wished you a "Happy New Year," and we shall try, in our way, to contribute to your happiness. We do n't see each other but once a month, but we will try to have a jolly time when we do meet, and to make it all the merrier, we have persuaded "Aunt Sue" to come along with us. You do n't know who Aunt Sue is; but those who were boys and girls ten years ago will tell you that she is—as Capt. Cuttle would say—"the chock-fulledest" of puzzles of any one you ever saw. Just look at her Puzzle Box for this month, and see what a lot of nice things she has prepared, and she means to keep doing so. Then we shall try to make you happy with a nice lot of pictures; some shall be funny, to make you laugh, and some serious, to make you think. Then the Doctor will have some of his talks—well, just you see if we do n't have a pretty good time once a month. Now, what are you going to do to make it a "Happy New Year?" If you know of any thing better than to try to make some one else happy, we wish you would tell us what it is. You need not go outside of the family to find opportunities. There are mother, father, sister and brother, and you can do so many things to make them happy; or, what is much the same thing, you can avoid doing so many things that will make them unhappy that every boy and girl can, if they will, to show that they are really in earnest when they wish others a "Happy New Year."

About Walking.

How many boys and girls like to walk for the sake of walking? They think that they would like to have dumb-bells, Indian clubs and house gymnasiums, with which to take exercise to improve their health; and forget that they possess the means by which to take the most healthful kind of exercise—walking. Those who live in towns will enter an omnibus or horse-car to go a mile or so, when, if they would allow a few minutes more, and walk the distance, they would feel much better at the end of their journey. So with those who live in the country. They will spend time in harnessing a horse, and in getting ready to go a short distance, instead of starting off vigorously on foot. There is, somehow, a notion among our people that it is not dignified to walk. The English think differently, and they are much better walkers than we are. Dickens used to take a regular daily walk—eight miles, we think it was—as a rest from his daily mental labor. Perhaps it is to these walks that you are indebted for the delightful Christmas carols, for Little Nell, Oliver Twist, and Paul Dombey. The writer early accustomed himself to long walks, tramps of a whole day; and this practice was useful to him, when, in a desert country, the horses gave out, and he was obliged to make twenty and thirty miles, day after day, on foot. Never mind if there are horses in the stable doing nothing; they can afford to do nothing better than you can. If you have not a fatiguing distance to go, take it on foot; and if either is to suffer for want of exercise, let it be the horses.

What I Saw from the City of York.

The *Agriculturist* has correspondents all over the world. We are always glad to hear from them, but never more so than when they write a word to our Boys and Girls. "B. B.," writing from Hurrongate, Eng., says: "I think the young readers of the *American Agriculturist* would like to hear something about what the writer saw from the top of the highest tower of the York (England) Cathedral, which measures in hight, 213 feet. Now this is an immense size, is it not?—Well, we entered a little door inside the church, and after ascending a vast number of steps, we reached the roof, but only the roof,—not the top of the tower by *any* means, yet, for we had been going up one of the smaller towers, and were only part way up it even. Well; we crossed the roof, and started to go up the center tower; and after ascending a long, spiral flight of stairs, we reached the top of the tower, having overcome 270 steps! There, the wind blew very hard indeed. But only think of the view; all around us on each side, for the distance, we should say, of at least 40 miles! It was not a very clear day, but we got a very good view, so what must the sight be on a fine, clear day! Close beneath us were the streets of York, with men about the size of tin soldiers, and horses like those in toy farm-yards! The cars in the distance puffing along, and the houses roofed with tiles, stretching far and wide. It was great fun, and I think you all would like to have seen it. And now, when we go home to New York, we hope to see something that must be still grander: namely, *New* York from Trinity spire."

An Icicle.

The Doctor wishes to ask if any of the boys have ever watched an icicle. He is sure that they have all seen icicles hanging from the roof of the house, but he would like to know if any boy has watched the formation of one. There is a great deal to be learned from so common a thing as an icicle, and the watching of its growth has often afforded him much amusement and instruction. Now, the Doctor will send to the boy who sends the best account of how an icicle grows—like a cow's tail, downwards—one of the steam-engines offered as prizes, and the *Agriculturist* for one year; and to the second best, the paper for one year. Come on, boys; here is a chance.

Aunt Sue's Puzzle Box.

Boys and girls, I propose to have a lively time through 1871, with every good thing in the enigmatical department that we can get together. I want Father and Mother, Uncle John and Aunt Mary to join in and help the little ones; Grandfather will, of course. Send in your puzzles, and I will do myself the pleasure of seasoning and dishing them up to suit all parties. Perhaps you think pleasing all parties is n't the easiest thing in the world to do; but I'm going to try it, and at the end of the year I will let you know how I succeed. Now for the good things.

☞ Address all communications intended for the PUZZLE BOX, to AUNT SUE, Box 111, Brooklyn, N. Y.

QUESTIONS, ENIGMAS, CHARADES, Etc.

RIDDLE.

Though I'm often bound for the most of my life,
And serve my master well,
Yet I feel as free as the rustling leaves,
Which oft of my presence tell.

And whether obscure or widely known,
At home, or a worthless rover,
Among the titled I'm ever found,
With my faults all under cover. K.

COUNTIES IN TEXAS ENIGMATICALLY EXPRESSED.

1. A cake. 2. A stone. 3. A queen.
4. A berry. 5. A pursuit. 6. A planet.

NUMERICAL ENIGMA.

I am composed of 18 letters:

My 14, 17, 5, 13, 17, was the wife of one of the patriarchs.

My 1, 4, 5, 10, 16, was one of Saul's daughters.

My 2, 1, 8, 6, 10, was second cousin to Joab.

My 7, 8, 18, 13, 4, 9, was a servant sent to Elisha by a sick king to inquire if he would recover.

My 1, 2, 12, 11, 17, 3, was one of the daughters of Zelophehad.

My whole is a scripture name, used to signify to the Jews that "the riches of Damascus and the spoils of Samaria" were to be quickly taken by the Assyrians.

H. G. D.

TRANSPOSITIONS.

1. Transpose a rent into a thicket.
2. Transpose part of a book into an insect.
3. Transpose an animal into a plant.
4. Transpose a river into a string.
5. Transpose a fruit into a fish.
6. Transpose a mineral into a valley.

ENIGMATICAL LIST OF CAPES.

1. A biped, an exclamation, and an enclosure.
2. A trade and an animal.
3. A caution.
4. A color.

PUZZLE.

If to a vehicle you will but add
The period of time which each one lives,
You'll something see, oft on the table laid,
To many an epicure it pleasure gives.

SQUARE WORD.

Square the word SEVEN.

(As this will require some patience and perseverance, I propose to give a set of anagram letters—to be drawn by lot from the names of all those sending correct solutions—for an answer composed of fair English words in common use. Proper names not allowed.)

CHARADE.

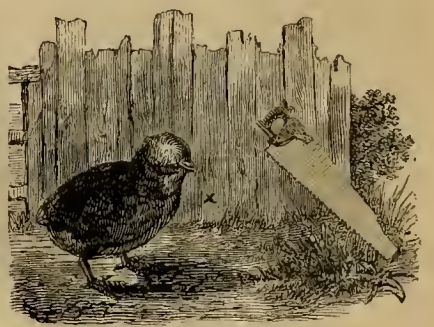
To the animal kingdom my *first* doth belong,
My *second* belongs to the fruit;
My *whole* you will probably have to obey,
If it is proper, and happens to suit.

COMBINATIONS.

1. Join together a verb, an adverb, and an article, and make a flower.

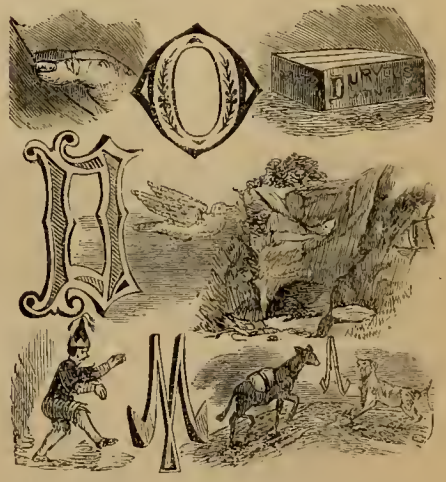
2. Combine equality, an article, and a situation, and make a contemptible creature.

3. Combine a frame of mind, a preposition, and a vowel, and make a desirable quality.



398. *Illustrated Rebus.*—The name of an Indian tribe.

399. *Illustrated Rebus.*—A scriptural injunction.



400. *Illustrated Rebus.*—You will know more about this after you have made it out.

ANSWERS TO REBUSES IN THE OCTOBER AND NOVEMBER NUMBERS.

393. "Who drives fat oxen should himself be fat.

394. Straws show how the wind blows.

395. Govern your conduct according to circumstances around you.

396. If sinners entice thee, consent thou not."

THE FIRST SMOKE.—*Drawn and Engraved for the American Agriculturist.*

Boys frequently think that it is somehow a mark of manliness to smoke. These boys in the picture think they have done a great thing. They have bought cigars, pipes and tobacco at the grocery store, and feel that they are now as big as any one. Look at the little fellow at the right and observe what airs he puts on. Poor fellows! they will pay dearly for their first lesson. Indeed, the center boy does not look as if he enjoyed his pipe. The others, seem disposed to laugh at him, but they too will soon feel like doing any thing except to laugh. Probably the oldest smoker has not forgotten his early attempts to acquire the habit of smoking. But few escape the penalty being paid by the boy in the picture. Who can forget the terrible nausea, the deathly paleness, the trembling limbs, and, worse than all, the smell of tobacco in the breath and upon the clothes, which told the tale when he went home. Then, which was worse than all the sickness—the shame at having disobeyed the commands or known wishes of his parents. But some boy will say that his father, his uncle, or some other very good man smokes, who would not do it if it were not right and proper. Let this boy ask the best man he knows, who is a smoker, if he would advise him to smoke; and the answer will most certainly be, "No." And he would probably add, "I would give a great deal if I could shake off the habit." Now, smoking cannot be a very nice thing if fathers will not advise their children to do it. Perhaps some boy will be tempted to try to see if it is so very bad. Let him look at the sick boy in the picture and hesitate. The sickness is but a very small part of the matter, however. The worst thing about smoking is giving up to a habit which controls us and makes us a slave to it for life.

Winter in the Country.

Many, if not most of our boys and girls, live in the country. They have heard their city cousins say, "Oh, the country is very pleasant in summer, but I should not like to live here in the winter." Now, is winter in the country all desolate and dreary? We, who write for you boys and girls, live in the country both summer and winter. In front of the house runs a river, with a wooded bank, and at the rear of the "plantation" is a wooded hill. Now, we have a daily pleasure between these two. How pleasant it is to watch the Ice King stop the flow of the river! and it is just as pleasant to see how the river gets the better of the Ice King, when the great blocks of ice come floating down and crush one another against the banks, and pile themselves against the roots of the great hemlock tree, that is half in the water and half out of it. Then the trees upon the river bank, and the trees in the woods—what varied tints they present! To be sure the old pines are always green, but the willows have their colors, and the birches theirs. Then what pleasure it is to go up into the woods, when the snow is not too deep, and see all the preparations made for next spring! Just lift up the leaves, nature's own blanket, and see how ready, and waiting, the lovely woodland plants are for spring. Then, upon these mild winter days, how the mosses enjoy it, and what fine tufts we can find to bring home, which, by keeping them cool and moist, we can preserve with all their bright verdure for weeks, perhaps months. Then there are the lichens, those grey, queer things that grow, sometimes upon the bark of trees, and sometimes without any apparent attachment, and which people mistakenly call mosses—they, in these mild, sunny days, seem to flourish more than ever before. Then, when in the woods, look at the buds of the different trees. All summer these buds have been getting ready for next spring's opening. See how different the bud of the beech is from that of the hickory. Buds, what wonderful things they are! It needs only a few days of spring to set them agoing. It is as if all summer had been spent in winding them up, and they were all ready to go off at command. Then observe the different colors of the young twigs of trees and shrubs. When the leaves are out we are not apt to notice this, yet every tree and shrub has in its young twigs a characteristic color. The writer once went through a Western forest with a young man who knew every tree by its bark, but could not distinguish it by its leaves and twigs; while the writer knew every tree by its leaves and twigs, and could tell but very few by the bark. This goes to show that we do not half observe the common objects around us. Every boy and girl ought to know the name of every tree and shrub upon the place, and know it so well as to be able to recognize it in its winter nakedness or summer clothing. There is much to be learned in the country in winter, besides what can be obtained from books. Books and papers are most useful sources of information, but we must not rely entirely upon them, but learn to use our own ears and eyes, and to read from the book which the Great Teacher has spread open to us all. He must be hard to amuse who can find no beauty in the wondrous changes that each day presents. With so many interesting things to look at and examine, it would seem impossible that winter should ever be dull in the country, or that time should ever hang heavily.

SILVER MEDAL AWARDED

MOORE'S

EARLY CONCORD CORN.

Read extract from report of the Vegetable Committee of the Massachusetts Horticultural Society:

The past year has not been so prolific of novelties in the way of vegetables, as some of its predecessors. In this age of progress, when so many are engaged in striving to improve our garden vegetables, it would seem strange, indeed, if, among them all, some real gain is not annually secured. Such a gain your committee feel confident the public will secure in "Moore's new Sweet Corn," which, after another season's trial, proves a decided acquisition.

To Capt. J. B. Moore, of the well-known Horticulturist, of Concord, Mass., belongs the honor of originating this splendid variety. It is a cross between Crosby's Early and Burr's Improved, the former the most popular early, and the latter the best *late* variety we have. After several years of great care and labor, Mr. Moore has at last succeeded in bringing it to its present perfection. It was first crossed in 1865, and again in 1867. Stalks strong, stocky and vigorous, growing from seven to seven and a half feet high. Ears set rather low on the stalk, and having from twelve to sixteen usually, and occasionally twenty rows on the ear. Color, when fit for the table, very white and handsome. Quality superior, not surpassed by any other variety. Size of ears, large, considerably larger than the Crosby, and superior to any other variety, either for the market or family use, and very productive. It also matures *earlier* than any other variety of equal size, which will make it a very desirable variety for the market gardener.

Mr. Moore exhibited specimens of this corn, planted in the open ground, well filled and fit for the table, on the same day (July 23d,) as the Darling, an eight-rowed variety of small size, heretofore considered the earliest *sweet* corn we have; the latter variety having been forwarded by starting in pots, in a greenhouse or frame, before planting out in the open ground. It was also shown by Mr. Moore every Saturday during the season, from July 23d to Sept. 23d, in fine condition, and attracted the attention of all.

Your committee should also state, that after visiting the farm of Capt. Moore, for the purpose of seeing for themselves his large field in a growing condition, they returned more fully convinced if possible than before of its value.

The Society's Silver Medal was awarded Mr. Moore by your committee.

CHARLES N. BRACKETT, Chairman.
GEO. HILL, G. W. PIERCE, J. FILLEBROWN,
W. RUSSELL, E. A. STORY, J. B. MOORE.

Having made arrangements with Capt. Moore for sale of his corn, which we shall offer in packets sufficient for fifty hills—one pkt. 50c.; 5 pkts. $2, or one selected ear for $1, post-paid. Prices to the trade on application. For further description, and two beautiful colored lithographs, one of the corn, and one of the flowers, see Amateur Cultivator's Guide, which will be sent free to applicants on receipt of two stamps.

WASHBURN & CO.

SANFORD CORN.

The experience of a large number of farmers in every State who have tested the Sanford Corn the past season, confirms all that has been said in its favor, establishing the fact that

It is not a "Humbug,"

but a decided improvement over all other varieties. In Michigan, Wisconsin and Minnesota, it has ripened in less than ninety days from time of planting, and with same culture, yielding one-third more than other corn.

Farmers, remember that an increase in yield of one bushel per acre will pay the cost of seed. Remember that a change of seed from the "old, worn out," even where no superiority is claimed, is often a great advantage.

Remember that large quantities were sold last season which were not genuine; therefore beware of the spurious. I offer none but selected stock; the small end of every ear rejected.

Send stamp for Circular, giving full description, mode of culture, also the testimony (*neither bought nor bogus*) of reliable farmers, having no "ax to grind," only to give the truth of its great success at the *East, West North and South.*

One quart by mail, post-paid, 60c.; two quarts, $1; four quarts, $2; one peck, by Express, $2; half bushel, $3; one bushel, $5. Address S. B. FANNING,
Jamesport, N. Y.

SANFORD CORN,

HUGH'S CORN,

NORWAY OATS.

I have a fine stock of the above, and wishing to get reports from my patrons, I have offered premiums for the largest yield from 4 lbs. of seed, in '71. I believe the Hugh's Corn will yield more sound corn to the acre than any variety I have ever seen. My Catalogue describes them, and gives conditions to those competing for premiums; also prices by the peck and bushel.

4 lbs. of any one of the above, by mail, $1, or the three to one address, $2,50.

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

To Farmers & Gardeners.

If the Garden Seeds you use have proved fresh and true to name, stick to the man who sells them to you; he is worth encouraging. If you have not found them fresh and true, I shall be happy to add your name to those of the fifty thousand farmers and market gardeners scattered throughout the United States and Canadas, whom I annually supply with my warranted garden seeds. My large vegetable and flower seed Catalogue, abounding with elegant engravings, sent *free* to all.

JAMES J. H. GREGORY, Marblehead, Mass.

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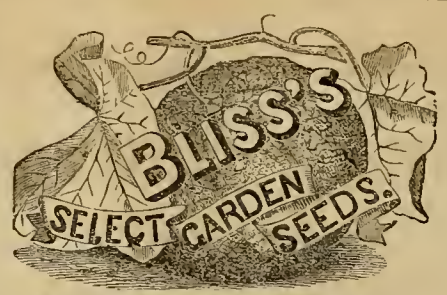

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87	Fourteen Vols. XVI to XXIX	$25 00	47	148	24	72
88	A $10 Library (Your Choice)	$10 00	18	58	9	29
89	A $15 Library do.	$15 00	24	85	12	43
90	A $20 Library do.	$20 00	31	106	16	53
91	A $25 Library do.	$25 00	38	125	19	63
92	A $30 Library do.	$30 00	44	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. (Allsent paid through by Mail or Express.)	$100 00	125	360	63	180
100	A Choice of Good Books. (See next page.)		....	....	....	....
101	A Steam Engine that will GO		3	24	2	6

☞ *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. (Steam Engine mailed for 86 cents extra.)* **[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. 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 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 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, 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 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.*

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.,** 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. 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, **H. 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. ½ 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.; 1½ in., 60c.; 1 Framing Chisel, ea., ¾ in., $1: 1 in., $1.10; 1½ 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., 14c.; 5 in., 17c.; 1 Flat File, 8 in., 30c.; 1 Wood Rasp, 50c.; 1 Soldering Copper, 60c.; Solder, Nails, etc., $1.25;=**$15.00.**

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. 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. 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. 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*. $35 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 only for clubs of 25 or more. The books will be sent by mail or express, prepaid through by us.*

No. 101—Steam-Engine.—This is a veritable steam-engine; one that will GO; and a capital, intensely interesting, and instructive article for boys, and grown-up people too. [See description and Illustration in our December Number, and in *Hearth and Home* for November 26.] Our eleven-year old boy has run his engine an average of an hour or more a day for five weeks past; has exhibited it in motion to many of his playmates; has hitched on the toy machinery, and it appears to go just as well as when first started. It is *given* to any one sending *two* subscribers to *Hearth and Home*, at $3 a year; or *three* subscribers to *American Agriculturist*, at $1.50 a year. It will be sent anywhere in the United States or Territories free if 36 cents are supplied to prepay postage.

SUPERIOR STANDARD WORKS

ON

FIELD SPORTS,

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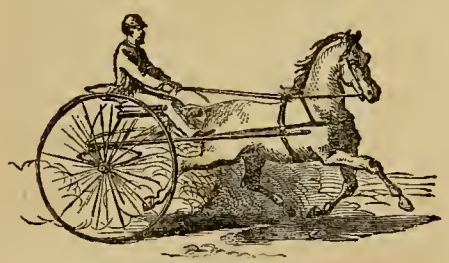

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VOLUME XXX.—No. 2. NEW YORK, FEBRUARY, 1871. NEW SERIES—No. 289.

WHITE AND PARTRIDGE COCHINS AT THE N. Y. STATE POULTRY FAIR.—*Drawn and Engraved for the American Agriculturist.*

The display of Cochins was remarkably fine at the late show of the "N. Y. S. P. S.," and in no class was there closer competition than in Partridge Cochins. The magnificent trio which received the first prize, a pair of which is shown above, belong to Mr. Geo. F. Champney, of Taunton, Mass. The White ones won their honors with less competition, but there was a worthy show. We think we recognize the winning trio above represented as having been exhibited last year, when they lost the award they have now won, on account of exhibiting, in a sprinkling of pale buff feathers, traces of their origin from, or remote crossing with, the Buffs. Those feathers probably disappeared in the last moult, and their owner, Mr. J. J. Berry, of Hackensack, N. J., has a magnificent-looking trio of fowls. The Cochins, as a class, deserve as they receive, the assiduous attention of Fanciers. We hardly value them as highly as the Brahmas for useful qualities, yet so nearly are the two breeds matched in this regard, that the highest authorities differ in their opinions of their relative merits. They are unsurpassed as winter layers, their great cushions of fluffy plumage protecting them from the cold. They are excellent mothers. The young grow rapidly, and early attain marketable and large size, though early maturity can hardly be asserted of them. They grow to the very largest size ever attained by fowls, and present a variety and beauty of plumage which make them attractive as fanciers' breeds. We have the Buff, which is probably the parent breed, the Partridge, the Grouse, like the Partridge, but of less beautifully or distinctly marked plumage, the White and the Black; the last being the least interesting, and usually not breeding very true to color and points.

Contents for February, 1871.

INDEX TO "BASKET," OR SMALLER ARTICLES.

Buffalo Beef in New York.—We have been for some time receiving buffalo hams, mostly from old bulls, sent by express from Kansas; but just as we go to press we have had the pleasure of seeing a car-load of 12½ hind-quarters of young cows, and 7 carcasses of buffalo veal, all plump and fat, full of kidney fat and in good order, though having been 13 days on the way, brought on by T. L. Rankin, of Lyndon, Osage Co., Kansas. They were shot near the Colorado line on the Kansas Pacific Railroad, and brought on in a patent car of Mr. Rankin. This meat is hardly well enough known in our market to bring a remunerative price, for this lot might have been sold west of the Alleghanies for a much higher price than it brings here. It ought to bring as much as the very best beef. It comes in the hides.

Calendar for February.

Day of Month.	Day of Week.	Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon. Sun rises.	Sun sets.	Mo'n sets.	N. Y. City, Ct., 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	W	7 14	5 14	4 12	7 11	5 18	4 7	7 7	5 21	4 2
2	T	7 13	5 15	5 8	7 10	5 19	5 2	7 6	5 23	4 56
3	F	7 12	5 16	6 0	7 9	5 20	5 54	7 5	5 24	5 43
4	S	7 11	5 18	rises	7 7	5 21	rises	7 4	5 25	rises
5	S	7 10	5 19	5 31	7 6	5 22	5 34	7 3	5 26	5 39
6	M	7 9	5 21	6 38	7 5	5 23	6 41	7 2	5 27	6 44
7	T	7 8	5 22	7 47	7 4	5 25	7 49	7 1	5 28	7 51
8	W	7 6	5 23	8 55	7 3	5 26	8 56	7 0	5 29	8 57
9	T	7 5	5 24	10 4	7 2	5 27	10 4	6 59	5 30	10 3
10	F	7 4	5 25	11 16	7 1	5 28	11 14	6 58	5 32	11 12
11	S	7 2	5 26	morn	7 0	5 30	morn	6 57	5 33	morn
12	S	7 1	5 28	0 27	6 58	5 31	0 25	6 55	5 34	0 22
13	M	7 0	5 29	1 38	6 57	5 32	1 35	6 54	5 35	1 30
14	T	6 59	5 30	2 51	6 56	5 34	2 46	6 53	5 36	2 41
15	W	6 57	5 32	3 59	6 55	5 35	3 51	6 52	5 38	3 48
16	T	6 56	5 33	5 0	6 53	5 36	4 55	6 51	5 39	4 49
17	F	6 54	5 35	5 53	6 52	5 37	5 48	6 49	5 40	5 43
18	S	6 53	5 36	6 37	6 51	5 39	6 33	6 48	5 41	6 28
19	S	6 52	5 38	sets	6 49	5 40	sets	6 47	5 42	sets
20	M	6 50	5 39	6 58	6 48	5 41	6 59	6 46	5 44	7 1
21	T	6 48	5 40	8 2	6 46	5 43	8 3	6 44	5 45	8 3
22	W	6 47	5 42	9 4	6 45	5 44	9 4	6 43	5 46	9 4
23	T	6 45	5 43	10 6	6 44	5 45	10 5	6 42	5 47	10 4
24	F	6 44	5 45	11 5	6 42	5 46	11 3	6 40	5 48	11 0
25	S	6 42	5 46	morn	6 41	5 48	morn	6 38	5 49	11 59
26	S	6 41	5 47	0 5	6 39	5 49	0 2	6 37	5 51	morn
27	M	6 39	5 49	1 3	6 38	5 50	0 59	6 36	5 52	0 55
28	T	6 38	5 50	2 2	6 37	5 51	1 57	6 34	5 53	1 52

PHASES OF THE MOON.

MOON.		BOSTON.	N. YORK.	WASH'N.	CHA'STON	CHICAGO.
	D.	H. M.	H. M.	H. M.	H. M.	H. M.
Full	5	9 18 m.	9 6 m.	8 54 m.	8 42 m.	8 12 m.
3d Quart..	12	10 16 m.	10 4 m.	9 52 m.	9 40 m.	9 10 m.
New Moon	19	9 5 m.	8 53 m.	8 41 m.	8 29 m.	7 59 m.
1st Quart.	27	5 54 m.	5 42 m.	5 30 m.	5 19 m.	4 48 m.

AMERICAN AGRICULTURIST.

NEW YORK, FEBRUARY, 1871.

It is hard to realize that so very soon after this number of the *Agriculturist* is intrusted to Uncle Sam's mail bags, it will be read by thousands of families who may read it sitting with open doors and windows and watch the mellow soil turned by the plow, or enjoy the fragrance of blooming fruit trees and jasmines, while we shiver, with the thermometer below zero, perhaps, and face day by day the blasts of winter. Yet it is even so. The fields of the South are green with white clover and spring grasses, and spring work is beginning in earnest. The market gardens about Norfolk and Beaufort are busy enough, and their early crops perhaps already shipped to our hungry North. Clucking mothers lead forth their downy broods, which will make our choice broilers in May and June at a dollar to a dollar and a half apiece. In another direction mail trains and stages will be delayed by drifted snow, and neighbors with their ox teams and snow shovels will be opening roads and helping the stage-sleigh with its load of half-frozen passengers through to their journey's end.

As the sun rises higher at noon, and waxes hotter, the sap will start in the sugar bush, and there will be pleasant scenes on many a hill-side, where the fires of the sugar-camps burn night and day.

We still have comparative leisure for reviewing the past year's work, and laying plans for the coming months, when so much hard labor will be demanded that the mind will not give itself readily to continuous thought. Whatever plans are made, on this very account, if for no other reason, should be put upon paper, so that when the time comes for their prompt execution, they shall not be forgotten. The season of field work, when it does come, will be likely to come all at once, and then you will feel as if every moment were gold. Therefore, use all leisure time to get ready for spring work.

Hints about Work.

If the snow is off the fields, the opportunity is a good one to pick up stones. Cart them off from the mowing and grain fields in the mornings, while the ground is frozen. The grass fields may be gone over with a sharp hoe or weeding "spud," and multitudes of weeds cut just below the surface.

Winter Grain, which does not look well, and has been thrown by the frost, will be benefited by a light, even dressing of fine, well-mixed muck compost, or simply fine muck or soil.

Grass and Clover Seeds.—These may be sown toward the end of the month, if the frost is pretty well out of the ground. The sowing is easiest done on a light snow, when the seed may be seen, and an even cast secured. To this end, it is often well to sow in two directions across the field, and sometimes even three, as in sowing grass seed upon a lawn. Suitable weather for this frequently does not come until March. Avoid sowing where melted snows will wash the soil away, or move the seed.

Buildings.—Clear roofs from too heavy snow, stop leaks, keep eaves-troughs free, paint where needed, fasten loose boards, keep manure away from sills, oil rusty hinges, see that fastenings are in good order, and all repairs promptly made. Get out timber for sheds sufficient to shelter all stock. Study economy and convenience in plans.

Ice.—Secure a full supply, if not already done. In good weather, an ice-house may be made and filled within a week. One will pay on a dairy farm, and be convenient everywhere.

Manure.—Mix plenty of muck, especially with that from the horse stable, to prevent fire-fanging; or, in absence of this, fork over the pile to prevent too great heat. All deposits now made in readiness for use in spring, will respond to drafts to be made for good crops next fall. Keep a heavy balance in your favor to draw upon.

Wood-Ashes should not be emptied into wooden smoke-houses before they are sifted, to be sure no live coals are in them. A few smouldering sparks may be sufficient to fire the structure, destroy its contents, and cause great loss; at least the lower part should be brick or stone.

Crates, Bags, Barrels, Baskets, etc., used for marketing, or kept at home, should be plainly marked with the owner's name and residence. A branding-iron or marking-plate and brush will save many losses. Improve leisure by putting all in repair.

Bird-Houses.—Prepare neat houses for martins, bluebirds, and wrens, to be put up about the house, fruit-yard, and farm. The occupants will pay good rent by destroying insects.

Farmers' Clubs.—The meetings may be made interesting by committees appointed to investigate and report on subjects, such as new crops, new implements, the condition of farms in the vicinity, etc.; by correspondence with other similar associations, and occasional joint meetings of the clubs of different townships. New *facts* and experience, worthy of general notice, should be put in terse language, and communicated to the *Agriculturist*.

Advertisements are profitable reading. They usually indicate what progress the world is making. To farmers they are invaluable. Notes on tools, seeds, stock, trees, plants, etc., should be made, and further information gained by sending for circulars of trustworthy parties. The *Agriculturist* aims to admit no other class.

Horses.—A few carrots with their grain will aid digestion and appetite, and improve their coats. Exercise daily. *Train* colts so that no *breaking* will be needed, and that none of spirit or of harness result. Keep working and carriage horses sharp shod, well groomed, and blanketed when standing out, or in cold stables after exercise. Ventilate stables, and abolish high feeding racks.

Cows.—Dry off four to six weeks before calving. Give generous feed of hay and roots, but not much grain. Cut hay or straw, steamed, and a little bran or meal added, is profitable. Keep the skin healthy by frequent carding and brushing. Those about to calve should be turned loose into separate, roomy stalls. Watch their time, to give assistance, if needed, but do not interfere, unless absolutely necessary, and then use gentle means. Allow the calf to have the milk for four or five days. The effect of the first milk is medicinal and essential to the health of the young animal. After calving, let the cow alone; she will lie down awhile, and then get up and begin to eat. Then offer her a warm bran

mash, made with scalding water, but allowed to cool to about blood heat. Keep her upon her usual feed, with the addition of roots, to promote the flow of milk.

Sheep ought to have free, open yards or a more extensive range, for exercise and fresh air are essential to their health. Shelters must be well ventilated, not crowded, and the sheep turned out daily, except in severe storms. Pregnant ewes should have little grain, but roots with hay. Those yeaning early will need separate, clean, not over-littered apartments, and careful attention, that the lambs be not fatally chilled.

Swine.—Allow breeding sows, near farrowing, potatoes or other succulent food, with bran or boiled corn-meal. Give them clean, well-littered stles, but not straw enough to endanger the young by covering them so that the sow will lie upon them. Poles, ten inches above the floor, and about eight inches out from the sides, all around the pen, will prove a great safeguard.

Implements.—Have all in repair and readiness for spring work. In the end, buying is cheaper than borrowing. Consult advertisements, send for catalogues and circulars for information about new implements, and always get the best.

Work in the Horticultural Department.

Now is the time to prepare for any emergency that may occur in the busy season. An extra spade or whiffletree, and a reserve supply of seed to replant in case of failure, are often of the greatest importance. Next month, active operations will be crowding, and even now, at the South, out-of-door work is going on. Trees should be ordered at once. Stock of some kinds may be very scarce, and it may be necessary to apply to more than one dealer, in order to procure the desired varieties. The assortment of seeds is at its best this month, and it is well to secure them now. The same with implements; purchase the best, and have extra ones or duplicates of parts that are liable to be broken. Test seeds, as far as possible, to be assured from your own knowledge that they are good. It is a great advantage to the purchaser and a convenience to the vender, to order trees, seeds, and such things, well in advance. Seedsmen now have their catalogues ready and their stock in store.

Orchard and Nursery.

Washing and Scraping are of great benefit to neglected trees; and washing, at least, may be done with advantage on all fruit trees. It destroys the young and almost invisible growth of mosses and lichens, kills dormant insects that have hidden in crevices, and improves the tree generally. Various tree washes have been recommended, but there is probably nothing better than good, home-made soft soap, thinned with water to work conveniently with a brush. Remove the loose scales of bark by means of a blunt scraper before washing.

Insects are to be fought at all seasons. Remove the eggs of the tent-caterpillar before they hatch. They are to be found near the end of the small twigs, glued around in a neat band. The wingless females of the canker-worm begin to ascend the tree as soon as the ground thaws. There are many protectors, all of which agree in principle—that of interposing a barrier over which the insect cannot crawl.

Cions may still be cut. Pack them in fresh sawdust; or, if put in a tight tin box, and kept in a cool place, they will keep in good condition until it is time to set them.

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 brown paint, which may be tinted, to be less conspicuous.

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. Cold, drying winds are very injurious.

Varieties.—For family use, the selection should comprise varieties from the earliest to the latest. For marketing, there should be but few varieties, and 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, go about among those who grow fruit, and learn.

Injured Trees.—Such as are broken by the wind should be pruned as the case may require; and the stumps, when limbs are removed, should be painted over with *hot* grafting wax, to prevent the sap flowing out and "scalding" the bark, as the farmers call it. When trees are gnawed by mice and rabbits, if the injury does not amount to girdling, or nearly to that, pare the torn edges of the bark, and paint this also with grafting wax; make a plaster of earth and cowdung and apply this, binding it on with a cloth. If girdled, the bark above and below should be united by means of twigs of the size of one's finger inserted in each side and bound on, the ends being sharpened and fitting corresponding notches.

Fruit Garden.

Dwarf Trees 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.

Pruning of small limbs may be done with the knife wherever necessary, to bring trees into shape.

Grape-Vines not attended to last autumn should be pruned in the first mild spell that occurs.

Strawberries may be set as soon as plants can be procured, and the frost is fairly out of the ground.

Trellises will be needed for grapes, and posts should be got out. Where durable timber is scarce, set a short locust post in the ground, and spike to it an upright of other wood.

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.

Kitchen Garden.

Every man, woman, and child in the country, or who lives where the backyard is not all flagged, except a square rod to dry clothes upon, or who lives, and does not *board*, is, or should be, practically interested in the kitchen garden; the countless daily blessings which come to the board every month in the year—yes, every *day* in the year—are blessings—God's blessings—received from the garden. Good food brings health; fruit and vegetables are man's first and most natural food. According to Moses, man was first permitted to eat meat after the flood. The crisp salads and spinach of the early spring are followed by the long list of delicious things until the store of various roots, cabbages, and celery, parsley, etc., fills our cellars and keeps us well supplied until spring comes again with its delicacies.

Manure, the one thing needful for success in gardening anywhere, North or South, whether to be spread for the crops or to be used for hot-beds, must not be allowed to get overheated. Turn it over, and water it if too dry.

At the South hardy vegetables may now be sown—turnips, carrots, lettuce, cabbages, radishes, onions, leeks, spinach, parsley, etc., also plant potatoes, peas and rhubarb, asparagus and other roots. The time for planting tender vegetables, such as okra, beans, cucumbers, etc., must be governed by that at which it is safe to plant Indian corn. Corn is so generally planted all over the country, and the time at which it is safe to put in the crop is so well established in each locality, that it is always a safe guide for the inexperienced.

Cold Frames.—Plants in these will need more care, must have plenty of air, and exposure by removing the sashes whenever the weather will allow.

Hot-beds, unless very early vegetables are wanted, need not be made, at the North, until next month. In Southern gardens they may be prepared, and tomatoes, peppers, egg-plants, cabbages, etc., sown in them. Shelter from prevailing winds should be looked out for, and if necessary to make the bed in an exposed place, it will pay to put up a temporary fence to shut off prevailing winds.

Brush and Poles for peas and beans should be cut while there is leisure, trimmed and sharpened, and stacked near the place where they will be used.

Root Crops that were left in the ground all winter—salsify, parsnips and horseradish—may be dug for sale or use whenever the ground is thawed.

Rhubarb may be forced, by taking up the roots and setting them in boxes of earth in a greenhouse; or, a few roots in the bed may be forced by covering with boxes or barrels around which is heaped a good supply of fermenting manure.

Potatoes.—Plant some early sort, such as Early Rose, as soon as the frost will allow.

Straw Mats to cover the sash, to protect plants from frost or too much sun, are very important. They should be 7 feet long, and 4½ feet wide, so that two will cover three sashes. One of the simplest ways to make them is to stretch five strands of strong twine or "marlin," of the proper length, to form the mat, then lay on straw, with the but 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.

Flower Garden and Lawn.

It is pleasant to have in the flower garden, and to a less extent upon the lawn, a constant variation year after year, in the kind of flowers, and in their succession upon the same ground. A little thought and planning will secure this, and add much to the interest of ornamental and pleasure grounds.

Ornamental Trees should have the same care as fruit trees. Most of them will repay manuring; and they need pruning whenever a branch disfigures the proper shape.

Shrubs may be pruned and thinned. Those that bloom on the new wood may be cut back, but those which have their flower-buds already formed need only to be thinned when the growth is crowded.

Plants in Pits must have air on warm days, or they will get drawn up by the increasing heat of the sun. Give water only when the soil in the pots is dry

Dahlias, Cannas, etc., stored in cellars, ought not to be too damp. If there are signs of mould or rot, remove them to a dry room.

Rustic Work should have a coat of oil, and such trellises and frames as need it should be painted during the very early spring.

Lawns may be rolled as soon as the frost is out of the ground, and if they did not have a top-dressing last autumn, give one now of good compost.

At the South.—Make walks, prepare borders, and set edging. Transplanting of trees, shrubs and herbaceous perennials, may be done, and the hardier annuals sown.

Greenhouse and Window Plants.

During mild weather more care will be required with the fires, as sudden changes are apt to occur. Maintain a uniform temperature, which should be 10° to 15° lower by night than by day.

Camellias that have done flowering must be pruned, and if the pots are full of roots, repot.

Azaleas coming into flower should have more water, and when in bloom, be shaded from the sun.

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

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.—Cuttings of Verbenas, Geraniums, Heliotropes, and such plants as are often needed in large quantities, may be started, 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.

Annuals, for summer blooming, may be sown in shallow boxes, and the seedlings, when large enough to handle, may be pricked out into other boxes. Many herbaceous perennials, started early, will bloom the first year.

TWO MISTAKES—Read About Them.

First, we think every one of our readers makes a Mistake, who does not secure the reading of HEARTH AND HOME. As that and *American Agriculturist* are supplied together for $4 a year, *Hearth and Home* really costs the reader of this Journal only $2.50 a year, or less than 5 cents a week, which is less than the price of one fair cigar, and less than the produce of one hen would sell for. Aside from, or if you prefer, in addition to any profit from the circulation of *Hearth and Home*, we really desire all our old readers to have it, because we believe it will both please and benefit them. It is really *a very fine paper*, and full of good things, and we not only know we can, but know we shall make it a first-rate Journal for every body. Its Engravings are very beautiful, pleasing, and instructive withal. These illustrations are not cheap ink blots, but are of the first class, and excellently printed.

Its 20 pages are nearly double the size of *American Agriculturist*, and, in addition to the engravings, there are two of these large pages of editorials on live topics; a page or more on Agriculture, and one on Horticulture and Gardening, etc., prepared by the best practical men in the country; three pages on a variety of topics, answers to queries, etc.; a page or more of the very best practical information on Household work; two pages of miscellany—art, science, literature, including a couple of columns of choice humor, such as will rest the tired man or woman, helping him to "laugh and grow fat;" and then come two pages of the most charming children's reading that we find anywhere. Finally, we have four pages giving, in a condensed but clear form, the news of a week, brought up to within an hour of mailing. In these pages one will find a record of every thing of general interest going on in the world, in such a form that *busy* men and women, and those not supplied with a large stock of newspapers, can find a ready prepared digest of what is transpiring, without wading through a mass of printed matter. The latest financial, commercial, produce, live-stock, and other market reports are also given. Such is *Hearth and Home*, and we mean to make it so valuable that no one can afford to be without it, and we want to have all our readers enjoy it. Please give it a trial. A specimen copy will be sent to any one desiring it.

The *second* Mistake referred to above, is an idea, which we hear is entertained by some, that *Hearth and Home* and *American Agriculturist* are alike. They are entirely different in engravings and reading matter—as much so as if published a thousand miles apart, though the combination of the business interests saves in rent, in printing, and other machinery, in business clerk hire, in mailing, and engravings, news, etc. etc., so that we can really give more in each paper for the same money than we could if separate business establishments were required for each Journal.

With these facilities, and with a combined circulation reaching over **200,000** families, which divides the cost so as to make it comparatively small to each, we are able to present to every reader of the two Journals, at the small cost of only 8 cents a week, copies of engravings worth **$35,000** to **$40,000** each year, and an amount of reading matter equivalent to what is given in **122** good Books of the size usually sold at $1 each!

☞ Both Journals are Electrotyped, so that Numbers from the beginning of the Volumes can at any time be supplied as called for.

Commercial Matters—Market Prices.

Gold has been without remarkable change since our last, the extremes of the price having been 110½@111½, and the closing quotation on Jan. 17, 110½, against 111 on Dec. 15.....There has been more than an average trade in the leading kinds of Breadstuffs since our last, and the general tendency of prices has been upward. The export demand has been fair for Flour and Wheat, and moderate for Corn, at the advancing figures. The available supply of prime qualities has been much reduced, and holders have shown increased confidence..... There has been renewed activity in Provisions, especially in hog products, which close decidedly dearer.....The Cotton movement has been fairly active, but at variable prices, closing heavily.....There has been more call for Hay, Tobacco, and Wool, at rather steadier rates.....The dealings in Hops have been unimportant and prices have been much depressed, on liberal offerings, particularly of undesirable qualities.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our daily record during the year, show at a glance the transactions for the month ending Jan. 17, 1871, and for the corresponding month last year· also for the year ending December 31, 1870.

1. TRANSACTIONS AT THE NEW-YORK MARKETS.

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days *this* m'th.	304,000	276,000	198,000	5,600	317,000	291,000
26 days *last* m'th.	535,000	3,184,000	1,540,000	76,000	1,212,000	1,936,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days *this* m'th.	321,000	2,041,000	973,000	47,000	216,000	811,000
26 days *last* m'th.	547,000	3,451,000	4,116,000	67,000	456,000	1,743,000

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

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days 1870	304,000	276,000	198,000	5,600	317,000	291,000
24 days 1869	247,500	155,000	141,000	——	178,000	237,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days 1870	321,000	2,041,000	973,000	47,500	216,000	811,000
24 days 1869	214,000	1,756,000	995,000	32,000	133,000	768,000

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

	Wheat, bush.	*Corn,* bush.	*Rye,* bush.	*Barley,* bush.	*Oats,* bush.	*Malt,* bush.
1871.						
Jan. 16	3,685,116	272,618	157,730	554,491	1,736,936	216,894
1870.						
Dec. 15	3,060,762	208,319	148,069	500,397	2,085,137	231,129
Nov. 9	2,092,900	306,000	116,800	400,400	2,125,000	——
Oct. 10	1,809,921	476,544	53,391	181,803	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	1,241,913	483,540	28,816	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	116,329	20,502	126,043	410,517	83,000
April 11	1,345,186	285,916	23,249	187,172	756,811	99,988
March 7	2,509,608	484,176	39,069	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	38,289	34,900	1,310,935	85,405

4. *Receipts of Breadstuffs in New York in each of the last eight years:*

	Flour.	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
1870	4,143,993	24,083,742	9,143,478	550,169	5,020,718	9,626,606
1869	3,535,716	23,813,652	11,666,784	357,803	3,067,958	8,747,322
1868	2,860,736	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	2,669,724	8,030,807
1866	2,720,835	5,729,912	22,189,532	1,314,943	5,695,485	8,811,064
1865	3,648,526	8,768,929	15,935,277	899,679	3,239,054	9,851,955
1864	3,967,717	13,453,186	7,164,895	491,915	2,544,891	12,952,238
1863	4,574,059	19,937,856	14,234,599	439,567	2,144,485	11,076,035

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

	Flour.	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
1870	1,956,234	18,416,035	487,792	92,431	——	28,986
1869	1,582,211	18,240,586	1,637,586	142,542	——	49,393
1868	1,026,522	5,775,109	6,002,825	153,093	——	94,340

6. *Comparative Stock of Flour in New York, Jan.* 1.

	1868.	**1869.**	**1870.**	**1871.**
Western and State Flour	432,294	438,173	395,203	513,349
Canada Flour	830	5,300	575	850
Southern Flour	25,459	30,601	46,560	45,870
California Flour	....	19,904	1,140	....
Grand total, bbls.	508,583	490,978	443,478	565,069

7. *Comparative Stock of Grain in New York, Jan.* 1.

	1868.	**1869.**	**1870.**	**1871.**
Wheat, bushels	1,008,940	4,028,065	4,466,369	3,700,006
Corn, bushels	1,517,900	2,064,079	640,500	303,033
Rye, bushels	202,400	296,443	66,650	2,289,065
Barley, bushels	396,820	647,459	639,933	192,070
Oats, bushels	2,805,000	3,213,388	1,796,962	1,461,192
Malt, bushels	....	121,173	91,114	14,571
Peas, bushels	....	74,708	47,671	358,330

CURRENT WHOLESALE PRICES.

	Dec. 15.	Jan. 17.
PRICE OF GOLD	111	110½
FLOUR—Super to Extra State	$5 10 @ 6 65	$5 60 @ 6 85
Super to Extra Southern	5 15 @ 9 00	5 80 @ 9 25
Extra Western	5 80 @ 9 25	6 30 @ 9 00
Extra Genesee	6 65 @ 8 75	6 90 @ 9 00
Superfine Western	5 10 @ 5 45	5 60 @ 6 10
RYE FLOUR	3 95 @ 5 50	4 00 @ 5 00
CORN-MEAL	3 80 @ 4 50	3 75 @ 4 50
WHEAT—All kinds of White	1 40 @ 1 80	1 50 @ 1 80
All kinds of Red and Amber	1 12 @ 1 48	1 15 @ 1 55
CORN—Yellow	75 @ 85	81 @ 85
Mixed	72 @ 82	79 @ 83
OATS—Western	58 @ 62	58½@ 63
State	60 @ 60½	60½@ 62
RYE	90 @ 1 12	95 @ 1 10
BARLEY	78 @ 1 12	85 @ 1 12
HAY—Bale ₱ 100 lb	1 05 @ 1 85	1 20 @ 1 40
STRAW, ₱ 100 lb	75 @ 1 15	80 @ 1 25
COTTON—Middlings, ₱ lb	15 @ 15¾	15¾@ 16¼
HOPS—Crop of 1870, ₱ lb	8 @ 16	6 @ 14
FEATHERS—Live Geese, ₱ lb	75 @ 85	75 @ 85
SEED—Clover, ₱ lb	11 @ 11¼	10¾@ 11¾
Timothy, ₱ bushel	4 50 @ 5 00	5 75 @ 6 00
Flax, ₱ bushel	2 10 @ 2 20	2 10 @ 2 20
SUGAR—Brown, ₱ lb	9¼@ 11¾	8½@ 11¾
MOLASSES, Cuba, ₱ gal	18 @ 33	20 @ 35
COFFEE—Rio, (Gold, in bond)	9½@ 13	10 @ 13½
TOBACCO, Kentucky, &c., ₱ lb	6 @ 12½	6 @ 12½
Seed Leaf, ₱ lb	10 @ 75	10 @ 75
WOOL—Domestic Fleece, ₱ lb	44 @ 56	44 @ 57
Domestic, pulled, ₱ lb	27 @ 44	27 @ 45
California, unwashed	— @ —	26 @ 33
TALLOW, ₱ lb	— @ —	8½@ 9
OIL-CAKE—₱ ton	41 00 @41 50	40 50 @41 00
PORK—Mess, ₱ barrel	19 55 @24 00	21 50 @22 50
Prime, ₱ barrel	17 00 @17 50	18 50 @20 50
BEEF—Plain mess	10 00 @15 00	11 00 @15 00
LARD, in trcs. & barrels, ₱ lb	11¼@ 12¾	12 @ 13
BUTTER—State, ₱ lb	20 @ 42	20 @ 42
Western, ₱ lb	13 @ 33	12 @ 33
CHEESE	5 @ 16½	5 @ 16¼
BEANS—₱ bushel	1 75 @ 2 60	1 75 @ 2 65
PEAS—Canada, free, ₱ bu	1 25 @ 1 30	1 25 @ 1 30
EGGS—Fresh, ₱ dozen	30 @ 36	31 @ 35
POULTRY—Dressed Fowls	15 @ 18	16 @ 13
Turkeys, dressed, ₱ lb	18 @ 20	15 @ 18
Geese, ₱ pair	1 85 @ 2 25	1 75 @ 2 25
Woodcock, ₱ pair	80 @ 1 00	— @ —
Partridges, ₱ pair	80 @ 1 12	60 @ 1 50
Ducks, ₱ lb	16 @ 19	15 @ 18
Prairie Chickens, ₱ pair	75 @ 1 12	— @ —
Quails, per dozen	1 25 @ 1 50	1 50 @ 1 75
Venison, per lb	8 @ 18	13 @ 21
POTATOES, ₱ bbl	2 25 @ 4 00	2 50 @ 5 00
SWEET POTATOES, ₱ bbl	2 50 @ 3 00	3 00 @ 3 50
TURNIPS—₱ bbl	1 00 @ 1 50	1 00 @ 1 25
CABBAGES—₱ 100	5 00 @10 00	5 00 @10 00
ONIONS—₱ bbl	2 75 @ 3 25	3 00 @ 4 00
CRANBERRIES—₱ bbl	8 00 @12 00	9 00 @12 00
BROOM-CORN—₱ lb	3 @ 8	3 @ 8
APPLES—₱ barrel	1 00 @ 2 75	1 00 @ 3 50

New-York Live-Stock Markets.—

WEEK ENDING.	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	*Tot'l.*
Dec. 19th	6,570	78	950	35,890	25,583	69,071
Dec. 26th	6,574	69	1,178	36,023	27,373	71,217
Jan. 2d	5,579	61	778	21,157	19,609	47,184
Jan. 9th	6,957	65	805	21,462	14,916	44,205
Jan. 16th	5,557	58	602	28,142	14,971	49,347
Total in 5 Weeks	31,237	331	4,313	142,674	102,452	279,024
do. *for prev. 5 Weeks*	31,920	448	7,543	173,446	121,905	338,262

	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per Week	6,247	66	863	28,535	20,490
do. do. *last Month*	6,984	89	1,509	34,689	24,381
do. do. *prev's Month*	8,403	111	2,139	41,306	26,206
Average per Week, 1870	6,347	97	2,240	28,151	17,108
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	1,499,509	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	1,174,154	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 lighter supply during the five weeks just ended fails to add anything to the price. In fact, prices have steadily declined, with the exception of holiday week, when large quantities of fancy cattle were sent in for sale,—more than ever before, and more than could be sold at the rates such animals usually reach. A few of the first choice ran up to 20c.@21c. per ₱ lb., net weight, but nearly as good bullocks went at 17c.@18c. before all were closed out. The course of trade has been such as to inflict serious loss upon speculators and drovers who had previously contracted for stock. Some of the old dealers have been compelled to retire, and others will be forced to follow, unless something more favorable turns up. Cattle have been costing nearly as much at the West as they would sell for here. The causes are a continued large supply, and markets never before so filled with poultry and game. Buffalo from the prairies, cattle dressed in Chicago, deer brought down in the western wilds, with innumerable quail, grouse, and rabbits, all detract from the trade in live-stock. A whole car load of 15,600 lbs. buffalo saddles has just arrived from Colorado and Kansas. The meat is offering below the price of beef. Late arrivals of cattle show a better quality, with very few Texans among them. During the year 1870, there were 39,652 Texan cattle, that State standing second in source of supply. The present trade closes in a very unsatisfactorily for dealers. Orders have gone West to hold back the stock until there is an improvement here.

Below we give the range of prices, average price, and figures at which large lots were sold:

Dec. 19th,	ranged	10	@21	c.	Av. 14	c.	Large sales 13 @18
do. 26th,	do	10	@17	c.	do. 13½c.	do.	do. 12½@15
Jan. 2d,	do.	8½	@16½	c.	do. 13¾c.	do.	do. 12½@15
do 9th,	do.	8½	@16	c.	do 13½c.	do.	do. 11 @14
do. 16th,	do.	8	@15	c	do. 13 c.	do.	do. 11 @14

Milch Cows.—The fresh cow trade seldom amounts to much during the winter. Milkmen supply themselves in the fall, and towards spring begin to purchase again. Trade has been very dull for a month past, poor cows selling low. Some sent in to be palmed off as fresh cows, when they were really "stepmothers," were sold at $25@$30 each. Very poor, but fresh cows are selling at $45@$55, fair to good at $70@$85, and prime to extras $90@$100.. . **Calves.**—These have fallen off in numbers, but remain steady, so far as prices are concerned. During the winter season, large quantities are sent in ready dressed, with skins on, which do not appear in the receipts. Such calves sell at 12c.@16c. for thin to prime milk veals, and 6c.@10c. for fed calves. Live are worth 10c.@12c. per ℔., if fair to fat, and 4c.@8c. for grass or hay fed up to thin, milk veals..... **Sheep.**—There was a good supply of extra fat sheep sent in for the holidays, weighing from 120 to 200 lbs. alive. Such animals sold at 8c.@10c., with an occasional sheep still higher. Since then the markets have been tame, with a surplus of stock usually on hand. Butchers now complain of the many ewes sent to market heavy with lamb. Wethers sell much the quickest. Prices range from 4½c.@5½c. per ℔., live weight, for thin to fair sheep, and 6c.@7c. for good to extra..... **Swine.**—In addition to the 102,450 live hogs during the last five weeks, we have had 36,779 Western dressed, most of them during the past fortnight. Arrivals of dressed, at the present time, equal those sent in alive. Dealers in hogs have had a rough season so far, prices declining between the time the hogs were bought West and sold here. They are now about ½c. lower than one month ago, and nearly 2c. below the prices of this time last year. We quote live at 7⅛c.@7⅜c., with city dressed at 8¾c.@9¾c., and Western dressed at 8¼c.@8¾c. Light pigs, when selected out, sell for more money.

Special Premiums.

For a renewal and one new 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.

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.—Hasbrouck & 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.

Serviceable Pump for Deep Wells.—"T. B. R.," Broad Run, Va., writes: "I have found difficulty in obtaining a good, durable pump for a deep well. Do you know a pump which is desirable for wells 70 to 75 feet deep, in localities not convenient to cities? Durability, and *non*-liability to get out of order are prime necessities with us."—We do know, just such a pump, and believing it to be one of the best if not the very best pump in the world, we offer it as a prize for subscribers to the *Agriculturist.* See our Premium List on page 73.

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 Volume 29 are now ready. Price, $2, at our office; or $2.50 each, if sent by mail. Any of the previous thirteen volumes (16 to 28) 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.

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.

There is No Mistake in the assertion that Many Thousands of our readers may this month secure, *free of cost*, one or more of the valuable articles described on pages 73, 74, and 75, (see also page 44,) and that, too, without interfering with their regular business. A subscriber or two a day for either journal, will soon count up enough for a large and valuable premium. Few persons, if properly enlightened as to the practical value of such journals, will fail to subscribe. They will decide to save, if necessary, a few cents per week from some needless luxury, to secure so large an amount of *useful* reading, and so many hundreds of fine engravings. They only need an invitation with a few explanations from some one who knows the journals.

Spring will Soon be Along, and those who contemplated setting out fruit trees, shrubs, etc., will do well to look out early for their supplies. It is best to begin in time, and send now for catalogues of seeds, trees, and plants, and make up orders. If dealers have their orders early, they can be all ready to supply them at the proper time, far better than if they "come all in a heap" just at the digging season, and the earliest orders generally fare the best. Our own advertising columns furnish a fair directory to good dealers—we aim to admit none others—none that we would not buy of ourselves if occasion required. As our advertisers know our strict rules, and their danger of exclusion, if nothing worse, if any member of *our* family of readers is not well dealt by, it is always best in writing, on sending for circular, etc., to note the fact when advertisements responded to were seen in this journal.

That Little Steam-Engine, which was described in December, is worthy of all we said of it. Our own boys find it a perpetual source of interest; and the first one obtained, which has been very frequently run during more than two months, seems rather to improve with age and use. Fifty-five of our Sunday school-boys each received one of these as a Christmas token from their teachers, and we know of nothing else that could have given a hundredth part so much pleasure as these have. Several have added various toy attachments, which are worked by steam, and are quite interesting. It is not only a pleasing but a rational toy for boys, and there are a good many grown-up boys that enjoy them. They are perfect, reciprocating engines that go. Our first 2,000, bought for premiums, are fast going to those who have secured them, but we have made arrangements for a supply, for a month more at least, and will continue to furnish one of these for three subscribers to *American Agriculturist* at $1.50 each, or for two subscribers for *Hearth and Home* at $3 each a year. They will be mailed safely to any part of the United States or Territories, if 36 cents be supplied for prepaying posting on the engine and box. For two subscribers to each paper at the above prices, we will send an engine post-paid.

Sundry Humbugs.—It is lamentable that Journals, otherwise respectable, continue to advertise almost any swindler that will pay them for the space. To issue good papers, with such advertisements where they will meet the eyes of the unwary, is equivalent to selling sugar-coated poison under a false name. Many of the things advertised contain poison to mind and morals ten times worse in the end than strychnine itself, which indeed kills the body, but not the soul also. A letter before us from a gentleman who writes like one of fair intelligence, tells us how he was swindled by responding to an advertisement which was so constantly before him in *Harper's Weekly*, and in other leading journals, (including several "Religious" papers,) that he supposed it must be all right. This is only one case in hundreds that are constantly coming to our knowledge. Covert advertisements of vicious books and appliances, are continually placed before the young. Every publisher should promote the pecuniary and moral interests of his readers; he has no right to print any advertisement that he has not good reason to believe is of a useful character, and from an upright, reliable, and responsible advertiser. If his Editors—who are supposed from their very position to have facilities for information superior to those enjoyed by the readers—cannot determine as to the character of advertisements, they should be dismissed, and better men put in their places. Unfortunately, they are not usually consulted, but office boys or clerks, who are expected to get in all the money they can, are left to judge of advertisements, or left without discretion; and so we often find in one column "Sunday reading," moral precepts, warnings against vice, exhortations to honesty, etc., and in the next column or two, on the same page, advertisements of a directly opposite tendency, and of the meanest swindlers. "Brethren, these things ought not so to be."..... We have another large batch of letters and circulars concerning the pretended counterfeit money operators, mostly from parties already reported. We will simply give a list of their assumed names, old and new, as a sort of guide or directory to this class of swindlers: Jas. P. Baker & Co.; H. Colter & Co.; Bell & Son; King & Co.; Owen Brothers; Jas. Fisher & Co.; Williams & Co. (the above 7 names all used by one man); Wm. J. Ferguson; H. Hicks & Co.; Rufus Stockton; Thos. W. Pierce; Wm. B. Logan; Robt. H. Holland; Jos. R. Lee; B. B. Walker & Co.; Jno. F. Hamilton; Jas. B. Sherman, etc. And as new names, assumed by this class of swindlers, we have C. E. Benson & Co., 176 Broadway; W. H. Wood & Co., 208 Broadway; J. C. Walter and Batey & Co. (*alias* Thos. Pierce), 599 Broadway; E. Conway & Co., 102 Nassau-st., etc. A double thief, calling himself H. Colter & Co., 195 Broadway, but who will not receive any letters there, wants money by express, and not only seeks to steal other people's money, but he either has stolen or counterfeited the printed envelopes of Messrs. R. H. Allen & Co., proprietors of the well-known Agricultural Warehouse, and uses these to give character to his swindling circulars enclosed in them. Several other reputable firms have been similarly imposed upon.....A letter from Lockport, Ohio, says the writer's boy was so worked upon by a circular sent out from Canton, O., that he stole $10 and forwarded it, and received about $100 in counterfeit 50c., 25c., and 10c. currency. The name given we withhold, as we have no such name on our list of pretended counterfeit dealers, and furthermore none of these men actually send any counterfeit money; they only pretend to, and then pocket the money of their dishonest dupes. If any one has received such circulars from Canton, Ohio, please send us a copy....."Jeffries' Grand Gift and Musical Jubilee" of Council Bluffs, Iowa, though variously sugar-coated, is in principle and in fact, nothing more nor better than a "Havana Lottery." We should prefer the latter, if disposed to invest at all in any such thing, for all the prizes awarded in the Havana Lotteries, where any are received, are in gold, good anywhere, and not what-will-you-do-with-them city lots, which would be sold regularly for cash, if they could be readily sold for any thing like what they are put down at as "prizes." We suppose some people *will* be foolish enough to invest in this and similar "Gift Enterprises," *alias* lotteries, but we hope not one of our readers will do so..... A gentleman in Maryland, who chanced to receive a copy of our paper from Washington, as a wrapper, gives us

quite a list of swindles practised upon himself and neighbors. Had he read the *Agriculturist* for past years, he would have seen all those humbugs he speaks of, and many hundreds of others, shown up in their true colors. His account could be repeated in almost every neighborhood in the entire country where this journal has not been read for years past by a sufficient number of persons to act as centers of information to the community generally .....H. H., of Baltimore Co., Md., and a good many others, are "definitely" informed that not only the "Spanish Policy" a 599 Broadway affair, but every other case is a positive swindle, where parties profess that a "$200" watch or any other prize has been drawn which can be had by the payment of 5 or 10 per cent on the valuation. There have been very many operations of this kind, mainly by parties claiming to be "receivers" for some exploded gift enterprise. We have had many $5 and $10 bills sent us to pay such assessments, which have of course been returned. Multitudes have caught at the plausible bait; their money has never been heard of afterwards. In some instances operators have sent a cheap pinchbeck or gilded or silvered watch, costing $2 or $3 to get up, instead of the "$100," or "$165," or "$200" watch, said to have been drawn. The professed "Spanish Policy" is an outrageous swindle.....Most of the professed "agents" of "Havana lotteries," now operating in this country, are swindlers, using counterfeit tickets; nothing is ever heard of the money sent to them; and the cases are so rare where one gets any thing from the genuine tickets, that none but very ignorant people or lunatics will ever invest a dollar in them..... The Pocket Time-keeper for $1 is an absolute fraud—no better than a chip of wood with a string tied to it. The seller may well say "it can never go wrong," for the reason that it never goes at all. Rocks may just as well be said to be "never out of time"—"never too fast nor too slow." The seller gives his business place as "Broadway, N. Y." Said street is some six or seven miles long, and has over 1,500 numbered buildings, with five to fifty rooms in each; so the defrauded one would have a long search to find this man. And, by the way, the reader may always consider any man a swindler who fails to give his street number in any city or village large enough to have the buildings numbered. But the giving of the number is no certain indication of reliability. A private dodge is to give a picture of some large building, with the operator's name on the front. You go there and hunt through 30 or 40 rooms without finding the name you are looking for; or if found, it is in small letters on a door, which is kept closed except to the letter-carrier or some green dupe, whose character is studied through a small invisible aperture before the door is opened. Perhaps more frequently a boy or clerk is found, while the chief operator is behind a screen, and the said clerk answers that the Proprietor is or is not in, according to a secret signal from the hidden boss, who judges from his retreat whether or not he has a goose to be picked.....NEVER buy professedly cheap jewelry, of any kind, except from a well-known, skilful, and reliable dealer, or upon his judgment. These cheap diamonds, "equalling in brilliancy real diamonds," are poor glass affairs, worth nothing except to make the wearer appear ridiculous in the eyes of people who know any thing of genuine articles. Many thousands of glass things, costing a few cents to make, fitted into a galvanized setting, are sold at $5 to $10 each, and represented to the buyer as "*equal* to diamonds *valued* at $100 to $600. "ALL this cheap jewelry business is sheer humbug, as every one will find who touches it, "C.O.D." or otherwise..... An Old Subscriber in Cuyahoga Co., O., writes us to caution the farmers of that State against the operations of a so-called Cleveland Roofing Company. He says they go into a place, select their man, offer to put on *his* roof free, as an advertisement, get his signature to an order for the material, and then use this in concocting a forged note, which is sold to confederates, after which, threats of law are used to frighten farmers into paying blackmail. We know nothing further than is gleaned from the letter before us, but it will be well for farmers to look out for any such swindles. We remember in old times of having a new patent fanning mill left for a few days as a sample to be seen by the neighbors—rather against the protest of the farmer. The next thing was a bill for it of $30, and then a suit—but the result was, they paid $6 storage and took their mill away.....Once again, we earnestly caution our readers against heeding the circulars or letters of any advertising Doctor, or his medicines. Listen to *no* advertising eye or ear or lung doctor. But our space is full, and we must leave over, to the next paper, several humbugs now in hand.

Burning Corn-Stalks.—"R. T. P.," who has a river-bottom farm in Ohio, writes: "I do not cut up my corn fodder, but in the spring I hitch a horse to each end of a railroad iron rail, and drag down the corn fodder and plow it under. In cultivating the land afterwards this fodder is sometimes pulled up. What benefit are the stalks to the soil when turned under, and would it be considered wasteful if they were raked up into piles and burned?"—With us, we should consider the stalks worth from $2 to $3 per ton for manure. On rich, bottom land, abounding in organic matter, they may be of little value; and in such a case, if they can be burned with little labor, we should not regard the practice as altogether reprehensible.

Another Good Advertising Medium.—The circulation of *Hearth and Home* has been increased more than twenty per cent since its publication from this office, while its advertising rates remain (for the present) the same as formerly. The same rule as to character of advertisements is observed as in the *American Agriculturist*. It is read by a *buying class*, and at the rates charged (40 cents per line), is one of the cheapest mediums in the country.

House and Barn from Designs in the Agriculturist.—Mr. Alex. Kinmont, Defiance Co., Ohio, in renewing his subscription to the *American Agriculturist*, writes: "I have taken it for several years, and find it a very valuable paper. I have followed hints from it in building my barn and house, and am well pleased with the result. The barn is a bank barn on the level with bridge. It is very satisfactory. My house is a one-story house, from plans in the *American Agriculturist* for January, 1867. It is all I can desire for ease and comfort."

How to Get Rid of Rats and Mice.—A gentleman of large experience, and fully as humane as most of us, says he gets rid of rats by putting *potash* in their holes and runs. The poor wretches get it on their feet, and over their fur, then they lick it, and don't like the taste of it; it burns them somewhat, and the more they see of it, the less they like it: so they clear out almost as soon as the application is made. To get rid of mice, the same person uses tartar-emetic, mingled with any favorite food; they take it, take sick, and take their leave.

Preserving Eggs.—This subject has been so thoroughly discussed at different times in our pages, that many persons must have made careful trials, and be able to report their success or failure in the use of different recipes. It is much easier to preserve eggs in autumn, to keep until February, than to preserve spring and summer eggs to last through moulting time.

Unloading Potatoes or Corn—A Good Idea.—R. W. Twitchell, of Kent, Ohio, writes: "In unloading corn in the ear or potatoes, when you wish to shovel them out of the wagon box, it is generally a vexatious job to pick out two or three bushels by hand before there is room to begin to shovel. Now, by taking a rather wide board, about three feet long, and placing one end on the bottom and the other on the end-board, you have a chance to begin shoveling at once. The board should be somewhat wider than the shovel, and of course must be put in before loading.

"What is the Best Subsoil Plow?"—We cannot tell. There are several patterns that answer a good purpose. Let us hear from those who have used them, especially in regard to ease of draft and effectiveness of work, as well as those adapted to light work on sandy subsoils, and those suited to heavy clay subsoils, with more or less stones to strike against.

Scours in Sucking Pigs.—"Farmer" writes from Goldsboro, N. C.: "I frequently lose young pigs by scours before they are old enough to eat. Can you not give your readers a simple and efficient remedy?" It would be guess work to prescribe without a knowledge of the cause. This probably lies in the food of the sow, but very likely in the treatment of both dam and farrow. Is the sty warm, dry, and well littered? and does the sow have, both before and after farrowing, wholesome, cooked food consisting largely of roots?

Cotton-Seed Meal.—"G. R. A.," of Biddeford, Me.—This is used quite extensively in this section of the country for milch cows, and for nothing else. When used in connection with meal or shorts, it is considered superior to all meal or any other grain feed.

Use of Ashes with Bones, etc.—Wm. Eppinger, of Morgan Co., W. Va., asks: "Will it pay to buy bones at one cent per pound and ashes at twelve cents per bushel, to dissolve the bones with?"—*Ans.*—$20 a ton is dear for bones; they dissolve slowly in either manure or ashes, but the ashes will probably be worth 12c. per bushel. That is enough to offer for good hard-wood ashes, such as soap boilers would use. "Will the ashes set the ammonia free?"—*Ans.*—Yes, unless the heap is carefully manipulated, and kept covered with a layer of earth or peat. "Is it good to mix ashes with hen manure, to be applied to corn in the hill?"—*Ans.*—No; much better mix dried earth with it, and work it over thoroughly once or twice.

Large Hen Establishments.—G. L. Hurst, Chicago. We know of none successfully carried on where more than one or two hundred fowls are wintered. There may be such. On Mr. Warren Leland's farm some thousands are kept, but these are scattered, and have the range of twenty acres. There is no doubt about the profit in it, provided the stock remains healthy.

Hiring Men by the Month.—The same writer asks: "If a man employed by the month for a certain number of months lose time, can he be required to make it up?"—We think not. If he was hired for $26 per month, and either from sickness, or with the consent of the employer, lost three days' time, $3.00 might be deducted from his wages, but he could not be compelled to work three days longer than the time he was hired for; neither could he, in such a case, compel the employer to let him "work out his lost time." This is not a legal opinion, but we think it is common sense, and the law is supposed to be based on justice and common sense.

Plaster in Manure Heaps.—A correspondent asks: "If plaster is put into a manure heap, and the manure is spread on the land next spring, will the plaster do as much good as if put on separately, or does it lose its power by being put in the manure heap?"—If any portion of the plaster is converted into sulphate of ammonia, the ammonia will do more good than the plaster. And the plaster not acted upon, will not be injured. It is plaster still.

Rabbits and Young Trees.—"S.," Georgetown, Ohio, succeeds in keeping rabbits from injuring his trees, by rubbing the trunks with hog's liver, as high up as the rabbits can reach. It seems that animal matter is repulsive to the rabbit. Many Western orchardists sprinkle their trees with blood. Some shoot a rabbit, split it open, and rub the tree with the raw flesh.

Is Ditching Farm Work?—A correspondent writes: "If a farmer employs a man by the month to work on a farm, can he require him to ditch a part or all of the time as farm work?"—If he hired him simply to do farm work, and said nothing about requiring him to dig ditches, it is somewhat doubtful whether he could compel him to ditch most or all of the time. The question would turn on the common custom. Digging ditches is certainly ordinary farm work, but it would be unfair to keep a man at it all of the time.

What Kind of Stock?—Wm. Webb, Huntington Co., Ind., writes: "Our farms in this vicinity are on river bottoms, especially adapted to corn, grass or roots. What kind of stock should I raise to make the most of a given amount of labor—whether horses, cattle, swine, or sheep?"—Ans.: Grass, corn, and roots indicate clearly beef or mutton, or both We should say stock with cattle first at any rate, and feed for beef either raising Shorthorn steers to turn off at 3 years old, or buying stock to fatten up for market. After a while you can go into mutton sheep, raising both green fodder crops and roots for them, and increasing the size of the flock as they prove profitable. Of course long wools of some kind would be the class to select.

Seed Corn for Soiling Crops.—The result of our experiments last year with Soiling Corn, indicates that what is known in the New-York trade as "Western mixed" (a small grained corn of mixed color), is the best. Sweet corn we found hard to buy, and the variety we used had a very small growth of stalks. Probably the "Dexter" and the "Stowell" would have done better, but we could not buy these for less than $8 per bushel. "Southern White," which produces an enormous growth of stalk and leaf, seems—at least when grown at the North—to be deficient in sugar and other nutritive matter. The "Western mixed" grew to a very good size, about 7 or 8 feet high, and the rows, which were 3 feet apart, interlaced thickly at the top. In quality we could not perceive (judging from the condition of the stock and the produce of the dairy) that it was inferior to sweet corn. How much allowance is to be made for the very dry and hot weather of last summer we cannot say, but while we shall experiment again this year with the Southern variety (sweet is out of the question on account of the difficulty of getting seed), we shall plant nearly our whole crop with the Western, using 5 bushels of seed per acre, in 3-foot drills.

Roup or Swelled Head—Catarrh in Fowls.—"J. P. H.'s" hens have clearly the Roup. They swell around the eyes, and after a while go blind in one eye, or in both, and it is catching. No common fowl is worth bothering with after the eyes swell badly; before that they may be cured with tolerable ease. The mouth, throat, eyes, and nostrils should be washed out clean, and sponged with strong chloride of lime-water, or what is better Labaraque's solution, chlorinated soda, and the whole flock, but the ailing ones particularly, should have the heartiest diet—iron in their water, bread and ale, soft feed well peppered, and meat of some kind.

A Good Jersey Grade Heifer.—M. Abraham Peckham, of Middletown, R. I., has a seven-eighths Jersey heifer that came in last spring at two years old. She gave, all through the season of good feed, fourteen quarts of milk a day. She is to calve again early in March, and when we saw Mr. Peckham, about the middle of January, he told us she was giving four quarts a day. This is the sort of animal that butter farmers must raise if they hope to have the best results, only the more nearly thorough-bred they are, the better. This heifer will not weigh more than 650 lbs., and she has given, between her first and second calving, not less than 2,500 quarts of the richest milk. A big Shorthorn cow, weighing twice as much, and consuming twice as much, would have done well if she gave 4,000 quarts. She would have cost more to raise, more to keep, and would not probably come in until a year later. The probability is, though this we cannot positively assert, that her 4,000 quarts of milk would hardly have made more butter than the 2,500 quarts of the little Jersey, and its quality would certainly not have been so good. If every farmer who makes butter as a leading branch of his business would secure the services of a thorough-bred Jersey bull, of *well-known butter-making stock*, butter making would be much more profitable, and the country would be much better supplied ten years hence than is possible with the hap-hazard, scrub bull-breeding that now prevails.

The Air-Line Railroad, from New York to Boston, will be one of the most important routes in the Eastern section of the country. The fact that five distinct railroad and steam-boat routes have for years past connected these two important cities, with a profitable patronage upon all of them, indicates the immense amount of daily travel. It needs little figuring to estimate the advantage of a direct, through railroad that shall save 20 to 25 miles of distance, and an hour's time to each one of vast multitudes that annually traverse this route. Reckoning a thousand for each week day, the annual saving in distance would be six and a quarter million miles, or two hundred and fifty times around the globe, and a hundred years in time, estimating the saving in distance at 20 miles and in time at one hour. The new route passes through many localities which will afford much local traffic. We are glad to learn that under the energetic presidency of our old friend, David Lyman, the last link in this route (between Middletown and Willimantic, Conn.) is rapidly approaching completion. (This portion of the Air-line route is termed the New Haven, Middletown, and Willimantic Railroad. Messrs. Hatch and Foote offer some first mortgage bonds, which must certainly be a safe and profitable investment for any one having $500 or upwards to put out on interest. An examination of the documents, which the advertisers furnish free to all applicants, will be interesting even to those not specially desiring to invest.)

Shares' vs. Nishwitz Harrows.—A farmer at Horseheads, N. J., asks our opinion as to the relative merits of these two harrows. We have not used the Nishwitz harrow on our own farm, but from what we saw of it at the Trial at Utica and other places, deem it a useful implement. Shares' harrow we have used for some years and can recommend it, especially when having steel teeth. We should think it less liable to get out of order, especially on stony land, than the Nishwitz. Neither of these implements, however, is properly a harrow. They are a cross between a harrow, a cultivator, an old-fashioned English rib-roller, and a gang plow. They cut the ground and turn it over in small, shallow furrows. We are inclined to think the Nishwitz would be the most effective in proportion to draft, and much the most durable.

Windmills.—W. Haskell, Bucksport, Me., writes: "I see in the *Agriculturist* an allusion to a windmill for raising water. Perhaps others of your readers as well as myself would like a little information as to their cost, efficiency, and best mode of construction; and whether they could be used as a motive power for other purposes as well as for raising water." The writer has used a windmill for nearly three years to raise water up an elevation of nearly 50 feet, and over a horizontal distance of 800 feet. The original cost of the machine was $150, and it cost about $50 to set it up. Its operation has been perfectly satisfactory. It ran for two years and a half without being injured in any way, although we had during that time the severest gale that has been known for fifty years. A few months ago one of the clamping irons having been so much worn away as to give too much play to the machine, it got rocking in a heavy wind and was badly broken, so that it cost about $40 to repair it. It now seems to be about as good as new. There are two or three requisites that seem to be very essential in the construction of windmills. The sails must be constructed on the principle of window blinds, so that there must be no single piece exposed to the wind that will offer much surface for its action; there must be some system of governors that will cause it to feather its sails when running at too great a velocity; and the sails must be held up to the wind by a weight or weighted lever, that will yield and allow them to feather before too great a strain comes upon them. A properly constructed windmill is perfectly adapted to the driving of any farm machinery, with the single exception that it cannot be depended upon at all times, being available only when the wind blows.

The American Journal of Science to be Published Monthly.—The scientific world will greet with pleasure the appearance of this ancient and honored journal as a monthly. It was begun by Professor Silliman in 1818, and is now continued in the proprietorship as well as editorship of Professor B. Silliman, his son, and Professor Jas. D. Dana, assisted by Prof. Gray, the botanist, Prof. Gibbs, the chemist, both of Harvard College, and by Prof. Newton, the astronomer, Prof. Johnson, the agriculturist, Prof. Brush, the mineralogist, and Prof. Verrill, the naturalist, all of Yale College—a galaxy of scientific lights, such as no similar journal can boast. The publication forms two annual volumes, of course indexed, and a complete index is furnished every ten years besides, giving great additional value to the volumes. The subjects discussed bear upon pure natural science, not overlooking its applications. The Journal contains records of important discoveries and of new views, and is distinguished throughout the world for conscientious devotion to scientific truth. It is published by Silliman & Dana, at New Haven, Conn.

To Make Cows Give Milk in Winter.—"J. B.," Elizabeth, Pa., asks: "Will you please give me the best method of making cows give a liberal quantity of milk in the winter?"—Give them "a liberal quantity" of feed of the proper kind. Feed them enough to make them grow fat, and dry off when within 5 or 6 weeks of calving. Send for the Agricultural Annual for 1870, and read S. M. & D. Wells' article therein. Rye or wheat bran, linseed or cotton-seed oil-cake meal, carrots, beets, mangels, parsnips, and ruta-bagas, are excellent milk-producing food. The last named, as well as soft turnips, will frequently give some taste to the milk.

Cheap Money—Money wanted at the West, at a High Interest.

Constant inquiries for money, come from farmers and others in the Western States, especially from Illinois and the States and Territories west of the Mississippi. Here is a specimen: "... ..I see money constantly, or often, quoted in Wall Street as 'abundant,' and 'easy' at 4, 5, or 6 per cent. Now, why can you not get some for me on land security *worth* five times the amount I wish to borrow? I can afford to pay 10 per cent to the lender and pay you a good round commission to obtain it for me. My rich, virgin soil yields large returns for little labor, and it will bear this interest, and yield me a good profit. I only want means to stock it, and extend my area under cultivation....." To which, and to many other similar letters, we answer:

1st. We live in the country, come daily to the city to attend to our own business, and go home to work with pen, etc. So we have little to do with city money matters, and can not undertake to act as financial agents.

2d. If we could attend to it, it would be difficult to get money to invest at a distance, no matter how good the security, or how high the rate of interest—though we should say it would pay many men having money to invest, to *go* West with it, personally examine the property, and loan it there. A brief advertisement would call out plenty of good applicants for the money. We believe it would be a good thing for borrowers as well as lenders, and hope the hint will be acted upon, but *we* have not time to act as agents for either party.

3d. To our distant country readers, we will explain that this cheap money is only loaned "strictly on call"—that is, the borrower must deposit as security, not mortgages, but U. S. Bonds, or Railroad or other Stocks or Bonds, that can be sold *at once* for cash at the Stock Board, if the money is not returned on any day and on *the* day it is called for. A great deal of money used mainly for Stock speculations is loaned thus from day to day when not in actual use, and this is the cheap 4, 5, and 6 per cent money quoted. Commercial paper, "gilt edged," that is, notes of parties of the highest credit, and well endorsed at that, is seldom quoted as low as 7 per cent, unless having a very short time to run, and in a dull time of speculation. Ten to fifteen per cent are more frequent quotations for pretty good notes, having only 2 to 4 months to run. Right here, at the money center, there are usually good first mortgages that can be bought at rates that will yield 9 to 12 or more per cent per annum; and second mortgages, almost as good as first ones, that will yield 15 to 20 per cent. There is a considerable class of persons whose sole business is to buy up such mortgages. They thus make quite as large a percentage as men in regular business, with quite as little risk.

Some of the city newspapers have constant advertisements such as this: "**$100,000** to Loan on City (or County) Property, etc." But go to one of these advertisers, and you will usually have to pay a "commission" and "searching title" expenses, that will cost a heavy percentage. The Savings Banks and Insurance Companies lend money at 7 per cent, but they are restricted by their charters, or by custom, or by bye-laws, to particular kinds of property, and in specific locations,—usually within the city, or county where they are located, or at least in the State.—We hope the hints above may prompt some capitalists among our readers, to look into the feasibility of taking their capital to the West, where they can make a *legal* interest, on safe investments, much higher than East, and aid others also.

The Scarcity of Water.—Look out for Mice on Fruit Trees Now.

Mice breed rapidly, and it may not be generally known that an immense number of them are usually destroyed, in autumn, by the filling of the ground with water and its freezing. This is one of Nature's modes of of checking the multiplication of these pests to a degree that would make them worse than the frogs in Egypt. But the past autumn and winter, thus far, have been in many parts of the country unprecedentedly dry. We hear from some sections of so great a lack of water in cisterns and wells, that much anxiety is felt for the result. In some cities the fountains are so completely dried up that large extra fire patrols are organized to watch against conflagrations. With the above facts in mind, it will be well for all having fruit and other trees to look out that they are not girdled by the redundant mice that still burrow in the dry soil. We well remember that, some twelve or fifteen years ago, after such a dry autumn, there were hundreds of thousands of fruit trees girdled and destroyed soon after the first heavy fall of snow. In many cases large orchards were ruined. Mice seldom, if ever, gnaw a bare tree, or one around which the snow is firmly trampled. The simplest protection, therefore, against their ravages, is to either keep the snow cleared away from any tree or shrub in danger, or to trample it firmly down around the trunk as soon as it falls. To leave a light snow around a tree for a day or night will furnish a fine cover for the depredators to work under. Tarred paper put around a tree, and extending up 10 or more inches from the ground, and held by a string, is a further safeguard worth providing for all valuable fruit trees. The roofing felt, saturated with coal-tar, can be bought 30 inches wide for 5 to 7 cents a yard, in large quantities, and each yard will cut so as to make six pieces for trees not more than 5½ inches in diameter, or twelve pieces for trees less than three inches in diameter.

Hungarian Grass and Corn Fodder.—Geo. Barr, of Medina Co., O., writes: "I have just come into possession of a large farm, and about 100 acres of it have not been plowed for fifteen years. The old meadow is bottom land, needs draining, and is all run out to wild grass, and very light at that. There is no piece that I can mow for hay next summer. I have 6 cows, 12 young cattle, and 3 horses that I wish to keep over. What do you think of Hungarian grass for hay? The soil is *light, sandy loam*, and is nearly all pasture." *Ans.*—You have a good many animals from which, with diligence in the use of *means*, you can make a big heap of excellent compost wherewith to manure corn in drills for fodder. You will be able to make at least one good load of manure from each head of stock per month; you will have four months, and will thus have 70 to 80 loads of manure. Sow all the corn fodder you can, manure well, and make up with Hungarian grass any deficiency that may occur, sowing the latter so that it will not ripen faster than you can take care of it, for to be wholesome, it *must* be cut green. Ripe Hungarian hay injures stock.

The Great "Patching and Darning" Exhibition.—Editors' Notes.

Though a few days only were allowed for preparation, the contributions were unexpectedly large. *Four Hundred and Fifty-three Ladies*, from Twenty-nine States and Territories, sent in **718** parcels, numbering **1311** pieces, of which most were quite serviceable garments. Among them were **278** pairs of Pantaloons (162 for Men, and 116 for Boys); **119** Coats (49 for Men, and 70 Boys' coats and jackets); **52** Vests; **28** Sacques; **31** Dresses; **18** Skirts; **47** Shirts and Chemises; **29** pairs of Drawers; **312** pairs of Socks and Stockings, etc., etc.; nearly all of woollen fabric. The contributors numbered by States as follows; from Maine, 4; N. H., 5; Vt., 7; Mass., 29; R. I., 9; Conn., 34; N. Y., 124; N. J., 35; Pa., 47; Ohio, 36; Ind., 21; Ill., 17; Mich., 18; Wis., 5; Iowa, 9; Nebraska, 5; Kansas, 7; Va., 7; W. Va., 2; Md., 10; Del., 7; N. C., 3; Georgia, 3; Mo., 5; Cal., 2; Wyoming Ter., 1; D. C., 2.——Specimens were sent by girls of 8 and 10 years, by Ladies of 80 to 90, and by those of all ages intervening. The Exhibition was visited by a throng of people and was kept open on the fourth day, in response to the request of many gentlemen who dropped in on Friday, and were so astonished and pleased, that they earnestly desired an opportunity to bring their wives and daughters on Saturday. Nearly all the city papers noticed the exhibition with great commendation, several of them giving it marked attention as a highly useful as well as entertaining affair.

Below we print, just as they were written and sent to us, the very pleasant notes and reflections of a lady—one of the most gifted writers of the day—who visited the Exhibition, and looked over a portion of the letters accompanying the articles. We will add, here, that the Publishers were more than satisfied with the good results, though it cost them some $300 for prizes, expressage, etc., besides a serious interruption to their regular business for several days.——The beneficial results were two-fold. First, more than a thousand useful garments, exactly what is greatly needed at this season, were placed in the hands of the good, noble-hearted Ladies who devote much time and care and labor to hunting up and feeding and clothing those suffering from destitution. For convenience, the boxes, bales and parcels were first taken to a spacious room at the "Old Brewery," or Five Points Mission, and seven ladies devoted two days to opening, assorting, labeling, numbering, and arranging the articles. To have heard their many exclamations of gratitude to the donors as they opened garment after garment, and talked over what they would do with each of them, would have amply repaid every contributor a hundred-fold. We know these ladies will make every article do good service to the unfortunate children of extreme poverty. Every contributor may feel assured that each piece of clothing she sent will be worn out by some poor mortal who will thus be made more comfortable. Every person who does a good act of this kind is not only happier, but is really made better in heart by the deed. It is "more blessed to give than to receive," and it is always blessed to give. The non-prize takers are therefore scarcely less rewarded than the successful ones.

But a still greater good has been accomplished by this remarkable exhibition. Besides the Four Hundred and Fifty-three Ladies who sent their own handiwork, there were thousands of others, who did not contribute, but whose attention was called to the subject, and who set about testing and improving their skill in the very useful and needful "accomplishments" of patching and darning well—accomplishments far more useful to nineteen-twentieths of the great mass of wives and daughters than embroidery and crocheting.

There were hundreds of specimens which showed very plainly how a torn or worn garment can be made almost as good as new, and this, too, when leaving hardly a visible trace of the repairing. An intelligent proprietor of one of our largest clothing and tailoring establishments in New York, as he looked over garment after garment, remarked frequently, "I could afford to give high wages to the woman who can use the needle like that; such women are very scarce."

Some useful hints afforded by this exhibition with extracts from letters, etc., will be discussed in our paper hereafter. We have now only room left to speak of the prizes. The articles were all labeled with cards giving the number and class, leaving the judges in the dark as to the real contributors. Sixteen ladies, chosen for their intelligence and good judgment, were requested to act as a Committee of Award.* They met on Thursday morning, divided themselves into Sub-Committees, on the six Classes, and devoted the day to a careful examination of every article, and after selecting the most meritorious ones, counseled together in making the final awards. The different qualities of the materials, the character of the work, its utility, etc., were all taken into account. We have not room now for the separate reports and remarks of the Class Committee. The Publishers will award some other prizes to specially meritorious articles, and in our next a list of these and of a considerable number of others which the Committee thought should receive special HONORABLE MENTION. The following are the Committee's

Awards of Prizes:

CLASS A.—PATCHING—Girls not over 16:*

1st Prize: CARRIE M. C. TOWERS, Tottenville, N. Y.....$15
2d Prize: EUNICE CASE, Goshen, N. Y.....$10
3d Prize: ELIZA W. TUTTLE, Cheshire, Conn. $5
4th Prize: NELLIE E. HALLOCK, Jamestown, N. Y...*H. & H.*
5th Prize: MARY E. SISSON, South Portsmouth, R. I....*A. A.*

CLASS B.—PATCHING—Ladies over 16:

1st Prize: MRS. M. C. PARKER, Washington, Iowa.....$15
2d Prize: MISS CLARA M. BLODGETT, Philadelphia, Pa .$10
3d Prize: MRS. G. M. WOODWARD, Columbia, Conn..... $5
4th Prize: MRS. ELIZAB'TA BERKER, No. Bergen, N. Y. *H. & H.*
5th Prize: MRS. J. H. READ, New York City.....*A. A.*

CLASS C.—DARNING GARMENTS—Girls not over 16:

1st Prize: MAGGIE SHAW, Noblestown, Pa.....$15
2d Prize: LOUISA G. DREER, West Philadelphia, Pa.....$10
3d Prize: FLORA SORTORE, Belmont, N. Y..... ..... $5
4th Prize: LIZZIE CLARK, Chester, N. Y.....*H. & H.*
5th Prize: LOU. HOPE, Dover, Del..... .....*A. A.*

CLASS D.—DARNING GARMENTS—Ladies over 16:

1st Prize: MRS. JEAN MARC, Plainfield, N. J..... .....$15
2d Prize: MISS MAGGIE NEWELL, White Plains, N. Y....$10
3d Prize: MISS M. E. TRUMP, Rossville, Md..... $5
4th Prize: MISS MARGARET COOK, Sherwood, N. Y..*H. & H.*
5th Prize: MRS. A. C. MACY, JR., Hudson, N. Y.....*A. A.*

CLASS E.—DARNING STOCKINGS—Girls not over 16:

1st Prize: LOU. HOPE, Dover, Del..... .....$5
2d Prize: EMILY J. NICHOLSON, W. 27th St. N. Y. City. *H. & H.*
3d Prize: LIZZIE N. HASKELL, St. Joseph, Mich.....*A. A.*

CLASS F.—DARNING STOCKINGS—Ladies over 16:

1st Prize: MISS HENNIE EARLY, Lynchburg, Va.....$5
2d Prize: MISS LAURA C. OLMSTEAD, Genesee, N. Y..*H. & H.*
3d Prize: MRS. E. J. GILCHRIST, Franklin, N. H.....*A. A.*

*COMMITTEE OF AWARD: *From N. Y. City:* MISS ELEANOR BURLING, MISS CARRIE CRAWFORD, MISS KATE CROOKS, MRS. FREDERIC HOLSTEIN, MISS CARRIE MCALLISTER, MISS HELEN MILES, MRS. ELIZA E. RYER, MRS. REV. A. K. SANFORD, MRS. REV. J. N. SHAFFER, MRS. PETER SMITH, MISS AMELIA TRUSLOW.——*From New Jersey*, MRS. MARY E. DODGE, and MRS. L. C. RUNKLE.——*From Conn.*, MISS S. J. PRITCHARD.——*From Flushing, L. I.*, MRS. W. T. HEMMENWAY, MRS. ORANGE JUDD, MISS ADA F. GOODING.

The Exhibition of Patching and Darning.

BY A VISITOR.

The sun, going his busy rounds on the 12th day of January, and looking brightly down on Broadway, as is his wont, of a clear winter morning, saw, perhaps, no more unexpected sight than that which stared him in the face at the office of the *American Agriculturist*. On all other days of the year he had beheld a well-regulated publishing office. Counters loaded down with wise books; shelves bristling with array of things which Agriculture knows all about, but which are mysterious and awful to the common mind; distracted looking clerks, shut up in little pens, as if they were too dangerous to be at large, and engaged in hand-to-hand encounters with whole columns of appalling figures that, like poor Dora's, "won't add up;" baskets of prize potatoes and incomparable seeds, of queer bulbous deformities, warranted to turn out beautiful flowers, and of such pleasant jokes of Mother Nature as strawberries in December, and blossoms in snow-time; all the agricultural wisdom of the country as incarnate in members of the Farmers' Club, the Ogden Farmer, and other Solons of the sod, coming and going from morning until night;—these are the every day properties of the office of the *Agriculturist* and *Hearth and Home*, and this is its usual aspect.

But, on this extraordinary Thursday, that respectable and bookish sanctum seemed to have gone out of its mind. The floor was crowded with boxes, bundles, bags, bales of old clothes. The counters were heaped with aged and infirm garments. The shelves were buttressed and palisaded with double walls of faded woollen. Nay, ancient pantaloons and venerable socks fairly bestrode the walls of the Publishers' private office, and flaunted from the sacred precincts of the Editor-in-Chief. The Jew-shops of Chatham Street had never half so extensive a stock in trade, nor half so critical inspectors, for that matter. For this congregation of old clo' was the reply to the appeal of Messrs. Orange Judd & Company for fine specimens of patching and darning, and the busy ladies flitting hither and yon were the Committee of Examination.

And well might they be busy, and well might they pause perplexed over every third specimen. For the good, industrious, frugal, and determined women who read the appeal had responded with more than Thirteen Hundred articles of clothing, and some of the darning was so fine that the Committee believed that the good housewife had coaxed a family of spiders (by a promise of undisturbed housekeeping through an unlimited future) to weave the frayed edges together; and some of the patching was so exact and dainty that the Committee was persuaded that the loom which wove the original fabric was a clumsy contrivance compared with the deft fingers which repaired its "looped and windowed raggedness." Plenty of darns there were which the youngest eyes of that grave Examining Board could not have found but for the guiding white thread, like Ariadne's clue. Many a patch joined itself to the parent stock as a graft to an old tree, seeming to improve the quality of the original. And again and again, and yet again, did a veritable garment appear which must have suggested the problem of the jack-knife, which, being borrowed by Tommy from Johnny, and supplied by said Tommy with a new blade, and in its turn embellished by said Tommy with a new handle, demanded of our puzzled infancy to know whether said Johnny had any right to reclaim the reconstructed article. So had new patch become old material, in its turn patched upon with newer.

And oh, the "web of life of mingled yarn, good and ill together," which all these pieces joined to make, and which they so innocently revealed, that he who ran might read. It gives one a sharp twinge of remorse for shillings idly spent in candy and tinsel, to think of the patient poverty which has put one hundred darns into this old stocking and its fellow, before it felt that it could afford to give them to a poorer poverty than itself. There is a sound prick of external conscience for the careless, in the needle which has carefully repaired two hundred moth-holes in a single garment, because it was the only garment its owner could afford to give away. There is an unconscious pathos in the cheery words of the Kansas housewife far out on the border, who sends her package of stout clothing (mended and mended till no vestige of the first fashion thereof appears, and almost past mending now), with the wish that there were more articles, and better; "but the truth is, we are all so poor out here, that husband and boys have to wear their clothes till they fall apart, which is perhaps a good thing, for the scarecrows look so exactly like the men, that the birds can't tell them from each other, and so leave the crops alone. It *would* be a blessing to have the paper for a year; library for the household and fine arts for the walls; but *my* mending has to be done with one hand on the churn or the wash-tub, and I can't expect to take a prize."—And you are more disappointed than the sender can be if these old stockings are not worthy of a prize, for she who sends them says: "We had to give up the papers when my husband died, for there were many little months to feed, and only I to fill them. But I think I see a chance now to get them again, and I send the only pair of stockings we can spare, with the darns of two years in them. If I don't get the paper, two cold little feet will get the stockings, which is better."

Well, well, this garment might have been worn all his life by Old Parr, and the old lady of ninety who sends it certifies in the smallest of hands, in the most exact of spelling, that she is not a tailoress, that she set her patch and wove her darn unaided, that she is very poor, and would like the paper to brighten her lonely evenings, and so sends her bit of work for competition. Dear old lady! her patient eyes are not so quick as once they were, and the stitches are not so fine. But the good heart, that hopes the poor patched clothes may help somebody who needs them more than she, will one day take the prize that only the Highest Court of Inquiry offers.—And the very next garment comes from a little girl eight years old, a tiny Dame Durden of a creature, who observes with philosophy, "i supose i cannot so well enough to take this prize but i thought i would try, and then you see, Mr. Judd, if you should offer another prize when i am bigger, i might be able to take that."—And the next, why surely this comes all the way from Nebraska! Pinned to the tidy patch is a letter written on fair paper with a pretty initial letter W. at the top. And what do you suppose that letter says. Curly-heads? It says, as plain as print, "Mr. Judd,—I thought I would try if I could get the prize. I have mended these pants all myself. I'm a little Indian girl and I'm only fourteen years old.

From your friend H—— W——
Genoa
Pawnee Reservation
Platte Co.
Nebraska.

[The *Agriculturist* wants to whisper in your ear, bright little H. W., (and it hopes that the two or three hundred other persons, mostly "grown-ups," who have made the same mistake may overhear it, and take heed to their ways,) that there is no such word as "pants" in the English language. "Pantaloons" or "trousers" is the name of the garment which you send and which your

small fingers have done their best to mend. While we are school-girls suppose we learn to speak the language as well as we can, and then we shall not be mortified, when we are old enough to teach children ourselves, (or, possibly, even wise enough to serve on a Committee on Patching and Darning,) by having some shocking blunder of speech bounce out of our mouths in a way to make us wish ourselves deaf and dumb!]

A tidy bundle of clean, warm, well-mended clothing comes from a Boy of twelve, who says:

"* * * And I have washed and ironed each article that is in mother's bundle and in mine. I have always wanted the *Agriculturist* ever since I first saw it. If you can send it this year for what I have done I will subscribe next year. I picked hops enough to pay for *Hearth and Home* last year and this year, and I think I can pick enough more to pay for the *Agriculturist* after this year. These are my outgrown clothes. I wish I had something nicer and better to send you, but I have not.

Yours Respectfully, N. G. L.

(The *Agriculturist* has a word to whisper in N——'s ear, too. And it is to tell him that one of the greatest scholars America has produced, picked huckleberries enough to buy his first book, a dictionary, and made himself master of twenty-eight languages before he died, earning every dollar which his education cost him.)

What have we here? Surely a pair of Sioux Indian leggins! And who shall send them but a dear old lady living away out on the Pawnee Reservation, where a Sioux, in his war-paint and leggins, not infrequently makes an unwilling legacy of both to the Pawnee who is always in wait for them. The children make all manner of fun of her for sending her homely work to the grand show, she says, but though she must work too hard to do *fancy* mending she doubts whether any other exhibitor can show more thoroughly mended garments than she. One can fancy the frontier cabin and the great stretch of prairie, and the loneliness of this white winter solitude. One can see the busy house-mother, in-door-hand and field-hand indifferently, when need calls, driven and harried with the endless work of a settler's wife, but finding time, thank Heaven, to laugh with the children, for all that. —And here is an old garment patched by a motherless girl of fifteen, who keeps house for her father and brother and goes to school. And here is an envelope out of which a great broad ray of sunshine seemed to fall, as the slip came out. The slip deposeth and saith that the writer did patch and mend a certain pair of trousers, (namely, the wedding breeches of her brother-in-law) with the sleeve of her mother's old broadcloth cloak; and furthermore, that "I did it entirely by myself, sitting with my back to my mother, who was on the opposite side of the room, *lest the patches should feel her influence and go on right of themselves.*" Honest Louise!

But O, see this little cloak! It was made by "just a poor man's wife," from four old pairs of pantaloons, one old vest, and two old coat linings! "There are sixty-eight pieces in it," says the label, "and I made it in two days. It has been worn three years to public school, and I hope it may keep some other darling warm for three years more." All the way from the prairies came that garment, too, shining with cleanliness, and sweet with the brooding mother-love, stitched into frayed edges and thread-bare seams, that look fairer than broidered hems.

From twenty-nine States and Territories this harvest of old clothes has been reaped. Four hundred and fifty-three contributors are registered. Thirteen hundred and eleven garments are to be distributed to the poor. And now that the veracious scribe has discharged his office it only remains for the gentle moralist to fulfil his. And it seems to him that the actual gain to the poor in this extensive wardrobe, and the actual gain to the donors in the improvement of their handiwork, excellent as these advantages are, are perhaps the least gain of this odd and whimsical undertaking. The real things of life are the invisible; are those which are reckoned in emotion and thought. And who shall measure the cheerful zeal, the genial emulation, the patient exactness, the generous impulses to bestow, which this Exhibition has developed? What a bright excitement it has made in frontier villages, and quiet country places of which the great city never heard! What breathless interest in five hundred homes will wait on the rendering of the verdict! With what glow of kindly human feeling are all these strangers brought close to one another and seated, as it were, side by side, before this Old Cio' pageant! The darkest and narrowest and poorest home from which the meanest of these garments came, will be a little the brighter and broader and richer, both for having given a gift, and for forgetting the old burdens for a little while to wonder about a life outside its conditions. Nay, in the very glow of honest vanity over her excellent handiwork shall the weary worker find a cordial and compensation.

"Yes, indeed," says the gentle moralist to himself, summing up the spiritual results of this queer "go." "Any scheme which brings people nearer each other in kindly human interest; which makes them work in the same wise direction; which appeals to the best impulses in them: which exchanges their troubled thoughts for bright ones; and teaches charity and carefulness, liberality and prudence, all in a breath;—any scheme which does this is an admirable one, even if it seem to violate the implied injunction not to put new cloth in old garments. Surely, setting new cloth of better impulses in our old garments of selfishness is a wise kind of patching and darning. And whoever," concludes the moralist, "offers a text for my prosing, is a benefactor to his kind! Therefore, blessed be the kindly heart that devised this Charity, and blessed be the kindly hearts that responded in works. And so, as Tiny Tim observes, 'God bless us every one!'"

Maple-Sugar Making.

BY W. J. CHAMBERLAIN, OF HUDSON, OHIO.

In the February and March numbers of the *Agriculturist* for 1870, I described the apparatus used in making maple sugar, "by the best sugar-makers of Northern Ohio," and also their methods of making it.

Those articles brought me many circulars and letters on the subject. Most of them came from Vermont, and from them I learn that the Vermont sugar-makers are in advance of us in some respects, and we ahead of them in others.

Last year I recommended a *wooden* sap spout, not because I considered it a perfect thing, but because it was, on the whole, better than any metallic one I had then seen. I find four or five different kinds are used in Vermont, but only one appears to me, on the whole, preferable to the wooden one (beach or maple, turned, bored, and notched in three places, to give a choice, so that the bucket may be hung level), which is in general use here. That one is Post's "Eureka" sap spout, improved (1870). See fig. 1. It is made of cast iron, galvanized so that it will not rust, and will last a generation. Since it is metallic, it is not liable to sour, as wood is. It is held into the tree by three thin "flanges," entering about half an inch, while a hemispherical surface "hugs" against the outer edge of the hole. The "flanges" are about as thick as the back of an ordinary table-knife, and so stop very few pores, while the hemisphere stops none at all. The old "elder quill," as it was commonly sharpened, stopped all the pores for the first half-inch, and these are the very ones that yield the most sap. These features of the Eureka (the flanges and the hemisphere) are patented, and are well worthy of a patent. Then, too, the hole in the Eureka by which the sap leaves the tree is at the very bottom of the spout, and almost at the bottom of the auger-hole. But all other spouts, wooden and metallic, which enter the auger-hole in the tree at all, have their holes in their centers, and as the spout is usually inclined downward, and driven in nearly an inch, this hole is brought *above* the middle of the auger-hole. This dams up a little sap and leaves it there, constantly to freeze or to sour. The shape of the Eureka externally, ordinarily prevents the sap freezing up, or if it does freeze, the amount is so small that it thaws in a few moments on the open metallic surface.

But the spout in use here often freezes solid the whole length of the bore; and as this ice is surrounded by wood, a bad conductor of heat, it often does not thaw so that the sap can run until two or three hours after it would otherwise have begun to flow. The Eureka I consider a *perfect spout*, with one exception. The very shape of the flanges, the three edges being parallel, and made exactly to fit a half-inch hole, prevents our using the same spout after the hole is reamed or retapped. But it is claimed that as no sap is left in the hole to sour and gum up the pores, the holes will not need reaming as when the wooden spout is used; and that as no pores are stopped by the spout

Fig. 1.—EUREKA SAP-SPOUT—IMPROVED.

itself, you will get more sap with this spout without reaming than with the wooden one with. And I must say that my experience for one year leads me to think this is true. They cost a good deal, $4 per hundred, but they are *the thing*. They last a lifetime, and, on the whole, they are the cheapest spouts made. Good things always cost. Last year I used a hundred; this year I have ordered a thousand. They are manufactured and sold by the inventor, C. C. Post, Burlington, Vt. In the improved Eureka of 1870, the bucket hangs by *two points* (see figure), so that it cannot swing like a pendulum, and *in two narrow notches*, so that it cannot twist nor wabble.

There is another metallic spout. It is simply a frustum of a cone, made of heavy tin, with a galvanized pin to hold the bucket on the spout. I used a hundred and fifty of them last year, and at first thought I should like them. But when there came a high wind, I found the pails twisted and swung and wabbled, until about ten out of a hundred pulled the spout out entirely, and sixty more were tipped, and had lost their covers.

After the sugar season began last year, I was induced to take a 15-foot evaporator on trial. My arch had to be rebuilt, and the sap got quite a start. The weather held good, too, and in four days and *one night* I had boiled and put up, ready for shipment, $200 worth of syrup. With my old pans, 13 feet long in all, it would have taken four days and *four nights*, and then I should have had thin syrup, which must be reboiled and clarified at the house. And this I consider the chief merit of the evaporator—that it takes all the work out of the house, and away from the women of the family, while it lessens the work in the camp for the men. I speak within

Fig. 2.—EUREKA SAP-SPOUT OF 1869.

bounds, and from an experience of many seasons with good pans, and of the greater part of one season with an evaporator, when I say that it saves *half of the time, labor, and fuel*, and makes better sugar and syrup.

The evaporator is made of heavy galvanized sheet iron, with pine sides. The bottom is divided into spaces, six inches wide, by partitions, hollow from beneath, to admit the flame, and alternately touching one side and leaving a space of six inches at the other, to permit the sap to pass through. There are also two *gates*. The pan is set on the arch, so as to project three inches each side. This protects the pine sides from the fire, and secures a partially cool place for the scum to stand until it can be conveniently skimmed off. The sap enters from the vat by a rubber tube, through the regulator. The latter is tin, with a tin float, which works a lever. This works a pair of jaws, through which the rubber tube passes. As the sap rises in the

pan, the float closes the jaws, the jaws gradually bite the tube, which finally stops the flow of sap. But as the sap boils lower the jaws open again and the sap flows. The regulator can be set to give any required depth in the pan. It is, in some respects, preferable to the one described in my February article, last year. As soon as there is half an inch of sap in the pan a brisk fire may be started, and the regulator set at 1¹/₄ inches. After boiling half an hour, a few pailfuls should be drawn from the syrup faucet, at intervals of five minutes, and turned back into the pan by the side of the regulator. In half an hour more there will be thick syrup here, which may be run off constantly in a small stream, as long as the sap lasts.

[Mr. C. specifies the advantages of his sorghum evaporater as follows, not claiming the same excellence for all.]

1st. A greater surface is exposed directly to the fire by the hollow partitions. For every horizontal space of 6 inches there is a space nearly vertical of twice 1¹/₄ inches. This would add nearly half to the boiling capacity, provided the partitions ran clear across the pan, and provided the heat was as great in them as on the flat surface of the pan. As it is, I estimate the gain here as about one-fifth. It is on the principle of the tubular boiler—viz., increasing the exposed surface.

2d. The heat required to boil the sap or syrup at any given point is graduated to the heat actually found there. This depends on the curious fact, that the sweeter the sap or syrup is, the more easily does it boil. Now, the greatest heat is of course over the fire, and in burning four-foot wood, eleven of the fifteen feet must be heated by flame alone. The heat gradually decreases from the door of the arch to the chimney. Now, the cold sap enters at the hottest place (or nearly the hottest). By the time it has passed two of the thirty times across the pan, it begins to boil. As it passes on, it grows sweeter and sweeter until it is syrup. With a good fire *it boils alike the whole length of the pan*, though the heat is unequal at all points. With the ordinary pans this advantage cannot be secured; for in all parts of an eight-foot pan, without ledges, the syrup is alike, and you will often see it boiling furiously in one part and scarcely at all in another.

3d. There is no loss of time in syruping off. With a constant fire, a constant stream of sap, about ¹/₂ inch in diameter for a fifteen-foot evaporator, runs in, and a constant stream of syrup, as large as a small slate-pencil, runs out. With the ordinary pans the fire must be greatly slackened every two or three hours, that the pan of syrup may be taken off and emptied, and filled with new sap.

4th. The furnace doors and grates accompanying the evaporator utilize more of the heat, because they hold the wood nearer the pan and *consume it perfectly*. With the simple cross-bars, described last year, a vast bed of coals and brands accumulates in the arch and their heat is wasted. *This* grate burns the wood to fine ashes, and uses all the heat.

5th. We get better syrup and sugar, because the sap is not kept so long over the fire.

Let any one boil in sap all day without syruping off, and he will find he has very dark-colored syrup. The best sugar-makers who use the old pans, syrup off every three hours. But any given pail of sap is not more than thirty minutes in the evaporator before it comes out a half-pint of syrup, as clear and white as honey.

6th. The pan boils violently in the middle, and throws the scum to the cool edges. Here it will not boil in again as in the old pan, but stand and wait for the tender to remove it with the skimmer. Then, too, the gates are in the middle of the pan, and so no scum passes through them.

So far as I can learn from correspondence, circulars, and printed letters, as well as from the form of spouts found there, the cover has not been used at all; in Vermont, certainly to no considerable extent. For example, one letter speaks of last season as "a bad one to make good sugar, on account of the unusual amount of snow and rain which *necessarily got mixed* with the sap." No more necessary than that rain should get "mixed" with hay. A barn roof will keep it from "mixing," and a cover, costing less than two cents, will keep it from "mixing" with the sap. I cannot emphasize too strongly the advantages of using covers. I have seen a soft, damp snow, falling when the wind blew, plaster itself up and down the south side of the trees while the sap was flowing briskly; and then, as it thawed more and gathered thicker, suddenly slide for twenty feet above the bucket, carrying dirt and bits of bark with it, and fill the uncovered buckets full of slush. And I have known some of my neighbors, whose buckets were uncovered, throw away barrels of such stuff—snow, dirt, and sap—or boil it with more than its worth of fuel, to get a black inferior syrup, while those who had the covers, gathered as nice a lot of sap as any in the season. Or if it is a rain-storm, the rain trickles down the trees, carrying with it dirt and stain into the sap. Syrup or sugar of the first quality can never be made from sap and rain-water. It is easier to *keep* out the dirt, insects, and rain, than to *get* them out. Then, too, a wooden cover counteracts the bad effects of heat and cold. The sap is not so liable to sour during warm days, nor to freeze solid in very cold nights.

I consider hanging the bucket on the spout by a hole beneath its wire rim, and then covering it, as the greatest single invention in sugar-making. Much as I prize my new evaporator, I would rather give it up and go back to the pans than give up the covers and go back to boiling sap and water! And the covers cost so little too. A square foot of ³/₄-inch pine, white-wood or poplar planed on one side is all that is needed; though it may be planed on both sides and all edges, and painted.

Ogden Farm Papers.—No. 14.

It is curious to see how one thing leads to another when any departure is made from the old routine of common farming. It is a principle with ordinary farmers not to keep more stock than they can raise food to support. The first thing that "high-farming" does is to set aside this principle; and the high-farmer keeps all the stock he can properly shelter, and for which he can get money to buy food. We started out at Ogden Farm on this plan. Then, having a large stock to feed, it seemed indispensable to resort to steaming, in order that the utmost good could be got from the food bought. Having to make steam for cooking, it was found cheaper to discard the horse-power and put in a steam-engine. Having a steam-engine, which does its work in a small part of the time during which steam is up—for we can cut enough in 5 hours to last a week, while we must have steam up about 15 hours in the week—it became a question how we should make full use of the apparatus during the odd times when there was no immediate demand for the steam. Another point is, that the cost of raising steam is much greater than the cost of keeping it up after it is raised; and that when the full pressure point is reached, it costs comparatively little to keep the engine at work. We found that one of the worst leaks was in the matter of grinding grain. Twenty bushels of corn are to be ground, we will suppose. A horse must be hitched up, and a man must leave his work and go half a mile to the windmill; a few days later he must hitch up again and make another trip, possibly to find that the grist is not ground, and that he must go again the next day. Then we get back, not the 1,120 lbs. we sent, but about 1,000 lbs.,—supposing we get our dues, and have no "waste of the mill" to stand. Now, it costs at least $1 (to say nothing of the interruption to other work) to send a grist to the mill and get it back; and on an average $2.50 for toll and waste, or 17¹/₂ cents a bushel on the corn. We feed about 40 bushels of corn a week, which cost $7 to have ground at the mill, and have concluded to put up a portable mill (costing, with fittings, about $200) that will do the work in about six hours. Having the mill, we can get work from our neighbors that will probably pay profit enough to balance the cost of interest, wear and tear, and repairs—reducing the cost of our own grinding to a trifle. The engineer can run the mill, so there will be no extra charge for attendance. I believe that this will complete the circle, and that there will be no need for further investments in machinery.

I fancy I hear some old farmer saying, "How about folks that haint got no engineer?" And the idea seems to be general, that if a farmer have an engine he must keep a man at a cost of $2.50 a day to run it. My engineer is a farm apprentice, who was 15 years old when he took charge of the machinery. He costs no more than any ordinary farm boy; and he goes to school, milks, does chores, works in the field, and makes himself generally useful, like any other hand on the place. The engine employs about one-third of his time in winter. All he knows about the engine is what I have taught him myself, and what he has learned by experience—what any boy with brains enough to work a mowing machine (which is more intricate than a steam-engine) can easily learn in a short time. As to the *danger* of running a farm engine without an experienced engineer, I don't see it. It is an important point with a mowing machine for the driver not to step down in front of the cutter bar when in operation, lest it cut his foot off. It is equally important for an engine driver not to let the water get too low in his boiler lest it blow his head off. One of these "accidents" is necessarily as much to be feared as the other; and any boy or man who is fit to be trusted with any responsible work, is fit to be trusted with a simple farm engine. In these days no one need go far to find a regular engineer who will tell him and show him in half an hour all he needs to know about guarding against dangers. The only real occasion for professional assistance is to have the boiler inspected once a year. If this fact were more generally recognized, I think there would be a good many more engines in use on American farms.

Bearing upon the point suggested at the commencement of this article as distinguishing

high-farming from the good old way, I have gathered a bit of information from my English agricultural paper. Mrs. Millington, to whom was awarded last year the Royal Agricultural Society's prize for the best managed farm, (profit of the business being a chief test in the competition,) spends $6,000 a year for cattle food—most of it linseed cake from America—the consumption of which on her farm secures an abundant supply of good manure, by which she raises large and profitable crops from a poor, light soil. How about "overstocking" in this case? And how long before American farmers will learn that they too can make money by securing in this way a large addition (in quality as well as quantity) to their stock of manure?

As I drive along the road, I daily meet able-bodied men crawling along beside snail-like ox-teams with loads of stained straw from the private stables in which the summer residents of Newport keep their horses "up to their knees" in litter. The cart holds about a cord of the stuff, (128 cubic feet,) for which $5 or more have been paid in town, and to get which, occupies the best part of a day's labor of man and team. If these same men would take their money out of the Savings Bank and invest it in well-purchased beef cattle or wether sheep, and in rich food, they would make manure at home which would cost them nothing, and of which one cord would be worth more than five cords of the dirty straw they haul from town. Of course it pays them to buy and haul the town manure, or they would not do it; but this only proves that it would pay them five times as well to make manure at home. Some of them understand this; and I have several neighbors who feed out from 500 to 1,000 bushels of purchased corn every winter. I remarked to one of them, "That makes manure." He replied, "It makes *land*, I am getting my farm so that it will grow a good crop of any thing I seed it to."

I received a letter a short time ago from Iowa, suggesting that I give less attention to the question of manure and more to the *processes* of farming. Bless your soul, my good man, I am not writing for you, but for your children, and for the very large class farther East, whose fathers thought as you do—men who now have to pay for the paternal squandering. The time is not very far distant when the question of manure will be the important question in Iowa itself. If you do n't believe it, just read the agricultural history of the whole world to the eastward of you, until you come to the great wall of China. Read the census reports of our own Western Country itself, or look at your local agricultural papers, and see what complaints are made of weevil and other grain-destroying insects. Weevil is another name for weak plants, and weak plants mean a weak soil. You are coming to it faster than you imagine, and if you live to be a hale, old man you will see that I am right.

The farmers of the East begin to see it now, and many a man is straining every nerve to replace the fertility that his ancestors have allowed to go to waste; many a man is, and many a one is not; for I see in my own immediate neighborhood piles of manure accumulating under the eaves of barns, sending their most valuable parts to the nearest brook with the drenching water of every rain; and so long as this lasts you must excuse a much younger farmer than yourself if he takes frequent occasion to remind you that "you can't have your cake and eat it too." If you squander the heart-blood of your rich soil, it will be a poor soil before you know it. It is infinitely easier to keep land rich than to make it rich, and infinitely cheaper too.

As Winter comes again, there comes with it the perennial question of *coloring butter*. I thought I had, last winter, hit upon the best plan, in the use of *annotoine*, or an extract of annotto, from which the cruder parts are excluded. It certainly did work very well, and the color was rich and good. Still, on comparing it with some grass butter, laid down in June, it became evident that though a good color in itself, it was not a good color for butter; and I have made a new series of experiments, and have now much the best result, both in color and in flavor, that I have yet attained. The new system is by no means new to many dairies. It consists simply in grating a few perfectly clean, deep-colored carrots, the Orange carrot will not do nearly so well as the Altringham or the French horn, and squeezing the juice into the churn with the cream before the churning commences. We use for each churning (of about 20 lbs.) a dozen medium-sized carrots; and it makes color enough for winter, not the rich gold tint of summer, but still a gold-like color that is much more attractive than the reddish-yellow hue annotoine gave. So far as color and flavor are concerned, I judge that a bushel of carrots used in this way has as much effect as 50 bushels fed to the cows. However, they have no effect on the appetite and the condition of the animals, and are not allowed to supersede the feeding of roots, which is, in our case, regularly carried on. We give from a peck to a half-bushel daily to each milking animal. Just now, we are using carrots; they will be followed by ruta-baga turnips, and these, later in the season, by mangels. Both of the last-named roots are often objected to as affecting the taste of the milk and butter—the turnips being much the worse of the two. All difficulty on this score may be avoided by feeding only at milking time, or immediately thereafter. What becomes of the taste I do not know, but the fact is obvious that turnips fed in the morning will not be tasted in the evening's milk, while if fed at noon they will be. Even when fed, as directed, too much must not be given at once, (say not more than a peck at each milking time,) and even then their use must be occasionally abandoned for a few days, so that their flavor may not accumulate in the animal's system, (if this is the true explanation.) My observation is, that it is best to leave them off for three days about twice a month.

I hear much complaint this year of the failure of cows to get with calf; and I have suffered somewhat in this way myself, especially in the case of a very fine imported Jersey cow, which has recently come in heat for the fourth time since May. Some writers have ascribed the difficulty to the extreme heat of the summer. If this is the case the remedy must now be provided, for at this writing it is as cold as though it never meant to be warm again.

Mr. J. Preston Thomas, in a communication to the *Country Gentleman*, expresses surprise at my statement in the November *Agriculturist* "that corn raising would not pay on Ogden Farm." He thinks my trouble was that I did not have a good sward to turn under. My precise statement was, "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;" and this was followed by a computation of the comparative profit of ruta-bagas and mangels or hay. I did not say that corn would not pay—only that I thought other things would pay better. Most of my cornfield did have a very fine sward, and there was a very heavy growth of grass turned under in the spring.

Mr. Thomas says they are, in Chester Co., Pa., most sure of a crop of from 80 to 100 bushels to the acre for the whole field. He would probably be satisfied to have the money return of the crop set down at $100. This is more than it costs, and is profitable. Now, let us see: On such a soil as that of Chester County—where shall we look for better?—roots can be raised easily and enormously. The manuring recommended for the corn crop is 16 3-horse loads of well-rotted manure, 60 bushels of lime, 3 years for them to act in producing a good sward, and a compost of hen manure, ashes, and scrapings in the hill. With this manuring an acre of Chester County land would produce 1,200 bushels (or more) of mangels, worth at least a Yankee shilling (16⅔ cents) per bushel to feed out on the farm (or more to sell). This would give $200, and if the crop is raised by transplanting, the whole cost, including harvesting, would not be $25 more than the cost of the corn crop. This leaves a difference of $75 in favor of the mangels, which is what I meant when I used the expression "pays so well." As an additional advantage, a good crop of mangels leaves the land absolutely clean—more free from weeds than the best kept crop of corn can possibly do. I am aware that the suggestion will be made that "Beets draw the land." So they do, but what of that? I would as soon have a pound of potash in my root cellar (on duty) as in my soil (inactive), for it will get back to the soil in time for the next crop, if I feed my roots; if I sell them, they will enable me to buy manure. If any plan could be devised by which we could each year exhaust (in our crops) every ounce of fertilizing matter from our soils, farming would be a simpler business than it now is; for we could apply it all every year in our manure, just when we want it, where we want it, and as we want it—and what crops we would grow! We would have the full benefit of the "nimble sixpence." If any man were to make a business of raising mangels, selling them off the farm, and investing the money in bank-stocks, he would be on the straight road to the poor-house—and serve him right. But if he fed them on the place—or if sold, brought back their manurial equivalent—he would not fail to prosper, so far as prosperity can be compassed by good cropping.

A correspondent in Monmouth County, N. J., asks whether the same benefit can be obtained from transplanting in the case of carrots and parsnips, as with ruta-bagas and mangels—his land being very weedy. Probably not. I have never known it to be done; and although there may be some way to make a carrot or a parsnip grow when transplanted, I have never succeeded in doing it, and judge it to be nearly or quite impossible. Land may be well cleaned and prepared for these roots by growing and plowing in three successive crops of buckwheat the previous season—which is, in my opinion, much the best kind of summer fallowing—unless the soil naturally produces a good growth of ragweed, which is probably as good as buckwheat. If the buckwheat has been preceded by a heavy and well-manured clover lea, the preparation for a good crop of roots will be nearly perfect.

A Cottage without a Cesspool.

The object of this article is to show that a complete modern house may be so arranged that those two great abominations of the age—the cesspool and the sewer—may be entirely dispensed with. The house in question is in the City of Newport, R. I. To show the character of the establishment, we give upon the next page a sketch of the house itself; but our business is more directly with the diagrams, that show how the wastes of the family are disposed of.

In figure 1 the dotted lines show the plan of the house and buildings—the heavy lines show the drainage, etc. 2 is a bath-tub, on the ground floor, connected by its waste-pipe with drain, *A*. 5 is a slop-hopper, on the second floor, from which all of the slops of the sleeping rooms are carried by a waste-pipe to the same drain. 3 is the kitchen sink, with a waste-pipe conducting to the same. These three points (2, 5 and 3,) are supplied with hot and cold water. The drain, *A*, runs—not to a cesspool, as is customary—but to a small, cemented cistern, 3 feet in diameter, and 5 feet deep, which serves the same purpose as a silt-basin in land drainage (see fig. 2). The position of this cistern is shown at 6, in fig. 1. It is covered with a flag-stone, cemented down. Its outlet is on the same level with its inlet, but is furnished with one of Boynton's curved pipes, reaching about 10 inches below the surface of the water. Any solid particles that may come from the house are allowed to settle in the still water of the cistern, and once in four or five years it may be necessary to clear them out. The grease and "scum" will float on top of the water, and cannot possibly get into the outlet pipe, which takes its supply so far below the surface; consequently, only purely liquid matter will flow out. The outlet pipe from 6 to 8 (a 3-inch drain-pipe) is cemented at the joints, so that all the liquid will flow to 8, which is a basin of cemented brick, 20 inches deep from the surface of the ground, and also covered with a stone. The drain spoken of enters it 12 inches below the surface. The drains, *B*, are common land tiles, laid 12 inches deep, connected at their joints with collars, but not cemented. The main drain, 10, 10, is of 2-inch tiles, and its laterals of 1½-inch tiles. The laterals are connected with the main by Boynton's branches. The drain, 9,9, starts from the box at a slightly higher level than 10, 10.—Now, when water is poured into any of the waste-pipes, it flows to the cistern, 6, and displaces an equal amount, which flows out through the curved pipe, and passes to the box, 8 (which stops any sediment that may have escaped from 6), and flows into 10, 10, and its laterals. It leaks through their uncemented joints and soaks into the ground, within the reach of the roots of the grass. If, from any cause, the drain, 10, 10, becomes obstructed, the liquid will rise in 8 until it reaches the drain, 9, 9, and will flow out to the gutter in the street. The appearance of water at this point is a sure indication that some of the pipes 10, are out of order, and need examination.

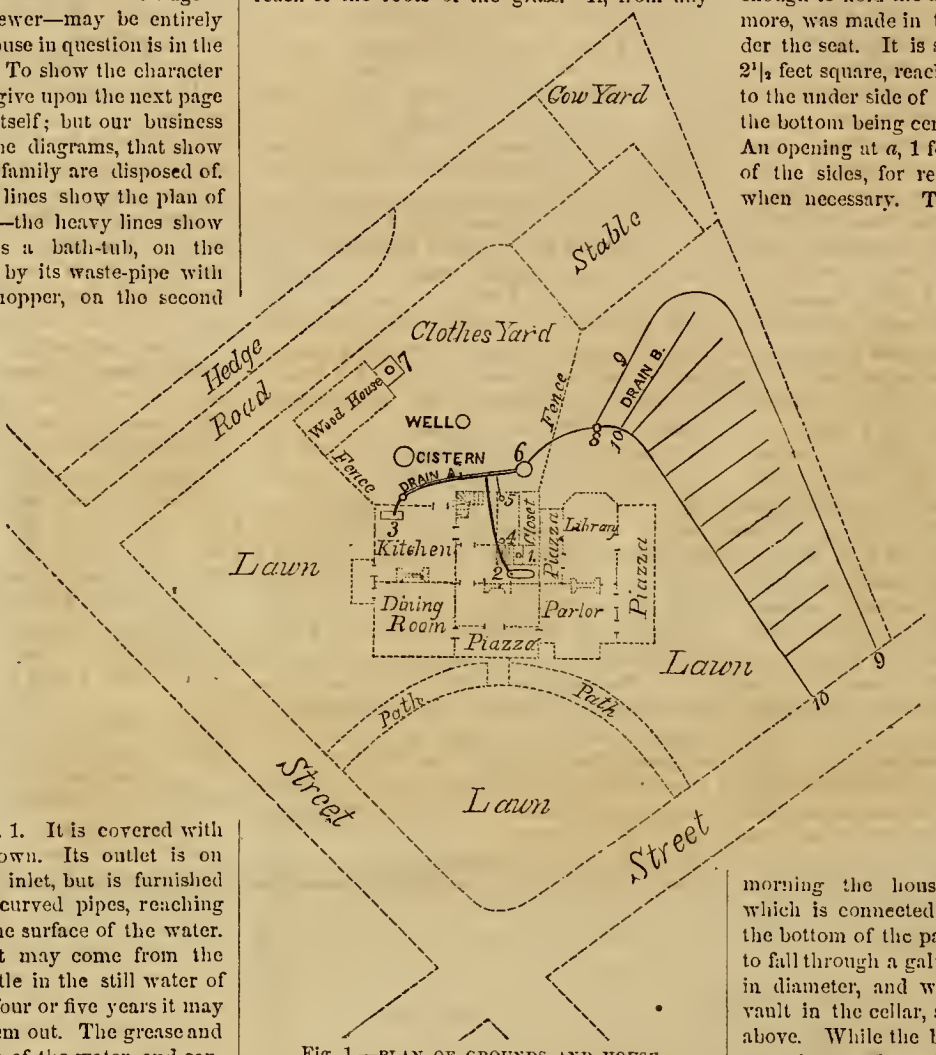


Fig. 1.—PLAN OF GROUNDS AND HOUSE.

This provides for all the *liquid* wastes of the house, in such a manner as to preclude the possibility of their either breaking through into the drinking-water well, or giving out offensive or dangerous exhalations. They percolate slowly into the soil at a shallow depth, when the access of air and the action of roots will render them innoxious,—where they will perform only the legitimate office of all feculent matter.

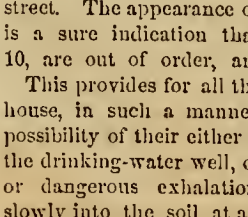


Fig. 2.—SILT CISTERN.

The solid wastes of the family are provided for by three earth-closets—one of which (at 7) serves as a dirt receptacle, securing every thing subject to decomposition that is of no useas swill, or otherwise.

On the main floor of the house, under the main stair-case, and adjoining the bath-room (at 1), there is an ordinary "pull-up" Moule's earth-closet. Its construction is shown in fig. 3. The house is an old one, altered over, and there was formerly a water-closet in this place. As it was not possible to change the location, it had to be made to answer the purpose. The earth-reservoir—large enough to hold two months' supply of dry earth—was built under the stair-case, and the receptacle—large enough to hold the accumulations of a year or more, was made in the cellar, immediately under the seat. It is simply a brick shaft, about 2½ feet square, reaching from the cellar bottom to the under side of the main floor of the house, the bottom being cemented to prevent leakage. An opening at *a*, 1 foot square, was left in one of the sides, for removing the accumulations when necessary. This opening is closed with bricks, laid in mortar, but set *on edge*, so that they may be knocked out without disturbing the main wall. It would be difficult to conceive of a more simple earth-closet, and no water-closet could be more satisfactory in every respect. On the second floor, over the point marked 4, in fig. 1, is another earth-closet, opening out of a passage-way from the back stair-case, and easily accessible from the chambers. This closet is arranged as shown in figure 4. Under the seat there is a stationary pail, of galvanized iron, *a*, which has a hinged bottom, held in its place by a weight, *c*. In other respects, its mechanism is the same as in the closet below. Every morning the house-maid raises the handle which is connected with the weight, *c*, opens the bottom of the pail, and allows its contents to fall through a galvanized iron pipe (12 inches in diameter, and with soldered joints) into a vault in the cellar, similar to the one described above. While the bottom is open, she throws one charge of earth from the hopper, which dusts the pipe and the top of the deposit in the vault; she then lets the weight down (closing the bottom of the pail), throws one charge of earth into it, and leaves it ready for another day's use.

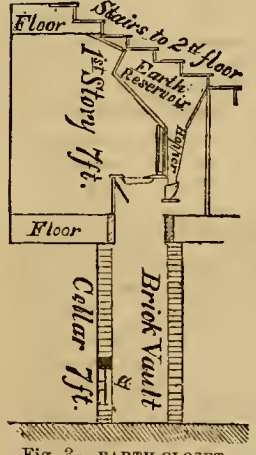


Fig. 3.—EARTH-CLOSET.

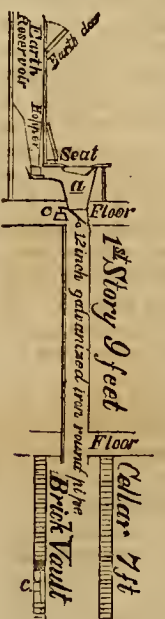


Fig. 4.—CLOSET.

Both of the closets described are without direct ventilation—only because it was impossible to provide it—and they are both quite in the heart of the house. We are unable to conceive of any plan by which the inestimable convenience of in-door closets could have been more satisfactorily arranged.

The closet at 7, opening out of the wood-house, is of the simple "cottage" pattern, over a brick vault, also cemented at the bottom. This closet is for the use of the servants.—The foregoing description will make the various arrangements for the "earth sewage" of a modern house clear to our readers, and we commend them to their careful consideration as compassing the following advantages:—

1. The luxury and comfort of in-door-closets, to which delicate women and invalids can have

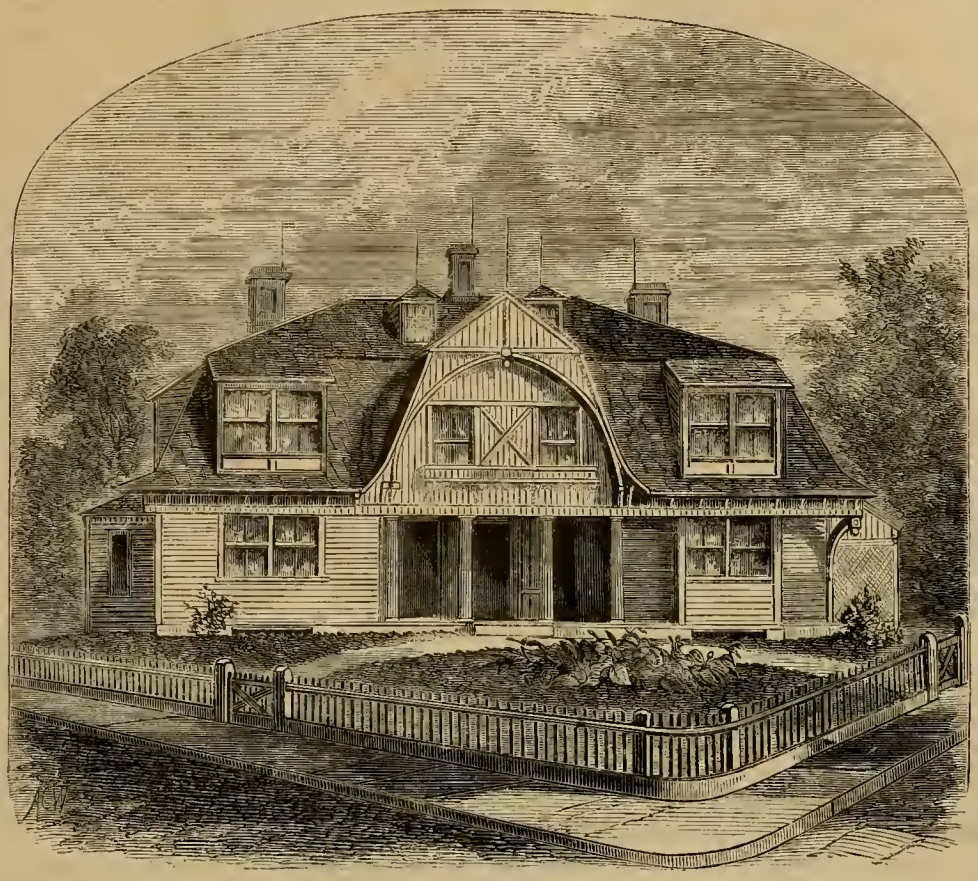
access without exposure to the public gaze, or to the inclemency of the weather.

2. The absolute prevention of the contamination of the atmosphere of the house with the foul exhalation so common with water-closets.

3. Avoidance of the poisoning of the drinking-water wells by the infiltration of fæcal matters from cesspools and privy vaults; an almost invariable source of typhoid fever, dysentery, and other diseases.

4. The saving of all the valuable manure produced by the family.

5. Absolute cleanliness and purity by the aid of means that the place itself affords, without dependence on public water-works, with taxation, and the heavy bills of the plumber.



COTTAGE AT NEWPORT, R. I.

American Magpie.

We are so familiar with Magpies, and Jackdaws, Rooks and Ravens in English and European literature, that it seems almost a serious lack in our American fauna that we have none—and must make our garrulous and omniverous crow stand as a representative of the genus, supported by the Crow black bird and the Blue-jay. The Crow black bird is very much like the Jackdaw, and there is a larger bird, close akin, common at the South, which bears a closer resemblance. At the West, we have an American Magpie, if it be not the real European one itself. This matter of identity is a question for the savans. Our artist has given us a very pretty picture of this famous chatter-box, taken from living specimens procured at the far West. The birds are not uncommon in the interior of Texas, Western Louisiana and northward and westward to the Pacific coast; and this might indeed indicate a common origin with the magpie of the Old World. Chas. Bonaparte gave it the name of *Pica Hudsonica*, from its being common in the Hudson Bay Company's possessions. Other naturalists call it *Pica melanoleuca*, which is the name given to the European one.

The engraving gives a good general idea of the bird. The males are 18 to 22 inches in total length, the females smaller. The general color is black, with brilliant green and steel-blue iridescent reflections; the shoulders, under parts of the body, and flight feathers are white, making bright contrasts; the white spots running together, and into grayish-white upon the back.

AMERICAN MAGPIE.

Magpies mate for life, "for better, for worse," remain in pairs all the year, rear their families, and keep them with them until well able to shift for themselves. Their habits are much like the crows, as is also their food, and manner of hopping about upon the ground. When pressed by hunger they are very bold, being easily captured, and are then domesticated with facility. The magpie builds its nest in high trees when it can do so, but takes a more humble position if necessary. The structure is thus described by Macgillivray, in his history of British birds: "It is a large, and therefore generally a very conspicuous fabric, of a spheroidal or eliptical form, composed first of a layer of twigs, on which is laid a quantity of mud, then a dome of twigs, loosely but securely interlaced, while the bottom of the interior is lined with fibrous roots, and there is left in the side an aperture barely sufficient to admit the bird. The eggs are from three to six, and differ considerably in form and coloring. Frequently they are pale green, speckled all over with umber-brown and light purple, and sometimes pale blue, bluish-white or greenish-white, with smaller spots of the same dark colors. The notes of the magpie are a harsh call, like *pay, pay*, and a lively chatter when several are together. It is rather remarkable that, abundant as these birds are in the Rocky Mountain region, they are unknown in the older States. Were they to be introduced, we should find them eating field mice, snails, grubs and worms of many kinds, birds' eggs, young birds, even chickens, sometimes, besides carrion, and occasionally grain and fruits, like the crow. It is a shy bird, easily alarmed, and only bold when sorely pressed for want of food. Wilson and Audubon, in their descriptions of the Magpie, both quote the experience of Lieut.-Col. Pike when on the Red River, in Louisiana, many years ago. He said "our horses were obliged to scrape the snow away to obtain their miserable pittance; and, to increase their misfortune, the poor animals were attacked by the magpies, which, attracted by the scent of their sore backs, alighted on them, and, in defiance of their wincing and kicking, picked many places quite raw. The difficulty of procuring food, rendering these birds so bold, as to alight on our men's arms and eat meat out of their hands." Nuttall says, in speaking of the magpies met with on Snake River, "The old birds were shy, but the young birds were so familiar and greedy, approaching our encampment in quest of food, as to be easily taken by the Indian boys, when they soon became reconciled to savage domesticity."

Walks and Talks on the Farm—No. 86.

It is curious what notions even intelligent men have in regard to making manure. The Deacon thinks corn-stalks are worth a great deal more for manure than straw—simply, I imagine, because they do not rot so soon and make a larger heap of manure in the spring. But the most popular error—and one that is constantly cropping out at all Farmers' Clubs, and in the columns of our agricultural papers—is the idea that the animal "makes" the manure. There is a sense, of course, in which this is true. A stove makes ashes, and a still makes whiskey; and to the same extent it is true that an animal makes manure. But, in fact, it is the wood that makes the ashes, and the corn that produces the whiskey, and the food that makes the manure. The amount and value of the ashes will be regulated by the quantity and quality of the wood consumed, and this is equally true of the manure. Its value depends on the food. The animal adds nothing to it.

The editor of one of our agricultural papers was here a short time ago, and has given some account of my farming. He says: "All the manure made on the farm is carefully saved, as far as can be done, without expensive appliances and arrangements for housing. The pig-pens, barns, and stables surround a dishing yard three or four feet deeper in the centre than on the sides. Into this the manure from the pig-pens and stables is wheeled, and underdrains from the same [to carry off the liquid from the animals] empty into it. [There are separate underdrains for carrying all the *water* from the buildings and conducting it off without letting it come in contact with the manure.] Nothing that will make manure is sold from the farm, but large quantities of provender, meal, spout-feed, bran, and oil-cake are purchased, and find their way after being steamed with one of Prindle's agricultural steamers, through the stock and farm reservoir on to the farm. *Yet stock enough to do much in this way toward 'high farming' is not kept.*"

Here is the old idea that it is the stock that makes the manure. Now the truth is, that if I kept three times as much stock as I now keep, I should not make, unless I bought more food, one particle more manure than I now make—with this exception: If I bought animals in good condition and kept them until they got thin, the amount of flesh lost might be food in the manure; or if any of the animals died I might get an increase of manure from their carcass. But this is rather an expensive method of getting manure, though I am sorry to say not a very uncommon one. In England, where the farms are nearly all rented to tenants, the landlords sometimes insert a clause in the lease prohibiting the taking of two grain crops in succession from the same field, and others compel the farmer to raise a certain number of acres every year of turnips and feed them out; others will not allow the tenant to break up old pasture land or permanent meadows. Mr. Lawes, who has studied the matter very thoroughly, proposes that all such restrictions should be done away with; and in order to prevent the tenant from impoverishing the farm from over cropping, that he should be compelled to produce on the farm every year a certain amount of *flesh meat*. If he does this he may crop the land as he pleases, and sell what he pleases, and it will be utterly impossible for him to impoverish the farm. The test of good farming is not the amount of stock you keep, but the amount of beef, mutton, wool, pork, poultry, eggs, butter, and cheese you produce in a year. You may make manure without making meat, but you cannot make meat without making manure.

If I feed out everything raised on the farm, except wheat, barley, and clover seed, which is my rule, and spend more money in buying bran, oil-cake, and corn than I get from the grain and seed sold, I am at a loss to know how keeping more stock, unless I bought more food, would enable me to make more manure. It is the quantity and quality of the food fed out that determines the quantity and value of the manure and not the number of animals. I keep about 40,000 lbs. of live-stock on the farm; and an animal will eat about 3 lbs. of hay per day, or its equivalent for each 100 lbs. of live weight. According to this my stock eats 219 tons of hay per annum, or its equivalent in grass, grain, straw, or stalks. Leaving out wood and waste land, I have only about 220 acres actually in grass or under cultivation, so that I am feeding out at the rate of about one ton of hay per acre. "How is that for high?"

But it is true that I told my friend the editor that I was adopting the *slow* system of farming instead of the "high" or fast system. The truth is, I am adopting the one in hopes of sooner or later being able to adopt the other; and I have been flattering myself that I have already got nearly half way towards high farming.

There can be no really profitable farming in this country, when labor is so high, without raising large crops *per acre*. There can be no exception to this rule. It is as true at the West as at the East, at the South as at the North. No matter whether land is worth five or five hundred dollars per acre, you must grow large crops, or the cost of cultivation will eat out all the profits. But the system of farming most profitable will depend a great deal on the price of land. Where land is high you *must* adopt high farming—that is, you must raise large crops *every year*, or two or three large crops in a year. And this can only be done by using large quantities of manure. But when land is cheap, and where, it may be, the mere carting out of the manure would cost double the fee-simple of the land, we must raise large crops with little or no manure. If we cannot get maximum crops every year, we must get them every other year, or every three years, or every four years. Large crops we must have, or we cannot pay high wages, or realize any profit from our own labor and capital. And this is what I mean by *slow* farming. In high farming, as Liebig once said, before he adopted the so-called mineral manure theory, "Ammonia is Time"—in slow farming Time is Ammonia. If, as on Mr. Lawes' experimental wheat-field, the atmosphere, rain, dews, and the decomposition of organic matter in the soil will give us ammonia sufficient every year to produce 15 bushels of wheat per acre, we must so contrive to husband this ammonia as to grow a crop of wheat every three years of 45 bushels per acre. I will not say that this can actually be done in all cases. But at any rate it is what we should aim at. It is the essential idea of slow farming.

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Here is a letter, this moment received, since the above was written, that refers to a branch of this subject. It is from that clear-headed, true-hearted, noble-minded veteran of the agricultural and horticultural press, J. J. Thomas:

"Dear Friend,—There are some questions in connection with that of obtaining the *best market for farm grain*, that I would like to see fully treated in the 'Walks and Talks on the Farm.' The simplest and least economical mode is, I suppose, to sell the threshed grain at its cash price per bushel in market. But the more approved mode is to convert it into flesh, and sell that. We get our pay in two shapes—manure for the land, and cash for the meat. This is well understood by many. But which of the three animals do the best work for us—*cattle*, *sheep*, or *swine?*

"We plow in green crops, because it saves us the labor of harvesting, drawing, feeding, and drawing out and spreading. The question is, do we gain or lose most in this way? We gain in labor, but lose in the cash for the flesh, which a part of the feed will manufacture. The circumstances of prices of labor, distance, and cost of drawing, etc., will vary the results; but I would like much to see a fair average of these reduced to accurate figures.

"In using animals to make manure, the hard-eating and thin-fleshed breeds will pass through more and assimilate less of the rough material, and will consequently make the most manure; but this manure will be costly, as a part of it is what would otherwise be more valuable flesh. It is like plowing in the green crop, without the advantages of saving, drawing, etc., just mentioned. This brings me to the question I wish to ask—Which of the three animals mentioned, cattle, sheep, or swine, are the most profitable manufacturers of flesh, and the best marketers of grain, taking into consideration that some of them must have their food in finer condition than others?

"One more question—What is the best breed, or mixture of breeds of swine, for ordinary farmers in Western New York, taking into consideration such as are common and accessible? If a small farmer wishes to raise 6 to 10 animals, or thereabouts, how can he best secure a yearly supply for pork? Keep both sow and boar?

"Please excuse me for these questions, and answer in the *Agriculturist* such as may be convenient only."

To answer the questions as they deserve to be answered, would require a volume. They take hold of the fundamental principles of good farming.

As to whether it is best to sell grain or feed it to animals on the farm depends on the price of the grain, the price of the meat, butter, cheese, or wool, and the value of the manure on that particular farm, and on what it would cost to buy it. Take pigs, for instance. Seven bushels of corn, fed properly to good pigs, will give us on the average 100 lbs. increase in live weight. The manure from this seven bushels of corn (420 lbs.) is worth $1.40, or 20 cents per bushel. I know farmers who have sold their corn this season at 70 cents per bushel. Deducting the value of the manure, this would be 50 cents net; so that the actual cost of the pork (live weight) would be 3½ cents per lb. We are now grumbling, (and I think justly!) because ordinary fat pigs are only worth 7 cents per lb. live weight. Still, even at this rate, it is clear enough that we had better feed our corn to pigs than sell it at 70 cents per bushel.

I am inclined to think that we can feed grain to cattle and sheep with more profit than to swine at the present price of pork. And yet it is true that neither cattle nor sheep will gain as fast in proportion to the food consumed as a well-bred pig. But cattle and sheep have much

larger stomachs than pigs, and can digest a less elaborated food, such as straw, stalks, hay, and grass. I cannot find any experiments that show the exact "maintenance ration" of well-bred cattle, sheep, and swine—I mean how much food they require to keep them alive and healthy without gaining or losing weight; in other words, how much food is required to sustain the vital functions. If this point was determined it would not be so difficult to answer Mr. Thomas' question. I see no reason to doubt that a well-bred Shorthorn, or a well-bred Cotswold or Leicester sheep, having a quiet disposition and a minimum amount of offal would, for the grain consumed over and above the amount required to sustain the vital functions, gain as rapidly as a well-bred pig. And it is certain that, unless in a case where a pig lives on food that would otherwise be wasted, the food required to sustain the vital functions is far less costly in the case of cattle and sheep than in the case of pigs. In other words, hay, straw, and stalks cost far less to *produce them*, in proportion to the nutriment they contain, than grain. We can often, as at the present time, buy grain at a cheaper rate, in proportion to nutriment, than hay or straw. But we cannot *grow* it nearly as cheaply.

The point Mr. Thomas wants to get at is this: When cattle, sheep, and pigs have the requisite amount of food necessary to sustain the vital functions, how many pounds of corn will it take to produce a pound of beef, mutton, and pork? I cannot answer this question for the reason above given. And it cannot be answered until we know the amount of food required to sustain the vital functions.

In Dr. Miles' experiments on Pigs at the Michigan Agricultural College, six pigs of the same litter were put into two pens—three in a pen—and in both pens the pigs were allowed all the corn-meal they could eat. One of the pigs in Pen B met with an accident and was killed. When 30 weeks old the pigs weighed as follows:

Pen A—Pig 1, 59 lbs.; pig 2, 69 lbs.; pig 3, 133 lbs.

Pen B—Pig 4, 156 lbs; pig 5, 142 lbs.

The pigs in Pen B ate 61 per cent more food than those in Pen A, and gained over 92 per cent more. This result was owing to pigs 1 and 2, though perfectly healthy, gaining so little. At this time, Dr. Miles put the three pigs of Pen A into three separate pens, and the reason of their gaining so little was at once apparent. During the first week pig 1 ate 11 lbs. meal; pig 2, ate 12½ lbs. meal; pig 3, ate 25½ lbs. meal.

During the month the pigs ate and gained as follows: Pig 1 ate 48½ lbs. meal and lost 1 lb.; pig 2, ate 51½ lbs. meal and gained 4 lbs.; pig 3, ate 100 lbs. meal and gained 19½ lbs.

In this case it required nearly 50 lbs. of corn per month to sustain the vital functions, and 50 lbs. of corn over and above this amount gave 19½ lbs. of increase, or 100 lbs. of corn produced 39 lbs. of increase. In other words, it took a little over 2½ lbs. of corn to produce a pound of increase. It is capable, chemically, of producing a larger increase than this—that is to say, 2¼ lbs. of corn contain more carbonaceous, nitrogenous, and mineral matter than the 1 lb. of increase of animal.

A farmer would be very likely to say that it took 100 lbs. of corn to produce the 19½ lbs. of pork. But in point of fact it took 50 lbs. to "run the machine" and 50 lbs. to do the work of producing pork.

Now, as I have said, in the case of well-bred cattle and sheep, we can "run the machine" with a cheaper article of food than corn, and we can also use this cheaper food to some extent in producing growth; but there comes a point beyond which we cannot go in the production of growth with this cheap food. *Then*, when this point is attained, and when the animal has digestive and assimilative power still unused, if we feed corn, I do not see *why* the ox, the cow, or the sheep is not as capable of extracting as much material of growth out of it as the pig; in other words, why 2½ lbs. of corn will not give us 1 lb. of pork.

Corn is seldom so high in this State, or meat, butter, and cheese so low, that it *may* not be much more profitably fed out on the farm than sold in the market. But it must be fed with judgment, and to the right kind of animals. There are tons of corn fed out that, aside from the value of the manure, does not bring 10 cents a bushel. One of my neighbors has a red, raw-boned cow that is farrow. She gives a little milk, and he asked me the other day if I did not think it would pay him to dry her off and fatten her. He would "have some corn ground, and give her two quarts of meal and two quarts of millfeed a day." I told him it would not pay. She was not the right kind of animal to fatten in the winter. I would feed the meal and bran, and *keep on milking* her. She would convert the meal into butter, and that would pay better than converting it into fat. "But the meal," he said, "will dry her up." "It will not," I replied; "but if it should, then she will fatten." I have two farrow cows that I am fattening in this way. We give them—and in fact all the cows—from three to four quarts of cooked corn-meal each per day. We commenced feeding them about the 1st of November. Our pastures had been poor, and the cows had not done very well the past summer, and there was talk in the house that we should "have to buy butter before spring." I said nothing about giving them the meal; but in two or three weeks I was informed that we were "making more butter a week than we did in summer"—and yellower, firmer, sweeter, and better butter I do not wish. And instead of buying, we soon had a five-gallon crock to sell; and the cows are getting fat into the bargain.

I doubt if there is any better way of selling corn than in the form of winter butter—fattening the cows, if need be, at the same time. But nearly every thing turns on the skill and judgment of the feeder, and on the breed and qualities of the animals. One of the commonest mistakes is to let animals take care of themselves pretty much all summer and fall, and then just as winter sets in to spasmodically attempt to fatten them by giving grain. Thousands of farmers do this with their hogs, and not a few treat their cows in the same way. Steady, persistent feeding, day after day, week after week, and month after month, is what pays. We must never let the digestive powers of the animal run to waste, and never overtask them. There is no profit in keeping an animal that is not either gaining in flesh or giving milk all the time. A good cow that is well fed in winter, will not only give us a good strong calf, but next summer all the fat she has stored up we get back in the form of butter. If our dairy cows are not receiving as much food in winter as they can digest, better far to give them corn-meal than to sell it.

I feel that I am not answering Mr. Thomas' questions, and will leave the subject for others to discuss.

In regard to plowing under clover for manure, instead of making it into hay, feeding it out to animals, and drawing back the manure, it may be remarked that the animal does not remove, on the average, more than 5 per cent of the ingredients of most value as manure. From 90 to 95 lbs. of hay plowed under would be worth no more than the liquid and solid droppings of an animal eating 100 lbs. of hay; in fact not as much, as the latter would decompose quicker and be more readily assimilated by the plants.

The manure from a ton of clover hay, according to Mr Lawes' estimate, is worth $9.64. The clover hay itself, plowed under, would be worth, say $10.24, or 60 cents more. I suppose a crop of clover hay can be put in the barn for $2 per ton, and the manure from it drawn back again and spread for 40 cents; so that the actual cost of the *food* in the hay to the farmer would be $3.00 per ton—that is the cost as compared with plowing it under. I will not say whether it is or is not worth this to feed to stock. But I do not think if I wanted Mr. Geddes, or any other advocate for plowing under clover, to winter a horse for me on clover hay, he would ask less than $1.00 per week. And if the horse eats 200 lbs. a week, this would be $10 per ton for the food in the clover; in other words, he makes $7.00 per ton by converting the clover into hay instead of plowing it under.

In regard to swine, Mr. Thomas puts his question—purposely no doubt—in the most difficult form for me to answer. Read it again. It seems a simple question; but it is full of limitations and difficulties. It is certain that especially in pigs, we should never use any thing but a *thorough-bred* male. Now, I am fully persuaded in my own mind that a thorough-bred Essex is the best boar to use with our common sows. But the question limits me to such as are "common and accessible." The right kind of sows for the cross can be found in any neighborhood; but there is not one district in a thousand where an Essex boar, or *any other* thoroughly established breed, can be found. In the case supposed the farmer wants to keep only one sow, and Mr. Thomas asks, "Must he keep a boar also?" And herein lies the real difficulty of the question. Some years ago a gentleman in this town, who kept three or four cows, wanted to improve his stock, and he gave Mr. Sheldon $300 for a good Shorthorn bull. If he had had forty or fifty cows of his own, nothing could have paid him better. But as it was, he put up the price to $300 per cow, which was from three to six times more than the usual charge, and scarcely a farmer in the neighborhood availed himself of this splendid opportunity of improving his stock. And it will be just so with the farmer who gets an Essex or a Berkshire boar. And the better he is the more fault they will find with him, because the greater will be the contrast with their own stock. He will be too small, too delicate, too fine-boned, and too quiet. And if he answers all these objections, they will say, "We should like him first-rate if he was only white."

Where this prejudice against black pigs exists, a farmer who depends on the patronage of his neighbors must select a white breed. For my own part, in such a case, I should prefer to get a thorough-bred Suffolk or small Yorkshire, but most farmers in the vicinity would probably prefer a larger hog. In this case I should get a large Yorkshire, or a Jefferson County pig. The Chester Whites, such as I have seen, are altogether too coarse.

If Mr. Thomas had asked me this question: A farmer has a good common sow; he is a good feeder, and likes to have good stock, and takes

good care of them. He wants to raise and fat a few pigs to sell and to eat. There is in his neighborhood thorough-bred Essex, Berkshire, Suffolk, Small Yorkshires, Large Yorkshires, Chester Whites, Jefferson Co., and Magie pigs, which shall he use? I should have no hesitation in replying, Essex.

I do not claim great size for the Essex. They belong to the class of "small breeds." They are the largest of the small breeds. They are larger than the small Berkshires, larger than the Suffolks or the small Yorkshires. What I claim for them is high quality of meat, a large proportion of flesh to fat, and lard remarkably white and firm. They are the most gentle of all pigs; good breeders, careful mothers, and good sucklers. They have a minimum proportion of offal, are good graziers, and will grow rapidly in proportion to the food consumed, and are fit for the butcher at all times—can be sold at three to four months old, and afford the most delicious of fresh pork, or can be kept till fourteen months, and then dress over 400 lbs. And last and best of all, our American bred Essex, imported from the late Fisher Hobbs, by such men as Morris and Thorne, and bred by them and others who know the value of pedigree, are of unquestioned purity of blood, and will stamp their form and characteristics on their offspring, even from common sows, with the strength of a steel die.

I am fattening a pen of five cross-bred Essex and Berkshires. There may be larger pigs of their age, but I have never seen handsomer. I had two of them weighed to-day (December 23). They are spring pigs, not quite nine months old. One of them, a sow, weighed 370 lbs., and the other, a barrow, 374 lbs. The man also weighed one of the young thorough-bred Essex sows, six months and eleven days old, and designed for breeding purposes. She turned the scales at 171 lbs. A young sow, four months and one week old, weighed 110 lbs. I think these figures speak well for their early *maturity*. There is not one of these pigs, unless it is the young sow, that would not dress 85 per cent on this live weight, and there is no better test than this of good breeding. I should also state that though the Essex are entirely black, they dress, all but the hoofs, perfectly white, and the lard and fat is *whiter* than those from any white pig I have ever seen killed.

Dyking Swamp Land.

Mr. Chas. Bradley, of New Haven, has 5 acres of meadow land which is more or less overflowed by tide-water at times, but is hard and smooth enough to be mown with a machine without clogs on the horses feet. It has been dyked, but has been supposed to run down, owing to the persistent ravages of musk-rats. He asks whether he shall undertake its improvement, either by rebuilding the old dyke, or by making a new one. There is a dyke on the river below which keeps off ordinary summer tide, but is only an insufficient protection to the 200 acres of meadow lying above it. He asks what is the best material to build the dyke of, stone being too costly, and musk-rats burrowing through earth, loose stones, shells, and every material that has been tried, except stone laid in mortar. He suggests the following plan: Dig a ditch $2\frac{1}{2}$ feet by 3 feet, and then set a tight, hemlock fence close to the wall of the ditch, on the meadow side, 2 feet above the level of the meadow, which will be out of the way of tide-water; the fence above the meadow to be banked with earth, to make it tight. He thinks the musk-rats might go under the fence at the bottom of the ditch, and so they might.

We know of but one way to protect a dyke against the ravages of musk-rats, and that we believe to be effectual. It is to have it some distance, say at least from 6 to 10 feet away from the ditch, and to have a ditch only on one side of it. If Mr. Bradley will dig a ditch 3 feet wide at the top and 3 feet deep, wheeling the earth 10 feet from it toward the water side, and will then make a dyke 3 feet high, covering it as soon as possible with a good turf, he will probably find the job satisfactory. Musk-rats will only burrow into a dyke when they can crack it from below the surface of the water, and they will not intentionally burrow through it; if they want to get to the other side they will go over the top. The mischief is generally caused by two different colonies burrowing from opposite sides and meeting within, or from accidentally making their holes so near to the outside of the dyke as to enable the water to force a way through. The plan here recommended will be much cheaper, and we think better, than to use boards, as proposed.

Poultry Yard Appliances.

Under the term of "Poultry Appliances," we notice that poultry fanciers and premium lists include all those little conveniences which make up the furniture of a good poultry house and yard. It is certainly more correct than "fixtures," for many of them are movable, and it is more comprehensive than "fittings" or "furniture," so it is probably best to adopt it as applied.

Fig. 1.—NEST-BOX.

The late show of the N. Y. State Poultry Society brought out a number of new affairs of this kind, some of which, we think, it may be of use to our readers to know something about.

Galvanized Iron Nest-box—(Figure 1.)—This consists of a plain box, twelve inches wide by fourteen inches in length, with an alighting step in front, having its edge rolled over a wire, to give a secure footing. It affords no harbor for lice, is inaccessible to rats, if hung up, and is easily shifted into the sitting apartment whenever it is desired to set a hen.

Suspended Feed-hopper—(Figure 2.)—This is also of galvanized iron, and is made of various sizes. It is adapted to feeding dry grain of any kind, and may be hung against a post or partition out of the reach of rats and mice. It is, besides, light, easily cleaned out and refilled when necessary.

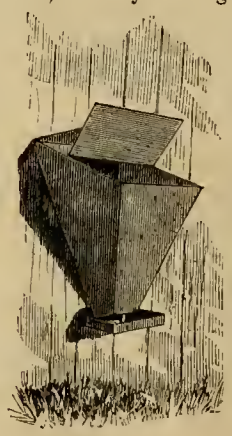


Fig. 2.-FEEDING HOPPER.

Suspended Water-fountain — (Fig. 3.) — This article is made of the same material, galvanized iron, and of such size only as may be dipped in an ordinary water-bucket, for filling. It is adapted to hang against a partition of a small house or of a coop, thus occupying no room upon the floor, and not being liable to be much dirtied by any thing thrown into it by the scratching of the fowls, like open troughs.

Folding Coop.—Figure 4 represents an excellent folding coop for exhibiting poultry or for other uses. It is made of clear pine, larch, or other wood not liable to split, and capable of being worked smooth. The top, two open sides, ends, and bottom, are each one piece, and the six pieces are hinged together, so that they can be quickly and compactly folded up, as shown in figure 5, and in this state stored or shipped. When set up, the bottom is level with the frame of the lids in front and rear, hence is easily cleaned out. It is firm and substantial, and lighted from above, and took the first prize at the show above named.

Fig. 3. — WATER-FOUNTAIN.

All the above-named articles were exhibited by their inventor, Mr. A. M. Halsted, of Rye, who, although expecting to profit by their manufacture and sale, places no restrictions upon those who wish to make them for their own use.

Feed and Water Trough for Show Coops.—The most convenient arrangement we have seen for providing feed and water to fowls confined during several days in show coops, is shown in figure 6. It consists of a tin or galvanized iron box, or trough of such a size, that it will slip through between the bars of the coop if desired, and provided with a socket, soldered on, which will slide over an iron pin in the frame of the coop or cage, and thus suspend the trough within or without the coop at pleasure. The trough may be divided by a tight partition, and feed placed in one side and water in the other, if desired; but it is preferable to use two troughs, and always best in exhibition coops, except in the case of very wild fowls of some sorts, to hang both feed and water vessels upon the outside of the coops. With water-fowls this is imperative, as ducks and geese make a great dripping and splashing of water if they have the opportunity to do so. When coops are made with wire netting, through which large-combed fowls cannot get their heads, of course some other plan should be followed—Mr. Halsted's, for instance, as shown in figures 2 and 3, just described.

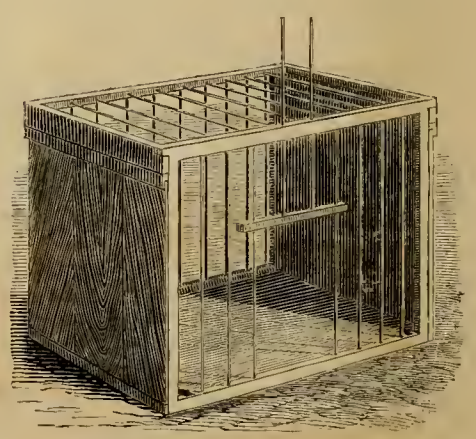


Fig. 4.—FOLDING COOP.

Cleeton's Sectional Coop has been lately introduced, and ought to be mentioned in this connection. It is chiefly excellent, because its low price brings it within the reach of all, being quite as cheap as an equally good coop could be made to order. It can be packed in very

small compass, is easily set up, and, though hardly substantial enough to bear rough usage upon a journey, may be made quite strong by

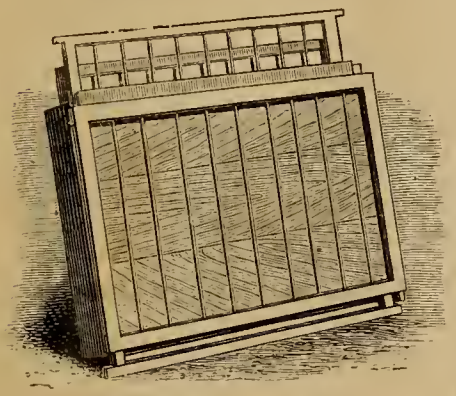


Fig. 5.—FOLDED COOP.

a few brads and large carpet tacks. Several hundred were used at the recent exhibitions of the Connecticut and New-York Poultry Societies, and gave good satisfaction.

Peat for Fuel.

The money that has been sunk in the peat enterprise has been mainly for buildings and machinery for pressing and drying. When coal was selling for twice the present prices, it was calculated that peat could be sent into the cities and sold at a large profit. Machines were invented for pressing it into the smallest compass, to prepare it for transportation. When coal receded to the old prices, all these calculations were upset, and most of the peat factories were sold for old lumber. The question of the economy of using peat for fuel, as it comes from the bog cut with the spade, dried in the sun, and stored in sheds, has never been tried on a large scale in this country. There are a few localities, like Block Island, where the forests have all been cut off, that have used peat successfully for a good many years. On this Island the wood was gone before coal had come into common use, and the people were forced to buy wood from the main land at high prices, or resort to the peat bogs, which were numerous, and of good quality. It is quite possible there are other localities where the high price of fuel will make the use of peat economical. It is estimated that two tons of sun-dried peat will supply as much heat as one ton of anthracite coal. If peat can be put into the cellar or shed at half the price of coal, ton for ton, it

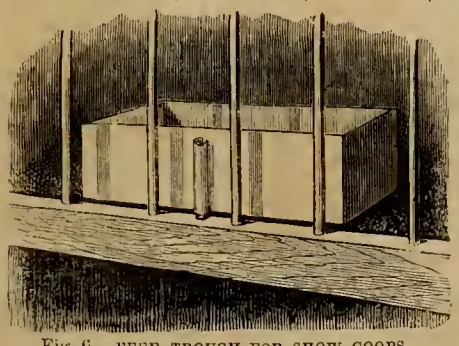


Fig. 6.—FEED TROUGH FOR SHOW COOPS.

will do to use it; if it cost less, there is economy in using it. A ton of sun-dried peat is worth about as much as a cord of oak wood. On some farms, where the wood is short, and coal is inaccessible or very high, it will probably pay now to open the peat bogs for fuel. Peat is very widely diffused, and the farmer who has it upon his premises can test its value without any great outlay for tools or fixtures. The only tool needed is a good, long-handled spade. Most Irish laborers are familiar with the whole process of cutting and curing peat. It is cut in square blocks, about a foot long, and just large enough to be conveniently handled with the spade. After lying upon the bank, exposed to the sun and wind for a few days, it is turned bottom side up. As the drying process advances, the blocks are piled loosely in heaps, that give free circulation to the air. When sufficiently dried, the heaps of peat are carted to a rail pen, covered with boards, or to an open shed for storage, where it may be kept indefinitely, without much danger of damage or loss. An expert workman would average, in a good bog, two tons of dried peat in a day. The cost of preparing it is less than that of wood. In most communities it costs a dollar a cord to cut and pile four-foot wood. It costs about two dollars a cord to work this up fine enough for a cooking-stove. If the wood and peat are considered of no value, or of equal value, before they are touched, it would seem to be cheaper to get peat whenever the cost of cartage is equal. There are always difficulties in introducing a new kind of fuel. Coal came very slowly into favor. Many a man sweated over the kindling of his first coal fire, and thought the man a fool who first mined coal. It did not burn well upon the open hearth, like wood. Even when lifted upon sticks of wood, for a grate, it burned slowly, and did not look cheerful. Iron grates, coal stoves and furnaces were needed to help combustion, and popularize the new fuel. It is one great step toward the use of peat for fuel that we have these inventions, for peat will generally burn well where coal does. Larger space will generally be needed for the fuel, for it is not so compact as coal. In some cooking-stoves, made for the use of wood, peat burns freely. As soon as it is found out that peat is available for the farmer and the villager, there will be inventors enough to give us the best apparatus for burning it. We have no doubt that in many of the older parts of the country, where wood and coal are dear, and peat bogs are plenty, the time has already come to try peat.

Cotton-Seed Meal.

The large crop of cotton, approaching very nearly to the largest crop ever raised before the war, very properly turns the attention of farmers to cotton-seed meal as an article of provender. It was coming into favor ten years ago, and mills were established in several places in the North to decorticate the seed, express the oil, and grind the cake into meal. The war stopped these mills, and for several years very little was heard of cotton-seed oil and cake. Attention is now turned to these articles with new interest, and both are likely to be manufactured much more largely at the South than at the North. We are glad to hear of cotton-seed oil mills in the great center of the cotton trade. There are three at Vicksburg, which made, last year, 160,000 gallons of oil and 4,000 tons of cake. In New Orleans there are five mills, using up 28,000 tons of seed. There are also mills at Memphis and Mobile. Formerly, the planters dumped this seed into the nearest creek to get rid of it. In later years they turned it to use for manure, dropping it in the hill for corn and cotton, after a slight fermentation. It is now worth about ten dollars a ton at the gin. A ton of seed yields about 1,000 pounds of seed after the fiber and hull are stripped off, and this will give about 40 gallons of oil and 750 pounds of cake. The oil is used for various purposes in the arts, and the cake is ground up for cattle food, and sold at about forty dollars a ton. Large quantities of the cake are exported to England, where it is coming into competition with linseed cake. It only needs to be better known at the North as an article of provender to rival our grains and roots. There need be no apprehension about a market. We can take all the South can afford to sell. We have no doubt it is very bad policy for the planters to sell the seed so extensively as they do. The manure made from the meal is exceedingly valuable as a fertilizer, worth nearly as much, ton for ton, as the raw meal. Planters are now learning the economy of using manure, and are buying largely of guano, fish manure, phosphates, and other manufactured manures. They are also buying grain of the North-west with which to feed their mules and to make their bacon. If their own plantations can furnish in the cotton-seed the provender and the manure they are buying, it would seem to be very poor policy to be sending abroad for these articles. Some are prejudiced against the cotton-seed meal from the use of the article as it was first prepared. The seed was pressed without removing the lint and shell, and these sometimes injured cattle. But now nearly all the seed is decorticated, and the meal is used with as much safety as linseed oil-meal or corn. The only trial of it we ever made was in feeding milch cows, and this was in connexion with cut hay, corn fodder, sugar-beets and mangel wurzels. The cotton-seed meal was sprinkled upon the cut hay, and used once each day, in about the same quantity as we had been using corn-meal. The flow of milk was increased, and we should have continued the use of it, if it had been in the market. Some animals manifest a decided aversion to it at first. This can be overcome by mixing it in small quantities with corn-meal or with roots at first, until they acquire a taste for it. The estimated value, in gold, put upon cotton-seed cake as a fertilizer by Professor Johnson, is $21.60. It loses very little of this value by feeding, and the best way of applying it is to pass it through the manger first. It is quite as valuable as linseed oil-cake for feeding, and worth a third more as a fertilizer.

PIGS LOSING THEIR TAILS.—A correspondent, "A. B. H.," writes: "Grease the tails when the pigs are born, and I will guarantee that they will not come off."—This may be true, and at any rate so simple a preventive is worth trying, but we much doubt its efficacy in all cases. The trouble is caused by a ring, supposed to be of a fungoid character, growing round the base of the tail. If taken in time, before it has completely girdled the tail, its growth may be checked and the tail saved. But when the ring is once around the tail, it is almost impossible to save it. Carbolic soap and glycerine, with a little carbolic acid mixed with it—say one part of carbolic acid to ten parts of glycerine—is likely to prove as efficacious as any other remedy. We have generally depended on petroleum, and we have saved some tails, and some we have not. We have never lost a tail from a thorough-bred pig, but have lost a good many from cross-bred pigs and grades. The so-called Cheshires, or Jefferson County breed, seem to be particularly liable to lose their tails, and such is the case to some extent with the Yorkshires. The black pigs, when thorough-bred, are not, in our experience, affected with the disease.

Soiling Cattle.

Captain Hawley, of New Haven, V., asks:

"1. How many acres of land should be planted with green crops for each cow during the season of green fodder?

2. Do you recommend keeping cows confined to a small yard and stable, or is it better to let them have the run of a small pasture a portion of the time, during the day?

3. What crops do you recommend to be sown for green feeding?"

To which we reply:

1. This depends entirely on the fertility of the land. Ordinarily good land, such as would produce 35 bushels of corn to the acre, ought, with moderately fair manuring, to produce the food required by an average cow throughout the season, and something over, to be cured and stowed away for winter. It would not pay to undertake soiling on any land less productive than this. A field of double the fertility of this—one that would produce 70 bushels of corn—receiving double the quantity of manure per acre, and skilfully managed, so as to produce two or three crops during the season, would amply feed four cows for the whole season. With any really good land, it should be easy to keep two cows to the acre, and to store surplus fodder for winter. On any land that we considered good enough to devote to soiling, we would consider ½ acre per head sufficient.

It will generally be found in the raising of all crops, but especially with green fodder, that if the manure and labor ordinarily applied to an acre are concentrated on a half-acre, more than double the amount of forage will be produced, and the land improved by the treatment.

2. If the pasture is small and is close to the barn, it will be, so far as the cows are concerned, as good as a yard—possibly better—but the animals should be fed five times a day, getting at each feeding as much as they will eat up clean, *and no more;* and after each feeding, they should lie quietly until they have finished chewing the cud. This will not give them much time, nor leave them much inclination for pasturing. Under a system of partial soiling, when the cows are fed in their stalls only twice a day (morning and night), they will of course need a good pasture. The full benefit of the system, however, cannot be obtained unless they are kept at all times either in the stable or in a small yard, where the manure can all be collected at short intervals, and applied in a systematic way to the land for which it is destined. As milch cows require very little exercise, and as much of the profit of soiling comes in the form of manure, the less they are allowed to roam the better. A couple of hours' daily exposure to the sun, with the least possible inducement to roam, will give the best results.

3. For the first feeding, before even grass is long enough for a good bite, *rye*, sown early in September, on heavily manured land. As the object is to get stalk and leaf rather than grain, the richer the land is made the better. If the cutting is commenced when the rye is a foot high, much of the field can be gone over a second time, and some of it even a third time. By the time this crop is finished, grass will be in good condition for the scythe. This will be followed by oats, of which a good area should be sown (on land plowed in the fall, and only harrowed in the spring—to save time), at intervals of about ten days, from the first moment when proper sowing is possible until about May 1st. The first crop of oats will follow the grass, and the later ones will come on in succession until the corn is three feet high. Early in May, the great soiling crop (*Southern* or *Western* corn) should be sown. The first sowing should be made as early in May as the season will permit, and successive plantings should follow, at intervals of about two weeks, until August 1st. After this date there is not much use in planting it.

For 10 cows we would devote, if we were about commencing the practice of soiling, 10 acres of good land, and an abundant supply of manure; 5 acres might answer, but it is always well to have *too much* of all kinds of green fodder. Two acres should be devoted to rye; two to grass; two to oats, and four to corn. If the land were capable of producing 70 bushels of corn, we would expect, with ample manuring, to get enough more than the cattle would consume to furnish one-half (if not all) of their winter supply of long forage.

The corn should not be allowed to fruit. As fast as it blooms it should be cut up and cured, and the soiling forage should be taken from the next planting. Grass can be cut at intervals during the summer for a change, but should never pass the stage of early blossoming.

How to Subdue Brush in Pastures.

In all the dairy region grass grows well, but brush grows better, extending the roots every year, and gaining in power to grow, the longer they are neglected. In three or four years it roots out the grass, and in twenty years makes a forest. We all know that brush can be subdued and kept under by plowing or by habitual cutting; but in many cases the plowing is impracticable, and the annual cutting costs more than the grass is worth. We cannot afford to pay five dollars for four dollars' worth of pasture. Some fields are so rocky and wet that it would cost a hundred dollars an acre to clear and drain them, while adjacent land all cleared is not worth forty dollars an acre. That will not pay yet. We have thought of a mowing machine for cutting brush, and if we had one about three times as strong as a Buckeye, that would take off a half-inch stub, it would be just the thing for cutting sweet ferns, whortleberries, and briers that infest smooth pastures. But the machine to do this work is not yet in the market. Annual burning with seed sowing is probably the cheapest and best method on most pastures. Of course where the brush already has possession, it must be cut to begin with. On the burned spots grass seed should be sown in the spring. Young shoots will spring up the first season, and make a growth of two or three feet. The leaves will fall and cover the earth. This covering will become very dry by spring, and if a dry spell is chosen to fire them, the burning leaves and grass will make a fire hot enough to consume most of the new growth, and deaden the whole of it down to the ground. The roots will start again the second season, but with diminished vigor. The ashes from the annual burning will stimulate the growth of the grass. The clumps of brush will grow "small by degrees and beautifully less" until grass has full possession. The occasion of failure by burning is owing to the want of perseverance. It will not do to intermit for a single season. Close pasturing, especially with sheep, is a great help in the process. If the land has an annual burning, many of the tender leaves and twigs that start will be cropped by the animals, and the growth will be diminished. The burning is inexpensive. In favorable weather one man would burn over fifty acres in a day, and keep the fire from damaging trees or fences. We were recently in a pasture that had been under this treatment for several years. The bushes were nearly extinct, and the grass was green and vigorous, even in December. The torch had proved a worthy rival of the plow, as an implement of cultivation. The true policy in managing these rough pastures is a little labor applied persistently every year, leaving the bushes no chance to get a strong hold.

Burying vs. Transporting Rocks.

There are two sides to most questions, and the question whether we shall bury or lift out the stones from our pastures is no exception to the general rule. Under certain circumstances it is admitted that the rock-lifters are the most economical. With Packer's Machine, or a Rock-lifter, three men and a team will take out in a day—say one hundred rocks, weighing from two to six tons. It will take the same force, another day, to pack them away in a wall if it is handy. If you have to carry them a long distance and dump them into a swamp or pond-hole, it will take still longer. If a man has the fence fever strong upon him, and cannot see that twenty-acre fields are better than four, then let him lift stones and build the heavy walls. But some of us covet large fields; and we prize the bogs too highly for cranberries, to fill them up and make upland of them. We want the stones out of sight, and out of the way of the plow. We cannot sell the rocks, and we have too many fences already. To us burying is the cheaper method. A good workman will put one of these large stones out of sight in about an hour, and in the fall and winter, when labor is cheapest and the weather is fittest, the cost will be fifteen cents. He simply digs a hole with pick and spade or shovel, beside the stone, partially undermines it, and, with crow-bar, tips the rock in, calculating in his digging to leave the top of the rock two feet below the surface of the ground. One advantage of this method is that it raises the surface of the ground. In removing the rocks, as we have to with the rock-lifters, the grade is so much lowered that sometimes new rocks unseen before are brought to the surface, and a second crop has to be pulled before we can give a clean sweep to the plow. In burying, we raise the grade so as to avoid this necessity. Much less of the subsoil is brought to the surface by this process than by the other. The stones and gravel are put in a pile on one side of the rock, and the surface soil in another pile. When the rock is dumped into the hole, the small stones are packed around the edges, and the subsoil and gravel filled in next, and the surface soil last. This treatment operates a good deal like subsoiling and underdraining combined. There is drainage all around the sides of the buried rock; the subsoil and surface soil are thoroughly loosened and sufficiently mingled, and the soil is put in the best mechanical condition for crops. The good effects upon the soil are visible for many years after the operation. Manure tells best over these sunken rocks, and the grass and other crops are largest. We do not mean to depreciate the value of the rock-lifters. We need all of them, and more. But there are circumstances where burying is the cheaper way of clearing rocky pastures and meadows.

CONNECTICUT.

Making Butter in Winter.

"Anybody can make good butter in the summer." So they say; but we don't find it a true saying. The other part *is* true, though: "It is the winter that tells the tale." Not one dairy woman in five hundred can make really good butter in cold weather; that is, butter that will remain good a week after it is made. The difficulties are numerous, thus: The cows have not the best butter-making feed; they have little, if any, coloring matter in their feed; the temperature at which the milk is kept is very unequal; the danger of mixing in the flavors of the kitchen with the milk, the cream or the butter, is very great; and the butter is too apt to be allowed to become too warm or too cold before it is finally worked into shape.

Over the matter of feeding we can have only a limited control. Nothing that we can devise is so good as the natural green forage of summer. Our chief attention should be given, then, to temperature, pure air, and artificial coloring, without relaxing, of course, the always indispensable care with regard to perfect cleanliness and perfect working.

The milkroom had better be entirely by itself—where it cannot be pervaded by the odor of boiled cabbage and fried onion—and it *must* be kept warm. A kitchen closet is the worst place to set milk in; a sitting-room closet is better, but not so safe as an isolated room, with a stove in it that can be made to keep its fire all night. After frost sets in regularly in November, the milk should be scalded as soon as it is brought from the stable. This is done by standing the vessel containing it (after straining) in a larger one on the fire, in which water is boiling, stirring the milk occasionally, and removing it when its surface begins to "crinkle" and to throw off a little cloud of vapor, or when it "begins to smoke." To allow it to become warmer than this will do harm. In this condition it may be poured into the pans—to a much greater depth than is usual in summer—in a closet or room in which the thermometer *never* goes below 55°, rarely below 60°, and never remains long above 65°. This milk can safely stand twenty-four hours, and by that time all the cream should have risen. The cream should be kept in a jar, in the same room, not too far from the stove, nor yet too near it, and it should be *thoroughly* stirred to the very bottom, every time a fresh skimming is added; that is, twice a day. The churning, which should be as often as once (and better twice) a week, should be done either in the milkroom or in some place not much colder. The butter should be worked in the warm milkroom, and it should be kept there while "soaking up the salt" between the two workings. After it is moulded or packed away, it may be kept in a cooler place, but it would be better never to let it become so cold as to get very hard—not colder than it would become in a snug cellar.

About coloring, we have given frequent directions. Carrot juice or a decoction of annotto may be put in the churn with the cream, or an extract of annotto in melted butter may be worked through the lump after it is taken out of the churn. Unless the cows are fed very largely on rowan hay or on carrots, some artificial coloring is important.

It should be borne in mind that these directions are only supplementary to those so often given on the general management of the dairy. They by no means supersede them; they only refer to conditions which are necessary, to make winter butter from hay-fed cows as nearly like that of the summer as winter butter can be.

Keeping Accounts.

The great mass of the farmers of this country keep no accounts at all—not even a memorandum book in which they note down current expenses, etc. The idea of "keeping books" has a terror about it, which deters most people whose success in life does not absolutely hang upon their keeping accurate accounts to have much to do with them. The amount of money which passes through the hands of a small farmer in any part of the country is so small, that his recollections about money transactions is usually pretty accurate, and the real necessity of spending the few minutes a day necessary to keep tolerably accurate accounts is not apparent to them, and will not be until proved.

It is not our object now to enter into an argument to convince any one of the desirableness of keeping accounts, but to show how it may be done conveniently and easily. The writer has for some time used the following system for keeping his family and farm accounts, which are kept together, and it certainly is simple, convenient, and appears to be all that is required.

The book is ruled with double dollar-and-cent columns. In one of these columns the *expenses* are set down; in the other, the *receipts*. The book need not be larger than a common school copybook, and three minutes a day will serve to make all the entries. If the farmer is cold, and his fingers are stiff, his wife or one of his daughters will gladly take the pen. Oftener than otherwise, we think the wife, if not overburdened with the cares of household and children, would be the best one to keep the accounts. In a great many cases, dimes and half-dimes slip away for personal indulgences (glasses of something warm, or tobacco), which, were it the good wife's daily duty to make the record, would not be spent.

These accounts ought to be balanced as often as once a month. It will be observed that this book, if accurately kept, will only show the transactions in ready money, and hence should be called *cash accounts*. We almost all have, of necessity, another class of accounts to keep. It is not always possible or best to pay cash, and we make little debts and give credits all the time. The settlements are often made in produce, labor, or something besides money, but there should be just as accurate a record of the transactions for all that. With those persons with whom a running account is kept, there should be an account opened in another book, and some pages devoted to it. In other cases, a simple memorandum of the transaction may be sufficient. It requires no knowledge of book-keeping, or skill as a mathematician. Any child of 16 can do all the work, and the advantages are, it is safe to say, beyond computation.

How much Corn can a Man Husk in a Day?

W. B. Banfield, Charles City, Iowa, writes: "In your November 'Walks and Talks,' the writer says that some of the operators of corn-husking machines at the N. Y. State Trial of Implements cavilled at his assertion, that with good corn an active man could husk 40 bushels of corn in the car per day, and that out West he supposes they could do more than this. In 1868, the corn crop of Iowa was 76,507,575 bushels of cars; the highest average yield per county was 46.26 in Henry County—a fair average of the State being not to exceed 35 bushels to the acre. I have, since last August, given the question of corn-husking a good deal of attention, and I feel positive that we do not in the West husk a good deal more than 40 bushels per hand per day. To husk and throw down an acre of corn without cribbing it, a man must walk over 5,953 feet per day, without allowing for the distance traveled in crossing from row to row when husking two rows at a time. We have in this county an active, powerful Scotchman, who is considered a sort of champion husker, who thinks it a good day's work to husk and throw on to the ground, without cribbing, 40 bushels per day. Messrs. Day Brothers, of Decorah, Iowa, have a farm of over 3,000 acres. They raised this year 700 acres of corn, which they have just finished husking. One of the firm told me that the average per hand was 25 bushels per day. Hon. E. H. Williams, of Clayton County, who farms about the same amount, and who, like the parties first named, has grown rich by farming, says that in more than 20 years' experience he has found the average per hand at corn-husking to be between 20 and 25 bushels to each hand.

This is husking from the stalk standing in the field. The man who can husk and crib his 40 bushels per day, and keep it up, is often heard of here, but is as difficult to find as the man who could formerly cradle 10 acres of wheat per day during harvest. I could enumerate many more leading farmers whose experience tallies with those I have mentioned, but content myself with saying that much of this large amount of field work to the hand is estimated by guess work, and that when actual account is kept the average falls far below the estimate."

Remarks by the Editors.—Is it even so, that in Iowa 20 to 25 bushels of ears is an average day's work in "husking from the stalk standing in the field?" What, then, becomes of the numerous published statements in years past in regard to the cost of raising corn at the West? Here is one from Daniel M'Cready, near Fort Madison, Iowa: "Average produce of corn per acre, 40 bushels; cost of production per bushel, 14 cents." This, we presume, means shelled corn, or its equivalent. J. E. Johnson, Council Bluffs, Iowa, says: "60 bushels of corn is considered an average yield; and 10 cents per bushel is near the cost of raising." Edward Johnstone, Lee Co., Iowa, writes: "Yellow corn most esteemed, ripens soonest. White corn yields more, but ripens later. Yield of yellow, about 45 bushels; yield of white, 55 bushels per acre. Cost of corn, from the seeding to the crib, is about 7 cents per bushel."—True this was before the war, when wages were from 25 to 50 per cent less than they are now; but still if corn cost only 7 cents from seeding to the crib, and the yield was 50 bushels, or $3.50 per acre, how much must it have cost for husking after deducting the cost of plowing, harrowing, planting, cultivating, and cribbing? Probably it was not then considered such a laborious task to "walk over 5,953 feet per day," or about 1 1/8 mile, as our correspondent now thinks it. Cannot some inventive genius get up a kind of velocipede on which the poor man might ride up and down the rows? It is a fact that on our own farm, "with good corn, an active man can husk 40 bushels of cars per day," and tie up the stalks and put them in stooks; and it certainly has always been claimed that a man can husk more corn at the

HUNTING THE ANTELOPE ON THE PLAINS.—*Drawn and Engraved for the American Agriculturist.*

West than with us. Again, we ask, what are the facts? We are well aware that a gang of ordinary men working by the day will not average 40 bushels of ears. Last fall we paid men from $1.50 to $1.75 per day, without board. At the same time, we got our corn husked "by the job" for 5 cents per bushel, (equal to at least 10 cents per bushel of shelled corn,) and the huskers made good wages. Some corn husked "by the day" in the same field, while we were absent at the State Fair, cost us over 9 cents per bushel of ears; but all that this proves is that the fellows were lazy. And we give it as our opinion, founded on most costly experience, that if these same men had been husking it with a machine, with no one to look after them, it would have cost even still more. The way to introduce corn-husking machines is for two or three good men to buy a machine and go round and husk corn by the bushel, just as is now done in thrashing grain. Mr. Banfield states that with an Aspinwall machine he has husked 8 bushels in 15 minutes, and at no time has he used more than four men about the machine. This is at the rate of 32 bushels per hour. At the N. Y. State Trial this machine husked the first bushel of ears in 3 minutes and 10^1|$_4$ seconds, or at the rate of 13^3|$_4$ bushels per hour; and it husked another bushel in 2 minutes and 57 seconds, or at the rate of 20 bushels an hour. We have no doubt that our corn will be husked by machinery—whether it will be done any cheaper than we can now, *sometimes*, get it done by hand, is with us an open question.

Hunting the Antelope on the Plains.

The wild life of the plains, the wild Indian in his buckskin and nakedness, the realities of the war-path and the scalping knife, are brought vividly under the scrutiny of the civilized world by the facilities of travel, the love of adventure, and the desire of pleasure-seekers to go amid new experiences. We all have the feeling that this interest and excitement of the wilderness and the frontier are passing away, and so whatever relates to them has an attraction for every one. Mr. Wm. M. Cary, who not long since returned from the Rocky Mountains, and whose pencil has repeatedly adorned our pages, furnishes to the *Agriculturist* the accompanying striking picture, with the following statement, drawn from his own observation and practice:

"In hunting the American Antelope, the hunter relies almost altogether upon the curiosity of the animal, and it is almost sure to fall a prey to its investigating spirit. The hunter approaches by stealth near enough to a herd to attract them by waiving his red blanket in the air, taking good care not to show himself; then setting up this blanket or a piece of scarlet cloth upon an arrow or wiping stick thrust into the ground, he goes back a few yards and throws himself down to await the approach of the herd. The decoy fluttering in the air attracts the animals, who come on, headed by an old, cautious buck, who stops every few steps to sniff the air for lurking danger. So they come on, stringing along one after the other, until they are within reach of arrows or bullets. Good care must be taken to kill at the first shot, for if one is allowed to run wounded among the herd, it is almost impossible to get within shot of them again. The flesh is very delicate, except in the spring, when it is rank. In the fall it is delicious, and is flavored with the wild sage which they feed upon. The fur is extremely coarse, and more resembles a rope-mat than hair. The hides, dressed like buckskin, are used as summer clothing for the Indian."

How Plants and Flowers are Grown.

BY PETER HENDERSON.

Thousands of the readers of the *Agriculturist* live so remote from our great cities and towns, that "Flower manufacturing," as it may be termed, is something by them unseen and even unheard of. To such the accompanying sketches, taken on the fifteenth of December last, from our establishment in Jersey City, N. J., may be interesting as well as instructive.

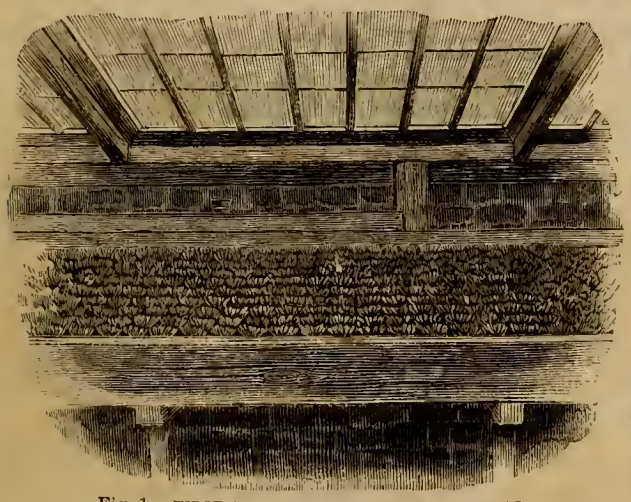


Fig. 1.—FIRST STAGE.—CUTTINGS OF VERBENAS.

Figure 1 represents an inside section of a propagating house. This has a propagating bench or table on each side, having a ledge to it, and is covered with about three inches of clean sand. The engraving shows the cuttings as they are inserted in rows in the sand. The space shown is about 9 square feet, in which are set about 1,000 Verbena cuttings. These are taken in the green state from the old plants, cut into lengths of about 2 inches, and inserted about half their length in the sand. They are shaded when the sun is hot, and freely watered every day until they take root, which will be in about 12 days from the time they are planted in the sand. The proper temperature for the sand is 60 degrees, and that of the atmosphere of the greenhouse should be 10 degrees lower. The sand on the bench in which the cuttings are placed is raised to a higher temperature than the air of the greenhouse, either by a smoke-flue passing under the bench, or by pipes containing hot water. As soon as the cuttings are rooted they are planted in pots 2 inches in diameter by 2 in depth, and again freely watered by a fine rose watering-pot.

Fig. 3.—POINSETTIA PULCHERRIMA.

Figure 2 shows an inside section of a greenhouse, with the plants in this the second stage of growth. These operations are continued during the season, from November to May. In May the plants are ready to be set out in the open ground. Some conception of the vast numbers grown of this plant—the Verbena—may be formed when we say that 300,000 were sent out from this establishment during the months of March, April, and May of last year; and when it is known that there are many hundreds, great and small, of Florists' Establishments in the suburbs of New York, all growing more or less of this popular summer flowering plant, it may be easily estimated that many millions are planted annually. We can well note the increase of taste in the culture of flowers from this single plant alone. Twenty years ago, when we grew 5,000 Verbenas one year, we thought we would overstock the market; but we did not, and the vast increase that has been steadily made tends to no such result. And it must not be forgotten that this is only one species of flower, among many hundreds grown. Next in numbers to the Verbena comes the Rose; of these perhaps half the number is sold, but as the plant is more valuable, a far larger amount in money is realized. Twenty years ago, 50,000 would have supplied all the demand for New York market; it must now require millions.

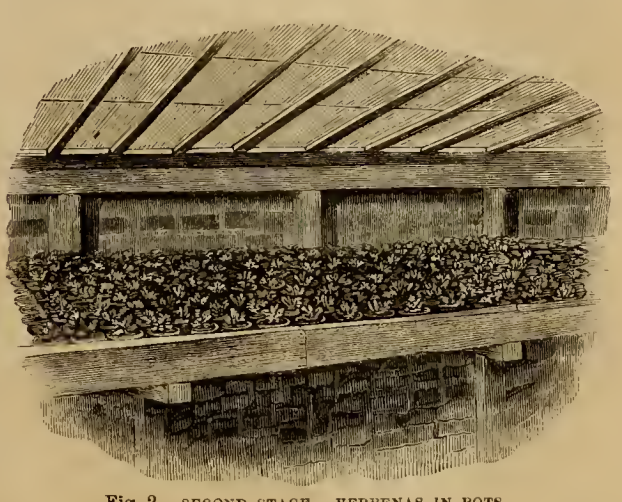


Fig. 2.—SECOND STAGE.—VERBENAS IN POTS.

Fig. 4.—ROSES IN POTS.

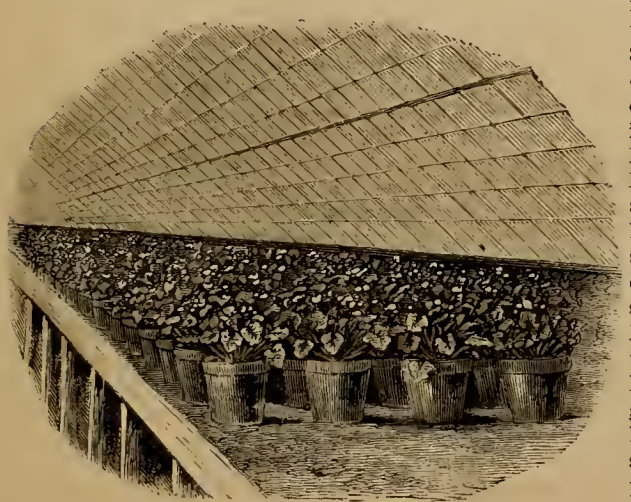


Fig. 5.—DOUBLE PRIMROSES.

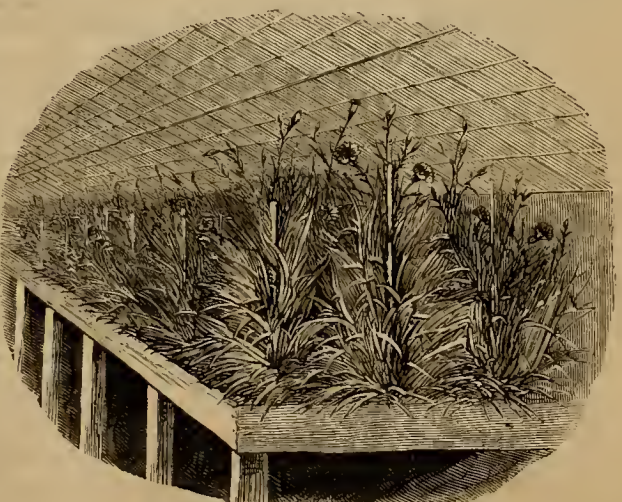


Fig. 6.—CARNATIONS.

Figure 3 shows another phase of Greenhouse culture—the growing of plants to produce cut flowers in winter. This section shows a mass

Poinsettia pulcherrima, as planted in one of the greenhouses. Each of these tropical-looking growths is about one foot in diameter, and of the brightest scarlet that it is possible to conceive; these are not, however, exactly flowers, but are bracts or outer leaves of the flower. They are in perfection just at the holidays, and conduce more than any other flower to give the tables of our hospitable New Yorkers on New Year's Day a look of gorgeous elegance. A space of 3,000 square feet is devoted to this plant, and in bright sunshine such a blaze of scarlet is perfectly dazzling.

Figure 4 is a section of a Rose House, where the Tea Roses are being forced for their buds in winter. A space of 6,000 square feet of glass is devoted to this department, producing about a thousand buds daily. The varieties grown are very few, as we find only six or eight sorts are suitable for forcing. We name the kinds in order of excellence as we find them—Saffrano, Isabella Sprunt, La Pactole, Bon Silene, La Phenix, Agrippina, and Hermosa. These embrace saffron, yellow, straw, pink, carmine, crimson, and rose colors. To force Roses in winter, the plants must be grown in pots during the previous summer and fall. It is useless to lift a Rose plant from the ground in the fall and expect it to flower well during winter.

Figure 5 represents a section of the house in which is grown the *Double White Chinese Primrose*. This is the most prolific of all winter flowering plants. The greenhouse in which we grew these has about 1,000 square feet of surface. Each plant occupies about a square foot of space, and produces not less than 500 flowers on each plant. In fact the whole greenhouse is one continued sheet of snowy whiteness from November to May. It is perhaps the most profitable of all winter flowering plants grown by the Florist.

Figure 6 is a section of Carnations or Pinks, as they are sometimes called, growing, planted out on one of the greenhouse benches. Of late years this has become one of our most popular winter flowers, and perhaps more space is devoted to it than to any other flower. Its cultivation is easy and simple, and for that reason it is less profitable here perhaps than any thing else grown. The cuttings are treated exactly as the Verbenas, described under (figure 1). As the plant is quite hardy, it is planted out from the greenhouses early in spring, (at the season we plant cabbages), in the open ground, at about one foot each way. The flowers are not allowed to develop during the summer, but are cut off as they appear—the flowering resources being husbanded for winter. In October they are lifted and planted, as shown in (figure 6). Many of these plants produce over a hundred flowers. The sorts grown are very few, mainly carmine and pure white. The family of Carnation, however, contains many hundred varieties; but we find comparatively few flower sufficiently freely in winter to warrant their growth; but for private collections a score of sorts might be grown to represent the different colors and markings.

"Hickory Farm" Adornments.

Dear Agriculturist,—"Hickory Farm" is not altogether *terra incognita* to your readers, for not unfrequently hints upon properly farm topics, drawn from experience upon it, have found their way to your columns, but never before has any story of its horticulture been told. The reader ought to know that the farm is in that region of New Jersey where "Holland Dutch" is the native tongue; where, though within an easy drive of your great city, the habits of the people are as simple and quaint, as little affected by city airs, and almost as characteristic of another race from that busy, restless population within a few miles of them, and now overrunning their pleasant hill-sides, as if it were on Haarlem Lake itself. The owner goes to New York every day to his business and returns about dusk. This is a hard sort of life, but, on the whole, decidedly preferable to life in town, for a man of rural tastes, whose wife also enjoys the country, loves her pony, her Jersey cows, her calves, and her poultry, and is never weary of planning adornments for both the outside and inside of her old stone house and its surroundings.

The house is of unhewn stone, roughly faced, but tolerably well laid, up to the eaves, which project several feet, nearly horizontally, running into the gambrel roof upon a gradual curve. The gables are of wood. This is the prevailing style of architecture in which the old houses are built, and certainly it has many elements of beauty. I know of no more beautiful roof-lines than these old houses present, and no houses which, externally, convey more the idea of rural comfort.

Vines cling well to the rough stones; and ivy, trumpet vine, and Virginia creeper, hold on bravely, the rudest winds seldom tearing them from their hold. We have found two varieties of Virginia creeper (*Ampelopsis quinquefolia*), one which was taken from cultivated ground, and has *clasping* tendrils, wherewith to cling to the trellises or whatever it runs over, like those of the grape-vine, to which it is near akin. The other, taken from the rocky ledges and stone walls, instead of clasping tendrils, has tendrils, the ends of which are furnished with little flattened discs, like a fly's foot, growing upon them, and adhering fast to the stones. This looks very much as if natural requirements could develop certain characteristics in plants.

When we came, the house was hemmed in on every side with rubbish of old sheds and fences, smoke-house, hen-house, and corn-house, all "handy by," which was indeed their only recommendation. When this rubbish was moved, torn away, and cleared up, the ground, dug over and seeded down, had a very different look.

A fine young mulberry was crushed and smothered in the coils of a hundred-headed hydra of a wild grape-vine, of which one day it was barely relieved after two hours of hard labor. That was three years ago, and the vigor and beauty of that tree now is a joy to us every day. An old chestnut had been cut down before we came, and around the old stump perhaps twenty young trees were struggling for dear life, and throttling one another in self-defense. There was little choice—the best would have made a light bean-pole, but it was picked out, and a shingling hatchet made quick work with the rest. We have had nuts from this tree now for *two* years; the first year a handful, and last fall, enough to make quite a satisfactory "mess." The ground near by has been manured, and the roots reaching an ever flowing rill, the growth it makes is remarkable; —only because we have not been in the habit of watching similar things all our lives.

There was an old bridge over the aforesaid rill, which is indeed a perfect torrent after heavy showers. This was made by placing timber across between two piers, of the width of the road, and four feet apart, and covering them with planks. It had yielded to the seductive influences of the stream, and was all but ready to fall into its embrace. We endured it as long as we could, but one day had John haul some good stones to the spot, and a sable wall-layer was hired for a day's work. Two new walls were laid, and enough long, flat stones were found to bridge over the space between them. The same evening the bridge was covered with small stones and fine gravel, making a good road and an excellent bridge, that will last a lifetime, at an actual out-go of only $3. I came home one day, some time after, and found that as I had not provided quite work enough to last a carpenter we were employing all day, my wife had with his aid carried out a plan, which we had previously talked over, for finishing the bridge. Four strong, rough, cedar posts had been set, two on each side of the bridge, and on a line with it. Upon these, rather heavy cedar poles had been placed for hand-rails, and lower down other rails had been inserted between the posts; then, both by way of bracing and ornament, though no bracing was needed, cross-pieces of the same material (red cedar with the bark on, and only roughly trimmed) were set in the form of a very low broad X. The whole affair is now decidedly in keeping with the house and surroundings, rough and rustic, but having at least the beauty of strength and fitness, and the grace of appropriateness. Here, too, the never-failing vines begin already to clamber over the rails, and the wild clematis with the moonseed, will soon hang in festoons, or trail in the water.

Some time ago we had a visit from our good friend Mr. Weidenmann, whose elegant work on "Beautifying Country Homes" your house has just brought out. He was so kind as to give us upon paper his idea of how our grounds should be planted, so as to make the most of natural advantages, and so as to save expense both in laying out and keeping up a lawn. He agreed with us in the desire to keep up the old, comfortable look of the place, and to make every thing tell for convenience as well as for beauty. It has been surprising to us to see how far a little work spent upon exactly the right place and according to a good plan goes.

We have made several successful attempts to move trees from the swamps and the woods; not, however, attempting any thing very large. Red cedars may be moved with ease if dug about in the fall and transplanted with a good large ball of frozen earth. There is some swampy ground upon the place and in the neighborhood, where there is only a surface stratum of black soil about 12 inches deep, and immediately beneath this a layer of impervious clayey sand, commonly called "hard pan;" not a root penetrates it, and all the trees that grow upon this soil have of course no tap roots. If the roots are cut off in a circle around the stem, a tree may be pulled over far enough for a stone boat to be shoved under, and then when the tree is drawn back it may be drawn off without disturbing it very much. Last spring several considerable trees and shrubs were moved in this way, among them a big clump of black alders, several white birches and some cedars, which hardly seemed to know they had been disturbed, although put upon dry ground. The tough sward of swamp grasses is easily disposed of after the trees get to growing well; and, previous to that time, it serves an important purpose in holding the soil about the roots. I have a great admiration for the swamp pin oak. It grows well upon upland, and abounds

in these swamps. The tree is a mature looking one from its very youth. I see everywhere little ones, not more than ten feet high, which have all the style of a mountain monarch of a hundred years old and eighty feet in hight. We think they will make beautiful lawn trees; and but for the assurance of everybody we have spoken to, that we cannot transplant an oak, we would have tried it. Year before last a large one, say 30 feet high, and having a diameter of 14 inches at the stem, blew over. Its roots had been cut off upon one side by a ditch, made within a few feet of it. The prostrate tree did not wither; and although the mass of roots and earth adhering to them was exposed to sun and wind all summer and winter, it leaved out in the spring, and remained green the second season, notwithstanding the drouth. This fact encourages me to try to transplant some next spring, and I suggest the experiment to your readers. X.

Hints on Grape Culture.

BY KEYSTONE, ERIE CO., PA.

As to soil and site I shall say but little, only to have them high and dry; both, if possible—the latter, at all events. I have found that grapes will bear any thing but too much water; in fact, I never yet saw them suffer for want of it, when intelligently cared for or wholly neglected, but have, in one or two instances, known of vines being injured by extreme summer pruning, and the damages charged to the drouth. At this age of grape culture I do not think it necessary to waste words on this part of the subject. A comparison of the extreme wet season of 1869 with the extreme dry one of 1870 leaves no chance for argument. Such extremes are seldom experienced, but, as teachers, are worthy of our closest scrutiny.

As to varieties I would be more explicit. Having had above thirty varieties under cultivation for several years, I can speak positively and favorably of only three in addition to the old standards—Isabella, Catawba, and Clinton. These are Concord, Hartford, and Ives. Some others have done well in favorable seasons, but these have invariably done well. Have stood the test of 20° below zero in winter, and 94° above in summer; the deluging rains of 1869, and the drouth of 1870; and have paid their way handsomely every season since the first bearing year. It is true the quality is not *best*, but so long as nine out of ten consumers judge by sight rather than taste, these varieties will sell at paying prices. They can be grown at half the cost of Delawares and Ionas, while they now command nearly as much per pound in market as the latter. We are told that this state of things will not always exist; but my convictions are that no planter will live long enough to regret his choice if he plant acres of these varieties. I know the market is sometimes overstocked with grapes of these varieties in bad condition, but it is because of their bad condition and not from a lack of excellence in the fruit. I have tested this many times by putting such fruit on the market in good condition, and realizing more than market quotations, with a ready sale.

I would not discourage the planting of new varieties. In fact, "test vines" of all of them are desirable; but the certain, regular income from reliable varieties is what growers want, and must have. When these test vines prove themselves worthy, adopt them if a grain ahead of the old ones, but not until then.

What few hints I have given, if well heeded, would have saved me some money, besides a good deal of vexation, and I give them to save others the same ordeal.

Depth of Covering for Cranberry Bogs.

The planting of cranberry bogs is greatly on the increase, and in some communities amounts to a fever. Cape Cod and Ocean County will no longer have a monopoly of the business. The industry no longer needs inspiration, but guidance only. Some ten years since, a patch of six or eight acres was planted in Essex, Ct. It has produced excellent crops so uniformly, that it has made a great many converts in all that region; and now capitalists are buying up suitable land, and laying out large sums in preparing it for planting. Much has been learned during the past twenty years, and the experience of intelligent cultivators has settled so many points in the management of the crop, that it is no longer regarded as a hazardous experiment. Capital is put into it with just as much assurance of ample and safe returns, as from ordinary market garden or farm crops. It has been settled that the three grand requisites for the successful cultivation of the cranberry are peat, sand or gravel, and capacity for flowage at will. Cranberries can be grown with some variation of these requisites, but not with uniform success. They will grow in almost any swamp that produces moss, maples, and swamp whortleberries, but the crop will be small and often fail. They can be planted on the bare peat, but there will be more vines than berries. The vines will grow without flowage, but the fruit will often be destroyed by the frost and by the worms. But where the three requisites are all present, there is still occasion for inquiry and deliberation. What depth of sand or gravel is now a question of great importance, for it involves the outlay of many thousand dollars the coming season. Some say three inches, and some say six. Capt. Z. Small, of Harwich, Mass., the best authority we have on Cape-Cod cranberry culture, says three or six inches, according to the character of the bog. At the Grass Pond bog, in Coventry, R. I., it is three inches, and that without skinning; and the cost is only about fifty dollars per acre for the preparation. The cost of six inches, with skinning, is from three to five hundred dollars per acre, according to the facility of getting sand, price of labor, etc. We shall get a clear view of the merits of this question if we consider the office which sand performs in the growth of the crop. The first object is to keep down the growth of all other vegetation until the cranberry vines are thoroughly established, and completely cover the ground. This takes three years where the vines are put out in hills, eighteen inches apart each way. If clean, silver sand or dead gravel is put on, few weeds or none will start, and the labor of hoeing is but a trifle. No cultivation is needed if there are no weeds. Now, if the sand has been spread upon a bare peat, that is, a peat bog skinned six or eight inches deep, three inches are just as good as six, so far as checking weeds is concerned. But the sand or gravel is also needed to check the growth of the vines after they are established. If the soil is too rich beneath the sand, the plants will run too much to vine and too little to fruit. If the bog is made up of decayed moss principally, three inches are enough. If it has grown maples and other hard-wood plants, it will be too rich, and more depth of sand is needed to keep down the luxuriance of the vines. At Coventry, the bog is mainly the bed of an old pond that never grew any thing but moss and coarse, thin grass. The vines are not too luxuriant to yield, in favorable years, a barrel to the square rod. Another office of the sand is to retain heat, and thus guard against frost in June and August. It is well known that in the low places, where this plant flourishes, there are often light frosts, when there is none upon upland. Of course more heat will be retained in a covering of six inches of sand than in a covering of three, and a plantation might be saved from frost with the deeper covering, where otherwise it would be ruined; but if we have the control of water, we can keep off frost much cheaper with water than with sand. We notice that capitalists who are making plantations this season have generally covered with six inches of sand, without regard to the quality of their swamp land. This, to be sure, is the safer course, but we think from one to two hundred dollars an acre might often be saved in the covering, by a little discrimination in the character of the soil.

The Florists and Nurserymen's Black List.

(BY A NEW-YORK FLORIST.)

The magnitude of the business of horticulture is now such that it embraces many thousands of individuals, and, like all other trades, many unprincipled men are engaged in it. From its nature it has penetrated to every section of the country. Seeds, plants, and trees are sent to every town worthy of a name. In these towns dealers soon spring up that buy from the wholesale dealers; the great majority of these are upright and honorable men; but as in all other occupations, there is the usual proportion of black sheep. It is to these gentlemen I wish to refer.

For the purpose of preventing the operations of these gentry, a meeting was held in New York on the 3d of December last, which was largely attended by the principal seedsmen and florists of the vicinity. After an interchange of views, it was resolved to request all respectable men engaged in any department of the wholesale business, to hand into the secretary the name and address of any man known to be unworthy of credit; in short, to form a "black list" for mutual protection. This list is to be sent to all men of known good standing in the trade. This mode of protection is not new among wholesale dealers in the various trades, and the necessity for it in ours was well shown by one of the members present. He related the case of receiving a letter from Galveston, Texas, in August, 1869, ordering goods to the value of $50. The character of the order led the nurseryman to believe that the party sending it was an amateur who did not know the rules of business, as no remittance was made, nor any thing said about payment; making allowance for this, he deviated from the usual rule, and sent the goods before receiving the money. In three weeks a draft was received for the full amount, accompanied by a complimentary letter thanking the nurseryman for the fine quality of the goods sent, and promising further orders. The next October this same gentleman wrote to a leading seedsman in Philadelphia, and referred him to the New-York nurseryman for his standing. Of course the New Yorker had no reason to think him dishonest, and reported accordingly. The

same season the Galveston man writes to the New York seedsman ordering goods to the value of $300. These were sent, but the money this time was not, and inquiry developed the fact that the Galveston man was a well-known swindler who paid no one if he could help it, and that this mode of operating was an old practice of his.

JAPAN GLOBE FLOWER—SINGLE FORM.

Another shrewd mode of swindling came under my own observation. In the fall 1867, a private gardener whom I had known for several years started business in the town of Plainfield, N. J. He came to me and asked credit until spring for some stock, amounting to about $100; in the following February he came and said his circumstances were such that it would be impossible, he thought, to pay in spring. I told him it made no difference, and offered him more stock if he needed it, which he gratefully declined, leaving me with the impression that he was a well-meaning man. In a week or two I began to get several inquiries whether I considered ——, of Plainfield, N. J., worthy of credit. My reply to the first few letters were favorable, but they began to increase rapidly, so that by May 1st, I sometimes received four letters by one mail asking the same question. The rascal must have written probably to a hundred men, shrewdly judging that there always would be a number that would be careless enough not to inquire; and so it proved in this case, for he succeeded, it is said, in getting nearly $5,000 worth of trees without its costing him a cent, except for freight. Most of the victims were from Pennsylvania, where the swindler had formerly lived—two of them well known from advertising in the *Agriculturist*. If these gentlemen had known this man's name as a swindler, of course they would not have been duped. Another person hailing from Fort Lee, N. J., has "tried the same game" this year, referring to me. The fact is, I not only never knew the man, but never heard of him until he was inquired about by those he attempted to dupe. Still another method is practised by these rogues. A great deal of nursery stock is sent by express, the bill to be collected on delivery; after this stock is removed from its regular place in the nursery or greenhouse and packed, it is of no value whatever to the shipper; moreover, the goods are perishable, and, if refused by the party ordering, the whole thing is a total loss to the nurseryman. Taking advantage of this fact, every now and then we find a scamp who refuses to pay the C.O.D., offering perhaps 25 per cent of the value of the bill, or as little as he thinks the shipper will accept rather than lose the whole and have to pay expressage besides. We are well aware that there are serious objections to the formation of such a list, that it might be made the means of injuring the credit of some honest man. This point was discussed fully at our meeting, and it was determined that only transactions that had an aspect of trickery about them, should entitle the rogue to be put upon the list, and that a simple failure to pay debts was not enough; that no man should be thus tabooed, unless at least two men of known respectability should vouch for the fact that his transactions with them were of such a character as to show a design to defraud.

The Japan Globe-Flower. (*Kerria Japonica.*)

The Japan Globe-flower was introduced from Japan as early as 1700, and at first was described as a Corchorus, but it is now known to belong to the Rose family. It was first cultivated as a stove plant, then as a greenhouse plant, and finally it was found to be hardy enough to stand our winters. This plant is one of our most showy flowering shrubs for the open air, if it is properly pruned and cared for every year. It has green stems, with thin leaves, like those shown in the engraving, and is of very rapid growth; it produces globular heads of double yellow flowers in great abundance during the summer months; and if it is trained upon a fence or wall it makes a better appearance, as its branches are slender and liable to droop if they have no support. The ends of the branches are often winter-killed in the vicinity of New York, but not enough to prevent its flowering well. It throws up a great many suckers, forming a dense mass of wood; enough of this must be cut out to admit the sunlight and air. Any good, rich garden soil is suited to its growth, but it grows better in a somewhat shady position. The double variety was first introduced, and it is only some thirty-five years ago that the true species, the single form, has been known to cultivators—only since 1835. We give an engraving of the double form, now common, and of the single, which is still rare.


JAPAN GLOBE-FLOWER—DOUBLE FORM.

Though so long in cultivation, it is much less frequently met with than many things of recent introduction. While poorly treated, it is but a shabby plant; yet, under good management, it is valuable in making a brilliant show. It multiplies itself with the greatest ease, by suckers from its underground runners.

PROTECTION TO HALF HARDY SHRUBS, ETC. —The high winds of winter are likely to tear off the straw or other protection placed about shrubs; and calves or other cattle allowed to run on the highways will often do injury. We have found red cedar boughs better than straw, because they are not eaten by animals. Sheep are very fond of hemlock, and young cattle will occasionally eat it, though it is much better than straw. Whatever has been used it should be looked to, patched up, or renewed, if necessary. It is much more important that the protection should be good at this season than earlier. The changes of weather are likely to be more severe and frequent. We may have days when it is so warm that the buds will swell, and the frost almost all come out of the borders, followed by a temperature of zero, or below. This is what kills fruit-buds, destroys the promise for blossoming of flowering shrubs, and brings forward tender plants, only to suffer by the frost.

THE HOUSEHOLD.

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

The German Student Lamp.

Our ways and means for providing light are increasing gradually—not, indeed, with the rapidity one would suppose who reads the long lists of

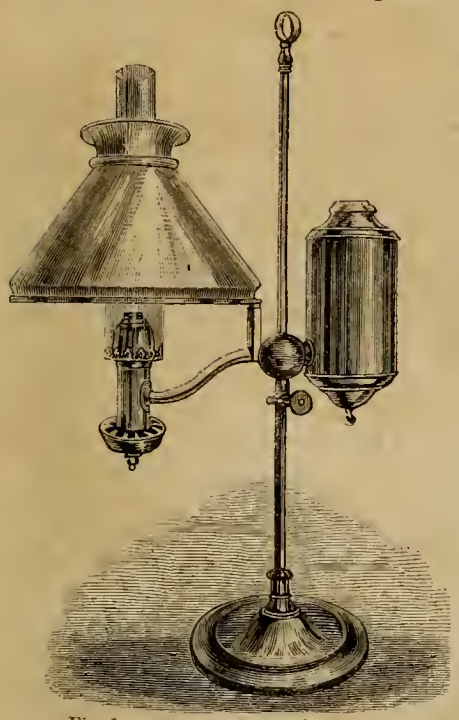


Fig. 1.—GERMAN STUDENT'S LAMP.

patents, entitled, "Improvements in Kerosene Lamps," for nine-tenths of the so-called improvements are so only in name. That horribly explosive "Fluid," a mixture of turpentine and alcohol, which was introdueed in this country when sperm and whale oil went out of fashion from the searcity of whales and the demaud for the oil for lubricating machinery, gave way to a no less dangerous article, a kind of coal-oil. This, however, was soon supereeded by a safer and bet-

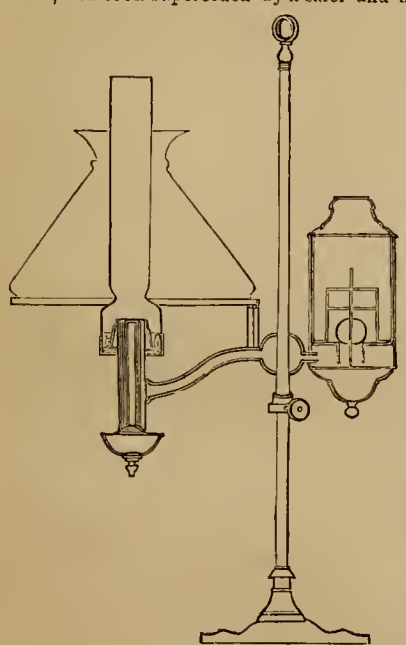


Fig. 2.—SECTION OF LAMP.

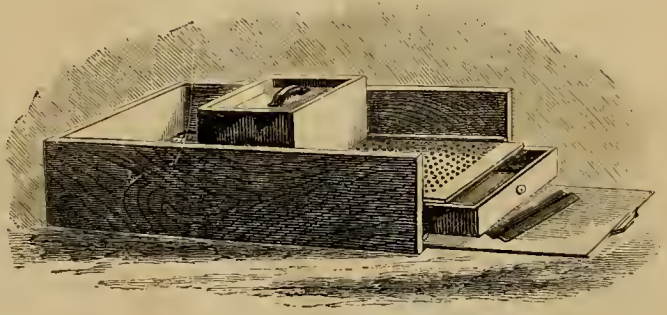
ter oil, and now the article which stands the fire-test, or is up to the legal standard of density, is almost as free from danger, if properly used, as winter-strained sperm-oil. The amount of light which it gives, however, varies greatly with the lamp, and the comfort of its use depends greatly upon the construction of the same. Our people are ready and willing to pay for chimneys that will not break, for lamps that will not leak and defile both the hands and the air, for oil that will not explode, nor gum the wick, nor spatter and fizzle in the flame. There are those, of course, ready to go one step further, and make use of lamps which give the very best light and the most of it.

While we were using whale-oil and all manner of substitutes for it, the German people employed vegetable oils of various kinds, chief among which were those from rape and colza seeds, though olive-oil was also used, as well as other kinds. The favorite lamp with all classes has been the one recently introduced into this country, and known as the German Student Lamp, though called in trade the "St. German Lamp," for what reason does not appear. It is in form and structure precisely the same lamp as used by the writer when a student in Germany, seventeen years ago, exeept that a probable improvement has been made in the manner of raising and lowering the wick. Fig. 1 represents a view of this lamp, and fig. 2 a section of the same. There is a circular wick-tube and burner, surmounted by a tall, glass chimney, giving a powerful draft. This chimney is contracted about an inch above the top of the tube, so as to cause at this point a perfect combustion in the flame, which may be raised even so that it will flare a foot above the top of the chimney without smoking it. The wick-tube has, moreover, a draft up through the center, and a drip-cup at the bottom, all evaporation from which, while the lamp is burning, is drawn up through the flame and consumed. *Second*, there is a porcelain glass shade, suspended by a ring on a level with the flame, which, while it cuts off very little light, diffuses a beautiful, soft illumination throughout the room, throws a powerful light upon the table where it is used, and entirely protects the eyes from the intense glare of the flame. *Third*, there is a cistern and a reservoir for the oil at a distance of six inches from the flame, and connected with the wick-tube by a tube, which, as it always contains oil so long as a particle remains in the lamp, is a perfect safeguard against explosion from the flame passing back through it, even though the wick-tube should overflow and burn all over the outside. The structure of the cistern and reservoir is peculiar. It is shown in the section, so that it may be easily understood. The external cylinder, out of which the oil-tube goes, has a flat bottom above the ornamental one. Within this cylinder is another, open at the bottom only, with a narrow mouth, closed by a valve, as shown. This is drawn up, taken out, and inverted, to be filled; when full, a little wire, which is attached to the valve, is taken in the thumb and finger, and, by lifting it up, the valve is closed, and the reservoir may be turned up and placed in the cistern without spilling its contents. When settled to its place, the wire spoken of touches the bottom and the valve is lifted, and the fluid allowed to escape. It flows out until its level in the wick-tube reaches the level of the mouth of the reservoir, when, by the well-known laws of hydrostatics, and the pressure of the air, it ceases to flow; but flows again, little by little, as the fluid is consumed, thus keeping it always at nearly the same level in the wick-tube. *Fourth*, there is the standard, which is an upright rod, with a heavy foot at the bottom and a ring at the top. The lamp is held upon this standard by a screw with a milled head, at any desired hight, thus placing the light close down near the book or paper, as one may be reading or writing alone, or higher up upon the standard, to light up the room.

To Cook Tripe.—The butcher should understand the business of cleaning, scouring, and soaking the tripe which is prepared from the stomach of killed beeves, and is an epicure's dish. Boil the tripe in water, gently, until tender enough to almost fall apart (but not quite, you know; it must be tender). Remove from the water for which there is no further use. Serve with onion sauce, made of thickened milk and chopped boiled onions, and English mustard mixed with water.

Vegetable Slicer and Grater.

The simple contrivance, herewith presented, may be made by any neat carpenter, and by almost any one apt in the use of tools. It is a box, or trough, about 10 inches by 20 inches, open at one end and on the top, strongly made of inch stuff, furnished with strong cleats on the sides, upon which is a smaller box, without top or bottom, which may be moved back and forth through the box. Slides, very strongly made, to bear pressure, are fitted to rest upon the same cleats, but lower down, so as not to interfere with the free motion of the box over them. These slides are either graters for horse-radish, carrots, etc., or furnished with knives for slicing cabbage, or any other vegetables so used in the household economy. In use, the article to be sliced or grated—say a cabbage head—is placed in the little box, shown in the engraving, and, the knife slide being inserted, it is shoved back and forth, bearing with the hand upon it until enough is cut off to enable the little follower to be put in, and after this the slicing is continued until it is all cut



GRATER AND SLICER.

up. A drawer beneath catches the shavings, or the gratings, and, if desirable, a place may be made to keep the slide which may not be in use, but this should not add much to the bulk of the machine.

The Wife for a Young Farmer.

All seem to agree that farming cannot be carried on very profitably by a man who has to depend upon hired labor and hired supervision inside the house. Why not? "Because no ordinarily paid housekeeper will look after the odds and ends with sufficient economy." Then an extraordinary housekeeper, who does attend to all the little details that save expenses, and add to the profits of farming, should receive more than ordinary compensation, should she not? even though she goes by the name of "wife." "But a wife," you say, "will do all that for love, not for money." "Yes, she will, indeed, for *love*." There is no telling how much a woman will do if she is sure of her husband's love, and if she loves in return.

But, my dear young farmer on the lookout for a suitable helpmeet, I want to whisper a few sisterly words in your ear. Don't marry just for the sake of getting a housekeeper. Do you not see that it is the worst kind of cheating to tell a young woman that you love her when you are really intending to make of her an unpaid upper servant? Not that I want you to pay your wife a servant's wages. It would be better to give her the rank of a partner in the concern. But a true marriage is not a mere business transaction. It is a love affair. True love is amenable to reason. When any person of the opposite sex attracts you, ask yourself what part of your nature is moved, and whether the influence you feel is elevating or lowering. Love is something more than mere sexual passion.

It is more than mere fancy. It is a choice in which the heart and intellect are agreed.

With this definition of love in mind, I should say, instead of giving a catalogue of the peculiar virtues a farmer's wife should possess, marry the woman you love, if, after an intimate acquaintance, you both believe, *on reasonable grounds*, that you can be happy together. Learn each other's tastes, habits, plans and hopes, and seriously consider how you are going to "keep the pot boiling." All the better for you both if the one you marry has a practical knowledge of household affairs before her marriage; but if she is a good and sensible woman, and if you are a good and sensible man, you may be able to get along very happily, though she has all her experience of housekeeping to get after marriage. I would not advise any young couple to try this, but far worse mistakes are possible.

It is a hazardous thing to rest your hopes of a happy married life upon the quality of butter and bread a woman can make. Some perfect housekeeper may make you the most wretched of men. And it is a silly thing to be scared out of matrimony by any young woman's wardrobe. Let her know—the good and sensible girl whom you love—just what your circumstances are, and she will conform to them without a murmur;—that is, if she loves you as I suppose. You will be astonished to see how long she can make her nice dresses last without looking old-fashioned or shabby. If you love and marry a woman who is essentially silly and selfish, you will have to take the evil fruits of such a character, and this is why I say make *character* the test—not accomplishments of any kind, nor external circumstances—though all these things should be duly considered.

It is possible that your manhood—which is of rather more importance than your farm—may find its best complement in the womanhood of one who has a decided talent, that calls her away from the business of a housekeeper. Shall she bury her talent for your sake? Have you such a genius for the business you have chosen as she has for her art, whatever it may be? Perhaps you can arrange matters so that each may follow a chosen vocation without interfering with the other. Most people, in giving advice to a young farmer, would say—seek a wife who is healthy, energetic, thorough, practical, and amiable. On the whole, after all these remarks, I dare not give advice—not even the advice of Punch to those about to marry: "Don't!" For how do I know what experience is best for any soul? FAITH ROCHESTER.

Home Doctoring.

BY FAITH ROCHESTER.

GIVING MEDICINES.—Nobody need expect a list of prescriptions for various diseases under this head. It is distressing to read most of the receipes for medicines which circulate in the newspapers. Here, for instance, is one which some lady says she has found "invaluable in children's bowel diseases," and she publishes it in the Tribune. Have children only one kind of bowel disease? Does she pursue the same course to check diarrhœa as to overcome constipation? The medicine is compounded of three ingredients, none of them harmless to a person in health, though none of them are classed among actual poisons. Is it not a dreadful thing for mothers to give their children drugs without having some idea of their nature and effects upon the system? I asked a woman, the other day, what she was doing for her sick child.

"Oh, I give him some kind of doctor-stuff," said she, complacently.

Of course we cannot reasonably expect to learn all about the properties of the various medicines used by physicians; but I surely would give none that I did not understand, *except under the direction of a good physician, in whom I had great confidence;* and I would never use medicines at all except as a last resort. Many persons say at once, when a person is ailing—"You had better *take something*;" that is their only idea of cure. When these drugs do not go to the right spot and effect a cure, who knows what mischief they may do? Many of them are active poisons, and very few prove harmless if taken by persons in health. The disease you treat may seem to be arrested, only to give place to something quite as bad, or worse. There is about equal danger from

IMPROPER WATER TREATMENT.—A mode of treatment for diarrhœa in children, which I just read in a Western paper, is about as horrible as any kind of drugging; and I can hardly credit the assertion of the paper, that sixteen children out of twenty, as treated by a certain doctor, recovered! The method is this: "The child is enveloped in a common bed-sheet, which is first dipped in common well water, and then wrung thoroughly; the patient is next covered with a woollen blanket, and allowed to remain thus for one hour; after this, cold compresses are applied to the abdomen. This is repeated every three or four hours—in severe cases, every hour." And the patient is a little child—so easily shocked or terrified by any harsh treatment!

I presume this performance is intended for a "pack," a mode of treatment, when properly carried out, that often proves very efficacious in different diseases. But a pack may be made one of the most barbarous operations in the world, if improperly administered. "Common well water!" Hard or soft? Icy cold or tepid? Soft water is best in all applications to the body, and should be preferred when it can be obtained. It is absolutely necessary that a patient in a pack should have the *feet warm*—by artificial means, if necessary; and he should always get thoroughly warm while in the pack. A single blanket would never be sufficient covering over the wet sheet; and a pack of an hour's duration would be too long in all but extreme cases.

Some people seem to imagine that water is such a simple thing, it can neither cure nor kill; but it is quite capable of doing either, as it is wisely or unwisely administered. It is a blessed, cleansing, healing agency. We have little, downright sickness to deal with in our family, though none of us inherit very good constitutions. When sickness seems to threaten, we pay stricter attention to the rules which, moderately observed, keep us in moderate health, and this greater carefulness usually "cures" us. Perhaps some parent would like to know these

RULES OF GOOD SENSE.—Keep the feet warm and the head cool. Breathe pure air. Keep the skin clean. Take rest and exercise in such proportion as the body seems to require. Go to bed early, and ventilate your sleeping-room. Keep the bowels open by means of suitable diet and exercise, if possible; if not, by injections of pure water. Eat plain, nutritious food at regular hours, under cheerful circumstances, and without haste. A little fasting is often the best remedy for a slight cold, a slight fever, neuralgia of the face, and all those diseases that arise from a disordered stomach. Some persons follow a fast with such a gorging as to destroy all its good effects. Cool compresses, made of a folded towel, wet in cool water, and covered by another doubled towel, applied to the head, throat, chest, bowels, spine, or whatever part suffers pain, often afford speedy and permanent relief, and may be used without danger, provided the system is not shocked by too cold water. Ignorant people speak of the "*cold* water cure;" but the best practitioners seldom use absolutely *cold* water. For severe, sharp pains, cloths kept wet in as hot water as the patient can bear give most speedy relief. In almost any case of acute disease I should, if possible, summon a

GOOD DOCTOR.—I should not care so much at what school he graduated as that he be a conscientious man, of good sense, and have a good knowledge of his profession. The more experience he had had the better; and the less he might seem to rely upon medicine, and the more he would trust to good nursing, the more confidence I should have in him. I should be very anxious to have him tell me just what was the matter if I did not already know; not simply the name of the disease, but what part of the system he supposed to be out of order; and then I could never be satisfied until I found out the probable cause. I do not see how we can get along without educated physicians, so long as human nature is so untrue to the laws of its well-being, and so brings upon itself such numerous and complicated diseases.

BOYS & GIRLS' COLUMNS.

A Visit to Mount Vesuvius.

BY "CARLETON."

A volcano! Is there a boy or girl who would not like to see a volcano? Who is there that would not go a long journey to see Vesuvius—that wonderful vent-hole in the crust of the earth? When I was younger than I am now I read about Mount Vesuvius—how the mountain was on fire, and was always smoking like a coal-pit, or boiling over like a dinner-pot—how at times rivers of fire rolled down its sides, destroying fields and woods, houses and vineyards, cities and towns, and carrying desolation from the crater to the sea. The geography that I studied at school had a picture of the great traveler, explorer, and man of science—Alexander Humbolt—sitting on a shelving rock, and looking down into a lake of fire and brimstone that rolled and surged, and bubbled hundreds of feet below him. I often wished that I could see a volcano, and the time came at length when the desire of my boyhood was gratified.

It was a bright winter morning in February when we started out from a hotel in the city of Naples to ascend Vesuvius. We could see the mountain a dozen miles away to the east, with a thin gray column of smoke rising from its summit. The street along which we rode runs by the shore of the sea, whose waves were rippling on the beach and gently rocking hundreds of boats that come up from Sorrento and Amalfi and other towns along the coast, loaded to the water's edge with oranges. I think that I never had seen so many oranges before in all my life. There were thousands of bushels. They lay in great piles on the shore; there were baskets, boats, carts, and wagons heaped with them. And so cheap! I bought ten for a cent! How delicious they were! We obtain no good oranges in this country, for to get them to our market they must be picked before they are ripe. The people of Naples and Messina would think that the oranges in our market were only fit for pigs to eat. There were hundreds of carts in the streets, and thousands of donkeys carrying panniers filled with the fruit. I think that I never before or since saw so many donkeys together as there were along the quay. The country people were in with vegetables for the market, consisting mainly of garlics, onions, cabbages, carrots, and cauliflowers. Not unfrequently the donkeys would be so covered up with cabbages and carrots, that I could only see their noses and the flapping of their ears.

The Italians are very cruel toward the brute creation. They overload their horses and donkeys, and whip them unmercifully. I have seen chicken peddlers break the wings and legs of the fowls they were taking to market, so that the poor things could not fly nor run away. I wanted to give the brutal fellows a crack over the head. The Society for the Prevention of Cruelty to Animals will find Naples, missionary ground. I did not see a well-fed work-horse in the city. The people keep their horses and donkeys at the point of starvation. They do not give them much hay, and little, if any, grain; but feed them almost wholly on carrots.

As we ride along the street, our hack-driver stops a huckster and buys four cents' worth of carrots for his horse's dinner. Think of baiting a span of horses at that rate! The carrots were about six inches long, and there were about two dozen in the bundle—just a nibble for each horse. The horses were to go nearly thirty miles out and back—to be gone all day, and this was their feed. There is not a farmer's boy in America that would have taken less than a peck of oats for each horse. A merciful man is not only merciful to his beast, but gives good feed.

The street is crowded with people and carriages, and especially with omnibuses;—not such gaily painted vehicles as we see in our own cities—but a two-wheeled affair, somewhat like a sulky, but more like a dray. It is drawn by one horse, and there is only one seat; but it will carry from sixteen to twenty passengers! Four persons sit on the seat, while the others stand up or sit on the shafts with the driver; and there are usually four or five children that have a jolly time in a bag beneath the axle! We meet many of these carriages coming into the city from the suburbs. We pass a public washing-place where there is a great crowd of women and girls round a stone trough, dipping clothes in the water and slapping them on the stones, and pounding them with a paddle to get the dirt out. There is not a Yankee wash

ing machine in all Naples. They do their washing without soap; and it is pretty much the way of the world every where, except in the United States, England, and Northern Europe. If you ever travel in Europe, carry your own soap. You will not find the article at the hotels, not even in France, unless you call for it, and then you will find it charged to you in the bill at a high price. From what I have seen of the world, and the way people live in different countries, I have come to the conclusion that soap is a great promoter of civilization. I have found that where people use soap most freely there is the most cleanliness, intelligence, wealth and virtue, and happiness and comfort in life.

I dare say that most of you have seen pictures of Mount Vesuvius, a tall conical mountain, shaped like a stack of hay, and rising high above the Bay of Naples. At the base of the mountain we left our carriage and the main road, mounted our horses, and turned into a green lane and began the ascent.

There was a crowd of beggars around me—holding out their hands and their dirty caps begging for money. Four of them seized my horse by the bridle, and had a fight among themselves to see which should lead it; three or four more wanted to hold me on, and tried to make me understand that I should fall off; others caught hold of the horse's tail, determined to have the animal pull them up the mountain. They were villainous-looking wretches, with black beards, dirty faces, slouched hats, and in rags and tags.

"Go back," I said. They bawled the louder. "Clear out!" They begged the harder. "Be off! Mind your business!" They didn't start. "I wont have you," I said, but it was clear they were determined to have me. I doubled up my fist, but they didn't mind it. I jumped from my horse, seized a cudgel, and was on again in a twinkling. They understood that, and scampered like a flock of sheep; and we went on our way peacefully up the mountain, enjoying one of the loveliest views in all the world. It is about four thousand feet to the top. The entire mountain is of lava that has been thrown up from time to time from the interior of the earth.

Ages ago the volcano was in action: then the lava ceased to boil, and the whole mountain was covered with vines and trees. Seventy-two years before Christ was born, that brave warrior Spartacus—whom you, I dare say, have read about in Roman history—made the crater of Vesuvius his hiding-place.

Plutarch, the old Roman historian, tells us that there was only one way to get up to the crater over the rocks, and that Claudius posted his guards at the bottom of the precipice to starve out Spartacus; but the brave spirited fellow and his followers were not to be caught in that way, for one night they made the grape-vines into ropes, let themselves down the other side of the mountain, and were far away before Claudius knew that they had escaped.

It was in the year 79, about 1,800 years ago, that one day, about noon, the top of the mountain suddenly blew off—or out, or up, just like the explosion of a steam-boiler—with a terrible noise, and the air was filled with red-hot stones, cinders, smoke, and steam, that darkened the sun and spread over all the surrounding country. There were terrific earthquakes—the whole mountain rocked and trembled, and there were vivid lightnings and fearful thunderings. The cinders fell on Pompeii, a city on the south side of the mountain, and buried it. A river of molten, red-hot lava rolled down the western side, over the town of Herculaneum, burying and destroying every thing in its path. Vineyards, houses, barns, wheatfields, and gardens—every thing that could burn was enveloped in flames. The whole side of the mountain was on fire. The lava rolled into the sea, and heated the water boiling hot, and cooked all the fishes in the harbor, so that the next day and for weeks afterward the sea-shore was strewn with dead fishes already cooked for dinner! From that time to the present the fires have been constantly burning, and the hole in the top of the mountain has either been sending up columns of steam and smoke, or throwing up red-hot stones, or boiling over like a kettle.

There have been nearly sixty great eruptions, besides numerous smaller ones. In 1822, the top of the mountain suddenly fell in with a loud crash, and then there was a furious boiling of the cauldron. For four days there was a continuous shower of red-hot stones rained upon the surrounding country. One red-hot rock, weighing four or five tons, was thrown three miles! The pillar of smoke that went up from the summit was two miles high, and spread out over the sea like a huge umbrella, hiding the sun and making it dark as midnight at noonday in Naples. When the eruption was over it was found that the whole top of the mountain had been blown away, and that a crater three miles in circumference and two thousand feet deep had been formed by the action of the internal fires!

Half way up the mountain we came to the river of fire. There had been an eruption a few months before, and this was one branch of the great stream that had boiled over the rim of the crater. It had cooled so that we could walk upon it, but it was still smoking and too hot to hold our hands in the crevices. We felt it warming up our feet and crisping the soles of our boots. It was a stream wider and deeper than the Mississippi! Think of it—a red-hot river of molten rock flowing down the mountain, sweeping every thing before it—widening and spreading till the whole mountain side—the vineyards, the trees, the towering pines, the earth itself—is ablaze! Think how it must look at night, glowing as brightly as the hottest furnace in a great iron-foundry! It had changed in color from the red-hot glow to a darkish brown. This was the lava; but as we approached the top we came to the cinders—dry, light pieces of lava as large as peas or coarse gravel, that were blown out by the steam into the air and had fallen around the cone. It is hard work to climb to the top over the cinders; but we leave our horses at the bottom, and after much puffing and sweating reach the summit. A few months before we should have found it a lake of fire a third of a mile across, with steep banks forty feet high; but it had cooled so that we walked down into it, and went upon the stony waves. We passed through thick clouds of smoke and over beds of sulphur, where we were obliged to hold our breath. We could look down into the cracks and see the liquid fire beneath. There was a hissing and roaring as the mass seethed to and fro, and a cracking now and then of the rocks under our feet. We stopped long enough to roast some eggs for our dinner. It did not take long, for when we thrust a cane into a crevice it took fire as quickly as if we had put it into a fire blazing on the hearth.

It was interesting to stand there—to watch the glowing heat, the curling smoke—to hear the low rumbling and thundering far beneath us; but we felt a good deal safer when we were over the rim of the crater once more, and making our way down the side of the mountain.

Aunt Sue's Puzzle Box.

Now, children, I want you all to send answers to the puzzles, and I propose to give a prize every month to the one who sends the longest list of correct answers.

To give every one of you, far and near, an equal chance, I will give you two months to work in; *i. e.*, the answers to January No. will be published in March; those to February puzzles in April, and so on.

QUESTIONS, ENIGMAS, CHARADES, Etc.

RIDDLE.

One day my master shut me up,
And stamped me on the back,
Then sent me from before his face,
On a returnless track.

I might have thought him cruel,
But he was, in fact, a friend,
And his own right hand safe guided me,
Unto my journey's end. K.

ANAGRAMS.

(To properly enjoy these very amusing puzzles, it is necessary to have a box of letters; and I shall give as a prize, every month, one set of anagram letters to the one whose name is drawn by lot from those sending correct solutions to all the anagrams.)

1. Minced meat.
2. Toes dance.
3. Samuel Tot.
4. Been wet.
5. I a girl? No!
6. Stood in lace.
7. Bride's hand.
8. Heart Bolt.
9. Gripe none.
10. I'm Tom Pane.

TRANSFORMATIONS.

Entire, I am actively disagreeable; behead me, and I am passively disagreeable; now, change my head several times, and make (1) a pen; (2) a metal; (3) informed; (4) disposed of; (5) audacious; and (6) part of a ship; now behead me, and leave a state of being that few would fall short of.

DOUBLE ACROSTIC.

Scenes of carnage and war's dreadful din,
The fruits of our moral corruption and sin;
Never to cease until the world's at an end,
And man never more can his brother offend.

1. This, the papers in which most lawyers delight,
2. With which they will this try to prove if they can;
3. A small thing which Shakspeare esteems rather light,
4. Six feet, more or less, this may be for a man.
5. A protection and guard, of fine metal cast,
   To shield from the danger of some subtle fluids,
6. A kind of conveyance which travels quite fast,
   And is used for the transport of various goods.

HAUTBOY.

CHARADE AND DECAPITATION.

My first does to my second what my whole was intended for; behead my first and use the remainder if you would do my second beheaded; behead my first again and transpose it, and you will find something that belongs to my second entire. JUVENIS.

DIVISIONS.

1. Divide a piece of furniture and leave a district and a garment.
2. Divide a weapon and leave a boy's nickname and a bird.
3. Divide something discordant so as to leave a vessel and an ornament.
4. Divide an old woman and leave illustrious and a verb.

CONUNDRUM.

What part of the body could we easily dispense with?

NUMERICAL ENIGMA.—No. 1.

I am composed of 7 letters:
My 2, 5, 6, 4, is the main point.
My 6, 3, 7, 1, is an adverb.
My whole we should all avoid. H. G.

NUMERICAL ENIGMA.—No. 2.

I am composed of 22 letters:

My 4, 14, 6, is what many long to hear, when 10, 19, 3, 14, makes them ask a question.

My 22, 7, 5, 8, 18, 2, is something nice to eat, either raw or cooked.

My 11, 1, 20, is a marsh.

My 9, 13, 21, 15, 16, 17, 12, is to finish; and my whole is an adage. S. S.

ANSWERS TO PUZZLES IN THE DECEMBER NUMBER.

REBUS No. 397.—A clean glove often hides a dirty hand.

CHARADE.—Monkey.

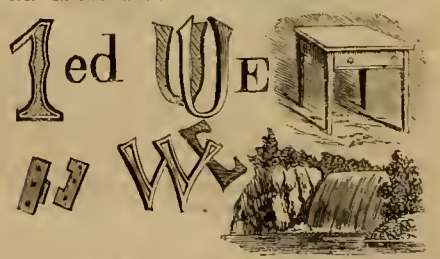
Correct answers received from Franklin W. Hall and H. C. Loomis.

AUNT SUE'S NOTICES TO CORRESPONDENTS.—W. H. MORROW. Your "first attempt is excellent" though simple, and shall be dressed up for the engraver. Let us have some more.

DOWNSEY. "Good!" Back again.

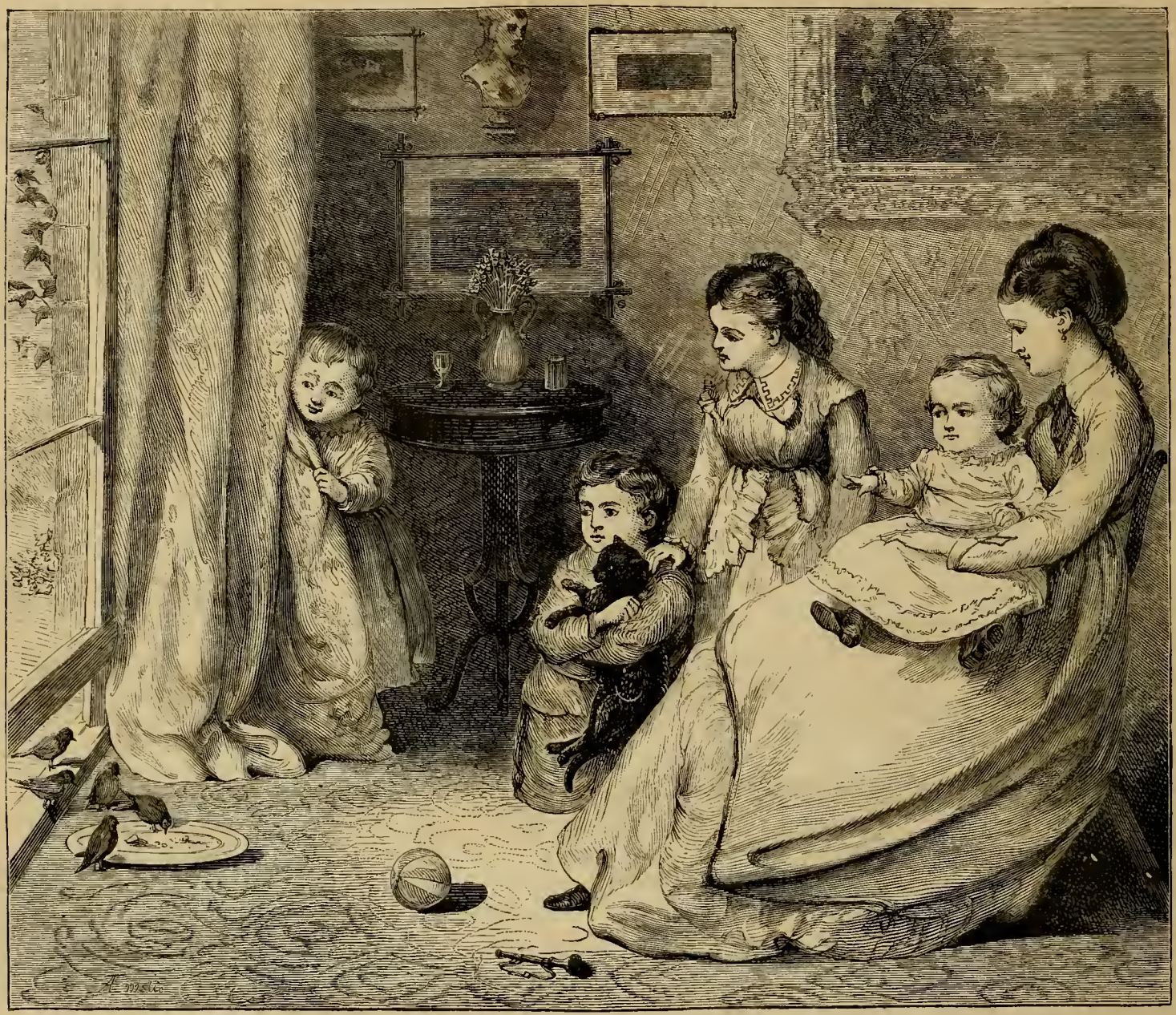
☞ Address all communications intended for the PUZZLE BOX, to AUNT SUE, Box 111, Brooklyn, N. Y.

401. *Illustrated Rebus.*—Good sentiment.



402. *Illustrated Rebus.*—An old motto.

403. *Illustrated Rebus.*—Geographical puzzle.



FEEDING THE SPARROWS.—*Drawn and Engraved for the American Agriculturist.*

What a pleasant dinner party we have here! Five little guests in their glossy brown coats, all with the choicest manners, never eating with their knives, never sticking out their elbows, never speaking with their mouths full, and never forgetting to bob their heads politely every time they are asked to take any thing. They're very timid, poor little creatures, because, you see, they are foreigners, and not quite used to the ways of the country. Perhaps they have taken a bird's-eye view of English geographies, and learned that the natives of America are red-skinned savages. But if they only had courage enough to look at their hosts and hostesses, they soon would discover the mistake. Gentleness creates gentleness. The birds make every heart here as tender as their own. How cautious and still the children are, lest they be disturbed! How the baby longs to poke them lovingly in their eyes, and how the little one near the window half hides and half comes out to look at the wonderful English sparrows, papa brought home only a week ago! He kept them in a big cage for a while, and then let them hop about on the piazza. This is the first time they have been asked in to dine, and see how willingly they come! To be sure there was a little shrinking at first, a little show of shyness, and a little too much ceremony as to which one should enter first. But perhaps that was only a part of their good breeding. After this visit they will feel quite like members of the family. They will go in and out of their cage in the most light-hearted and familiar way possible, and consider the raising of a window as the most pressing of invitations. Pussy, so far, has shewn no desire to harm them; but when they are so very close, Eddy thinks it rather more prudent to hold her in his arms—not tightly enough to hurt her, but just so as to prevent her from slipping through. He has heard of the Happy Family in the menagerie, and confidently looks forward to the day when Pussy shall walk about the lawn with a sparrow perched on each ear, and perhaps another swinging blithely on her tail. Why not? A great many English sparrows have of late years been brought to this country. They evidently like the climate. They build their nests, raise their families, and, full of life, full of business, twitter merrily together just as if in the writing on the blue sky overhead they read their naturalization papers. Naturalization may be a big word to some of our young folks, but it is in the dictionary as well as in the air we breath. At first, only a few of these sparrows were to be seen—a dozen in this park, a dozen in that, and sometimes a few on sale at five dollars a pair. "They would destroy the worms now infesting our cities," said the knowing ones, "but it would be quite impossible to raise them here on account of the boys." Did the boys hear the slander and resolve never to deserve it, or did the gentle, stranger sparrows plead their own cause? Certain it is that the little creatures multiplied and prospered. Unharmed, they flew in and out among the roughest children of the street, hopping almost upon their feet, hurrying past their heads, and twittering by dozens within many an easy stone's throw. Summer and winter they stay and chirp their happy notes. "The children are our friends," they say; "even the law is good to us. It fines every man heavily who shoots or ensnares us. It lends its aid to give us all this world of sunshine to live in—twitter, twitter—we'll do all we can for them—we will, we will." And so they do. They destroy worms; they brighten our parks and cities; they make busy people, hurrying along the pavements, stop to admire their beauty and study their interesting ways; they cheer up dusty old ivy vines and sickly city gardens. Better than all, they awaken in the hearts of young and old gentle, kindly thoughts wherever they go.

A Cheap Elephant.

At the public sale of a menagerie, lately held at Trenton, New Jersey, an elephant was put up to the highest bidder, and, as no one needed him, was just about being "knocked down" by the auctioneer for a very small sum, when a bystander resolved to purchase the monster himself rather than lose such a bargain. "Why, it's the cheapest thing I ever heard of!" he exclaimed, gleefully, when, after his adding "an 'af" to the few dollars already offered, he was declared to be the purchaser. "I'll put the creature in my barn for a day or so, and make a good thing of it." So that night Master Elephant was tied in the barn—a pretty strong barn it was, too—and toward daylight he amused himself by trying to break it to pieces. He succeeded so well in this little piece of playfulness that it was found necessary to remove him to a stronger building. That night he again became restless, broke his fastenings, and dashed around at such a rate that the barn was soon one of the most thoroughly ventilated buildings in America. The total extent of damage done in the two nights was over five hundred dollars; and it is currently reported that somebody is extremely tired of his bargain, and advises all his friends never, on any account, to be tempted to buy a cheap elephant. The rule is a very safe one to follow, never to buy anything simply because it is cheap.

AMERICAN AGRICULTURIST.

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Nearly **12,000** Persons, at about **10,000** Post-offices, have each obtained, *free of cost*, one or more of the very valuable and useful articles catalogued in the table on this page, and described, in part, on the next two pages.

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Let any one take copies of these journals, show their character and value, and explain the above facts, and it will be easy to collect names enough to secure some one or more of the excellent premium articles. TRY IT.

NOTE.—Many persons canvass all the time *as a business*, sell the premiums received, and thus clearing large wages. One Lady actually thus earns over $3,000 a year, and multitudes in this way secure salaries of $300 to $1,500 a year.

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(See First Column.)

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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 five 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.

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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.*

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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	$3 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
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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	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	300	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	Unbound. Post-paid. Any Back Volume Agriculturist	$1 75	....	20	....	10
67	Any Two Back Volumes do.	$3 50	....	29	....	15
68	Any Three do. do. do.	$5 25	13	37	7	19
69	Any Four do. do. do.	$7 00	15	47	8	24
70	Any Five do. do. do.	$8 75	17	54	9	27
71	Any Six do. do. do.	$10 50	19	61	10	32
72	Any Seven do. do. do.	$12 25	21	68	11	34
73	Any Eight do. do. do.	$14 00	23	74	12	37
	—(Each add'l Volume at same rate)		....	....	....	....
76	Four teen Vols. XVI to XXIX	$24 50	34	110	17	55
77	Bound. Post-paid. Any Back Volume Agriculturist	$2 50	....	24	....	12
78	Any Two Back Volumes do.	$5 00	....	36	....	18
79	Any Three do. do. do.	$7 50	16	48	8	24
80	Any Four do. do. do.	$10 00	18	60	9	30
81	Any Five do. do. do.	$12 50	21	71	11	36
82	Any Six do. do. do.	$15 00	24	82	12	41
83	Any Seven do. do. do.	$17 50	27	92	14	46
84	Any Eight do. do. do.	$20 00	30	102	15	51
85	Any Nine do. 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	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	283	50	141
99	A $100 Library do.	$100 00	125	360	63	180
100	A Choice of Good Books. (See next page.)		....	....	....	....
101	A Steam-Engine that will GO		3	24	2	6

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. (Steam-Engine mailed for 36 cents extra.)* **[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. 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 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 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, 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 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.*

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.,** 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. 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 any thing 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 Mould 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.

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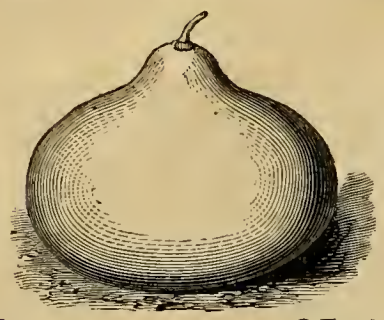

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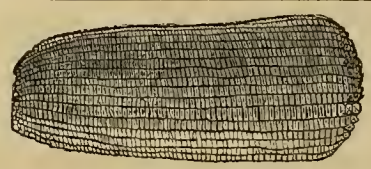
Osage Orange Seed

By mail, post-paid, 75 cents per pound.
Address L. G. PRATT & CO., St. Louis, Mo.



Mr. Balthis, of Corydon, Indiana, proprietor of the Mammoth Dent Corn advertised in our Dec. No., offers $50 in premiums as follows: $25 for the largest and best yield from a two pound package, $15 for the second largest yield, and $10 for the third.

The reports and sample ears, with the required evidence, to be forwarded to Messrs. H. A. KING & Co., publishers of THE BEE-KEEPERS' JOURNAL AND NATIONAL FARMER, 240 Broadway, New York, who will award the premiums and announce the same through the columns of their JOURNAL. Send for a descriptive Circular giving History, Prices, and Premiums. Address

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Fresh Honey-Locust Seed, from Honey-Locust Farm, L. I., $1 per lb.; 5 to 10 lbs., 90 cts.; over 10 lbs., 80 cts. Also, genuine Norway Oats, $1.50 per bu. Good corn ears, 15 to 18 inches long, $2 per bu. R. CRISWELL, Brooklyn, L. I.

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This Seed, grown under our own observation, is **Pure** and **True** to the varieties named. The Cane producing it having yielded 200 to 300 galls. syrup per acre.

Our Regular Sorgo is a **Fresh Importation from the mouth of the Yang-Tse-Kiang,** the best cane-growing section of China.

Reg. Sorgo and Liberian, by mail, 40 cts. per lb.; by Express, 25 lbs. or less, 25 cts. per lb.; over 25 lbs., 15 cts. per lb.

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1,000,000 Apple Seedlings, 2,000,000 Apple Root-Grafts, 200 Bushels Apple Seed, 200 Bushels Peach Seed, 3,000,000 Osage Orange Plants, 200,000 Pear, Plum and Cherry Root-Grafts, FRUIT, ORNAMENTAL and EVERGREEN Trees, Shrubs, Roses, Greenhouse Plants, Bulbs, immense stock and assortment. Colored Fruit and Flower Plates, superior to all others. Send 10 cts. for Catalogues. Price-List free.

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Catalogue of new and beautiful plants will be ready about February 1st, containing a beautiful colored plate of two fine new Geraniums (Coleshill and Lady Edith), mailed free to all my customers; to others, price 10 cts., or a plain copy to all free.

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Without fail, cheaper than you can buy elsewhere.

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FOR THE

Farm, Garden, and Household.

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VOLUME XXX.—No. 3. NEW YORK, MARCH, 1871. NEW SERIES—No. 290.

THE PATRIARCH OF THE HERD.—DRAWN FROM LIFE BY W. M. CARY.—*Engraved for the American Agriculturist.*

Contents for March, 1871.

INDEX TO "BASKET," OR SHORTER ARTICLES.

Food for Cows and Heifers before Calving.

—If the cows are in very high condition, it is well, for a week or ten days before calving, to give them light food, such as bran-slops, with a moderate allowance of hay. The great point is to keep their bowels in a loose condition. If the bran does not accomplish the object, a drench of 4 oz. of Epsom salts should be given, every second or third day for a week or ten days before calving. With cows in ordinary condition, however, it would be much better to give a quart of flax-seed per day, instead of the salts. It should be boiled in three or four quarts of water for an hour or more. This flax-seed-tea is very nutritious, easily digested, and acts as a mild cathartic. Linseed oil-cake may be used for the same purpose, giving two quarts of meal per day, and boiling it in five quarts of water for two or three hours, until it is thoroughly cooked. It is said that if heifers are liberally fed, for two or three months before calving, they are much more likely to prove good milkers. There is nothing better for this purpose than bran and oil-cake, say six quarts of bran and two quarts of oil-meal per day. Until within a week or ten days before calving, the oil-cake and bran may be fed dry.

Lime in a Compost-Heap.

—J. H. M., Shelby Co., Tenn., writes: "I have a small thirty-acre farm of stiff clay, and am trying to make all the manure I can. I keep six cows, closely penned, and feed them on cotton-seed, corn and fodder. The manure is gathered and made into a compost-heap, using alternately a layer of air-slaked lime and a layer of manure and such other materials as can be gathered. I turn the heap and sprinkle it thoroughly with water. Do I make the heap right?" No. You should leave out the lime. Better use the lime in a separate compost of old sods, muck, etc.

Calendar for March.

Day of Month.	Day of Week.	Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon. Sun rises.	Sun sets.	Mo'n sets.	N. Y. City, Ct. Philadelphia, New Jerseys, 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	W	6 36	5 51	2 57	6 35	5 53	2 53	6 33	5 54	2 46
2	T	6 35	5 52	3 49	6 34	5 53	3 43	6 32	5 55	3 38
3	F	6 33	5 53	4 37	6 32	5 54	4 32	6 30	5 56	4 27
4	S	6 31	5 54	5 23	6 30	5 55	5 18	6 29	5 57	5 12
5	S	6 30	5 55	6 0	6 29	5 56	5 57	6 27	5 57	5 52
6	M	6 28	5 56	rises	6 27	5 57	rises	6 26	5 58	rises
7	T	6 26	5 57	6 40	6 25	5 58	6 42	6 24	5 59	6 43
8	W	6 25	5 58	7 52	6 24	5 59	7 52	6 23	6 0	7 52
9	T	6 23	5 59	9 5	6 22	6 0	9 3	6 21	6 1	9 1
10	F	6 21	6 0	10 17	6 20	6 1	10 15	6 20	6 2	10 12
11	S	6 20	6 2	11 31	6 19	6 2	11 27	6 18	6 3	11 23
12	S	6 18	6 3	morn	6 17	6 3	morn	6 17	6 4	morn
13	M	6 16	6 4	0 43	6 16	6 4	0 39	6 15	6 5	0 34
14	T	6 14	6 5	1 53	6 14	6 5	1 47	6 13	6 6	1 42
15	W	6 13	6 6	2 55	6 12	6 6	2 49	6 12	6 7	2 44
16	T	6 11	6 7	3 52	6 11	6 8	3 47	6 10	6 8	3 42
17	F	6 9	6 9	4 40	6 9	6 9	4 35	6 9	6 9	4 30
18	S	6 7	6 10	5 11	6 7	6 10	5 8	6 7	6 10	5 4
19	S	6 6	6 11	5 45	6 6	6 11	5 42	6 6	6 11	5 39
20	M	6 4	6 12	sets	6 4	6 12	sets	6 4	6 12	sets
21	T	6 2	6 13	6 51	6 2	6 13	6 51	6 3	6 13	6 51
22	W	6 0	6 14	7 52	6 1	6 14	7 51	6 1	6 14	7 51
23	T	5 59	6 15	8 32	5 59	6 15	8 31	5 59	6 15	8 49
24	F	5 57	6 17	9 43	5 58	6 16	9 40	5 58	6 16	9 37
25	S	5 55	6 18	10 53	5 56	6 17	10 50	5 56	6 17	10 45
26	S	5 53	6 19	11 52	5 54	6 18	11 47	5 54	6 18	11 42
27	M	5 52	6 20	morn	5 52	6 19	morn	5 53	6 19	morn
28	T	5 50	6 21	0 47	5 51	6 20	0 42	5 51	6 19	0 37
29	W	5 48	6 22	1 41	5 49	6 21	1 36	5 50	6 20	1 30
30	T	5 46	6 23	2 31	5 47	6 22	2 25	5 48	6 21	2 20
31	F	5 45	6 24	3 16	5 46	6 23	3 11	5 47	6 22	3 6

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.....	6	10 55 ev.	10 43 ev.	10 31 ev.	10 19 ev.	9 49 ev.
3d Quart..	13	5 36 ev.	5 24 ev.	5 12 ev.	5 0 ev.	4 30 ev.
New Moon	20	11 16 ev.	11 4 ev.	10 52 ev.	10 40 ev.	10 10 ev.
1st Quart.	29	2 0 m.	1 48 m.	1 36 m.	1 24 m.	0 54 m.

AMERICAN AGRICULTURIST.

NEW YORK, MARCH, 1871.

In this month we finish up winter work, lay out for spring operations, and plan for the summer.

The memorandum-book is one of the farmer's best friends, if he will only make it so. It is nearly half any job to undertake it just at the right time, and a farmer whose work waits for him to see what his neighbors are going to do, may as well "lay down the shovel and the hoe." It requires but a modicum of experience, if a little thought be given to work, to be able to judge thus of the best time to do every common kind of farm-work. The hints which we give cannot, of course, have other than a general application, and are to be followed with common sense. It is well to remember that the simplest *forethought* has a greater practical value than the profoundest *afterthought*. Our best plans often escape our memories in the hurry of pressing farm-work, or are thought of when too late to carry them out, unless put upon paper and systematically referred to. If the memorandum-book shows just what work to do, it will matter little if the farmer is drawn on a jury, or otherwise necessarily absent; the oldest boy or the good wife will be able to see that the work goes on.

Hints about Work.

The Work-Bench.—A farm is as incomplete without a good work-bench as without a corn-house or granary. It should be a carpenter's bench, with a good wooden vise at the left-hand side, and machinist's or blacksmith's vise, which may be removed and attached at pleasure. There should be carpenter's tools, cold chisels, and punches, an assortment of files, awls, thread and wax for sewing leather, copper rivets, and a rivet-set for leather-work, a soldering-iron, and shears for cutting tin, besides paint-pots and brushes.

Rainy-Day Work.—There are the potatoes to be looked over, those fit for seed selected, the decayed ones thrown out, and all "sprouted"—that is, have the sprouts removed. It may be well, also, to cut or rub the tops off from ruta-bagas and other roots. (These young turnip sprouts, by the way, make delicious greens.) *Cellars* may be cleaned out and whitewashed. *Milk-cellars* made ready for use as soon as the weather is mild enough, and the milk is at hand. *Tools* repaired and sharpened; beehives made and put in order for summer, and a big heap of fodder cut, to save time.

Manure that is intended for use in the field may be hauled out while the snow lasts, or over the hard frozen ground of the early mornings; if the distance is not great, half-a-dozen loads may be got out every morning, and the teams set at other work during the rest of the day. That which cannot be plowed in at once should be made into compost for corn, or for grass, and got out at once for this purpose. All manure and compost-heaps that have lain for awhile should be worked over.

Irrigation.—The melting of the snow will carry away much that is valuable, unless the streams of water flowing from it be conducted over the land. Grass-land is most benefited. Snow-water is always rich in nitrogen, and often contains other fertilizing material. The wash from roads and highways ought always to be turned upon the land, and conducted in rills over the grass.

Fences.—When the frost has come out of the ground, and before it is dry, fence-posts may be set with great ease. All the fences of the farm should be examined and the posts straightened; if need be, weak rails removed, and new ones put in.

Plowing must be delayed until the ground is crumbly. It would be hard to estimate the damage done to much land by plowing too early.

Grass-Land.—All kinds of "hand manures" may be applied with profit in the spring. A mixture of plaster and ashes is excellent. Guano and plaster, guano and superphosphate, bone-dust and fine earth, half and half, after lying and heating, are all good combinations, and better than either alone. It is much more profitable to save stable manure intended for top-dressing grass until after mowing, and meanwhile compost it with muck or soil, so that it shall be fine and even at that time.

Potatoes.—It is rarely worth while to plant potatoes in March north of Washington. If we attempt to do so, we do not get the ground well enough prepared. In the garden it may do. At the South the earlier the ground can be prepared and potatoes planted, the better, as the chances then favor higher prices and a better crop.

Mares with foal should have roomy box-stalls; they should be worked moderately only, fed good hay, with a few carrots, or other roots, and enough meal-bran or oil-meal; or better, the three mingled on cut hay, to keep them in good order.

Cows approaching calving should be placed in box-stalls, well littered, and not interfered with. They should have all the good hay they want, with a quart of oil-meal, or four quarts of bran daily, and a peck of roots at least. Cows at calving should be fat. Let them have all the water they will drink, and it is best, when the weather favors, that they should be allowed the range of a sunny yard. If the new milk springs, and the udder becomes hard and feverish, draw the milk occasionally, and knead the bag a little. This never occurs until just before calving. When cows come in at this time of the year, it is very important that they have plenty of roots to take the place of the succulent grass of June.

Calves.—As a rule, we think it best never to let a calf suck. Let the cow lick it dry, and then remove it to an adjacent stall or box. She will see that it gets no harm, and will make no fuss about it, unless it is moved or roughly handled. The calf will soon learn to drink from a pail, and when the cows are turned to grass, such calves may be safely trusted with them—though it is well to put on a muzzle, with nails in it, for a few days, lest the cow may coax her calf to suck. The calf should have the warm milk of its dam pure, for a week, then half-skimmed milk for a week or less, always warmed; after this, skimmed milk, thickened with fine Indian meal or wheat middlings. We add oil-meal, and think it safer than Indian meal alone. Boiled milk, with fine flour, will check scours, and a little castor-oil will cure constipation.

Swine.—The sow approaching farrowing must

have a snug, warm, dry nest, where she can be easily watched. It must not be too abundantly littered, and the straw should be placed in it several days beforehand. She should be fed bran and roots with her other food, in order to get her bowels in good order. It is well to always watch a farrowing sow, so as to remove any still-born pig at once, and to prevent a clumsy sow lying upon her pigs. If a pig is killed, the sow is very apt to eat it, and this may give her a relish for the entire litter.

Sheep.—Treat for scab, ticks, and lice. If ewes yean early, take care that the lambs are not chilled. The careful shepherd has hot water, and stones or bricks, ready to warm the little creatures. Often a mild milk-punch is excellent for them. A warm bath, followed by friction with dry cloths, will often revive lambs nearly dead.

Working-Animals should be gradually used to hard labor, and if exhausted by hard work, horses especially, should have a good rubbing with straw and the brush over the bodies, and their legs should be hand-rubbed for an hour. This treatment is especially applicable to high-bred horses; but all are benefited by it.

Poultry of all kinds will be commencing to lay this month. Geese may be allowed to sit as soon as they wish. Ducks' eggs should be set under hens if early broods are wanted, at least until the first of May. The middle of April is early enough for the earliest broods of chickens or ducks, unless especially good houses and yards are prepared.

Vermin must be looked to upon all domestic animals at this season. Sulphur given in small doses to pigs and poultry is a useful preventive. Flowers-of-sulphur in hens' nests, and kerosene upon their roosts, drives them away effectually. Carbolic soap, in strong solution, may safely be used to wash cattle and sheep with.

Work in the Horticultural Departments.

It is difficult to give hints for March work, as the month may bring us mid-winter or sunny working days. We write in the middle of February, while the heaviest snow of the year lies upon the ground. Many things set down for last month probably remain to be done. Every day of unfavorable weather this month will render work so much the more pressing, and every thing that can facilitate operations should be done during the stormy days.

Orchard and Nursery.

Planting should be done as soon as the ground will admit of being worked. The ground ought to have been plowed in the fall, and then thoroughly harrowed in spring before the trees are set. In setting out young trees, choose those of good, thrifty growth, and straight, smooth trunks.

Pruning and Scraping may be done when the weather is mild. Old trees, which would be nearly worthless without this renovation, may, with a little digging and manuring around, produce a considerable quantity of fruit.

Tent-Caterpillars' Eggs may be easily seen now, and removed, thus saving a great deal of trouble.

Canker-Worms will ascend during the warm days, and means should be taken to stop them. Strips of tarred paper around the trunks are good, if the coat of tar is frequently renewed. A more expensive way is to encircle the trees with a trough of glass or tin, and keep it filled with petroleum. Clear the troughs of the dead insects, for, if left to accumulate, they only serve as a bridge for others.

Labels and Tying Materials should be prepared.

Manure can be carted out and spread upon the land, in order to save time during the busy season.

Fruit-Garden.

Strawberries set out in early spring, will bear a small crop of fruit the same season, but it is better for the vines to remove it. The strawberry is now so generally distributed throughout this country, and the plants are so easily obtained by mail, that no one need be without it.

Raspberries and Blackberries.—Plant as soon as the frost is out of the ground. The last year's canes should be cut back to four or five feet.

Cuttings of gooseberries and currants ought to be made and planted as soon as possible. The old bushes, when thoroughly thinned out, produce much nicer fruit than when left to themselves.

Grape-Vines do as well pruned early in March as at any other time, provided they are not frozen.

Spade or Plow in a liberal dressing of manure between the rows of small fruits; it will pay in the increased quality and quantity of the next crop.

Kitchen-Garden.

Our friend "Walks and Talks," has an article on gardening on page 102, which, as it is written by a farmer, should be read by every farmer. He gives the whole secret of success in gardening—abundance of good manure, and a persistent keeping down of weeds. We have a few general hints to add to his: Never sow a seed of doubtful identity or quality. Purchase seeds early, and order them of persons of good reputation. The seeds sold at country stores may or may not be good. On page 91, we notice the leading novelties of the season, and we enumerate here some of the good, old, standard sorts, which will give satisfaction, though there are others quite as good as those we mention. This is a busy month in this department, and arrangements for procuring seeds and plants ought to be finished, and every thing in readiness for early planting.

Hot-Beds.—These should be made in some sheltered spot, where cold winds will not have access to the young plants. See article on page 102.

Window-Boxes.—A few early plants may be raised in shallow boxes, filled with earth, and set in the kitchen-window where there is plenty of sunlight. Lettuce, cabbage, and tomato plants, enough for the family-garden, may be easily raised in this way.

Asparagus must have a liberal dressing of manure, and also one of salt. If new beds are to be made, set out one-year-old plants, two feet by three, after the land has been properly spaded or plowed.

Beans.—Plant in drills two feet apart. Valentine is one of the earliest, and Dwarf Wax the best bush for snaps. Giant Wax and Large Lima, best pole.

Beets will bear considerable cold weather, and a few rows should be sown for early use. Plant in drills a foot apart. Bassano and Early Blood Turnips are good early. Dewing's, Hatch's, and Egyptian, are new, and highly recommended.

Broccoli.—Treat the same as cabbages. White and Purple Cape are good varieties.

Cabbage Plants, from a hot-bed or cold-frame, may be set out in many localities. The Jersey Wakefield and Winnigstadt are excellent for early. Marblehead, Drumhead, and Flat Dutch for winter use.

Carrots.—Sow the Early Horn in 12-inch drills.

Cauliflower.—Half Early Paris and Boston Market are fine. Treat same as cabbage.

Celery.—Sow for early crops in hot-bed. Dwarf White Solid, and Boston Market.

Corn.—Crosby's Early, Mammoth Sweet, Stowell, and Mexican, are all good, reliable varieties.

Cress.—Sow the Curled at intervals of a week.

Cucumber.—Start on small pieces of sod under glass. Early Russian for early, White Spine for general crop; Green Prickly, for pickles, is sown later, in the open ground.

Egg-Plant.—Sow in hot-bed. Long Purple for early, and later, Purple, or Black Pekin.

Horse-Radish.—Plant sets in well-manured trenches, and earth up as it grows.

Kohl-rabi.—Sow Early White in two-foot rows.

Leek.—Sow Flag or Musselburgh same as onions.

Lettuce does well when sowed in the fall, and covered slightly with leaves or brush. If this has not been done, sow in hot-bed or cold-frame, or open ground. Curled Silesia and Tennis Ball are good sorts.

Melons.—Sow the same as cucumbers. Ward's Nectar, Skillman's Netted, are among the best.

Onions.—Sow in drills 15 inches apart, in rich soil. Early Red and Yellow Danvers are good. Put out sets for early crops, and potato and top-onions.

Parsley.—Curled is best. Soak the seeds.

Parsnip.—Plant early, in drills fifteen inches apart. Hollow-Crowned is best.

Peas.—See "How to have a Garden," on page 102.

Peppers.—Start under glass, the Squash for pickles, and Sweet Mountain for stuffing.

Potatoes.—Start a few early potatoes in the hot-bed. Cut in halves, expose a few days to a warm atmosphere, and then place in the hot-bed.

Radishes should be sown quite thickly, at intervals of a week or ten days for a succession. Early Scarlet Turnip, Olive Shaped, and French Breakfast.

Rhubarb should have plenty of manure dug in between the rows, to induce an early growth.

Salsify.—Sow fresh seed, the same as parsnips. Some prefer the Scorzonera, or Black Salsify.

Spinach.—That which was planted and covered over in fall will be ready to cut now. This excellent vegetable is not cultivated very extensively, except near cities and towns. It is excellent for early greens. Sow in 18-inch drills.

Sweet-Potatoes.—Start the same as recommended for potatoes, except that sweet-potatoes should have a layer of two or three inches of compost over them. Nansemond is usually grown.

Squash.—Summer Crookneck is best for early, and Boston Marrow and Hubbard for general use.

Tomato.—Sow in hot-bed. Early Smooth Red is the best of the older varieties. The Trophy Tomato is a new sort, very highly recommended.

Turnip.—Flat Dutch for early use, red and white strap-leaf for late. Sweet German and white French are the best ruta-baga sorts for family use.

Seeds.—Roots, etc., which are to be planted for seed, should go out this month. Earth up around the crowns, to keep the roots from freezing, and remove it when all danger of frost is over.

Flower-Garden and Lawn.

Annuals.—The hardier annuals may be sown in a warm, sheltered spot. When it is desired to have them flower early, a few may be sown in a hot-bed. Asters, Balsams, etc., may be started in this way.

Lawns should be raked, to gather up all litter, and then rolled to settle the soil. A top-dressing of fine compost spread upon it will induce a healthy and thrifty growth. Seed thin spots.

Gravel-Walks must be raked and rolled. Where new ones are to be made, remove the earth to the depth of 18 inches, or 2 feet, and the trench nearly full of small stones: finish off with fine gravel.

Greenhouse and Window Plants.

Cuttings of bedding-plants should be started now, ready for planting out during the summer. Those cuttings already rooted must be potted off into small pots. Cuttings of most bedding-plants are easily rooted in shallow saucers of wet sand. The sand should not be allowed to become dry.

Camellias and Azaleas are now in bloom, and care must be taken in watering not to wet or touch the flowers, as it renders them spotted and unsightly.

Climbing Plants should be trained to trellises, or to the greenhouse rafters.

Temperature.—The ventilators should be opened more now, being careful not to allow the wind to blow directly upon the plants. Close the ventilators by three o'clock, to prevent the heat from escaping.

Insects.—Fumigate, once or twice a week.

Roses should be brought forward as fast as possible now. Give plenty of manure-water. If mildew makes its appearance, use sulphur, mixed with water, and applied with a syringe.

Bulbs which have flowered should be gradually dried off, and then laid away in a dry place.

Water should be applied more liberally, both to greenhouse and window-plants, as they become dry very soon in the bright sun.

Seedlings.—Plant seeds of tender annuals, and when an inch high, prick out into shallow boxes of earth.

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(See First Column.)

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87	*Fourteen Vols. XVI to XXIX*		47	148	24	72
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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	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
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101	*A* **Steam-Engine** *that will GO*		3	24	2	6

☞ *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. (Steam-Engine mailed for 36 cents extra.)*

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, 1871, 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.	291,000	254,000	296,000	17,300	104,000	217,000
26 days *last* m'th.	304,000	276,000	198,000	5,600	317,000	291,000
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days *this* m'th.	341,000	1,651,000	879,000	33,500	198,000	716,000
26 days *last* m'th.	321,000	2,044,000	973,000	47,000	216,000	811,000

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

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days 1871.	291,000	254,000	296,000	17,300	104,000	217,000
26 days 1870.	164,500	156,000	101,000	1,650	96,500	141,500
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days 1871.	341,000	1,651,000	879,000	33,500	198,000	716,000
26 days 1870.	178,500	1,629,000	934,000	34,500	139,000	1,018,000

3. *Exports from New York, Jan. 1 to Feb. 13:*

	Flour.	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
1871.	226,887	1,006,917	129,563	——	——	7,934
1870.	195,353	1,212,227	40,888	——	——	1,987
1869.	129,171	914,987	547,469	——	12,957	11,867
1868.	79,307	201,628	966,847	10,218	——	5,658

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

	Wheat, bush.	*Corn,* bush.	*Rye,* bush.	*Barley,* bush.	*Oats,* bush.	*Malt,* bush.
1871.						
Feb. 13.	2,203,677	311,471	148,498	481,863	1,409,995	215,124
Jan. 16.	3,683,116	272,618	157,730	554,491	1,736,936	216,394
1870.						
Dec. 15.	3,060,762	208,319	148,069	500,397	2,085,137	231,129
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	237,453
Sept. 12.	1,387,487	761,894	50,869	107,474	1,033,079	130,881
Aug. 8.	1,438,876	589,973	25,437	106,101	691,766	119,046
July 11.	1,281,313	483,540	28,816	93,600	655,068	109,478
June 7.	796,478	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	285,916	23,249	187,172	756,811	99,988
March 7.	2,509,603	484,176	39,089	278,905	1,105,194	97,139
Feb. 11.	2,902,638	534,008	62,112	322,425	1,199,672	36,214

CURRENT WHOLESALE PRICES.

	Jan. 17.	Feb. 18.
PAICE OF GOLD	110¼	111¼
FLOUR—Super to Extra State	$5 60 @ 6 85	$5 90 @ 7 25
Super to Extra Southern	5 80 @ 9 25	6 25 @11 50
Extra Western	6 30 @ 9 00	6 65 @10 25
Extra Genesee	6 90 @ 9 00	7 30 @ 9 25
Superfine Western	5 60 @ 6 10	5 90 @ 6 40
RYE FLOUR	4 00 @ 5 60	4 35 @ 6 85
CORN-MEAL	3 75 @ 4 50	6 65 @ 4 35
WHEAT—All kinds of White	1 50 @ 1 80	1 55 @ 1 90
All kinds of Red and Amber	1 15 @ 1 53	1 20 @ 1 62½
CORN—Yellow	81 @ 85	82 @ 87
Mixed	79 @ 83	79 @ 85
OATS—Western	58½@ 63	66½@ 75
State	60½@ 62	70 @ —
RYE	95 @ 1 10	90 @ 1 10
BARLEY	85 @ 1 12	85 @ 1 15
HAY—Bale ₹ 100 ℔	1 20 @ 1 40	1 20 @ 1 45
STRAW, ₹ 100 ℔	80 @ 1 25	80 @ 1 35
COTTON—Middlings, ₹ ℔	15¾@ 16¾	15¼@ 16
HOPS—Crop of 1870, ₹ ℔	6 @ 14	5 @ 12
FEATHERS—Live Geese, ₹ ℔	75 @ 85	70 @ 80
SEED—Clover, ₹ ℔	10¾@ 11¾	11¾@ 11¾
Timothy, ₹ bushel	5 75 @ 6 00	6 00 @ 6 50
Flax, ₹ bushel	2 10 @ 2 20	2 15 @ 2 25
SUGAR—Brown, ₹ ℔	8¼@ 11¼	8¼@ 11
MOLASSES, Cuba, ₹ gal	30 @ 35	30 @ 35
COFFEE—Rio, (Gold, in bond)	10 @ 13½	10 @ 14
TOBACCO, Kentucky, &c., ₹ ℔	6 @ 12½	6½@ 12½
Seed Leaf, ₹ ℔	10 @ 75	12 @ 75
WOOL—Domestic Fleece, ₹ ℔	44 @ 57	47 @ 58
Domestic, pulled, ₹ ℔	27 @ 45	25 @ 45
California, unwashed	26 @ 33	20 @ 33
TALLOW, ₹ ℔	8½@ 9	8½@ 9
OIL-CAKE—₹ ton	40 50 @41 00	40 25 @42 00
PORK—Mess, ₹ barrel	21 50 @22 50	22 00 @23 00
Prime, ₹ barrel	18 50 @20 50	18 50 @19 50
BEEF—Plain mess	11 00 @15 00	10 00 @15 00
LARD, in tres. & barrels, ₹ ℔	12 @ 13	12¼@ 13½
BUTTER—State, ₹ ℔	20 @ 42	20 @ 42
Western, ₹ ℔	12 @ 33	12 @ 33
CHEESE	5 @ 16½	5 @ 16½
BEANS—₹ bushel	1 75 @ 2 65	2 00 @ 3 10
PEAS—Canada, free, ₹ bu	1 25 @ 1 30	1 30 @ 1 35
EGGS—Fresh, ₹ dozen	31 @ 35	26 @ 32
POULTRY—Dressed Fowls	16 @ 18	15 @ 18
Turkeys, dressed, ₹ ℔	15 @ 18	16 @ 20
Geese, ₹ ℔	1 75 @ 2 25	13 @ 15
Partridges, ₹ pair	60 @ 1 50	1 00 @ 1 25
Ducks, ₹ ℔	15 @ 18	16 @ 20
Ducks, Wild, ₹ pair	— @ —	30 @ 75
Quails, per dozen	1 50 @ 1 75	1 25 @ 1 50
Venison, per ℔	13 @ 21	8 @ 16
POTATOES, ₹ bbl	2 50 @ 5 00	3 00 @ 6 00
SWEET POTATOES, ₹ bbl	3 00 @ 3 50	3 50 @ 4 00
TURNIPS—₹ bbl	1 00 @ 1 25	1 00 @ 1 25
CABBAGES—₹ 100	5 00 @10 00	12 00 @18 00
ONIONS—₹ bbl	3 00 @ 4 00	4 00 @ 4 50
CRANBERRIES—₹ bbl	9 00 @12 00	7 00 @10 00
BROOM-CORN—₹ ℔	8 @ 8	3½@ 6½
APPLES—₹ barrel	1 00 @ 3 50	2 50 @ 5 50

Gold market has been stronger since our last, the price advancing to 112¼, on a more active speculative demand. The inquiry now from all sources is less urgent, and the final quotations are 111@111¼.....Breadstuffs have been offered less freely, as a rule, and prices of the leading articles have been quoted higher, on a fairly active business for the season, mostly for home use and shipment, though considerable speculative purchases have been reported of shipping grades of Flour, new crops Spring Wheat, and toward the close, of the better grades of Oats, Flour, Wheat, and Corn, closing in favor of buyers;—the foreign advices not having been equal to the anticipations of holders, and the reaction in gold, and firmness in ocean freights, tending to weaken confidence in values. The bulk of the stock of strictly prime new crop Spring Wheat now here, is under speculative control—held, in part, on Western account..... Provisions have been in more general request. Hog products have been held with more firmness. There has been an unusually free export movement in prime mess Pork, prime steam Lard, Bacon, and Beef, partly for English and French Government use.....Cotton has been plenty and weak in price, on a moderately brisk trade. The receipts at the shipping ports have been very liberal, and have exercised a depressing influence on values.....Wool has been more sought after, and has been quoted dearer. The offerings of prime stock have been on a reduced scale.....There has been a fair inquiry noted for grass seeds, particularly for Clover, for export....Tobacco has been quiet at about former rates.....Hay in demand, and firmer.....Hops in moderate demand at easier and irregular prices.

New-York Live-Stock Markets.—

WEEK ENDING.	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	*Tot'l.*
Jan. 23d	4,861	75	796	24,895	11,796	42,423
Jan. 30th	6,741	57	615	27,386	12,858	47,657
Feb. 6th	5,083	58	1,009	33,117	17,873	55,145
Feb. 13th	6,923	53	978	24,195	13,934	46,083
Total in 4 Weeks	23,608	243	3,398	109,593	56,461	191,308
do. *for prev.* 5 *Weeks*	31,237	331	4,813	142,674	102,452	272,024

	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per Week	5,902	61	849	27,398	14,115
do. do. *last Month*	6,247	66	863	28,535	20,490
do. do. *prev's Month*	6,984	89	1,500	34,689	24,381
Average per Week, 1870.	6,847	97	2,240	28,151	17,108
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	11,033
Total in 1869	326,289	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	3,369	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	836,733	573,190
Total in 1864	267,609	7,603	75,621	782,462	699,277

Beef Cattle.—Some interruptions to the trade have been caused by disasters on the railroads and heavy snows, keeping trains back, but, as a general thing, a good supply has been kept up. Prices have been rather uniform, and not favorable to the seller. Some of the extensive shippers have sustained heavy losses, and are reefing sails, but new and venturesome craft put in in their places, under a full swell of canvas. During the past week a single Chicago shipper sent in 1,794 live cattle, besides numerous lots ready dressed. Receipts of Western-dressed beef average from 300 to 500 head per week. It is now selling at 8½c.@10½c. per ℔. Never before have we had anything like this amount of dressed beef, some of it from beyond the Mississippi. There is great complaint of bruised cattle among those brought in alive, and a call is made for those "palace stock-cars," or something else, which shall remedy the evil. Buffalo meat continues to come forward quite freely, and really has an effect upon the beef-market, as it can be sold at a profit, and yet below the price of good beef. The cattle-market closes dull. Less beef will be used in Lent.

Below we give the range of prices, average price, and figures at which large lots were sold:

Jan. 23d, ranged	8	@15½c.	Av. 13½c.	Large sales	12	@14½
do. 30th, do.	8	@16 c.	do. 13¾c.	do.	do.	12½@14½
Feb. 6th, do.	9	@16¼c.	do. 13¾c.	do.	do.	13 @14½
do. 13th, do.	9	@16¼c.	do. 13¾c.	do.	do.	13 @14½

Milch Cows.—The "Foot and Mouth Disease," more prevalent in cows than in other stock, has had a damaging effect upon the trade. There has been much more fright than the occasion warrants, but it was just as effectual in checking transactions. The report that extensive milk-producers in Westchester and Dutchess Counties had been prohibited from sending milk to market—true in itself—caused a great falling off in the demand for milk, and, as a result, milkmen sought to diminish rather than increase their stock of cows. Just now the excitement is subsiding, and there is every prospect of an improved fresh cow trade. Common cows are quoted at $50@$60 each; medium to good, $65@$80, with a few prime at $90—rarely $100.....**Calves.**—There is a steady winter demand for calves, but as most of the stock is sent in dressed, the demand centers upon that. Fat hog-dressed milk-calves sell at 11c.@12c. per ℔.; common-fed calves, 8c.@10c. Live vary from 6c.@8c. for those reared without "mother's milk," to 10c.@12c. per ℔. for fair to prime milk-veals.....**Sheep.**—With only a slight decrease in numbers, prices have worked up slowly. The average quality is better, which partly accounts for the higher average. Many of the Canadian sheep average 115@130 lbs. by the car-load, and sell at 7c.@7½c. per ℔., live weight. The general prices are 5c.@5¼c. for thin; 6c.@7c. for fair to prime; and 7¼c.@7½c. for extras. A few of 150 ℔s. reached 8c.....**Swine.**—Here we have a great falling off in live, but dressed hogs have been coming in somewhat freely—7,664 average per week for a month past. All kinds have advanced more than 1c. per lb., ruling steady for the past fortnight; but as the packing season is nearly over, and Western-dressed pouring in rapidly, there is a weakness as we go to press, with every prospect of an early decline. We quote live at 8¼c.@8¾c., with city-dressed at 10¼c.@11c., and Western-dressed at 9¼c.@9¾c., light pigs reaching 10c. The heavy drain upon our provision market, to help revictual Paris, has helped the advance in hogs.

Let Us Help France to Seed-Grain.

Famine has conquered Paris. But when peace comes, as it must soon, famine will stare the peasantry of France in the face, for wherever the armies have marched and fought over the ground, and from whatever districts the forces of either army could derive grain and food, the wheat, rye, barley, oats, peas, and beans of the country have all been devoured. Throughout some fifteen of the grain-producing departments, embracing a territory as large as the arable lands of the great State of New York, with seven millions of people, there is no seed left for the farmers. This fact appeals to the generous sympathies of our American farmers and grain-holders, and the moment peace is declared a circular will be issued from a responsible source, in New York, announcing what kinds and quantities of seed-grain are needed from the United States to meet the more pressing wants of the peasant-farmers in the wasted provinces of France. Even before the armistice, the Royal Agricultural Society of England resolved to take action to anticipate this want of seed. They have pledged a fund of several thousand pounds sterling, and many of the English country auxiliaries have begun to contribute small quantities of the much-needed seeds. But America should send as much as England and Belgium together. Let us be ready to give quickly and abundantly when the call comes in a way to be met.—**P.S.** Feb. 18.—The N. Y. Chamber of Commerce Committee just announce that they will forward to France, *free* of *all cost* for freight, etc., all seed-wheat given by Americans. The Treasurer of the Committee also offers to pay the freight *to* New York on any quantity exceeding 100 bushels. (Cannot a great number of villages and country neighborhoods club together and each collect a hundred bushels or more?) On smaller quantities the freight to New York should be prepaid. Some of the railroads will carry such parcels free—we hope all will. Note that *spring wheat* only is wanted for seed. Mark the name and variety on each sack. Send to "Storehouse of French Relief Committee, No. 64 Pearl street, New York City."

Messrs. Orange Judd & Co., Publishers of *American Agriculturist* and *Hearth and Home*, start the list with the gift of **100** Bushels of Spring Wheat. Who speaks next?

Annual Meeting of the N. Y. State Agricultural Society.

The New York State Agricultural Society has a noble record. It has done, is doing, and will continue to do great good. There is no agricultural society in the country—probably none in the world—which has more devoted, self-denying, disinterested, and intelligent friends. It is always a pleasure to meet at the Annual Meeting with these noble old friends of the Society. But where are the plain, practical, common-sense farmers and fruit-growers of the State? We had the gentlemanly breeders of improved stock, inventors, implement-makers, nurserymen, and editors, but where are the farmers of the State? They are at home, grumbling about "the Albany Agricultural Ring," and they will continue, year after year, to grumble and stay at home, leaving the management of the Society in the hands of a dozen or so of wealthy, "gentlemen farmers." Now, we have no disposition to find fault with "the ring." There are no nobler men. We cannot spare one of them. What we want is to see this ring enlarged. It should contain half-a-dozen of the best farmers in every county in the State. We believe no one wishes this more than the "ring" gentlemen themselves. What they are afraid of is the politicians, the fast-horse men, and the uneasy radicals, who want to pull down without building up. But if the "ring" could know more of the true farmers of the State, and the farmers knew more of the "ring," mutual confidence and esteem would spring up, and great good to the agricultural interests of the State would be the result.

The late Annual Meeting, held at Albany February 8-9, was unusually well attended. The meeting convened in the House of Representatives at 12 o'clock. The Secretary and Treasurer's reports were read, and the meeting then proceeded to elect officers for the ensuing year. Do our readers know how this is done? The State is divided into eight districts, and all the members of the Society from the district, who happen to be present, are invited to meet in this or that corner of the room for the purpose of selecting three delegates to form a committee of twenty-four, who shall nominate officers for the coming year. If in the 1st district there happen to be four members present, one of them nominates the other three; in the 2nd district perhaps there are five members. This is much pleasanter. One of them is elected chairman and another names the three remaining gentlemen for delegates. And so the committee of twenty-four is formed. These twenty-four gentlemen retire and talk over who shall be elected. They *call it* "nominated;" but it means

elected. Having written the names of the to-be officers on a ticket, the committee of twenty-four, headed by their chairman, return to the meeting. The constitution says the officers shall be elected by ballot. This is accomplished as follows: All the names are written on one single ballot, and some gentleman is appointed, "*provided there be no objection*," to cast the ballot for the meeting. There never is any objection, and so the ballot is cast into a hat—and the officers are pronounced duly elected "by ballot." Some dignified gentleman then (at 2:30 P. M.) rises and says, "Mr. President, I propose that this meeting now adjourn, to meet here at 7:30 P. M." This is carried, and the members have thus five hours for a good dinner and mutual congratulations.

In the evening Mr. J. R. Dodge, of the Department of Agriculture, read an interesting paper on the "Prospects and Present Condition of Sheep Husbandry," followed, not by any discussion of the subject—there is no time for that—but by a lecture on the Principles of Breeding, by Professor Law, of Cornell University, which showed a commendable acquaintance with the facts collected by Darwin in *Animals and Plants under Domestication*, and also that the learned Professor kept ahead of the "advanced thinkers" in regard to "protoplasm," &c.

Special Premiums.

FOR A RENEWAL AND ONE NEW 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 guarantee of genuineness.

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.—Hasbrouck & 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 subscriber who, after this date, sends $1.50 for *American Agriculturist* for 1871, and 5 cents for postage, we will send 1 Package (100 Seeds) of Trophy Tomato Seeds.

II.—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 Loog-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.

III.—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.

containing a great variety of Items, including many good Hints and Suggestions which are 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 Volume 29 are now ready. Price, $2, at our office; or $2.50 each, if sent by mail. Any of the previous thirteen volumes (16 to 28) 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.

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 afterward send 10 more subscribers with only $8; making a club at $20; and so of the other club rates.

The Best Aid for the approaching spring and summer work on the farm, in the garden, etc., will be a careful reading of this journal and *Hearth and Home*. We hope our readers will remind their friends and neighbors of this, and induce them to supply themselves with one or both journals. The premiums are still open to those who make up clubs, as noted on page 84.

Don't! write to ask if this or that "Doctor," who advertises to cure this or that disease, is "trustworthy," or our opinion if such or such an advertised medicine is likely to help a particular case. We have so frequently written down all such "doctors," and all such medicines as humbugs, that our opinion ought to be pretty well known by this time. We shall, in future, answer no letters making private inquiry on the above matters, as we have a much better use for our time.

American Pomological Society.—The President, Hon. Marshall P. Wilder, informs us that he has designated Sept. 6th as the time of the next biennial meeting, which will be held at Richmond, Va., and continue for three days. It is expected that the meeting will be a large one, and that many Southern pomologists, who have not of late attended these gatherings, will be present. The sum of $2, remitted to Thomas P. James, Treasurer, Philadelphia, will make one a member, and entitle him to a copy of the Transactions.

Larch from Seed.—"H. P.," Solomon, Kan., asks where the European larch-seed can be obtained, price, and how to sow it.—The seed is sold by all our principal seedsmen. The first catalogue we turn to has the price at $2.50 per lb. It is of no use to try to raise seedling-larches, or other conifers, unless means are provided for shading the young plants the first year. This is usually done by a lattice-work of laths, raised a foot above the seed-bed. Brush may be used for the same purpose. The soil must be light, and rich, and free from weed-seeds. The larch-seed is sown in drills 6 inches apart, and the young plants kept carefully weeded.

Help Wanted—Employment Wanted.—At this season, especially, many persons write or call at our office in pursuit of workmen, and of employment.—It is impossible for us to attend, personally, to the multitude of inquirers. Any persons of either class may write out, on a foolscap sheet, and send us a statement of just what is desired, and we will put all such statements in a book, or portfolio, where they can be mutually examined by employers and employees. Those wanting places should state clearly their desires, and experience, and references. When any want is supplied, the application should be immediately canceled in the portfolio.—It will be kept in our front office, and should be always referred to, instead of making personal inquiries of persons in the office. This request is important, as the time of the publishers, editors, and several clerks, is frequently absorbed by the multitude of inquirers.

Buffalo and Buffalo Beef.—We have had large quantities of buffalo beef sent to our Eastern markets during this winter. Not a little of it has been of the poorest and toughest quality imaginable, being the hams only of those patriarchs of the plains who, having been worsted in their battle with the younger and more vigorous bulls, are to be found more or less solitarily wandering or hanging about on the outskirts of the great herds, and easy victims of any one who can creep up and blaze away with an old army musket. The only portions taken is their hams, and these are used as dried or jerked meat on the plains, or shipped East. Mr. Rankin, of Kansas, brought on a car-load of very different meat in January last. The entire shipment consisted of the hind-quarters of young cows, and heifers with several fine calves. The meat was most delicious; it woke New-York people up to the realization of what buffalo beef really is. The meat was consigned to Mr. Thurston, of West Washington Market. It seems that a new and profitable trade may be thus established, and this suggests to us an idea which we hope some one, or many persons, may follow up. It is well known, that after buffalo calves are two or three weeks old, when the herd is "stampeded," the calves will be left behind. They will follow any man or horseman who comes near them, or who approaches and pets them a little. Would it not be easy to secure thus a herd of bull calves, turning the heifers back to find their dams again—as they would. These might be raised by hand, and as *steers*, thus gaining at two or three years' old much larger size than the heifers, and making better beef than the cows, while the existence of those splendid herds would not be imperiled. On the first page our artist has pictured the head of one of the patriarchs, which was brought on with the beef mentioned above.

SUNDRY HUMBUGS. — That the swindling fraternity are busy with new schemes is evident from the efforts now in progress to get revised lists of the names and post-office address of people generally throughout the country. It may as well be understood all over the country, by every man having a name and local habitation, that not only his own name, but frequently the name of his wife, if he have one, and of all his children old enough to read, are recorded on a list kept by some swindler in one or more of the larger cities—New York, Philadelphia, Boston, Cincinnati, Chicago, St. Louis, etc. Some swindlers get one list, others get another, and these lists of names are sold or exchanged, so that every person is exposed to the fire of from one to a dozen different operators. Certain of these swindlers direct their efforts toward the young especially, sending to them the circulars about counterfeit money, time-pieces, love-powders, "French" appliances tending to the worst immorality, obscene books and pictures, etc. It is important for parents, guardians, and teachers of seminaries and boarding-schools, to keep careful watch over what is received through the mails by the youth under their care. We frequently receive very painful accounts from parents of young men, and even small lads, led away by these villainous circulars. One of these name-collectors, at 85 Nassau-street, pretends to be preparing a new edition of the United States Directory, and offers ten cents a name for lists of farmers, etc., etc. We hear from many who have furnished large lists, but can get no answer to inquiries after the promised pay. One of these establishments was broken up by the police, but the names obtained are doubtless in the hands of various swindlers who are sending out circulars, and the name-gatherer is probably operating elsewhere. Another operator pretends to hail from a farmer's paper in New York (which cannot be found here), asking, in a well-executed lithograph letter sent to editors and others, for information about any published "Directories" of farmers, and offers to pay for manuscript lists—apparently a dodge to swell the list of victims to Circular Swindles.... An ingenious "Sovereign" swindle has been worked by one who calls himself Daniel D. Titus, 688 Broadway. He gets up a showy and very complete price-list of various kinds of tobacco, snuff, etc., and sends it out to various parties in the Canadas and along the border where people are acquainted with English money. With this he sends another, unsigned, offering Aluminum Counterfeit "sovereigns so perfect as I defy detection," and offering to send them packed in tobacco, duty paid, and makes many plausible statements to disarm the recipient of any suspicion or fear of being caught. These "perfect counterfeits" he offers at cost, or less, one-half cash and the rest in thirty days, etc. Of course those sending money to him never hear of it again—and never ought to—though he has doubtless received thousands of dollars. His letters are stopped, but probably ere this he has adopted a new name and location, and will continue to change as often as the character of his letters is discovered at the P. O. The transparency of this humbug will be seen at once by those who know that the specific gravity (or weight) of Aluminum is only about 2½, while that of gold is over 19, or about eight times greater.....And here we will advise that no one hereafter send a dollar or dime for any thing in the shape of "Aluminum" or oroide watches or jewelry. There are so many swindlers in this line that it is entirely unsafe to do so, no matter how enticing the descriptive circulars or promises. Those who have sent to Williams for the $2, and $3, and $4, and $5 Aluminum watches, have lost their money. He is not to be found. (This note must answer for a letter to many parties who have asked us to help them get back their money. The fellow never intended to send any thing or answer any letters after he got his victim's money)..... R. H. Foster, "Fourth-street, Williamsburg, N. Y." (there are three Fourth streets in Williamsburg, but this

fellow do n't say which, or give his number) is one of the benevolent swindlers who wants to get your $2.75 for a ticket *promise* to send "a $50 patent gold double-cased American Watch," with ever so many fixings. Are there still people so foolish as to believe this? Yet, if there were not many such persons he would not keep scattering his circulars and tickets at large expense. B. W. Howard, hailing from the same place, is trying to cheat other rogues by getting their money on the *promise* of sending them *good* counterfeit money.....Thomas G. Allison, 30 Ann-street, New York (*only* to be reached by express, *not* by post-office), in addition to offering the "Queer," offers "Tobacco Stamps" on "reasonable terms"—genuine, of course!....."The New York Cash Prize Company," advertised in some, otherwise respectable, newspapers, and largely by circulars, with several places of business on Broadway, is only known to people at a distance who have money to fool away in *hopes* of getting many dollars for one. Such people, of course, pay for the extensive advertising of these imaginary concerns.....A. R. W. Taylor & Co., gift-enterprise men, receiving money at Cincinnati, but claiming to "draw" in St. Louis, are still flooding the country with circulars, flaming bills, and private circulars, and, of course, all finding patrons among foolish people—not among any others. We notify them that we have lots of their tickets on hand, not "paid for," and that will not be. What will they *do* about it? Charge 'em to us? *We* shall sell them for old paper at 4 cents a pound, and—keep the money..... There are four or five "Doctors" at Albany, N. Y., or that number of assumed *names*, who flood the country with circulars, quasi medical journals, etc., which are very ingeniously worded to work upon the fears and hopes of sick and nervous people, as if it were not enough to be sick and nervous without being bumbugged out of their hard-earned money into the bargain. We would whisper in the ear of such persons, "burn everything of the kind before reading beyond the title-page, if you value your money, your life, your comfort, or your peace of mind." *It should be thoroughly understood that* NO *reliable physician now advertises sure cures for anything. This is only done by quacks or villains. We cannot too strongly warn our readers against* ALL *these doctors advertising themselves, by circulars, etc., to cure eyes, ears, private diseases,* FEMALE COMPLAINTS, CONSUMPTION, NERVOUSNESS, *neuralgia, asthma, dyspepsia, salt-rheum, scrofula,* CANCERS, *lung complaints under various names, catarrh, urinary troubles, etc., etc., etc.* We heartily wish the whole tribe had but one neck, and we had a rope around it. We have studied medical science and practice enough to speak advisedly. The amount of money filched from those who can ill afford it, by these pretenders, counts by many millions of dollars annually. The harm done by them is almost inconceivable. Their ingeniously set-forth "symptoms" frighten millions of people into supposed sickness who would otherwise be well and happy. Their professed cures are as false as their father, the ——.....Persons requested to act as *agents* for some old granny's wonderful medicines sent to them without any money in advance, will do well to be careful about ordering packages of the stuffs, if they do n't want an elephant on their hands which they will have to *pay* for before they get through with their "agency." A word to the wise, etc.....Numerous inquiries come to us asking about certain periodicals issued in Maine, in New Hampshire, in Massachusetts, in New Jersey, in Ohio, and in Illinois. They range in price from 25 cents to $1.25 a year, and large cash commissions are offered to those who will act as "agents." The inquirers must be their own judges. *We* should need some evidence beyond the *promises* of a private circular through the mail. There are sheets for which the issuers can give their "agents" *all* the subscription-money received; because these papers are used to promote the sale of nostrums, recipes, humbugs, etc. In other cases, one or two splendid specimen numbers are prepared and offered very cheaply, and after pocketing all the yearly subscriptions received, the papers are stopped, and the publishers are hereafter "non-come-at-ibus." This last-named swindle has been extensively practised.....We advise no one of the "50,000 young men going to premature graves" to send their money to the very benevolent Nassau street man, who wants to send them, for $5, "a sure-cure," medicines that cost $5, precisely, or for $2, if they can't afford $5. He is too good by half or three-fifths—cat—meal-ink.....To one and all we say, give a wide berth to all advertisers by circular of books on delicate subjects, marriage-books, and the like. As a rule, no due return will ever come back for your money .....The counterfeit money operators are nameless in name, and we have hundreds of their circulars, which have been already sufficiently explained and shown up. They cannot get letters through the P. O.: the Amer. Merchants' Union Express has long refused their business, and now the other companies are objecting to their business, so that this dodge is nearly up. They will doubtless take some new tack. H. Colter is already in mourning. per envelope; Thos. Morgan, *alias* Wm. Hardy & Co., *alias* Bates & Co., of 599 Broadway, professes to have been a U. S. engraver, and tells a plausible story in a very well executed lithograph letter. He wants you to come to his den, give the pass-word "ink," etc., and—get robbed of all the money you bring. Here are new names adopted by the "queer" *swindlers;* Wm. Sage & Co., 37 Nassau street; Robert S. Ward, 78 Broadway and 49 Pine street; Thos. A. Walker, 22 Park Row; A. D. Bates & Co., 599 Broadway; John Swallow, 59 Cedar street (well named); E. Connors & Co., N. Y.; Wm. Sage & Co.; Dr. Howard, Williamsburg, L. I.; Jos. A. Holt, 52 John street, N. Y.; James A. Holt, 52 John street; Thos. B. Gray, No. 6 or No. 1 Chambers street; Thos. F. Williamson, 52 John street; *E. Monro Clay,* 197 Broadway, etc., etc..... Wood, of Vernon, N. J., is a very vile villain, as what his circulars offer plainly indicate; no money sent to him could be safe.....It is unsafe to send money for cheap sewing machines to new or previously unknown parties, no matter how great may be the promises made, or how great the premiums or reductions offered. Pittsburgh is vieing with New York in this kind of swindling... .. We know of no "Union Hospital" in this city having agents in Ohio or West Virginia. All such pretenders should be hooted out of town wherever they make their appearance with their big advertisements.....Our Western and Southern friends should not be taken in by any dingy-connected advertising sheet, dubbed a newspaper, which offers to supply ours or any other New York journal more cheaply than it is offered by the publishers themselves. If they send money to such concerns, it is the last they will see or hear of it. State Center P. O., and other localities in Iowa, are flooded with this humbug.

A Small Truck Farm, such as has been frequently inquired after, is advertised on page 119.

Newspaper Club Agencies exist in various parts of the country. The self-appointed agent contracts with publishers for a large number of subscriptions at the lowest club rates, and supplies them to individual subscribers at a very small advance upon what he pays—thus securing a little profit and the facility of advertising other business in his business circulars. Some of these agencies have been long established, and so far as we know have treated their patrons honestly. A few others have been temporarily started in a small out-of-the-way town, run a few weeks, and then absconded with all the money received. Persons who choose to subscribe through such agencies for any real or supposed incidental advantages, will of course look to their chosen agents for any deficiency. The publisher's responsibility to the subscriber only begins when his name and money is actually received, whether direct or from others.

Another Good Result of the Patching and Darning-Exhibition.—We suppose it is generally known that the irrepressible Phineas T. Barnum is collecting an immense traveling exhibition, or museum on wheels, which will abound in all sorts of curious things. Seeing the great crowds that were so intensely interested in the patched and darned clothing at our office, during four days, he sped away to the Five Points Mission, and plunked down a round $100 for a dozen or so of the garments, which was of course many times more valuable to the Mission in securing supplies for the poor than the dozen garments could be. Furthermore, as the garments will be exhibited by him all through the country, multitudes who could not come to New York will have a chance to see specimens of the 1,300 "darned things" as they were, not profanely, termed.—*Note.* One of the prize-takers writes us that it is causing her much trouble. Her reputation as a prize-patcher is bringing in applications from all the neighborhood for the practical exhibition of her skill.

Plowing in Oats for Manure.—J. B. D., of Ohio, asks if oats "would be a good green crop to plow under for manure, the land to be followed with wheat?" No; peas would be much better. If the land is not sandy, better summer-fallow than to sow oats for a green crop to be turned under as manure. Such, at least, is our opinion.

Early Lambs for the Butcher.—The essential points in the management of early lambs intended for the butcher are: (1) to feed the ewes well before calving; (2) to continue to feed them liberally after lambing, giving plenty of bran and all the roots that can be spared, with half a lb. of oil-cake or grain per day, and what clover hay they will eat, with constant access to fresh water. The shed or barn should be dry, warm, roomy, and well ventilated. Sawdust makes excellent litter for the floor, and the next best thing is chopped straw. Littering is an important point, and demands good judgment. Little and often is the rule. The ewes and lambs must have a dry, clean bed on the one hand, and the greatest care must be taken to prevent the manure from accumulating underneath to such an extent that it will ferment. The constant trampling of the sheep will prevent this, if too much litter is not used at a time. (3) the lambs must be induced to eat as soon as possible. And it is necessary to partition off a space of say four feet wide on one side of the barn or shed where the ewes and lambs are, and nail up slats wide enough apart for the lambs to go through, but not wide enough for the ewes. Inside this partition place a little rack for hay, and also a shaped trough, made of boards four inches wide. In this trough place a little bran, or meal, or oil-cake, or oats, or any thing that the lambs will eat. In our experience, we have found that they will eat bran as soon or sooner than any thing else. We have had them commence to eat a little at a week old. In two or three weeks they will eat a few sliced roots. And nothing is then better for them than roots, bran, and oil-cake, *all they will eat.* And at the same time every thing must be done to induce the ewes to give a good supply of milk. In sunny days the ewes and lambs may be allowed to go into a warm yard or grass-field, and their pens be well ventilated while they are out. But great care should be taken to prevent all risk of the lambs getting chilled. The more sun that can be got into their apartment the better, provided the lambs can get into the shade, if desired. A bright sun is very invigorating to a strong lamb, but is sometimes very debilitating to a weak one exposed to it for any length of time. What we want is to keep the lambs in good health, so that they may eat well, sleep well, and get fat. They must be pushed all they will bear, and the advantage of having Leicester, Cotswold, or South-Down lambs is, not merely because they are larger, but because they will bear pushing better than the Merinoes. They can be made ready for the butcher two months earlier than Merino lambs. And we need not say that a fat lamb in May is frequently worth 30 cents a lb., while a similar lamb in July might not be worth 10 cents a lb. The great point, therefore, is to get them fat at the earliest moment, and sell the moment they are ready. The man who is afraid to feed liberally should not attempt to raise early lambs for the butcher.

Spring Seeds, Trees, etc., in great variety, are announced in our advertising columns by reliable parties. The present cheap mail facilities, enable any one living anywhere near a post-office, even in the remotest Territory, to order seeds from the best dealers, however distant. As the planting season will soon be along, it is time to provide a supply of seeds. Our advertising columns afford a wide choice, and it will pay to look them carefully through, as they constitute an important department of information at this period. Many advertisers desire us to request those ordering of them, or sending for circulars, catalogues, etc., to note in what journal their advertisements were seen.

New Seed-Store.—Messrs. Richardson & Gould have taken rooms in the Agriculturist Building, 245 Broadway, for the transaction of a general seed-business in all its branches. Mr. Richardson has had several years' experience with those well-known and reliable seed-houses, J. M. Thorburn & Co., and B. K. Bliss & Sons, and is thoroughly posted in all the details of the seed business. We bespeak for the new firm a share of the public patronage. They are prepared now to fill orders for seeds in any quantity. Send for their catalogue.

Maple-Sugar Item.—Mr. W. J. Chamberlain writes as follows: Any one will confer a favor on many maple-sugar makers, by telling two things: 1st, how to keep the syrup from *crystalizing;* and 2nd, how to separate the *lime* commonly found in syrup. 1st. When syrup is kept some time, it often turns partly into grained sugar, and often crystalizes in part. A can sealed hot last spring, like canned fruit, lately opened in my family, contained about half a pound of crystals, almost as clear and hard as glass. These take much from the thickness, sweetness, and quantity of the syrup, and it is difficult to dissolve them, or remove them from the can. Another can, opened about the same time, contained thicker syrup, and no crystals or sugar. Usually, however, the thickest syrup forms the most crystals and sugar. Now, why do the crystals form, and how can their formation be prevented? 2nd. When the soil of a maple-grove contains lime—and most maple soils do—the sap contains it also, and it forms a gritty sediment in the syrup, no matter how well clarified, hard to separate from it by mechanical means, without waste. Is there any chemical process for its removal? The lime also coats the boilers, as it often coats tea-kettles. How can this be prevented? In my February article I gave, from inaccuracy of memory, $4 per 100 as the price of Post's Eureka Sap-spout; it seems $4.50 has always been the price

Madder.—"W. D.," Dayton, O. Seed can be obtained of all principal seedsmen for about 75c. per lb

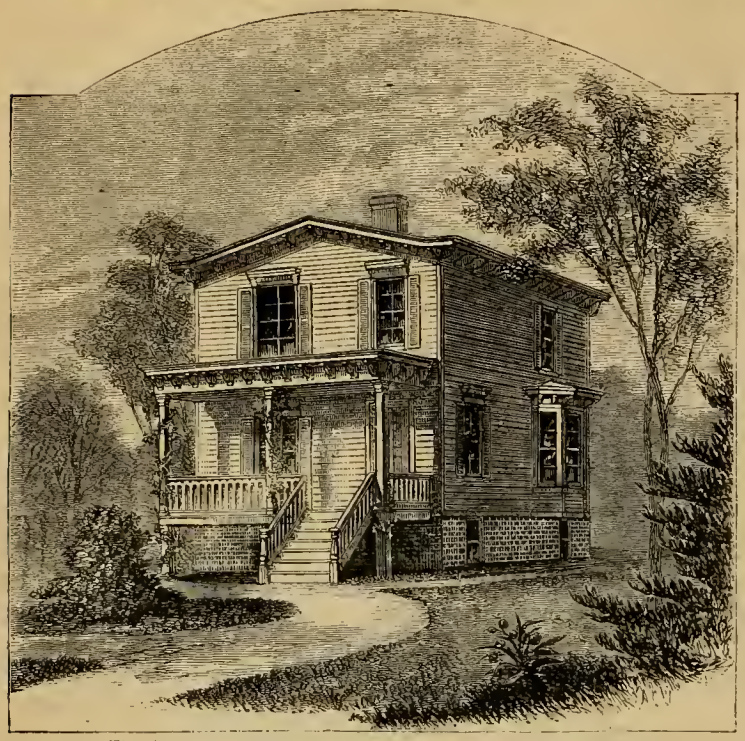


Fig. 1—FRONT ELEVATION—SEEN FROM THE NORTH-WEST.

Plan No. 28.—A $2,000 to $3,000 House.

As stated a year ago, Mr. Judd has from time to time erected one or more dwelling-houses, with the purpose of practically testing various plans and designs which seem to promise useful hints to the million readers of the *American Agriculturist*. The elevations given herewith are engraved from photographs of his twenty-eighth house, just completed. It is believed that this house will give more convenient rooms for the cost than any of the previous plans.... **Fig. 1** gives a **Front View,** or Northwest corner, and **Fig. 2, a Rear View,** or Southeast corner. The basement story or cellar, 7½ feet high in the clear, is set fully two-thirds above the surface, as should usually be the case. It is always more healthful to live and sleep well up from the ground. The high, well lighted basement can then at any time be fitted up, as

Fig. 2.—REAR ELEVATION, AS SEEN FROM THE SOUTH-EAST.

a laundry or wash-room, or kitchen and dining-room. The brick walls, being hollow, are security against frost, except in very cold localities.....The "Novelty" siding is of inch-thick boards, 10 inches wide, with a center groove in each, which gives the appearance of narrow boards. (See fig. 6, on page 89, of our March No., 1870.) Such siding secures greater warmth, and makes a strong, substantial structure, even with very light timber. The roof projects over the sides 22 inches, somewhat in the Italian villa style.....A cheap and effective wall lining, devised by the owner, is introduced into these latest constructed houses. In the middle of the 4-inch space, between the siding and lath, strong roofing-felt is introduced, so as to leave an air-chamber of 2 inches on each side of it. As confined air is one of the best non-conductors of heat, this plan is superior in some respects to the ordinary brick filling-in, while costing hardly an eighth as much as brick. The felt is shown in fig. **5.** The studs, 3x4, are set 14 inches apart in the clear. A piece of felt, 16 inches wide, and 2 inches longer than the length of the studs, is turned over one inch on each side, and placed half-way back on the studs, and lath, clasping the turned edges, are nailed against the studding, so as to stretch the felt between the studs. This felt, thus firmly held, is impervious to wind or moisture. When brick are laid in, the mortar usually cracks more or less, admitting air-currents. The roofing-felt comes in rolls of any desired width. Mr. J. buys it 32 inches wide, and saws through the roll, which gives strips 16 inches wide. The strips should be bent and fastened with pieces of lath at the top and bottom also, so as to be nearly air-tight, or at least wind-proof. Very good felt can be purchased in quantity for 3¼ to 4 cents a pound—6 or 7 square feet to the pound. Two men, working together, will apply it to a house of the size here given, in 1 to 1½ days. Mice do not like it; we doubt if they would ever gnaw through it, not even to save themselves from actual starvation.

Fig. 3—First Story—Hight in clear, 9½ feet. Ground size, 22x29 ft., besides the rear addition, 12½x5 ft., and piazza, 21x7 ft. A single chimney furnishes flues for the three rooms in this story, and two rooms above. It is carried up through the basement, with fireplace below for either stove or range. The marble mantle in the parlor, *P*, is placed in the middle of that side of the room, and one flue of the chimney stands nearly against its center. The right-hand flue also extends far enough into the "Living" or "Dining"-Room, *L D*, for the reception of a stove-pipe. At *r* a tin warm-air pipe, surrounded with iron lath, and plaster, is carried up from the basement to the second story, with registers in *P* and *L D*, and in *E* and *F* (fig. 4). A small portable or brick furnace can therefore be readily placed in the basement, and thus be made to heat nearly all the house. These pipes and registers are thus put in while building to save any after-cutting of walls or disfiguring of rooms, and the house is thus ready for heating either with stoves or furnace, as may be desired by any occupant. The bay-window, *b*, adds materially to the roominess and apparent size of the family-room, *L, D*, and also gives a good architectural effect to the outside. It also enables one to look out upon the street and upon the rear garden without opening a window.....A peculiarity of this house is the arrangement of the rear entrance, and closets or pantries. Passing out of the kitchen, *K*, to the hall *e*, and then to *d*, six steps takes one down to the ground level, whence he may pass out through the rear door, *d* (see also fig. 2), or turn to the right, where four steps takes him to the cellar, or basement. The closet, *c*, from *L D*, is placed high enough, with a slope at the back under the first shelf, to admit of easy passage to the cellar.....At *p* is a kitchen pantry, and at *s* a sink, with pump from cistern. The engraving hardly exhibits clearly the economy of space, halls, doors, covered cellar-entrance, etc., that are really secured in the arrangement of the "Addition," containing *p, e,* and *d*, carried up from the ground in the rear of the main building. From *L D* a door opens into a closet, *c*, under the stairs into the main hall, *H*.....From the parlor, *P*, a double or "twin" window, *w*, extends down to the floor, and opens on to the front piazza, *pp*. It will be noted that room is economized in the Second Story by giving a half turn to the head of the main stairs. This

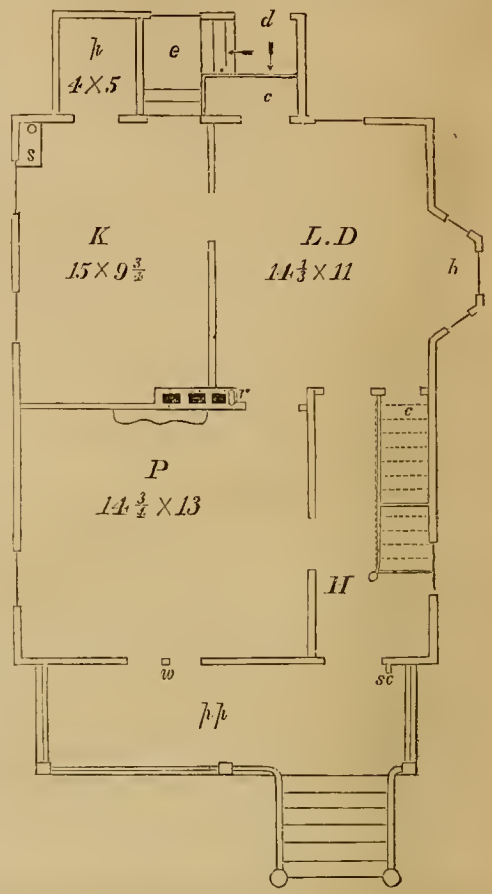


Fig. 3.—FIRST STORY.

turn projects with a curve in the upper corner of *L, D*, without lessening the size or convenience of that room. The turning of this curve, in *L, D*, gives opportunity to the carpenter and mason to display their ingenuity and taste, or lack of it.

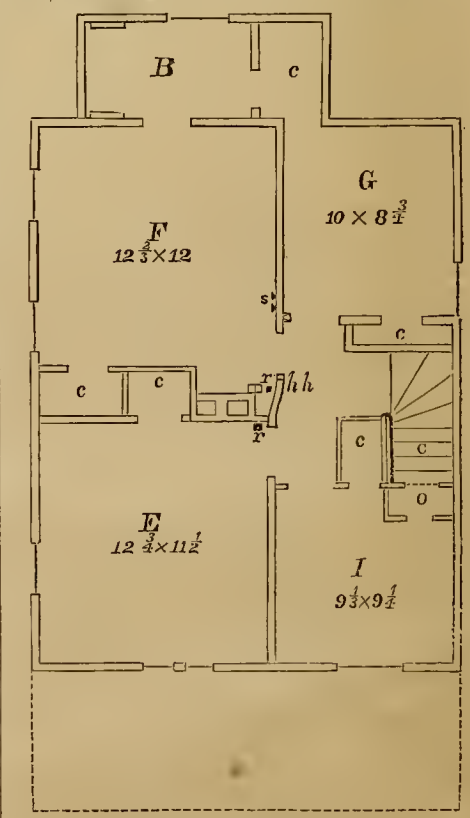


Fig. 4.—SECOND STORY.

Fig. 4., Second Floor.—Hight in clear 8¾ feet. It will be seen that the division here secures four good.

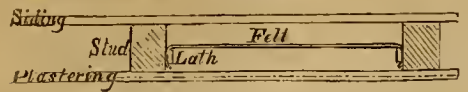


Fig. 5.—SECTION OF OUTSIDE WALL.

rooms, with one or more closets in each. The hall, *hh*, at the head of the stairs (lighted by head-lights over the doors, which also furnish ventilation to the rooms), occupies but little space, yet gives convenient access to all the rooms. The family chamber, *F*, is placed in the southeast corner of the house, to receive the warmth of the sun in the morning, and to be cool at night. Material changes in the planning of the whole house were made to secure this very desirable location. If possible, we would have all constantly-occupied sleeping-rooms on the *east* side of every house. *B*, the floor of which is two steps down from *F*, is for a large pantry, or store-room, or dressing-room, or for a bath-room. (The most approved bath-tubs are now made only 4 to 4½ feet long). Supports are placed upon the walls ready for a tank, which may receive water from the main roof, and also through a pipe carried up from a force-pump in the sink. The closet, *c*, adjacent, may be used from *B*, or from *G*, with which it is connected by a narrow door. A speaking-tube, *s*, in *F*, extends to the front-door bell (*s*, *c*, fig. 4), to communicate with any one calling at night, without having to first dress and go down. *F* and *E* can be warmed by stoves, or by the warm-air registers, *r*, *r*. The smaller front chamber, *I*, has one closet, *c*, another, *c*, over the stairs, and a platform or wash-stand, *o*, is cased in over the stairs coming up from below, with a cupboard or closet underneath. A scuttle-door, over *hh*, reached by movable steps, opens into the attic, where there is some store-room—the amount depending upon the hight of the attic. . . . . It will be seen that there are a dozen pantries or closets in the house, and that there is hardly an inch of waste room anywhere.....The same plan and internal arrangement are admirably adapted for smaller and larger houses, say from 20x27 to 25x33.

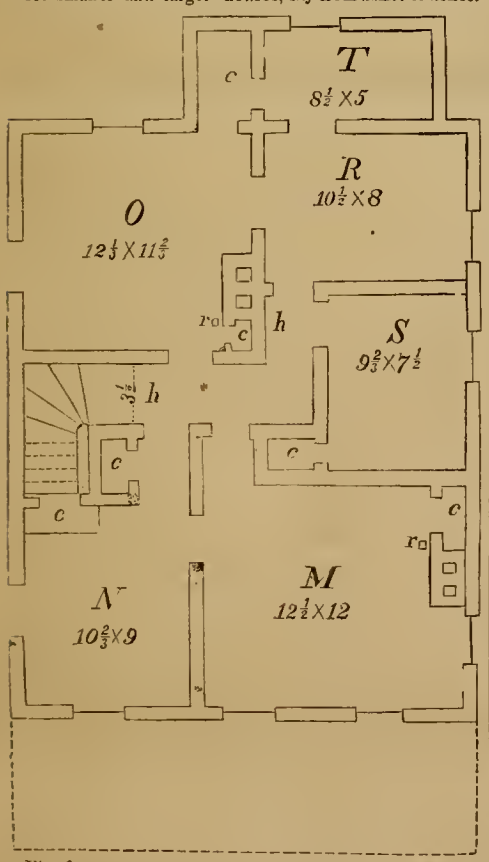


Fig. 6.—SECOND STORY OF A SIMILAR HOUSE, 24×31.

A Larger House on the same plan in the first story, 24x31, besides the addition and piazza, is differently arranged in the **Second Story**, as shown in **Fig. 6.** There are here *five* convenient bed-rooms, *M*, *N*, *O*, *R*, *S*, bath-room, *T*, etc. There are two chimneys, one from the parlor up through *M*, and one between the dining-room and kitchen. The closets, *c*, *c*, *c*, *c*, and the size of the rooms, and the hall, *h*, *h*, are shown in fig. 6. The rooms in the first story are of course larger than those shown in fig. 3, but they are arranged the same.

Another House, built for a small farm dwelling, is constructed on a similar plan in the first story, but is carried 3 feet higher, with steep shingle roof, which furnishes a good deal of room in the attic. The **Second Story (Fig. 7)** is similar to fig. 4, except in the room *I*, where there is an attic stairway, *a*, *s*, instead of the closets shown in fig. 4. To make a good head room for this attic stairs, a dormer window is placed in the roof, which gives a pretty effect to the outside of the house. The attic is large enough for two sleeping rooms, with windows in the gable ends, and for the storage of fruit, furniture,

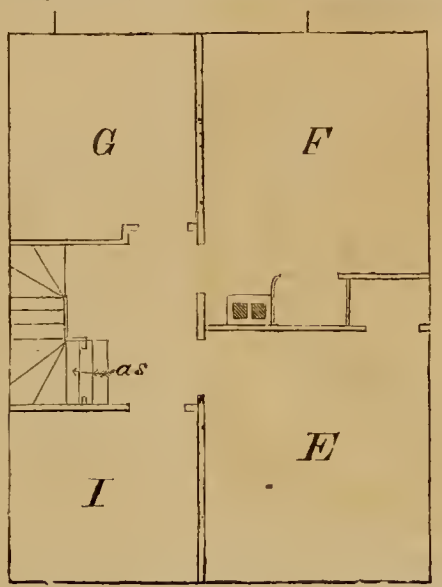


Fig. 7.—PART OF THE SECOND STORY OF A SMALLER HOUSE, (21×28,) WITH ATTIC STAIRS.

etc. This house is 21x28 on the ground, besides the rear additions and front piazza. As there were stones and sand for cellar walls at hand, and no front steps or piazza railing required, the cellar being mainly below the surface, (the house stands on a sandy knoll,) this house cost only $2,100 to $2,200. It appears to be a tasteful and convenient farm dwelling. It can be seen on the eastern road from Flushing to Jamaica, 2 miles from Flushing village, near the "Black Stump School House."——The two other smaller houses are on Barclay-street, and those pictured above are on Franklin Place, in Flushing. Until sold and delivered, as they probably soon will be, any one can examine them by applying to Stephen F. Gooding, Esq., Superintendent, usually to be found at Mr. Judd's residence, in Flushing—if previous appointment be made.

Cost.—This depends very much upon the style of finish, outside and in, as well as upon the price of lumber, brick, lime, labor, etc. The houses above described were built under favorable circumstances. Eight were carried on together, securing the advantage of economy in the division of labor and use of machinery, in the wholesale purchase of materials, etc., and every thing was "cash down," which always reduces the cost. The following is a copy from the account-book for one house first described above: Digging cellar and grading, $42*; cistern, $37; stone sills for door and windows, $9; mason's brick-work for cellars and chimneys, including materials, $344 (brick $9 per 1,000); lath and plastering (hard white finish throughout), cornices, center-pieces, etc., $364*; timber, lumber, including moldings, etc., and delivery, $560*; carpenter's work, $417; stairs, newels, piazza steps and railing, $116*; vault and privy, lattice around it, and grape-arbor, $76*; painting, $203; felt for lining siding, $12; windows, sash, glazing, frames, and blinds (unpainted), $168; doors, $67; tinning roof, piazza, window-caps, and leader pipes, $108*; gas-pipes throughout house, and to street curb, $36**; marble mantle, $25*; summer piece, $7*; heater-pipes, iron lath and registers, $30**; hardware, as nails, hinges, locks, bolts, etc., $106; sidewalks, $24**; picket-fence and painting, and board fence in rear, $110**; cartage and freight, $37; iron sink and cistern-pump and pipe, $16; drains, etc., to street sewers, $60**; cleaning, and coal for drying, $16**; interest and insurance while building, $89; sundry small items not included above, $14. **Total, $2,993,** exclusive of land. The items marked* would be materially modified by locality, and by style of house and finishing; while the items marked ** could be thrown out entirely in ordinary country houses. In many localities, a plain dwelling, having all the room of this one, could be put up for considerably less than $2,500. With stone and sand at hand, and with shingle roof, $150, or so, would be saved in these two items alone.

A smaller house, 21x28 feet, with the rooms a little smaller, but otherwise entirely like the above, will cost $2,500 to $2,600. The figures are not all in yet. The cost of these could be considerably reduced, as noted in the starred * and ** items above. The Farm-House, 21x28 feet, with attic, but omitting the double-starred ** items and some others, and having some of the materials on hand, cost $2,100 to $2,200 Another $100 to $200 could be saved in marble mantle, summer-piece, interest, cartage, etc. A very commodious dwelling can be put up of this size for just about $2,000 for the house alone.

Building and Thatching Stacks.

—A correspondent at White Plains wonders why we do not build good, large stacks of hay and thatch them. We have often asked ourselves the same question, but without getting any satisfactory answer. There are probably several reasons. Labor is scarce and high; and hay, when the country was new, brought a low price, as compared with labor, hence it did not pay to take that care of it which is practised in Europe. Then, boards were comparatively cheap, and enterprising farmers found it more economical to build barns for storing hay than to take the trouble of making good stacks and thatching them. The poor, enterprising farmers were the only ones that built stacks, and they had not the skill or the energy to build good ones and thatch them. *Now*, boards are costly and hay commands a good price, and it would pay well to take pains to build good stacks and thatch them. For our own part, we prefer barns; but not having sufficient barn room the past season, we have thatched all our hay-stacks, and can confidently recommend the practice. We hope never again to let a stack of hay go without thatching. A stack, if of good size, can be thatched for less than 25 cents per ton, and the hay keeps quite as well as in a barn.

Crops that will Stand Drouth.—

J. B. Wright, of Idaho, writes: "I have a nice tract of land, deep soil, which through April, May and June is in good condition; after that, there being no rain in this country, it dries out to the depth of eight or ten inches, and only a little moist below that. I would like to know what would be best to sow on it for either hay or pasture. Would clover roots die under such circumstances?"—We think not. If the land was mulched, it would do much towards checking evaporation and retaining moisture. If the land was subsoiled, the clover roots would go deep into the ground, and stand considerable drouth. But of all forage crops, lucerne is probably the best to withstand drouth. The tap-roots frequently go down several feet into the earth, and if the land is rich enough, and the surface is kept free from weeds, an enormous growth of green food or fodder can be obtained.

Preservation of Timber, Water, and Game.—

An admirable suggestion comes from the *Syracuse Standard*, which every agriculturist, merchant, and political economist in the State of New York ought to second, and push to consummation. It involves, as we understand it, the proper supervision, care, judicious cutting and marketing of the timber on these immense tracts of swamp and timber land in the Counties of Essex, Lewis, Herkimer, St. Lawrence, Franklin, and Hamilton; the prime object being to preserve the water for the canals of the State, the timber being secondary. The result would be, that the timber would be of the first importance in less than 25 years—that the game, elk, deer fur-bearing animals, birds, and fish would be second in importance and profit to the State—and that valuable as is the water for canal and river navigation, it would occupy the third place as regards the State finances.

Three Horses Abreast on a Mowing-Machine.—

H. E. H. We know of no way of doing it without having two poles. It must be very heavy grass, or a poor machine, that needs three horses. Better let one of the horses rest while the other two are on the machine, and change at dinner-time and lunch.

Preparing Land for a Garden.—

"Z. F. H.," of Illinois, writes: "I want to prepare ground for a garden, and have but little barn-yard manure, but a good many ashes, and can get lime at $1.25 per barrel. My land is clay. Would subsoiling be permanently beneficial? Have any quantity of forest leaves handy. Now, what course should I pursue to bring my ground into proper condition?"—First, dig some holes, three feet deep, in different parts of the land, and if water comes in and remains, the land needs underdraining, and you cannot have a good garden until it is thoroughly drained. Make a compost of the leaves and manure, turning it over from time to time, to favor fermentation. Better *buy* manure than lime at the price named. Use the ashes freely,—say one bushel on a square rod, and work them thoroughly into the soil. Plow, cultivate, harrow and plow again, and then cultivate and harrow and work the land until it is reduced to as fine tilth as possible, and then plow in the composted manure. Keep the crops clean, and as soon as you have an opportunity, plow, and keep plowing as often as possible. With clay land, this is the great secret of having a good garden.

How Much Plaster Per Acre?—We have given from one to two bushels per acre as the usual quantity. When plaster is cheap, and when the sowing costs more than the plaster, we would sow not less than two bushels, and when plaster is expensive, not more than one bushel. L. J. P. says the farmers in Summit Co., Ohio, sow only one bushel on three acres. It is their opinion, that while a larger quantity will produce a greater growth of clover for a few years, yet if continued the land gets poorer, and in process of time the plaster fails to have any beneficial effect. "One of the best farmers in the county says he would not sow any plaster at all. He puts manure on a clover sod and plows it under, and thinks this better than all the plaster he could buy—and it is a fact that he raises the best crops of wheat, corn, oats and barley of any farmer in the township." He would probably raise still better if he sowed a little plaster on his clover. He gets good crops because he is a good farmer, and works his land well, and makes and applies good manure, and not because he does not use plaster. The others fail, probably, to get the full benefit of the plaster, because they depend on it alone. They should use the plaster simply to get more clover, and then use this clover to make more manure. If the increased crops produced by the plaster are fed out on the farm, its employment will enrich rather than impoverish the land. It is the abuse and not the use of plaster that is injurious.

"The Practical Poultry Keeper."

BY LEWIS F. ALLEN.

"The Practical Poultry Keeper," by L. Wright, Orange Judd & Co, New York, as its title imports, is truly a *practical* work. Compact, concise, yet sufficiently explanatory, it treats upon the most important items connected with poultry in general, from the egg through all the stages of progress in the bird, until its final destination to either the table or whatever other purpose it may be assigned.

Whenever *original* composition is adopted, it is nicely written, or compilations are made from other authors, the matter is well selected. It is modern, too, in its arrangement; the current classification of breeds, with their individual characteristics, being well and accurately defined, so that the amateur, the fancier, and those who keep poultry simply as an item of domestic economy, need make no mistake in their selection, or be at a loss to know what they may obtain or breed. There have been many poultry books written, both in Europe and America. One ponderous in size, and exhaustive in subject, like Tegetmeier's, showy in binding, and too costly in price for the common reader; others of less assuming pretensions, but good in their way, like Bement's; still others, compilations chiefly, by those knowing little of the subjects of which they treated, and not leaving the reader much wiser, in a practical way, than when he started. Yet, some of the latter have proved useful in imparting primary instruction, and cultivating a taste for breeding and improving the various kinds of domestic fowls. The work under notice is a late English production, made up by the hand of a master; one well knowing what he was about, and valuable throughout in its instructions.

We have looked over the book; *read* it, indeed, with considerable care, and, comparing it with a fifty years' experience of our own in the poultry line, it merits our decided approbation. We cheerfully recommend it as good authority for all those who think a book of this character worth consulting at all.

When a boy of seven or eight years, or thereabouts, we brought home our first pair or so of chickens, for which we had "dickered" with a neighboring school-fellow, whose parents had a yard full of them at home, and essayed our first venture in the poultry line. Succeeding during the first season in rearing a thrifty progeny from them, we added thereto in the duck and guinea-hen line; and as our boyhood grew, we found ourselves the proud owner of a populous poultry-yard with many varieties. We lived in the country, of course, city boys seldom having the opportunity of keeping fowls. The ignorant louts of the neighborhood, who had nothing but scraggy dung-hills at home, used to jeer us for our pains, but we happily survived it. Our father going on business to New York, we besought him to buy a *book* which treated of poultry, that we might be instructed in the science and skill of breeding and caring for them. We felt wofully disappointed on his return, as we remember, to find that no such book could be obtained. And such was the fact. He had searched high and low through all the book-stores, and could get nothing of the kind. Indeed, we had grown into stout, mature manhood, before the first poultry-book greeted our eyes; and what a feast we had for a long time over it! We are especially thankful to the many kind authors who, in this line, have become benefactors by improving their knowledge and tastes in these matters.

And with this modern poultry literature the taste for poultry cultivation has improved until it has become in fact one of the fine arts. Both men and women of mark and position have imbibed a taste for our finer breeds of poultry that will never be eradicated, while each younger generation will follow in a recreation, if not a pursuit, fraught with so much interest and pleasure, as well as adding largely to the luxuries of the table and household economy with all good livers. But we have written enough, and more than was intended when we sat down to notice the little work in hand. We heartily recommend it to the public as one of the best works on the subject we have seen.

Shallow Drains are better than None.

While we are firm believers in the economy and the effectiveness of deep drains, even in heavy clay soils, we have seen enough to convince us that those who, from lack of means or time, or on account of an insufficient outlet, find deep draining impracticable, will still find it to their material advantage to make shallow drains wherever the necessity for drainage is apparent. The first requirement of all is to get rid of the water that stands on the surface of the soil, for this brings absolute death to all vegetation. A simple plow furrow, to remove the water that accumulates in a depression of the surface, will often produce more beneficial effect than the same amount of labor applied in any other way. Next to surface water comes a sort of surface springiness, a superficial ooze, or water retained near the surface by a dense hardpan subsoil. Frequently this water collects in basins of the subsoil, and a shallow underdrain will effect its removal.

If a farmer does not feel justified in thoroughly underdraining any field that is too wet, he may at least be able to lay a few lines, two or three feet deep, running through the worst spots of the field, without much reference to its general conformation, and thus at least remove the most evident source of his inconvenience and loss.

Let it be distinctly understood that we do not recommend this practice for adoption in any case where it is practicable to do any thing more; but there is no reason why a farmer should suffer year after year from an annoyance that it is in his power to lessen, because his circumstances will not allow him to entirely remove it; occasionally a large tract of land lying on the slope of a hill, or at its foot, is made too wet for profitable cultivation by an underground spring, through which a water stratum in the higher land finds vent. In such cases, by digging straight into the hill—cutting some distance into the water seam—the flow may be induced to seek the artificial outlet; and in such a case even a shallow surface drain may carry the water away without allowing it an opportunity to do harm.

Water for Cattle in Winter.

This question affects the farmer's purse much more seriously than is commonly supposed. The common resort, even for those who shelter their animals, is the neighboring brook or pond, where a hole is cut through the ice every morning. There is often a long drive to this spot, and the cattle waiting for one another shiver in the keen winds for an hour or more, to get a chance to drink water at a temperature of 32°. This ice-water has to be warmed in the animal's stomach by the combustion of hay and grain. Of course all the food consumed in restoring this heat, lost by exposure and by the ice-water, is so much wasted. If an ox drinks three gallons of ice-water, when he might have spring-water at 50°, he wastes all the carbon it would take to raise three gallons of water from 32° to 50°. And this carbon is not in the shape of coals or wood, but in the much more costly form of food. We might estimate very accurately just how much is lost every day. But it matters very little for the argument, for it is clear that it costs no less than if the fodder were burned under a boiler and so made to produce the same effect. Every one can see that this small daily loss amounts to a considerable sum in the course of a foddering season of six months, and if this sum is multiplied by the number of stock kept, it amounts to an appreciable share of the farmer's fodder, and may make all the difference between loss and profit in the year's operations. We want, if possible, to have water for our cattle to drink at the temperature of well-water, or as near to 50° as may be, and to have it brought into the yard, or into their mangers. This may be done in several ways, and the method to be adopted is generally best determined by its cost. The cheapest method is usually to introduce spring-water where a sufficient fall can be had within a reasonable distance. Even though its first cost for pipe be a good deal, it is the cheapest in the end. When once well laid, it is a job done for a lifetime. The water is brought just where it is wanted, and there is no more labor nor expense about it. The next best thing is to bring water from a spring below the grade of the barn—either by a water-ram or by a windmill. Neither of these is very expensive, and the result is just as good, minus the cost of the ram or the windmill, and of keeping the apparatus in repair, and some loss of heat in the water. Another device is to build a large cistern to catch the rain-water from the roof of the barn. This can be done profitably wherever the cistern can be covered to such a depth in the bank as to keep the water at the temperature of spring-water. If the bottom of the cistern be so high that the water can be drawn as wanted through a stop-cock into the trough or mangers of the cattle, all the better. If a pump has to be used, there is no advantage in a cistern over a well, where water is within twenty feet of the surface. If

there is porous, gravely subsoil, the driven-well offers an effectual method. An iron pipe, suitably pointed, is driven down below the water-line, and will give just as good a supply of water as a well curbed with stone or brick to the same depth. The first cost of the driven-well is much less than any one of the other methods. The great objection to it is the cost of pumping the water, which, for a large stock of cattle, would be two or three hours' work every day. But even this expense would be better than drinking ice-water three months in the year. It is manifest from this brief consideration of the different methods of supplying water for stock, that the elevated spring is altogether the best, and in most cases a man can better afford to lay a pipe a half-mile in length than to get his water by pump or windmill. If the whole cost were $500, the interest of that is but $35 annually, and this would not go a great way in supplying labor at the pump-handle, or in keeping machinery in repair. At any reasonable price we want spring-water brought into the barn or the yard, where cattle can help themselves. It will pay a large interest on the investment.

The Alkaline Soils of Colorado.

A correspondent of the *American Agriculturist* in Bent Co., Colorado, writes as follows: "We have some peculiarities of soil in Colorado which I do not understand. In some places on this Arkansas River the alkali is so thick on the ground it looks like a light snow, and can be scraped up, and sometimes there is no grass at all; and when very dry, as it often becomes here, large cracks come in it. In other places the grass is short or fine, but stock do n't seem to like it.

"In the East we would call it a stiff clay; here it is called adobe. We depend entirely upon irrigating our crops, and this soil needs watering oftener than any other. That which is brought into subjection, which is not the worst, is better adapted to wheat than almost any other crop. I should like to know the best way to treat it, to overcome the excess of alkali. On some farms it is predominant, but there is a great deal of rich, sandy soil, which grows the largest root crops I ever saw, and vines seem to grow almost spontaneously, and no bugs trouble them.

"It is difficult to raise potatoes here in Southern Colorado. Some years they do well, and others, as last year and this, the tops are thrifty and look well, but there are no bottoms; two years ago they were a success. Can you give us any hint through the *Agriculturist* that will be of practical benefit to us?"

We can give no advice on this subject. If we might hazard an opinion on theoretical considerations, we should think, if not altogether too costly, underdraining would be the best remedy; then, after draining, thorough cultivation, and then irrigation. Unless the land is naturally or artificially drained, we lose three-fourths of the benefit to be derived from irrigation. This, so far as we know, is universal experience. We suppose the alkali is carried up out of the soil by water, which, on evaporating, leaves the alkali on the surface. Underdraining, by carrying off the water below, would do much toward preventing this deposit of alkali. Mulching would also do the same. The thorough cultivation of two or three inches of the surface soil would check evaporation. This loose soil, in fact, acts as a mulch, and is probably the cheapest mulch that can be used in this case. The fact that the clay soils need more irrigating than the sandy soils, indicates that they need draining and more thorough cultivation. If well drained and cultivated they would need less irrigating, and would probably prove exceedingly and lastingly productive.

We should like to know more about the trouble with the potatoes.—Eds.

Vegetables, New and Old.

We believe that the settlement of the much-discussed question of "How to make Boys stay on the Farm," will, in part at least, be found in the garden-patch. No sensible boy will be contented with poor fare; good fare can only be had with a plenty, and a good variety of vegetables; therefore we advocate, as one means of making home attractive, greater, far greater attention to the garden than most farmers give. We know that we cannot convince some that there is more profit in a half-acre of kitchen-garden than there is in several of corn or wheat, but it is not the less so if health and comfort are regarded as of any account.

The new catalogues have come, and we have looked them over. We welcome with pleasure any new shrub or flower that will make our borders brighter, but it is with far greater pleasure that we notice a new vegetable that promises to excel in excellence any that we now have. The catalogues have to us all the charm of a new novel. They are of three sorts. First, we have catalogues of vegetable seeds only; a plan to be highly commended. Then, we have those in which vegetables are put first and the flowers come afterward; we make our best bow to these. Lastly, we have catalogues in which the vegetables ignobly come last; but as in these the list of seeds is usually a very good one, we forgive the authors, and wish they may do better another year. There are many old varieties of vegetables that have stood their ground for years, and it appears very unlikely that they will be superseded, while with others there is frequently great improvement in either size, earliness, or other important quality. While we advise those who grow for home use only to place their main reliance on well-tested kinds, we would encourage a trial of such new things as come well recommended, provided one feels able to risk the chances of the failures, which, of course, must sometimes occur. In our "Calendar," or Notes about Work, we usually mention the standard sorts of each vegetable, and we wish here only to enumerate those which are now offered as novelties.

Beans.—Dwarf Wax.—We tried this variety last year and can highly commend it. It is for snaps only. French Asparagus, Pole, are highly spoken of.

Beet.—The Egyptian, sparingly tried last year, has proved itself of great value. Bastian's Extra Early Red Turnip (there's a name!) is introduced this year by Dreer, of Philadelphia, as superior to other early kinds.

Cabbage.—Early Wyman was tried and approved last year. Vick offers Fearnought, which he says the English claim to be the earliest of all cabbages, but he does not indorse the statement for this country.

Cauliflower.—Henderson & Fleming offer the Autumn Giant as a valuable late sort.

Corn.—Moore's Early Concord is put out by Gregory as a superior variety; and Vick has Early Minnesota and Russel's Prolific—varieties claimed to be very early.

Cucumber.—Sooly-qua.—Here ought to be a *novelty*, as Thorburn asks $1.50 a seed. It is from China, and is eaten cooked.

Lettuce.—All the Year Round is offered by Bliss & Sons as a variety not liable to run early to seed, and Dreer has much to say in praise of the Hanson.

Melon.—The Valparaiso and New Mexican are upon Thorburn's list of novelties, and said to be of good quality.

Peas.—Every year many new peas are offered. We always put in a plenty of Carter's First Crop, Little Gem, and Champion of England, and try the new ones which have not as yet induced us to give up the old sorts. The leading novelties this year are Alpha, Laxton's Quality, Laxton's Quantity, Kentish Invicta, Hundredfold, etc.

Sprouts.—Dalmeny. Said to be a cross between Brussells Sprouts and Savoy Cabbage, and valuable for hardiness.

Tomato.—The Trophy, of which we have already spoken in high praise, is now to be had at a low price, as will be seen by advertisements and our special premium list. The Currant Tomato is pretty, and will serve for pickles.

Ogden Farm Papers.—No. 15.

Either the types or my pen made a mistake in the January number. What I should have said was that the manure resulting from the consumption of a ton of hay is worth $6.43 (gold)—not that it is worth this much *per ton*.

The correspondent who calls my attention to this error, urges me never to stop preaching "soiling;" and he says he has "fed nine head of full-grown stock for eight weeks off less than two-thirds of an acre of corn drilled for soiling." This is equal to feeding five cows one day from a square rod. If the corn were drilled at 3 feet intervals, it would allow about one lineal rod or row, daily, for each cow. This is a large story, but I fully believe it—and the fact that it is possible is worth all that could be written in a year to prove the economy of soiling.

In the November number of these papers I spoke of a neighbor who gets a very large produce from very little land. I stated the facts as I understood them, and as nearly accurate as I could make them without prying too closely into other people's business. If anybody thinks it nice work to write for an agricultural paper, I would be glad if he had written this statement. It would have cured him. I have had letters about it from all parts of the country. No one has told me I lied, but some have evidently suspected it; many have considered me deceived, and many more have asked for the minute details of my neighbor's management. At last, in pure self-defense, I called on him and told him my troubles. He frankly said that he had no objection to my knowing and printing the whole story. He naturally objects to having his name published, but it will be given to any one who desires it from other motives than curiosity.

To begin with, then, his farm contains—not 28 acres—only a little more than 26. It is a part of his business to buy and sell cows, so that his stock is constantly varying. It has run, during the past year, from eighteen to thirty head, averaging, probably, twenty-five or twenty-six. Money made or lost on the cows is not included in the farm accounts. He makes

it a practice to take all the calves his neighbors would otherwise "deacon," put them on to nurse cows, and grow them to good veal condition. He also keeps a few sheep. I was not quite correct in my account of the pasture; it contains 12 acres instead of 14. I judged of the stock it carried from what I had often counted in passing it. I asked him the other day what was a safe estimate of the average number pastured in this field throughout the whole season. He answered, "*twenty head.*" I replied that this was equal to soiling. He evidently thought that it was better, but he has never tried soiling. After going over the whole ground in detail, he gave me the following statement of his actual cash sales for the year 1870. He bought some grain and hired some pasture—enough, on a fair calculation, to balance the cost of keeping his teams at home, so that these sales are to be taken as covering the whole product of a little more than 26 acres of land.

CASH SALES FOR 1870.

		Amount Brought.	$2,318.85
Eggs	$144.20	Carrots	$43.00
Turkeys	96.00	Beets (Mangel)	150.00
Chickens	66.25	Turnips	100.00
Butter	166.00	Round Turnips	43.00
Cream	235.20	Calves	665.00
Milk	795.95	Pork	234.00
Potatoes	687.25	Lambs	144.00
Tomatoes	50.00	Wool	48.60
Onions	78.00	Squashes	12.00
Am't Forwarded.	$2,318.85	Total	$3,758.45

A few of these items are estimated in round numbers, but the estimate is under, rather than over, the truth.

The only remarkable thing about this showing is the number of cows kept on the place; but any farmer of strong land knows that with high manuring this is possible.

The total produce of the cows in butter, cream, milk, and calves, amounted to $1,862.15, which, divided among twenty-five head, gives for each less than $75, and the skimmed milk that was turned into pork.

The expense of carrying on the place I did not ask, nor is it especially important to my argument; for the schedule itself shows that the system of farming is such as to furnish steady work for the force employed, and to admit of economical management. The argument itself is, that it pays to make land so rich as to produce the utmost that it is capable of, for it certainly is much easier to manage 26 acres, producing $3,750, than to get the same income with the same investment for labor and manure from 260 acres; that is, to get a certain produce from one acre instead of from 10 acres; and it is my opinion that there are very few farms of 260 acres in America that produce a cash return of $3,750. Every rod of the small farm is worked at a profit; on the larger one there would be many a poor acre that would lose money the better acres would have to make up, besides some land that would not return the amount of its interest and taxes.

This illustration has an especial value, as showing the value of *high farming;* the more so because it is high farming in the "good old way." What are known as "modern improvements" find no favor on the place. There is nothing done here that is not done on any good farm in New England; but every thing is done with a will; and industry, perseverance, and thoroughness, characterize every part of the work. The cultivation is thorough and cleanly; the use of manure excessive; the feeding high; the marketing skillful, and the economy in every department complete.

A correspondent asks for more details as to the size of my steamer, and its distance from the feed-chest. He says: "I have a No. 1 (smallest size) Prindle steamer, situated about 50 feet from the feed-chest. It does not give satisfaction." My steamer is an upright tubular boiler, 7 feet high, 3½ feet in diameter, with a very strong draught. It stands about 15 feet from the feed-chest, which holds over 400 cubic feet. The boiler is gauged to a pressure of 100 lbs. to a square inch. By vigorous firing, we are able to keep the pressure at 70 lbs. while steaming, to the full capacity of a 1-inch pipe. But the evaporation is so rapid, that the full force of the feed-pump is required to keep up the water in the boiler. The steam consumed would be ample to supply a ten-horse engine. I find it, in all respects, perfectly satisfactory, being able to raise the temperature of my chest full of fodder to 300 degrees Fahrenheit in less than an hour, securing its perfect cooking in every part before the box is opened the next morning. From my experience with the Prindle steamer, I should say that a No. 1 machine, standing close to a feed-chest of 40 cubic feet capacity, would raise its temperature to about 230 degrees in the same time, and that it would require, proportionately, a much larger amount of fuel. Fifty feet distant, the result would be even less satisfactory. I doubt if there can be any economical steaming of hay at a low pressure, for the reason that we must, in any case, depend upon the mass cooking itself after the steam is turned off, which makes it important to have the temperature as high as possible—and a high temperature can be obtained only with a higher pressure than the Prindle steamer can bear. Of course I use the word economical in a relative sense. Hay can be efficiently steamed by packing it in a covered flour barrel, and inserting the nozzle of a tea-kettle into a hole at the bottom, but the process would be by no means an economical one. It necessarily costs a good deal of money to arrange for steaming, and the process requires care, labor, and intelligent supervision; so that, although a certain percentage of forage will be saved, unless the arrangements are tolerably complete, the saving will cost more than it comes to. On the other hand, with a good boiler and a good engine or horse-power for cutting, the economy is decided and undoubted, and the results are in every way all that could be desired.

What is the best way to store ice? is a question yet to be decided. It is by no means certain that the elaborate plans frequently set forth in agricultural papers are not the worst that could be devised. At all events, experience has shown that the most costly ice-houses are by no means the best. We have just filled a house, holding about forty tons of ice, that was built on a plan described in a paragraph that floated through the country papers last summer. Its theory is perfect drainage, perfect ventilation, and the free evaporation of all moisture that gets into the packing, whether from rain or from the melting of the ice-evaporation being a cooling process. The house is 13 feet square and 13 feet high, with upright joists, all around between the sill and the plate. Rough hemlock boards, with open joints, are nailed on the *inside* of the joists. The doorway on the north side is 3 feet wide, reaching from sill to plate, and closed by pieces of board slipping in between cleats. There is no floor, and the roof, which is made of rough pine boards, battened at the joints, is entirely open at both gables, so that the wind can blow freely through. In filling, about 2 feet of marsh hay was put upon the bottom of the house. On this a layer of ice was closely packed, reaching within 8 inches of the outer boarding, all around. This 8-inch space was filled with hay and trampled down. Then another layer of ice was closely fitted to the first, and hay was packed around this, and so on, layer after layer, until the house was filled to within 3 feet of the plate. All the chinks between the cakes were filled with pounded ice as each layer was put in. The last 3 feet of filling was with salt hay, well trampled down. So we have a cube of ice about 11 feet square on the bottom and 9 feet high, surrounded on all six sides by a compact mass of salt hay, and inclosed in a wooden shell, from which the evaporation of moisture will be as complete as possible. We believe that this ice will keep well. Whether it does or not we will report next fall. If it does, there can be a good deal of money saved in the building of ice-houses.

Farming, especially such farming as we carry on, is not a business in which it is possible to take an exact account of stock at the end of the year and determine the actual profits, particularly as the elements of appreciation and deterioration of both stock and soil can only be guessed at, but there are some items in which an approximate estimate can fairly be made. I can make such an estimate with reference to my Jersey cows. The cost of keeping has been, as nearly as I can estimate, something less than $50 for each full-grown cow. As I have both bought and sold cows during the year, I cannot determine the exact average yield of butter, but it has been not less than 200 lbs. for each cow of full age. This has been sold for an average price of 70 cents per pound. This brings the produce of each cow to $140—ninety dollars a year more than the cost of feeding. After making a due allowance for the cost of milking, churning, marketing, etc.—not far from $15 per cow—there is left a profit that I am willing to compare with those of any herd of *native* cattle with which I am acquainted.

The high value of my animals (from $300 to $800 each) cannot be used as an argument against me, because it is more than compensated for by the value of their progeny. I could well afford to pay $1,000 for a really first-class Herd-book Jersey, four years old. With good luck I would sell from her, by the time she was fourteen years old (supposing half of her calves to be heifers), $2,000 worth of stock in the first generation. But this is not farming, and is not to be used as a very important argument for convincing ordinary farmers, who are not so situated that they can make the sale of thoroughbred stock an important item. I think I may say, however, that any butter-making farmer can afford to pay fancy prices for his original stock—at least for a good cow and bull from which to stock a herd for his own use. By changing bulls when necessary, he can, from one cow, build up in a few years a fine herd of cattle; for animals that breed when two years old, multiply with astonishing rapidity.

I believe I have before mentioned in these papers a cow that I bought in February '68 (Fancy); she, and two of her daughters, born on the place, are to calve this spring; and I have one calf from her nearly a year old, and one from her oldest daughter, so that I shall have, with good luck, eight of the family by the 1st of May, all within a little more than three years from the time of receiving her.

Trapping the Muskrat.

The way to catch an animal is to study its habits; and if we could impress our young readers with this idea, the numerous insects which do such an immense damage to the farmer and horticulturist would soon be destroyed. The muskrat, however, is comparatively harmless. He is not properly a rat. He has more of the habits and characteristics of the beaver, but without its marvellous intelligence. The muskrat prefers a sluggish stream or pond, bordered with coarse grass, rushes, or flags; but the sides of the stream should not, in all parts, be low and saturated with water. There should be some spots where the banks are comparatively high and dry. During the summer, the muskrats live mostly in these banks, on the borders of a swamp or stream, or in hollow trees. It is here that they breed. They are very prolific, having three litters a year, and from six to nine in a litter. And the females of the first spring litter also themselves have young early the same autumn. In October, or as soon as frosty nights occur, the muskrats begin to build their houses for the winter. Much ingenuity and intelligence are displayed in the location and construction of these winter residences. They are made of flags, pond-lily tops, grass, roots, sticks, etc., cemented together with mud, carried in the mouth. Their houses are made in the shape of a dome, and are sometimes five or six feet high. Like the houses of the beaver, the entrance is under water, the muskrats diving under the water to get into them. Here they live during the winter, the family consisting of from six to ten members. If one of these houses is destroyed, the members are received in the other dwellings, and the hunters sometimes take advantage of this hospitable disposition to get several families in one hut, and so secure a large number at once. The skins of the muskrat are most valuable early in the spring, and as soon as the ice begins to disappear, the hunter commences operations. The rats are speared or shot, but the best plan is to catch them with steel traps. The muskrat is nocturnal in its habits, and while sometimes found feeding in the daytime, is usually caught at night. The hunter ascertains the feeding grounds of the muskrats from the tracks and droppings, and sets his traps in the paths. He usually takes a small, light, flat-bottomed boat, sharp at both ends, which he propels, where the water is shallow, with a pole, and with a paddle where it is deeper. He carries with him an axe, a trap-hook, some bait, traps, and gun. About sundown, on bright, warm days, the muskrats are seen swimming, and he gets a shot at them. By imitating their peculiar cry, which is like the whining of a puppy, they can be induced to come within gun-shot, and a little exciting sport can be obtained. But the main dependence is on the traps. When a log is found with some recent droppings of the muskrat on it, a notch is cut in the log for the trap, an inch or two under the water. The trap is fastened to a tally-stick, as shown in the illustration. These tally-sticks are green saplings, with a fork at the upper end, and a hook near the bottom to hold it in the loose ground. The chain-ring is slipped on to this tally-stick, and care is taken to so place the tally-stick and trap that when caught, the muskrat shall take to the water and be drowned. If on the land, among weeds and bushes, he will not unfrequently twist off his leg and escape. The traps are also placed in the runs, on bogs and old muskrat houses, and wherever there are recent indications that the muskrats come to feed. Where the game is scarce, the traps are sometimes baited, but otherwise this is not necessary. Carrots, parsnips, apples, potatoes, or a piece of the flesh of a muskrat can be used for bait. A stick is stuck in the ground, slanting in such a manner that the end shall be six or eight inches above the treddle of the trap. The bait is stuck on the end of the stick, and in this way, if there are any rats in the vicinity, you are pretty sure to catch them. Sometimes the traps are covered with an inch or two of weeds; and some trappers put a drop or two of the oil, found in the glands of the muskrat, on or near the traps. The next morning the hunter takes his boat and visits his traps. Mr. R. E. Robinson, of Vt., who made the sketch for the accompanying illustration, says: "A good trapper will tend from 50 to 100 or 125 traps, visiting them all every day. I have known a man at the beginning of the season to take upward of 40 rats out of 50 traps for two or three nights in succession. After that the catch begins to fall off. The season lasts from the 1st of March to the 1st of May. Twenty years ago it was not unusual for one trapper with 50 traps to catch 300 muskrats in the marshes of Lake Champlain and its tributaries in a fortnight or three weeks; but their number has been so diminished by trapping in the fall and winter, that the trapper is fortunate who now gets 150 in the whole season. The muskrat is usually skinned by beginning at the head, ripping from the chin to between the fore legs, and then stripping the skin off over the body. When taken off in this manner the skin is stretched on a bent rod of tough, pliable wood. When skinned, from the tail it is stretched on a

TRAPPING THE MUSKRAT.

TRAPPING THE BLACK BEAR —(*See next page.*)

board. Many years ago, when beaver skins were so valuable, muskrat skins were worth as high as 50 cents each. Then for years they were very low—from 5 to 10 and 15 cents. Within ten years, they have brought as high as 35 cents, but are now down again to 10 or 12 cents. These prices relate to skins taken in the spring, when they are in their best condition."

Trapping the Black Bear.

There are numerous species of bears, some not larger than a Merino sheep, and others weighing as much as the largest ox. The American black bear is found in all the large forests of the Northern and Western States, and Canada. They bring forth their young in caves or hollow trees, in May or June, generally two at a birth, and during this period it is dangerous to approach the dam. At other times, they will not attack a man, unless in self-defence. They are great eaters, devouring corn, oats, grass, acorns, roots, fish, flesh, fowl, and honey. They seem particularly partial to the latter, and after dining on a fat pig, nothing affords them more satisfaction than to rob a bees' nest. This rich, carbonaceous food, enables them to store up large quantities of fat during the summer and autumn. On the approach of winter they retire to a cave and take a long sleep until the advent of warm weather in the spring. Like other hybernating animals, they live during this period on the fat stored up during the previous summer and winter. It fares ill with a well-bred pig that happens to be neighbor to a bear, hungry for a breakfast, after his long sleep.

Mr. Thrasher, author of the *Hunter and Trapper*, says: "Their mode of eating the hog is to take him up in their arms and squeeze him *some*, commencing at the same time to take their dinner out of the shoulder and neck at the back of the hog, which is alive, and squealing as only a hog can squeal. A bear will carry a hog as heavy as himself. * * He is a great natural boxer, and it is not easy to hit him with a club, for he defends himself like a well-trained pugilist. He is a great hand to fight dogs, sets himself up on end and cuffs them right and left, one clip being enough to make a cripple. The bear is very fond of sweets. It is one of their curious tricks to climb a tree where bees have stored their honey, and gnaw them out; their constant growling about the bees' stings, often showing their whereabouts to the hunter. And they are often betrayed at the hog-pen by the squealing of the hogs. Nothing suits them better than to find a hog in a pen, and no one to oppose them. They will climb in and out again, hog and all." There are several ways of trapping the bear, but the one now generally adopted is to set a steel-trap near some place where the bear has been committing depredations, such as robbing a hog-pen. The trap is set, if convenient, under water, or in a swampy place, covering the trap in either case with moss, so as to look as natural as possible, and hanging a piece of fresh pig or sheep over the trap in such a way that the bear must step on the treddle in order to reach it. A short chain and clog, with three hooks, is attached firmly to the trap, which impedes the progress of the bear after he is caught. The accompanying sketch, drawn by Mr. R. E. Robinson, of Vermont, gives a lively idea of the scene, which will soon be ended on the arrival of the parties on whom the bear has being committing depredations.

Walks and Talks on the Farm—No. 87.

The Hon. T. C. Jones, one of the most distinguished agriculturists and breeders of Ohio, writes me as follows:

"Knowing you to be an accomplished chemist, and especially well instructed in all branches of that science relating to agriculture, many persons are surprised that so little of it is 'applied' in your practical management of the farm, as related in Walks and Talks."

I do not know what I have said that should lead to such a remark. I try to apply *all* the knowledge I have in the management of my farm, and feel the necessity of much more than I possess. I know nothing of chemistry compared to what I desire to know; but it is quite possible if I knew less, I might apply more. I have long abandoned all expectation that chemistry will revolutionize at once the practice of agriculture. I have no expectation of making a fortune by some chemical discovery in farming. I have never analyzed the soil on my farm to see if it did not lack some simple element of plant-food, the application of a few dollars' worth of which would double its productiveness and make a rich man of me. I know with a good degree of certainty, exactly what is wanted to make my farm rich. It needs, or did need, (1st,) underdraining; (2d,) the soil needed to be thoroughly broken up and pulverized; (3d,) the land was full of weeds and weed-seeds, and I knew I must kill the former, and cause the latter to germinate, and then kill the young plants. I have not tried any chemical mixtures to kill the weeds. I have cut down thousands of thistles in my pastures, and stubbles with a mowing-machine, and have seen it stated that if you would put a drop of sulphuric acid, or a few grains of salt, on each thistle after it was cut, the thistle would die. I have not "applied" this kind of chemistry to my farming operations. The salt and acid are not expensive, but I made a little calculation, somewhat as follows: There are 43,560 square feet in an acre, and, say six thistles on a square foot, and it would probably take about a minute to drop the acid on each thistle; if I worked ten hours a day, it would take sixteen months to go over an acre. I did not think it would pay!

I should have been a much more popular agricultural editor if I had not spent some years with Lawes & Gilbert. My experience on this great experimental farm taught me that nine-tenths of the chemical nostrums of the day had no foundation in fact or science. It was a real misfortune! A quack doctor is always more popular than a thoroughly educated physician.

Nevertheless, I am sorry to hear that "many persons are surprised that so little chemistry is applied in the management of my farm." It is not true. I apply all the chemical knowledge I have. I do not think a single day passes in which I do not find use for chemical knowledge. For instance, this morning the thermometer was 10 degrees below zero. I am feeding about fifty pigs. I steam the food for them. By putting the steamed food in a vat, and covering it up tight, it will keep warmer than if kept in small quantities in different vessels. This is a chemical fact. And when I got a large vat, and had all the steamed food put into it, and shut up close for the night, it became "*applied*" chemistry." The food keeps warm in the coldest weather. Only a few minutes ago, the man who has charge of the pigs told me the food froze in the troughs. "Then you must give them but a little at a time, and when they have eaten that, give more. Let them have all they will eat, but no more." You say *this* is not chemistry; but, in point of fact, there are several very important chemical laws involved in these simple operations; and if you will look into the matter, you will find that chemistry enters into nearly every thing that you do on the farm; and, other things being equal, the more thoroughly a farmer understands chemistry, the more he can economize his time and labor. He should apply it to little things as well as great things.

The trouble with most of our chemico-agricultural writers is, that they discuss questions very imperfectly understood, and say little of those simple, well-established principles which are applicable to the common, ordinary duties of every-day farm life. They prefer to talk about the amount of nutriment there is in cheese rather than to dwell on the importance of using *boiling hot* water to clean the milk pails and cheese vats.

Mr. Jones writes: "I have a question in regard to the nutritive qualities of common feed for stock, concerning which there is no settled opinion, and which your attainments ought to qualify you to decide. What is the difference in the nutritive value of Indian corn of the hard, white variety, as compared with a decidedly yellow variety? The latter is generally preferred for feeding and for fattening hogs. I suppose it the more valuable; but I have an idea that the white is richer in flesh-forming substances—better, therefore, for bread, and better for horses. I have tried to have this matter tested by analysis, but have not yet succeeded. My own opinion is founded chiefly on experiments and observation in feeding these grains." That is to say, the yellow is richer in oil and starch than the white. I do not know whether this is so in fact or not; a good analysis would determine this point. For my part, I should buy the corn that contained the most starch and oil, without any reference, so far as nutriment (not manure) was concerned, to the percentage of the flesh-forming substances. A very poor, immature sample of corn might contain, and probably would contain, a higher *percentage* of nitrogen, or flesh-forming matter, than a well-grown, fully-matured sample of corn. Just as a half-starved, lean ox would show a higher *percentage* of nitrogen than a well-fed, ripe one. There would not be as much nitrogen in the poor ox as in the well-fed one of the same age; but there would be more in a pound of the beef. And so in a shriveled, immature grain of corn, there would not be as much nitrogen as in a large grain, fully matured, but there would be a higher percentage. In other words, this poor, shriveled, immature corn would contain a higher percentage of "flesh-forming substances" than the richest, fattest, best developed corn grown in the Sciota Valley. And the beef from an old Texan ox would contain a higher percentage of "flesh-forming substances" than the best and ripest Shorthorn in Mr. Jones' magnificent herd.

A skim-milk cheese contains a higher percentage of flesh-forming matter than one which contains all the cream. And I could almost wish that those who write so much about the "flesh-formers," or, as one popular author calls them, the "nitrates," were compelled to live on lean Texan beef, or mutton from half-starved Merino sheep, or on skimmed cheese, until they either studied the matter more thoroughly, or ceased writing about it.

Mr. Jones further asks—"What is the value of wheat bran as food, say for cattle? The

'authorities' generally place it low, but many breeders of large experience use it extensively. What is the value of shorts and of middlings?" I cannot answer these questions, for the simple reason that we do not know how much of the cellulose, or woody fibre in bran, hay or straw, is ordinarily digested by cattle and sheep. Lawes & Gilbert's experiments on pigs show that bran is a very indifferent fattening food for these animals. Their stomachs are not large enough to digest it. The following table shows the composition of wheat bran as compared with other standard articles of food:

	Water.	Crude Fibre.	Ash.	Total non-nutritious matter.	Albuminoids.	Carbo-hydrates.	Fat.	Total carbonaceous matter—carbo-hydrates.	Total Nutritious matter.
Timothy Hay.	14.3	22.7	4.5	41.5	9.7	45.8	3.0	53.3	63.0
Clover Hay...	16.7	35.8	6.2	58.7	13.4	26.7	3.2	34.7	48.1
Wheat Straw.	14.3	48.0	5.5	67.8	2.0	28.7	1.5	32.45	34.9
Wheat Bran..	13.1	17.8	5.1	36.0	14.0	46.2	3.8	55.7	69.7
Indian Corn..	14.4	5.5	2.1	22.0	10.0	61.0	7.0	78.5	88.5

The carbo-hydrates include digestible cellulose, or woody fibre, starch, gum, sugar, etc. One pound of fat is equal to $2\frac{1}{2}$ lbs. of starch; and so, in the last column but one, I have given the total amount of digestible carbonaceous matter, calculated as starch; that is to say, I have multiplied the fat by $2\frac{1}{2}$. Thus 100 lbs. of timothy hay contain 45.8 lbs. of digestible carbonaceous matter and 3 lbs. of fat. These 3 lbs. of fat are equal to $7\frac{1}{2}$ lbs. of starch, which, added to the other digestible carbonaceous matter, make the total amount equal to 53.3 lbs. The last column is obtained by adding the albuminoids, or nitrogenous matter, to the total amount of digested carbonaceous matter, and consequently this column represents the total amount of nutriment in the different foods. According to these figures, we have the following results, estimating clover hay worth $15 per ton:

	Value per ton as food according to analysis.	Value of the manure obtained from a ton of food.	Cost of the food per ton after deducting the value of the manure.
Clover Hay	$15.00	$9.64	$5.36
Timothy Hay.....	19.63	6.43	13.20
Wheat Straw.....	10.87	2.68	8.19
Wheat Bran.....	21.70	14.59	7.11
Indian Corn	27.58	6.65	20.93

According to analysis, therefore, if the nutriment in a ton of clover hay is worth $15, that in timothy hay is worth $19.53, that in bran, $21.70, and that in corn, $27.58.

In the second column is given the value of the manure from a ton of the food consumed. After deducting this from the actual nutritive value of the food, it will be seen that while the *food* in a ton of clover hay is worth $15, it costs us only $5.36; and while the food in a ton of timothy is worth $19.63, it costs us $13.20; wheat bran is worth $21.70, and costs us $7.11. A little calculation will show which of these articles is the cheapest food, after deducting the value of the manure.

It will be seen that Judge Jones is right in his estimate of bran as food for cattle and sheep. It is unquestionably a valuable food, and in those sections where manure is needed (and where is it not?) it can usually be bought to advantage. If timothy hay is worth $26.06 per ton, bran is worth $36.29; and I believe these figures represent the relative value of timothy hay and bran with a good degree of accuracy. But when you compare bran with corn, there is another question to be taken into consideration by the grain-growing farmer, who has plenty of straw, corn-stalks, and other bulky fodder. It is certain that such a farmer cannot afford to pay $36.29 per ton for bran while he can get corn for $34.23 per ton. The corn is more easily digested than the bran; and furthermore, the nutriment in corn is more concentrated, and can be fed out to much greater advantage in connection with straw and stalks than bran can. The table shows that straw has a far greater nutritive value than it is usually found to be worth when fed out alone on the farm. Its actual value as food is $10.87 per ton, as compared with clover hay at $15 per ton. But it is certainly *not* worth half this sum to feed out alone. It is *too bulky*. The animals cannot eat and digest enough of it to enable them to take on flesh and fat rapidly. We need to feed out corn or other concentrated food with it; and in such a case as this, the figures in the table place the value of bran too high, and that of corn too low.

On my farm, I am always tempted to buy bran, when I can get it $10 per ton less than corn-meal, simply because it makes such rich manure. But this winter, so far, I have not fed out a single ton. I buy corn and corn-meal instead. And I do it for the reason above given. With well-bred stock that is growing rapidly, bran is a substitute for hay and roots, not for grain. If I was short of hay and coarse fodder, I should buy bran; but with plenty of clover hay there is little necessity for buying bran. Better buy corn. Clover hay and corn are better for fattening stock than clover hay and bran.

I say well-bred stock, and by this I mean animals that have been bred to grow rapidly. Such animals require more nutriment in a given time than animals that have been bred to grow slowly. The latter can get all the food they need from ordinary hay; but the former must have hay of extra quality, or, in the absence of this, they must be fed enough grain to bring the hay or straw or roots up to the desired standard; and this standard will be determined by the growing qualities of the animals and the size of the stomach. The animal can eat only as much as the stomach will hold; and if this is sufficient to enable it to grow and fatten as rapidly as it is capable of growing, it would be a waste of food to give grain in addition, and would be deleterious to health. But if the animal is capable of digesting more food than the stomach will hold, it is a great loss not to furnish it. And we do this either by providing richer hay, or by substituting more or less grain in place of a portion of the fodder. In such a case it would be cheaper to feed corn than bran, even if the nutritive matter in the corn cost considerably more than that in bran. Nevertheless, I think very highly of bran, especially for milch cows, and for breeding ewes. It is the best substitute for roots that we have. But if the animals can stand it, I would give more or less grain in addition.

The Kansas *Farmer* says: "'Walks and Talks,' in the September *Agriculturist*, advises sowing two bushels to the acre of wheat. We would call this pretty heavy seeding, out West here, and we believe our soil will stand a heavier seeding than the soil of New York will. We have advocated a heavier seeding of oats than our farmers generally give, and have thought that the seeding for wheat could be slightly increased with profit, but we believe that 'Walks and Talks' has rather over-reached the mark. We are free to confess, however, that we have never *tried* two bushels per acre, nor have we ever seen it tried. * * * Five pecks have been the rule among the wheat growers of Indiana, Ohio, and Michigan, and that rule has rarely been infringed upon. In Kansas and Missouri some of our *best* wheat growers *have* used as much as six pecks of seed. We would like to hear from 'Walks and Talks,' if he has ever *used* two bushels of seed, and, if so, was it thinned by winter-killing or any other cause? And what was the yield of the crop?"

I have now between forty and fifty acres of winter wheat drilled in at the rate of two bushels per acre; and I have sown at this rate for several years, sometimes getting on a little more and sometimes a little less. I do not think my wheat has ever been injured by being too thick. The Deacon sows only a bushel and a half, and some others only five pecks. I sow later, and put on a little more seed. Some of them sow as early as the last week in August. I do not care to sow earlier than the 10th of September, and from that to the 25th. The Hessian-fly, which has not troubled us for many years, seems to have returned, and of course early sown wheat will be the most likely to suffer from its attack. On the other hand, to avoid the *midge* we want our wheat to ripen early, or perhaps more correctly speaking, to come earlier into flower. I have an idea that *moderately thick seeding favors early ripening.*

But after all that has been written on this subject of thick and thin seeding, and the numerous experiments that have been made, there is a great diversity of opinion on the point. And the old question, as to whether rich land or poor land needs the most seed, is still in dispute. I suppose from the remark that "our soil will stand a heavier seeding than the soil of New York," the editor of the Kansas *Farmer* thinks that rich land requires heavier seeding than poor land. I have always taken the other view, so far as wheat, barley, and oats are concerned, but not in regard to Indian corn. Within certain limits, the richer the land the more plants of Indian corn can be left on an acre. But with wheat, the richer the land the more the plants will stool out and the less seed will be required.

But I suppose a good deal depends on what we understand by rich and poor land. What I mean by rich land is a soil that contains sufficient plant-food, in an immediately available condition, to produce as heavy a crop as the season is capable of bringing to perfection. In other words, on rich soil it is the character of the season that determines the yield per acre. And any land that, from lack of available plant-food, can not produce as large a crop as the season is capable of maturing, is poor land. If the season is capable of maturing 40 bushels of wheat per acre, and the land is capable of producing only 30 bushels, that land is poor. If the season is capable of maturing only 30 bushels per acre, then this same land would be rich. Now, when we say "the richer the land the less seed we require," we refer to land capable of producing more wheat than the season is capable of maturing. On such land, containing an *excess* of available plant-food, the greater this excess the less seed, within certain limits, should we sow. One bushel per acre would be better than two bushels. And though it seems paradoxical, I think it may be true that the *poorer* the land the less seed is required. Land that is capable of producing only 5 bushels of wheat per acre would require less seed than land capable of producing 10 bushels, and this less than land capable of producing 20 bushels. Very rich and very poor land should be thinly seeded; but on medium land, such, say, as is capable of

producing from between 25 to 30 bushels of wheat per acre, I should sow two bushels of seed—a little less perhaps if sown early, and the soil was moist, warm, and in fine tilth.

John Johnston advocates thin seeding, but his land is thoroughly underdrained, in fine mechanical condition, free from weeds and rich in available plant-food. When, by growing clover and feeding it to sheep, I get my land as rich as his I shall probably sow less seed, but not till then.

Two years ago I sowed a ten-acre field of barley, that had been "fall-fallowed," at the rate of 1¼ bushels per acre, and another field of 14 acres, at the rate of 2½ bushels per acre, and I had more barley from the 10 acres than from the 14 acres. If I recollect right, the thin-seeded field yielded nearly 50 bushels per acre, and the other about 33 bushels per acre. Now, this proves nothing in regard to the advantages or disadvantages of thick or thin seeding. I expected no more than I got from either field. It was the condition of the land and not the amount of seed that determined the yield. If I had sowed 2½ bushels per acre on the rich land, the season proving to be a very wet one, the crop would have fallen down and I should have got little or nothing but straw. Had I sown 1¼ bushels per acre on the poorer field, I have no doubt (though I have no proof) that I should have got a less yield than I got with 2½ bushels. I do not know how it is "out West," but here, in the Middle States, I think the error is in sowing too little rather than too much seed.

But a still greater and more prevalent error is in not getting the land rich enough. In this section, the farmers, as a rule (though there are far too many exceptions) put the land in good

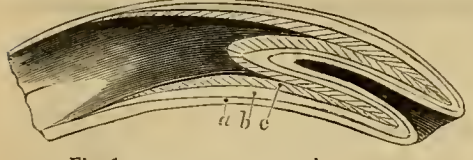


Fig. 1.—SECTION OF HORSE'S TOOTH.

mechanical condition for the seed. They make it very smooth and mellow on the surface. But they do the work in too short a time, and get comparatively little benefit from the decomposing and fertilizing influence of the atmosphere. The fields *look* very smooth and nice. The wheat is sown early, and presents a handsome appearance in the autumn, but does not come up to expectations the next spring and summer. It is not rich enough. On heavy clay land we must summer-fallow more, breaking up earlier in the spring, or the fall previous, and doing the work more thoroughly. On lighter land, that does not need summer-fallowing, we must grow more clover, manure higher, and grow grain crops less frequently until we get the land rich. Then, if you are afraid the land is so rich that the crop will fall down, sow less seed, and do not sow too early. If I had land that I thought was not rich enough to produce 15 bushels per acre, I would not sow over 1¼ bushels of seed (and if I acted wisely I should not sow at all). If I had reason to suppose the land rich enough to produce 30 bushels per acre, I would sow 2 bushels per acre. If I thought it rich enough to produce 50 bushels, I would not sow over 1¼ bushels per acre—perhaps only one bushel.

And I am not sure that the same principles will not apply to corn. On *very* poor land plant thin, on rich land plant thicker; and if there ever is a case where the land is too rich for corn, plant thinner again. But I have never known an instance of this kind. Practically, we should plant thicker as the land is richer. I think you will find that all the great corn crops that have been reported have been planted thicker in the rows, one way, than usual. And hence I advocate drilling in corn on very rich land. But on poor land that will not yield over 70 bushels of ears per acre, I would plant in hills, three and a half feet apart each way, and three or four plants in a hill.

Fig. 2.—UPPER NIPPERS OF A 4½-YEAR-OLD COLT.

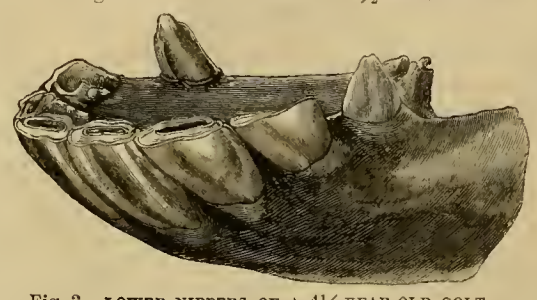


Fig. 3.—LOWER NIPPERS OF A 4½-YEAR-OLD COLT.

Horses' Teeth.

There is no disputing the convenience of horses' teeth as a means for ascertaining the age of the animals; but they perform a much more important office. No contrivance of art is so perfectly fitted for its destined use as these are adapted to theirs. It is worth one's while occasionally to study the admirable mechanical contrivances by which animals perform their various functions with ease and rapidity. The ruminants, cows, deer, sheep, etc., bite off the herbage by pressing their incisor or cutting teeth, which are in the lower jaw, against an elastic, firm, gristly cushion, which is in place of teeth upon the upper jaw in front. Of course the bite is decisive, the grass yields, and not a spear or leaf can pull through. When two sets of teeth opposed to each other, however, if like those of a man or a dog, grass would be likely to draw through and little really bitten off. In the structure of horses' teeth this is overcome by giving the teeth rough faces like those of the jaws of a pair of pincers. Such a distribution and alternation of enamel and bone is made that a most admirable surface for taking a tight nip is produced. Such a tooth must necessarily wear faster than one the surface of which is a thick, solid plate of enamel. And consequently there is provision for its renewal in the growth of the tooth, which continues throughout the life of the horse.

An idea of the structure of a horse's front teeth may be had if we suppose each tooth to have been once plastic and conical, hollow within, and composed of but three layers, which subsequently form the tough crust of the outside, the hard enamel next it, and the dentine or bony mass within surrounding the cavity. Now let us suppose the point of this conical, plastic body to be pushed inward into the cavity within the tooth, just as we can draw the toe of a stocking into the same. Figure 1 shows how this is. Here one of the incisors or nippers is represented split lengthways. The tough *cement* or crust, *a*, is seen upon the outside passing over the edge, entering and lining the cavity. The *enamel*, *b*, follows the cement, and the ivory or *dentine*, *c*, is reflexed upon itself. The grinding of the teeth upon each other, and upon grit contained in their food, soon wears them to a nearly flat "table," which will of course remain irregular on its surface so long as it is composed of substances varying so much in hardness—the dentine of course wearing down and leaving the enamel and cement exposed to greater wear. The horse sheds his first pair of milk-teeth when coming three years old, and they are replaced by the two central incisors or nippers; the other two pairs of nippers follow, and by the time the animal is 4½ years old, all the permanent nippers are in sight, and the middle ones of both jaws show some wear. Fig. 3 represents the lower nippers of a 4½-year-old horse, and fig. 2 the upper jaw of the same, which always show least abrasion. The sharp edges of the outside pair may be distinctly seen, and the dark cavity in the centre with its irregular edge. This cavity is called by horse-men the *mark*, as it forms a black mark, edged with white, in the center of each of the nippers, until a horse is about 7 years old, then it nearly or quite disappears from the two middle nippers of the lower jaw, and subsequently from the others. In a four-year-old the mark will take the fine point of a knife to the depth of about half an inch, and this much of the tooth must, of course, all be worn away before the tooth presents the ap-

Fig. 4.—UPPER NIPPERS OF A 6-YEAR-OLD.

Fig. 5.—LOWER NIPPERS OF A 6-YEAR-OLD.

pearance shown in fig. 6. The engravings, figs. 4 and 5, represent the upper and lower nippers

Fig. 6.—UPPER NIPPERS OF AN 8-YEAR-OLD.

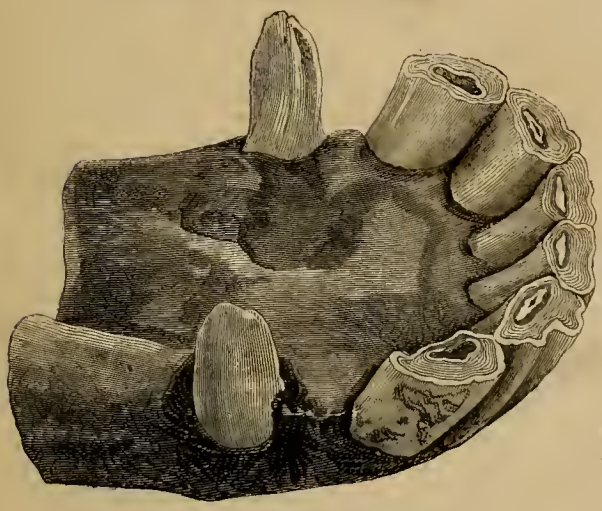


Fig. 7.—LOWER NIPPERS OF AN 8-YEAR-OLD.

respectively of a horse between 6 and 7 years old; and figs. 6 and 7 of a horse about 8 years of age.

A Question for Pig-Feeders.

Z. F. Hopkins, Ill., writes: "We wish to submit to you for settlement the following question: Can shoats be fed with as much profit to the feeder as grown hogs? To be more explicit, A takes B's pigs—say seven to eight months old—to fat on halves. Now, the question is, can A feed them with as much profit as though they were full-grown pigs?"

REMARKS.—We would submit the question to our readers, remarking, at the same time, that if we understand the question aright, there can be no doubt that the full grown pigs *may* be fattened "on halves" with the most profit. If A should give to B a 300-lb. pig, worth, say $15, to be fattened on halves, and to C a 200-lb. pig, worth $10, and they should be sold the next day, it is evident that B would get more for his food than C. B would get $7.50 for one day's food, and C only $5.

But if the pigs weighed alike, it is not such an easy matter to answer the question. One thing, however, is clear: the shorter time the feeder kept them, the more he would make. If he sold them the day he got them, he would get half the value of the pigs for nothing. We presume there is, in practice, some restrictions in regard to this point. Let us assume that A has two litters of pigs, of ten each. Lot 1 are well-bred pigs, that have had good care, and at 7 months old weigh 200 lbs. each. Lot 2 are 14 months old, and also weigh 200 lbs. each. B takes them to fatten, and agrees to give them good care and all the food they will eat for ten weeks, and receive half the proceeds of the pigs for his trouble and food. Which lot would afford B the most profit?

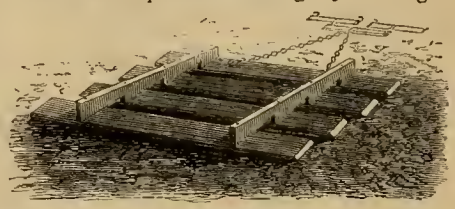
We do not know of any experiments that enable us to answer this question; and if any of our readers have made such, we shall be glad to hear from them. Professor Miles, of the Michigan Agricultural College, put an Essex barrow pig, 11 weeks and 6 days old, in a pen June 30, and fed it all the corn-meal it would eat for nineteen weeks, or until Nov. 10. At the commencement of the experiment the pig weighed $54\frac{1}{2}$ lbs. In the nineteen weeks it ate $409\frac{3}{4}$ lbs. of meal, and then weighed $145\frac{1}{2}$ lbs., or a gain of 91 lbs. In other words, $4\frac{36}{100}$ lbs. of meal gave 1 lb. of increased weight.

At the same time he put in an adjoining pen a Suffolk barrow, 11 months old, that weighed 204 lbs. In nineteen weeks he ate $796\frac{1}{2}$ lbs. of meal, and then weighed $369\frac{3}{4}$ lbs., or a gain of $165\frac{3}{4}$ lbs. In other words, $4\frac{8}{10}$ lbs. of corn-meal gave 1 lb. of increased growth.

With the young pig, it required a ton of meal to produce $458\frac{3}{4}$ lbs. of increase; and with the older pig, a ton to produce $417\frac{3}{4}$ lbs. of increase. So far as this experiment throws any light on the matter, therefore, a young pig will grow faster for the food consumed than an older one. And this result accords with the previous experiments made by Professor Miles, as given in "Harris on the Pig." There can be little doubt that, as a rule, young animals eat more food, in proportion to live weight, and increase faster, in proportion to the food consumed, than older animals. This system of fattening pigs "on halves," though formerly not uncommon with distillery men, is now seldom, if ever, practised in this State, and we should be glad to hear more in regard to it. In the case we have assumed, A furnishes a pig weighing 200 lbs., at 5 cents per lb., worth $10. B gives the pig ten bushels of corn, and makes him weigh 300 lbs., worth, at 7 cents per lb., $21 A makes half a dollar a pig by the transaction, and B gets one dollar a bushel for the corn and half a dollar a pig for his trouble.—EDS.

A Cheap Clod-Crusher.

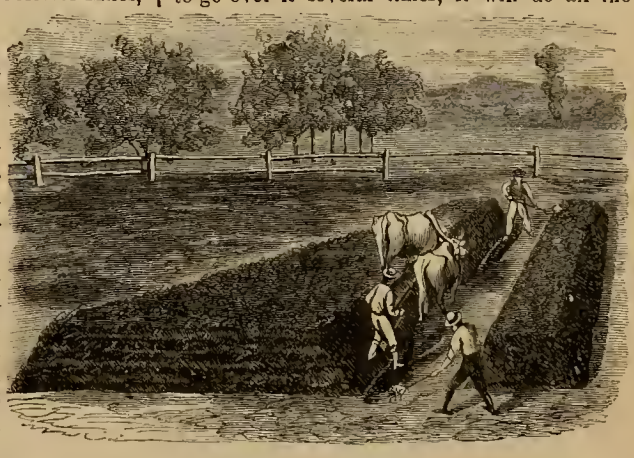
A correspondent of the *Agriculturist* favored us with a sketch of a simple implement he had constructed for crushing clods and smoothing rough land. We have mislaid his description, but no one will have any difficulty in understanding how to make and use the implement. It is made of two-inch plank, bolted on to a frame in such a way that the lower front edge of each plank is raised a little higher than the rear edge of the plank which precedes it, and eight or nine inches from it. This is done in order to avoid clogging; and, for the same reason, one of the chains is made shorter than the other, so as to draw the implement in a slightly slanting direction. If not heavy enough it can be weighted with stones, or in unusually rough spots the driver can jump on and ride.



CLOD-CRUSHER.

Turning a Compost Heap.

The object of turning a compost heap is to break up the raw lumps, to reduce it to a fine, homogeneous mass, and to accelerate fermentation.. All admit the importance and advantage of the operation, but many are deterred from its performance by the labor and expense. Are there not many cases where these can be greatly reduced by the use of the plow, as shown in the annexed illustration? We have a large heap of peat and manure, but should not object if it was much larger. There is a layer of peat and then a layer of manure. Fermentation proceeds but slowly, and we wish to hasten it. To do this the heap must be turned, and we call in a yoke of cattle, a large, reversible plow, and a couple of men to aid us in the operation. We put in the plow and turn over a furrow. It is not model plowing. But do not be discouraged. It will save a good deal of hard work. The oxen will break down the side of the heap, and the trampling serves to mix the manure more intimately with the peat, while the plow, following, turns it over. If you have to go over it several times, it will do all the more good. Three-fourths of the work can be done by the plow; but it is well to have a couple of men to throw up the loosened mass into a neat heap, taking pains to break up all the lumps and mix the manure with the peat. If the work is not as neatly performed as our artists have represented it, do not abandon the undertaking. You cannot stir the heap too much. You cannot trample it too much, provided the plow stirs it up again. Even in a large heap of manure, unmixed with peat or soil, we have used a plow with a sharp coulter to help in turning over and mixing the manure.



TURNING A COMPOST HEAP.

When and Where to Irrigate.

In the almost rainless climates of some of our new Territories, of course, we must irrigate if we mean to have any crops. But is irrigation of any use in a climate giving forty-five or more inches of rain, as we have from Maine to Texas? Under certain circumstances we answer, very decidedly, yes. It will pay to irrigate any well drained land, and within certain appreciable limits, the more water you can get to pass through the soil the better for the growing crop. It might pay to raise water by wind or steam-power under certain circumstances, but we do not think that time has come yet in ordinary farming. At least, if it has, it has yet to be proved, and some one has to pay a pretty heavy bill for the experiment. But there are many thousands of acres where the water for irrigation is already raised, and it only needs dams and ditches to turn it over these acres. There is no expensive machinery to be purchased, and after the dams and sluiceways are made, but little labor is required to turn the water on and off as it is needed. Two farmers in this State, A. B. Dickinson, of Steuben County, and the late L. D. Clift, of Putnam, have proved beyond all controversy that it pays largely to turn brooks that have sufficient fall out of their channels upon the adjoining upland. The impression that irrigation is only of service in the summer in time of drouth, is erroneous, and it is this error, doubtless, that has prevented many from investing in this cheapest form of manure. There are many brooks that run bank full in winter that are mere rills in summer. Mr. Clift for many years turned his stream over the adjoining meadows, and kept them running all winter. The crop of grass was more than doubled at once, and there was a steady increase of the crop from year to year without any other kind of manure. The impression, too, is quite common that this water-made grass is not as nutritious as that made from top-dressing with stable manure. This was also proved to be an error. The grass grows with great luxuriance, wherever the water runs, is as easily cured, and smells as sweet. If it is any less nutritious, the Shorthorn grades annually fattened upon this farm never found it out. The water furnishes the aliment the grass needs just as surely as stable manure, and probably chemical analysis would not show much difference in composition. A good deal is brought down in the sediment which the clearest of brooks have in much larger quantity than any one suspects who has never studied the subject. Fish culturists tell us that even spring water has to be filtered through five or more flannel screens, before it is fit to hatch eggs. These filters are so covered with dirt, that they have to be changed daily. Brooks, although they seem to be transparent, are much more foul than spring-water, and after every rainfall, are usually discolored with matter held in suspension. Our heaviest rains occur in winter and spring, and the amount of sediment deposited by a stream kept flowing over a meadow for six months would be very large. But this is only one source of the supply of plant-food. Water is a powerful solvent, and is all the while acting upon the stones and minute particles of soil through which it flows. It is all the while making plant-food. Of course, much more aliment for plants must be prepared, where there is flowage for six months, than there could be by the usual rainfall. Whatever the philosophy of the fact may be, there can be no doubt of the fact itself. Irrigation alone will increase the productiveness of any ordinary soil, and if persistently followed, will in time clothe it with a heavy sod. Near the Shore Line Railroad, in Groton, Conn., a deep cut was made into a bank to furnish earth for filling in a wharf, about a dozen years ago. For many square rods nothing but gravel was left overflowed by a spring. This once barren gravel is now covered every season with luxuriant grasses, and the only ameliorating agents have been the spring-water and the atmosphere. Those who have brooks running through their farms should put them at once to the work of irrigation.

How to Catch an Owl.

Owls are very destructive to poultry, especially in the breeding season, and are much more dangerous than hawks, inasmuch as they pay their visits to the roosts in the night. There is no effectual safeguard against their visits unless you have the hennery made owl-proof. Most farmers make their roosts under an open shed, or upon the trees, which are as free to birds of prey as to the hens. Chickens are very delicate food for young owls, and sometimes a dozen will be missing from the perch in a night, and their feathers and claws be found the next day in a neighboring owl's nest. Old hens will be taken and their heads be eaten off and the carcass be dropped under the tree, quite too heavy for the owl to carry off. Not a moment should be lost when these depredations occur. Tie the dead fowl upon the limb or the perch where it was accustomed to roost, and shut up the other fowls. The dead fowl should be tied in a roosting position, so as to seem alive to the owl. Place a small steel-trap on the back of the hen and fasten it to a neighboring limb. The owl will generally make his appearance the following night, and in swooping down upon the back of the hen will find his claws securely fastened in the trap. A small rat-trap without teeth is the best. The teeth would be apt to cut off the legs or claws and release the owl. The trap will often save many days of hunting a mean, skulking enemy, who only plunders in the night. CONNECTICUT.

Like begets Like, or the Likeness of some Ancestor.

This last part of the sentence is a very important addition to the original formula, and but few farmers appreciate its force, or ever even think of it.

If some one raises a well-turned boar and keeps him for service, the neighbors will soon brand him as a "likely-lookin' pig," and in a year or two he will have scattered his progeny over the country for miles around—generally without having produced the least improvement on the native breed. The reason for this is that the boar himself is of the native breed, and the slight influence of his individual excellence, which is due more to his feeding than to his breeding, is overborne by that of his long line of low-bred progenitors, whose blood fills his veins and asserts itself in his progeny. If he is crossed with extra good sows, and the descendants are well nurtured, and are bred carefully for many generations, there will in time be produced a fixed type that will have *impetus* enough to carry its improvement to all its successors. Or if the boar be of one of the well-established breeds like the Essex, no matter what the sows may be, there will be a marked improvement in all their progeny. A half-bred, Jersey bull-calf is sometimes raised for stock purposes, because he is individually a very promising animal. Now and then he may get a calf that will show the characteristics of the Jersey breed, but in nine cases out of ten his get will show more of the "native" than of the Jersey. Sometimes among dogs there will be one pup in a common litter that will look like a pure-bred "black-and-tan" terrier; but if this animal be used as a sire, his get may all be unmitigated "yaller dogs." A very handsome and very fast horse, used for service, may beget a county full of lunk-head colts; or a stallion that is perfectly sound may beget colts that will almost universally have a tendency to blindness, spavin, or some other glaring defect. In the human race, black-eyed parents (both father and mother) not infrequently have only light-eyed children.

The causes of all these variations are invariably to be sought in the ancestry. These black-eyed parents had blue-eyed sires or dames somewhere in their family history; the good-looking horse had, among his progenitors, some in whom the defects that he perpetuated were prominent; the black-and-tan dog had a flood of "yaller" blood in his veins; in the bull the Jersey influence was weakened by the mixture of common blood in his native dam; and so we may go on through the whole chapter of breeding from mixed races. It is only where certain qualities are concentrated by a long line of close breeding that we may depend with any certainty on their reproduction. Although it is very rare that any quality appears in the progeny that was not a characteristic of some ancestor, more or less remote, it is certain that these characteristics of ancestors, even though remote, show a strong tendency to reappear.

As an instance in point, we know a very good cow that is seven-eighths Jersey and one-eighth Ayrshire which might be sold to a good judge for a pure Ayrshire, having not the least appearance of Jersey about her; yet her dam (one-quarter Ayrshire) looked like a pure Jersey, as do nearly all of her calves (one-sixteenth Ayrshire). Here, in a single instance, in the third generation, the characteristics of the Ayrshire dam have reappeared in full force after she was dead and gone. Thorough-bred horses (English race horses) always look like thorough-breds, never like Canucks or cart-horses. The full-blooded children of Jews—the only thorough-bred white race we usually see—always bear the Jewish face as unmistakably as the children of negroes carry their peculiarities. In these instances, both man and horse have bred so long in the pure line, that variations from the pure type are too remote to have influence.

The deduction from the foregoing statements is, that we should breed only from thorough-bred sires. Personal or constitutional defects being absent, the great thing to be regarded is *pedigree*. If you have your choice between two pedigreed animals, always take the handsomest and the best, but if you must choose between a somewhat inferior animal with a pedigree, and a perfect animal with an inferior pedigree, always regard the pedigree as far outweighing individual excellence. Do not be misled by the superior beauty of the underbred beast. What you want of him is to transmit the qualities of his ancestors. His beauty, or want of beauty, he carries in his own person. The excellence or the defects that he will transmit to his descendants are an inheritance from his progenitors, and your business is much more with them than with himself. In our opinion no farmer can afford to breed from any but a thorough-bred sire, if a thorough-bred is within

his reach, for the reason that he cannot afford to take the risk of the reappearance of ancestral defects, which are always liable to crop out.

In some instances, as with swine, we believe that half-bred animals are often quite as profitable to the feeder as pure breeds; but it will not do to attempt to raise half-bred pigs from a half-bred boar and a half-bred sow. The result would be too uncertain. The boar should be a pedigreed animal; by which we mean that we should have satisfactory evidence that, for as many generations back as it is usual to trace thorough-breds of that race, there should be no admixture of other blood. In other words, in all breeding we should look back as far as possible to see what qualities we are likely to perpetuate in our breeding. There are certain indications by which we may judge (after a fashion) of the tendency of a bull to beget good milking cows. But if we can know that his dam and both his granddams, and all four of his great-granddams were first-class milking cows, we may safely disregard the utter absence of milking indications in the bull himself. He is only a channel through which milking qualities are to be transmitted—a channel that will convey nothing that has not been poured into it from above. The same is true with every kind of domestic animal, from chickens to horses. We must look for transmissible excellence, not in the animal himself but in his ancestry for several generations back; for although like often begets like, it *always begets the likeness of some ancestor*, one or more.

The Specialties of Eastern Farming.

The practice of the farmers in New York and New England shows pretty clearly that it does not pay to raise grain to sell. They raise corn, rye, wheat, oats, barley, and buckwheat; but it is nearly all consumed upon the farm, and in many sections a great deal is purchased for feeding. Corn grown upon the prairies in very large quantities is consumed in all our seaboard towns and far inland. We have not raised our own flour for a whole generation. It might pay possibly, but it does not. We cannot compete with the West in these things in our markets. We furnish but a small part of the beef and pork consumed in our large cities. Every year the city stretches out its iron arms to a greater distance, and brings cattle from regions where land is worth less than a dollar an acre, and where almost the only cost of raising cattle is the herding of them for branding the calves and for sale to the drover. It only pays us to make beef after we have raised and used the cattle for teams, or for milk and its products. We cannot compete with Texas and Kansas steers. We could not make pork at a profit if we did not need the manure. Fattening pigs in a cornfield will not pay in the East. Beyond the supply of the home market we shall have to give up these things, for the very satisfactory reason that other people can raise them cheaper and undersell us. But there are some farm products in which we can beat the West. The dairy interest can be indefinitely expanded with profit. Milk is wanted fresh every day in all our cities and large towns at paying prices. Condensed milk, brought from more remote regions, has not depressed the price very much, and probably cannot. Fresh milk, distributed from the milk-cart every morning, costs the consumer in country villages an average of 8 cents a quart the year round. This pays the producer. Butter has been about 40 cents a pound by the season, and in winter about 50 cents in the same regions. Cheese has borne a corresponding price; and in many sections, where they have cheese factories, pays quite as well as butter. There is no danger of an overproduction, for there is a growing demand for our cheese in Europe. A good calf for the butcher will bring from twelve to eighteen dollars; and this is about what we can buy yearlings for, after they have been raised at the West, and sent to Albany or Brighton markets. It will not pay for us to raise calves, unless they are of extra quality or thorough-bred. We must keep up our stock of deep milkers, and for this end we want herd-book bulls, and calves from the best cows. A few of these grade heifers should be raised every year. Lambs, of all the mutton breeds of sheep, pay well. We know of a small farmer who averages a hundred dollars a year from eight South-Down grades. They are easily kept, and there is no trouble about marketing the lambs. Pigs, too, pay well in the neighborhood of all large towns. There is a very large class of villagers who keep one or two pigs and make their own pork; and the farmer's extra pigs are always in demand, and often at extravagant prices. Poultry receives great attention in all this region, and might receive much more, to the manifest advantage of producer and consumer. The watering-places are every where, and the demand for spring chickens, ducks, and goslings, from July to September, is very brisk at fancy prices. A small bird will often bring as much in July as a full-grown one in November. But poultry allowed to grow up, and sold in the lump at Thanksgiving and Christmas, is one of the best crops raised on the Eastern farm. With a good range, turkeys cost very little until October, when the regular feeding for the market begins. On many farms the whole care is bestowed by the housewife; and her annual sales of eggs and flesh frequently foot up three hundred dollars. If we cannot sell grain and other vegetable products from the farm at a profit, we certainly can certain kinds of animal products; and by carefully studying the compost heap, increase the value, profit and fruitfulness of our farms. Our chief drawback is comparatively poor land; our advantage is near access to market, and an increasing demand for all choice products, animal and vegetable.

Fowls Winning the American Agriculturist Prize Cups.

The proprietors of the *American Agriculturist*, with a view to encourage the breeding of the most valuable kinds of fowls for general use, offered prizes to be awarded at the shows of the N. Y. State Poultry Society, in December, 1869, and 1870. This year the prizes consisted of four silver cups, valued at $25 each, and were offered for Dark Brahmas, Buff Cochins, Gray Dorkings, and Houdans, which were to be exhibited as one trio of old fowls, and six of their progeny, shown in trios or pairs. *Dark* Brahmas and *Buff* Cochins were specified, not to indicate any preference for the Dark over Light Brahmas, or for Buff over Partridge or White Cochins, but because these are now favorite breeds, and attracting the attention of fanciers quite as much as any of the Asiatic varieties.

We have repeatedly discussed the merits of these fowls in the *Agriculturist*, and will only briefly remind our readers of the peculiar merits of each. The Dorkings, seen in the lower left-hand corner, are an English breed, of great antiquity and excellence. They have been carefully bred for good size, good form, and good quality of flesh; breeders carefully retaining a notable deformity, the *fifth toe*. Some strains produce excellent layers, and the best of sitters and mothers, while in other strains the hens are unreliable. These are, of course, among the high-bred, fancy birds. Common Dorkings are as reliable for their domestic relations as one can desire. The breed is known in two sub-breeds, namely, *Colored* and *White*. Of the Whites there are different strains, and single and rose-combed varieties. We think the preference is being given so strongly to the rose-comb, that the single ones will in time disappear. Among the colored or Gray Dorkings, a number of varieties are marked by slight differences of feather; and of these, numerous strains, originating in the yards of different breeders of note, are recognized by fanciers. The only variety which has commonly a separate class assigned to it at the shows is the Silver-Gray Dorking. The trio which won the prize, and are above represented, were exhibited by R. Gibson, of New York Mills, N. Y.

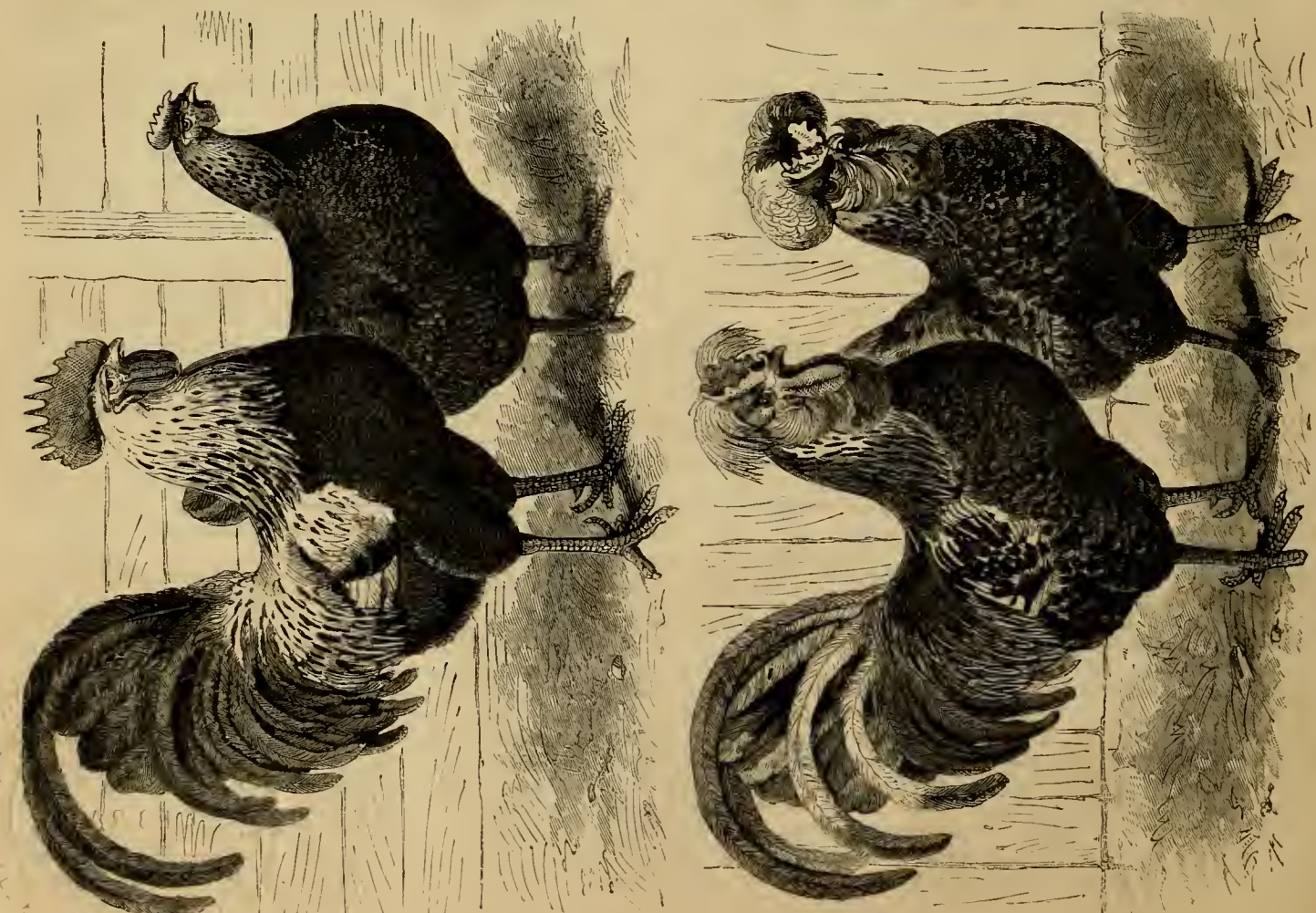
The Houdans are a French breed, and though a little less in size than the other famous French fowls, they are not less valuable, being decidedly the hardiest and most prolific. They combine two valuable qualities—the production of *flesh* and *eggs*—each in a high degree of excellence. From the fact that they exhibit the fifth toe of the Dorkings with something of the topknot and speckled plumage of the Silver Polands, which are famous, persistent layers, and sure sitters, it would seem almost as if these breeds had been united in their production. This was, however, probably not the case. The Houdans have been thoroughly tried in this country, and prove excellent in every respect. A good cock will weigh 7 lbs., and a good hen 5½ lbs. The quality of the flesh is fully equal to that of the Dorking, and the eggs large and white. The engraving is from the winning groups which were exhibited by G. W. Bradley & Son, Hamden, Ct.

Altogether, the exhibition of fowls, brought out by the offer of these cups, was a fine display of itself, there being close competition for each.

The Buff Cochins, on the left above, are a very attractive breed, from their immense size, their beautiful and very uniform buff plumage, their profusion of feathers and fluff; and they are useful as winter layers, as good mothers and nurses, and for their quick growth. The eggs are of fair medium size; the flesh not of the best quality when old, but very good when eaten as young chickens, and especially good as broilers of six or eight weeks old, if they have grown with sufficient rapidity. The winning group of nine, from which those engraved were selected, were exhibited by Isaac Van Winkle, Esq., of Greenville, N. J.

The Dark, or "Silver-Gray," Brahmas have useful characteristics, very closely resembling the Cochins. Their plumage bears a striking resemblance to that of the Gray Dorking, in color, but has, however, a very different texture, and is fluffy and downy. The Brahmas, like the Cochins, have very short tails, and short, round wings, making it difficult for them to fly over a fence three feet high, while one of four feet in hight effectually restrains them. The flesh of the Brahmas is usually esteemed as superior to that of the Cochins, while they are fully equal to them as layers, and for early attaining sufficient size to render them fit for market as broilers. The fine collection which won the prize, a pair of the old fowls being engraved, was sent over expressly to compete for this prize by J. C. Cooper, of Ireland.

BUFF COCHINS.
DARK BRAHMAS.



SILVER-GRAY DORKINGS.
HOUDANS.

A New Japanese Euonymus.—(*Euonymus Japonicus*, var. *sulphureo-marginatus.*)

How often is the question asked: "What *shall* I do with my Hanging-Basket? 'Twas only two weeks ago I refilled it with the handsomest Ferns, Begonias, and Mosses I could find, and now there is scarcely a shadow of them left. What plants will live and thrive in it?" There is a plant that suits the case exactly—the Sulphur-margined Japanese Euonymus. It makes a lovely contrast to Chinese Primroses, Cyclamens, and other flowering plants suitable for such baskets, and what is important to amateurs, is of as easy culture as a Rose Geranium.

EUONYMUS JAPONICUS, VAR. SULPHUREO-MARGINATUS.

This variety, which we found in the collection of Bennett & Davidson, Flatbush, L. I., is a late introduction from Japan; forms a compact, dwarf, conical plant, and will grow freely in common garden soil. The rounded-ovate, toothed leaves, are of a bright green color, broadly margined with a rich creamy yellow. When in a growing state, the marginal portion of the young leaves is considerably darker, thereby giving a striking and pretty appearance not possessed by any similar plant, and placing it in the first rank as a valuable addition to our half-hardy shrubs for lawn or parterre decoration during the summer and fall months.

The golden-edged variety, *Euonymus Japonicus aureo-marginatus*, and the older variety, with a large, golden-yellow blotch in the centre of each leaf, *E. ovata aureo-pictus*, are equally valuable for like purposes; while for a drooping plant for hanging-baskets, or a front ribbon row for garden decoration, nothing can surpass the lovely silver-edged *E. radicans variegatus.*

The Perforate-leaved Scindapsus.

It is very difficult sometimes to find a popular name for an interesting plant. If we give the name by which it is known to florists and gardeners, it will look unattractive, and many will pass by the article who would have been interested in it had it a more attractive title. We are in a dilemma in the present case. The plant we wish to speak of is *Scindapsus pertusus*, and the best we can do with it is to call it the perforate-leaved *Scindapsus*, a name which is not translatable, as it is a Greek word for some climbing plant that has been applied to this. The plant is not rare in our larger collections of hot-house exotics, and is one which arrests attention both on account of its luxuriant growth, and the singular manner in which its broad leaves are perforated with large holes. These holes, which are sometimes so numerous as to completely riddle the leaf, are formed by the breaking away of the tissues when the leaf is very young, and as it grows, they increase in size. The plant is a native of the East Indies, where it is found climbing upon trees by means of its stout, flexible stem, and the numerous aërial roots which it emits from all parts of the stem. The engraving gives a good idea of the appearance of the plant, and shows the aërial roots as penetrating the soil. The Scindapsus belongs to the same family as the Calla, Indian Turnip, and Skunk Cabbage, and it resembles these in its manner of flowering. As in the plants we have mentioned, its inconspicuous flowers are crowded upon a fleshy stem, which is surrounded by a sheath or "spathe," as it is called, which often being showy and completely concealing the flowers proper, usually, as in the Calla, passes for the flower. In the Scindapsus, this spathe is of a dark green. The flowers are very fragrant. Recent experiments have shown that this plant, like many others of the same family, emits an appreciable amount of heat at flowering time. The air within the spathe has been found to be as much as 15 degrees warmer than the outside temperature. This emission of heat is not constant, but varies considerably during the day. The fruit, shown in the engraving, has something the appearance of a long, green, pine-cone. It consists of numerous pulpy, one-seeded berries, which, when ripe, are edible, and have something of the flavor of the pineapple. The Scindapsus is usually found in collections and catalogues under the incorrect name of *Philodendron*, a nearly related genus, from which it is sufficiently distinct.

PERFORATE-LEAVED SCINDAPSUS.

Three Crops in One Season, with a Sketch of the Man who Does it.

BY PETER HENDERSON.

"A little farm, well tilled," has so often been our theme, that it would seem that we had exhausted the subject. Like many other axioms in horticulture and agriculture, it becomes necessary to preach from the same text again and again, to remind young and inexperienced readers that, particularly in the vicinity of large towns or cities, a farm of a few acres, "well tilled," will give each year such profits as farms counting their acres by the hundred do not often yield in a lifetime.

I had almost thought that I knew all about market gardening in this vicinity, that was worth knowing; but a successful experiment, made last fall by one of my neighbors, John Reilly, proved to my satisfaction that I was not yet too old to learn. The neighbor in question is an old foreman of mine, who cultivates about 8 acres, in the way usually practised here: first planting the spring crops of early cabbages, beets, lettuce, onions, radishes, etc., which, being sold off by July, the land is again planted to the second crop, which is usually celery. This is all that we have been requiring of the soil, to give us two crops in one season. But this neighbor of mine is a man of more than ordinary shrewdness and a close observer; he saw that the long-continued drouth of last July and August was certain to seriously impair the fall cabbage crop, and that the consumer in consequence would pay high for a substitute. He knew that an excellent substitute was spinach, but his small farm of 8 acres was already planted with celery or other fall crops, and no other land rich enough to grow the spinach was accessible. He also saw that the drouth that was destroying the cabbage crop left the celery but little larger in September than when it was planted in July, and the three feet of space between the rows of celery were left uncropped; this suggested that a row of spinach might be sown between each two rows of celery; at any rate, it might be worth trying.

Twenty pounds of seed were procured, and about 6 acres of the ground planted with celery were sown with spinach. Mr. Reilly told me that the experiment netted him $1,500, clear of all expenses, and that, too, without detriment to the celery crop.

The spinach was sown September 1st, and was all cut off and marketed in six weeks from the time of sowing, which gave yet ample time to do the work on the celery crop. I have not the figures giving the profits of the three crops per acre, but judge it to be not less than $1,000 in the hands of Mr. Reilly, who has been, per-

haps, the most successful cultivator in the vicinity of New York. At least, I much doubt if more money has ever been made off the same number of acres in the same space of time than has been done by him. As some of the points in the history of such a man may be interesting to the thousands of your readers who cultivate the soil, I will briefly give them.

On a biting cold day in the mouth of January, some fifteen years ago, John Reilly, then about 19 years of age, clad in a rough grey frieze and corduroys, and just landed from an emigrant ship, asked me for a job. I was full to overflowing with help, as we usually are at such a season, but he was such a likely "boy," that I made room for him. His wages for the first year were only $100, the next perhaps $130. But up to this time I had seen but little of him, as he had been sent under a foreman to the place he now owns, which was some miles removed from my residence. Suddenly, one day, my old foreman died, and my garden, in full crop and working eight men, was without a leader. My practice had ever been, and still is, to select my overseer from the working hands, if possible; accordingly I passed these eight workmen through an examination, and without much hesitation decided that Reilly was the only one fitted to lead, though yet scarcely twenty-one. But I had hardly placed him in charge when trouble began; hands that had been with me for half-a-dozen years, and almost old enough to be his father, refused to obey his orders and resented his authority, and my hitherto peaceful garden bid fair to resemble Donnybrook on a small scale. I tried to conciliate, but to no purpose. John here developed his self-reliance, and showed his early genius as a commander. He insisted that all the old hands be discharged, and that their places be filled with men whom he could control. I hesitated, being loath to discharge trained men when I could only fill their places by green ones; but increasing difficulties made such a course a necessity; accordingly it was done, and from that time there was peace. John now had a chance to show his ability, and rapidly he did it. The garden, under his superintendence, soon became a model for the neighborhood; always clean, orderly, and having luxuriant crops, and worked at less expense than any of us had worked before. This was owing, in part, to the rigid discipline he enforced with his men, but more particularly to a manner of working them, peculiarly his own, and from which I believe he has not since deviated. He never allowed his men to separate, always working them in a body, himself leading; and no matter whether it was a job requiring an hour or a week to finish, he always moved them together, so that all were under his eye. Such manifest ability soon reaped its reward. In four years John had saved $3,000 from the salary I paid him. He was then too rich to work for any one; and believing that the chances were a hundred to one that I could not replace such a man, I sold out the land and crop to him at a price that made his interest and taxes over $2,000 a year. Such a load would have daunted most men, but not such as he. In four years he had paid every dollar of principal—over $20,000—every cent of which he had made in that time from the product of these 8 acres of Jersey soil. He was now firmly on his feet. He bought another 8 acres, which he has long since paid for, so that now he is certainly worth $60,000 in real estate alone, two-thirds of which have actually been paid for from the product of those 8 acres of land in eight or nine years. Proud may the man be of a fortune so honestly come by, dug by hard labor from old mother earth! We know that such amounts seem small to the mercantile community, and that our "self-made man" among these must have his millions before his history is thought worth recording; but the energy of mind and body necessary to accomplish so much in so short a time, in such a pursuit as gardening, may have been greater than that displayed by those who have attained greater fame.

How to Have a Good Garden.

BY "WALKS AND TALKS."

A correspondent asks me how he shall go to work to have a good garden. If he had asked me last fall, I could have told him. To have a really good garden it is necessary to prepare the land the summer or autumn previous. But even without this preparation a good degree of success may be attained the first season.

The first thing to be done—and it should not be delayed a moment—is to prepare the manure. Select the richest manure you have, and that which is the shortest and most thoroughly rotted. Throw it up into a large, loose, conical heap, the wider and broader and deeper, the better. If it is too dry, throw on some liquid from the stables. In a few days, if it is horse or sheep manure, it will commence to heat, and in the course of a week or ten days, it may be turned over. In the meantime order half a ton or a ton of pure bone-dust. I would calculate to put on at the rate of twenty-five tons of manure and half a ton of bone-dust per acre. Turn the heap of manure, and while doing so, scatter a sprinkling of the bone-dust on each layer, say a bushel to the ton at first, and then, as the heap ascends, not quite so much, or it will not hold out. And if it does not, it will be none the worse, as the ammonia, generated from the lower layers, will be more likely to be retained by the upper portion. If it is not moist enough, water it with the drainage from the stables or yards, or if this cannot be had, with water. Or throw on soapsuds, and if they are warm, all the better. Hot water, or anything that will warm the heap, will accelerate fermentation and reduce the manure.

Ordinarily, it would be better to take a longer time and let the fermentation proceed more moderately. But now we cannot afford to wait. We shall soon need the manure. But no matter, a little skill and judgment will prevent waste. Water has a strong attraction for ammonia, and if the heap is kept almost to the saturating point, little or no ammonia will escape. But you must not put on *too* much, or it will cool the heap so much that fermentation will be arrested. It is here that judgment is required. If you have any genuine superphosphate on hand, you *may* have an opportunity of using it to good advantage. That is to say, the bone-dust and the manure, if both are good, will ferment very rapidly, and possibly ammonia may escape (though if due precautions are observed, it is not likely). In this case, put a pound or so of superphosphate in a pail of water, stir it up, and throw it all over the top of the heap, or where the steam is escaping the most rapidly. The acid phosphate will instantly arrest the ammonia. Plaster, *in solution*, will do the same thing—the only trouble being that only a very little of it can be dissolved. But it is worth while putting a little plaster in all the water that is thrown on to the heap—say a tablespoonful in each pail of water. More than this will not be dissolved, though if more is added, it will do no harm.

When fermentation begins to slacken, turn the heap again, and break up all the lumps. The finer you can make it the better. Be sure to keep it moist enough. If it ferments slowly, mix some sandy soil with it. Clay soil will arrest fermentation; sand will accelerate it. This treatment should give you as good and rich a heap of well-rotted, fine manure, as ever was put on a garden.

In applying manure, the great aim should be to incorporate it as completely as possible with the soil. It is not easy to do this unless the manure is thoroughly reduced before it is applied to the soil. If it is plowed in, be very careful in spreading it to break all the lumps. And it would be well, if it can be done, to harrow it after it is spread. If the harrow pulls it into little heaps, spread them out again and knock them to pieces before plowing them under.

The first thing I do in the garden is to sow peas. I want peas every day from the middle of June to the first of August—and I have them; and so may you and every other farmer. I think I have heard an occasional whisper in the kitchen to the effect that it is a good deal of work to pick the peas and shell them—but I am a little deaf at such seasons. And I believe if you will grow the peas, they will not be allowed to go to waste, or if they are not used, they will be good for seed. As soon as the frost is out of the surface-soil, three or four inches deep, I sow a quart of Carter's First Crop, a quart of Waite's Caractacus, and half a peck of Early Kent, or Daniel O'Rourke. I make the rows four feet apart, and set out some young cabbage plants, wintered over in a cold-frame, between the rows. I make the rows four inches deep, but do not cover the seed more than an inch deep with soil, but I put on three or four inches of horse manure on top. If the soil is not very rich, I would work in a good dressing of the well-rotted manure, prepared as above directed. Early peas want rich land, and they should also be sown very thick—say a quart to a row fifty or sixty feet long.

On warm, sunny days, rake off the manure and let the sun warm the light covering of soil on the peas, and warm the manure at the same time. Toward evening, rake back the manure on the rows to protect them in case of frost. When the peas begin to sprout, rake a little light, warm soil on top of them, mixed with a little manure, and keep doing this as the peas grow, until the soil and manure covers them an inch or so higher than the surface of the ground. Then hoe the soil up on each side the row, two or three inches higher than the peas. This will afford considerable protection from cold winds. When the peas get three or four inches high, draw up the soil on each side of the row in a broad ridge, leaving a wide space between, and then pole the peas. A farmer can get the nicest kind of pea-brush from the woods, which, if properly taken care of, will last two or three years. The more side branches on the poles, and the nearer the ground, the fewer poles will be required. Trim them up, fan-shaped, and sharpen the ends so that they will go easily into the ground. Put them on each side of the row, and let them be narrower at the bottom than at the top. It is a very common mistake to have them closer at the top than at the bottom. They should be at least six inches apart at the top. The sun can then get among the vines, and they will pod better and ripen earlier.

For the main crop of peas, it is better to wait until the ground gets in good working order—

but no longer. They can hardly be put in too early, provided the soil is dry, but it is a great mistake to plant them when the ground is wet. This is especially true of Veitche's Perfection, and other large peas. They are almost certain to rot in the ground if it is cold and wet. I sow a quart of Bishop's Long Pod and a quart of Harrison's Perfection, and these will bridge over the time between the early peas and the main crop. I know of nothing better for the main crop than Champion of England. But they want deep, rich land, and land that was made rich a year or more ago. But in the absence of this, make the land rich by the liberal use of the well rotted manure we have described, and let it be thoroughly mixed with the soil under the peas and for at least a foot on each side the row, and nine or ten inches deep.

I have never had any satisfactory results from dwarf peas, but have not tried the Little Gem. With the editor of the *Agriculturist* at "The Pines," it proved excellent, and I mean to try it. With me, a short, half-dwarf pea is no object. If I have to pole the peas at all, it is about as easy to pole Champion of England as a variety that does not grow two feet high—and it is much easier work to pick from the tall rows than the low ones.

In the cities and villages, nearly every one who has any taste for gardening has a hot-bed. On the farm, we seldom see one; and yet the farmer has plenty of horse manure and can make a hot-bed with little trouble and expense; and most of the labor required is during a comparatively leisure season. It is high time that farmers, for their own sake, and the sake of their children, paid more attention to their gardens and less to fast horses. Don't tell me you cannot afford a hot-bed and a good flower and vegetable garden. *It is not so.* Draw out a dozen

HOME-MADE GARDEN MARKER.

loads of horse or sheep manure to some convenient sunny place in the garden, sheltered from the north and west winds. Throw the manure into a loose heap, and in a few days after the heat is well up, make it into a hot-bed, five feet high and a foot wider and longer than the sashes. If you have no mold already prepared, put on the top of the manure five or six inches of light, rich, sandy soil, free from lumps. The better way is to sift it. I should devote one sash to lettuce, sown in rows two inches apart. It is a great mistake to sow any thing broadcast, as it causes so much more work in weeding. And as soon as the plants are large enough to eat, you can pull out every alternate row, and leave the other rows to grow larger. If you have any superphosphate, two or three tablespoonfuls scattered over the soil in each sash will be a great help, especially to lettuce. Tomatoes should receive immediate attention. The market gardeners usually manage to have plants twice as large as I can raise, and three times as high; but they are not half as good as the nice, stocky plants we raise ourselves. I sow the seed thick in rows, and transplant into a cooler hot-bed or cold-frame when the plants begin to crowd each other. It is very desirable to put a dozen or two of plants, of some early variety, into two or three-inch pots and plunge them in the soil of the hot-bed. But I have not time to go into details. Full directions can be found in the *Agriculturist* and in the books for the management of hot-beds, etc. For my part, I attempt to raise but few things in the hot-bed, such as lettuce, tomatoes, cucumbers, a paper or two of extra early cauliflowers and cabbage and flower seeds, and among the latter phlox drummondii is my great favorite. If I can get a hundred early, stocky phlox plants, I feel sure of having, for a farmer, quite an attractive flower-garden.

So far as cabbage and cauliflowers are concerned, I have usually far better success by sowing in some warm, sandy, sheltered spot in the open ground than in a hot-bed. I generally start a dozen or so early potatoes in the hot-bed, and when four or five inches high transplant them into the open ground, protecting them a few days with a wooden box with a pane of glass on top. They are checked but little by being transplanted. The main crop of early potatoes should be planted the moment the ground is in proper condition, and a little well-rotted manure in the trench is a great help, and so far as I have observed it does not increase the rot or injure the quality of the potatoes. Of course, a warm, dry, sandy soil is desirable.

Do not attempt to make a garden without a garden-line. Nothing looks worse than crooked rows. We should hardly know how to get along without a garden-marker. Quite a number of designs for making such a marker have been given in the *Agriculturist*. For ordinary garden purposes I find one made as follows to answer every purpose: Take a piece of two-by-three scantling, and bore holes in it with a three-quarters or inch bit, 15 inches apart, and put in some pegs, 3 or 4 inches long. Bore a hole in the center and put in an old wooden rake handle. In a small garden, a marker with four teeth is large enough. And, while speaking of tools, let me say that you should have a light, bright, sharp spade, and a good steel rake. No man can do good work with a dull rusty spade. Use the grindstone freely and always have a sharp edge on the spades and hoes. For digging among the roots of trees and vines, of course you must have a garden fork, and the tines of this, also, should be kept bright and sharp at the points.

Comparatively few farmers have much success in growing black-seed onions. There are three principal reasons for this: poor seed, poor land, and *late sowing*. Onions should be sown at the earliest moment the ground can be got into good condition. And if they are sown by hand, I would soak the seed in warm water for 24 or 48 hours before sowing.

Parsnips should also be sown early; then carrots and early Bassano beets, and for my part I always like to put in a few hills of corn so early as to run considerable risk of having it rot in the ground or nipped by frost; putting in some more a week or so later. But I think I have said enough. In conclusion, to have a good garden you must kill the weeds. And it cannot be too often repeated that you must attack them early, the moment they are out of the ground, or before. Thousands of weeds, just as they are sprouting, can be killed with a steel-toothed rake. And as soon as the rows can be traced, use a hook or a hoe freely. You cannot stir the ground too frequently or too thoroughly. And another thing, do not leave the plants too thick. If there are three plants where there should be but one, two of them are weeds and should be treated accordingly.

Let me say a word about old currant-bushes. A little of the manure I have described, if forked into the soil around them, will act like magic. Keep the soil well stirred around them and free from weeds. Prune out all the dried and useless wood and shorten-in the shoots. As soon as the leaves appear, look out for the eggs of the currant-worm on the under side of the leaves, and crush them. Dust the bushes with hellebore, keep down the suckers, and you will be rewarded with what few farmers in this section now have—a noble crop of currants.

GRASSING A TERRACE OR BANK.—"To use the most improved method for covering a bank of earth with grass, there is just one satisfactory way," if time and uniformity of the surface are important. This is to cover it with sods, taken from a road side or from an old pasture-field. A heavy seeding of white clover and red-top will make a good finish where the soil does not wash and gully away; but alone they are hardly reliable for terrace work. Upon very steep surfaces the turf may be held in place by means of wooden pins driven through it into the bank. Pieces of lath, a foot long, answer the purpose very well.

Rock-Work and Alpine Plants.

A mass of furnace clinkers, made glaring white with lime-wash, and built up into a grotesque form unlike any thing ever seen in nature, is often dignified by the name of rock-work. This mass is, in the building, provided with "pockets," to hold a quart or so of earth, and in these are planted Tropæolums, Scarlet Geraniums, and other bedding plants, which, in our

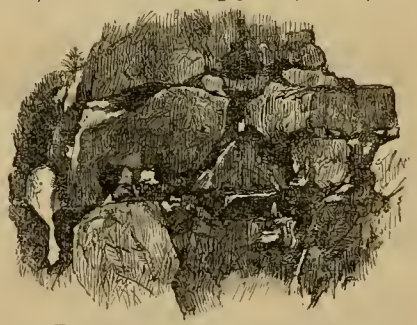


Fig. 1.—ROCK-WORK BADLY DONE.

hot summers, present a sorry spectacle, having no "deepness of earth." A structure of this kind obtruding itself in a conspicuous place in the lawn, is one of those horrors one is forced to witness in his travels. In spite of this sham work, rock-work can be constructed in a manner that will be in good taste and afford much pleasure. There are some places in which rock-work may be properly introduced as a fea-

Fig. 2.—ROCK-WORK PROPERLY DONE.

ture of the landscape; but our purpose is to speak of it as a place for growing such plants as will grow better upon rocks than elsewhere, as well as some that cannot be grown at all in the open border. No one but a real lover of plants will ever undertake a rock-work, as the plants which are most at home in such situations are usually delicate subjects that commend themselves to our attention by their

modest beauty rather than by their brilliancy. Certain plants are found growing naturally only upon rocks, where their foliage can spread itself to the sun, while their roots run down through the earth-filled crevices of the rocks into the deep, cool soil far below. This is particularly the case with plants growing in alpine regions, and such can only be cultivated with success where the natural conditions are observed. Other plants seem to flourish better among loose stones, which probably act as a mulch. What are called "Alpine Plants" are now becoming popular in England, though we must confess that the term "Alpine" is made to include a great number of things that have no mountain origin. We have already noticed Mr. Robinson's work, "Alpine Flowers for British Gardens;" a reference to its list of plants will show that the term "Alpine" is used in a very comprehensive sense. In the work referred to the author gives several illustrations of artificial rock-work, some of which we borrow. The artificial rock-work should not be built up like a stone-wall, as in figure 1; but the stones should be placed so as to appear as if they belonged there, as in figure 2. Whatever crevices are left for the accommodation of plants—and there should be a sufficiency of these—should be continuous until they reach the earth. In cases where elevated masses of rock-work are built up, the same precaution of keeping open a communication with the earth below is to be observed. Figure 3 gives a work of this kind properly constructed, and figure 4 a bad example. In figure 3 the plants in each fissure have a chance to be benefited by the rains, while in figure 4 the upper rocks completely shelter the lower ones. Of course a rock-work can be made of any dimensions, according to the means and tastes of the builder; but fortunately it is not necessary to work on a large scale, as a small rocky bed may be made with little trouble and expense, which will grow alpine plants in a very satisfactory manner. A bed excavated to the depth of about 2 feet is to be filled in with peaty soil and leaf mold; stones of different sizes are placed around the margin to raise the bed above the general level; more soil is to be added, and large and small stones are so placed as to crop out from the soil.

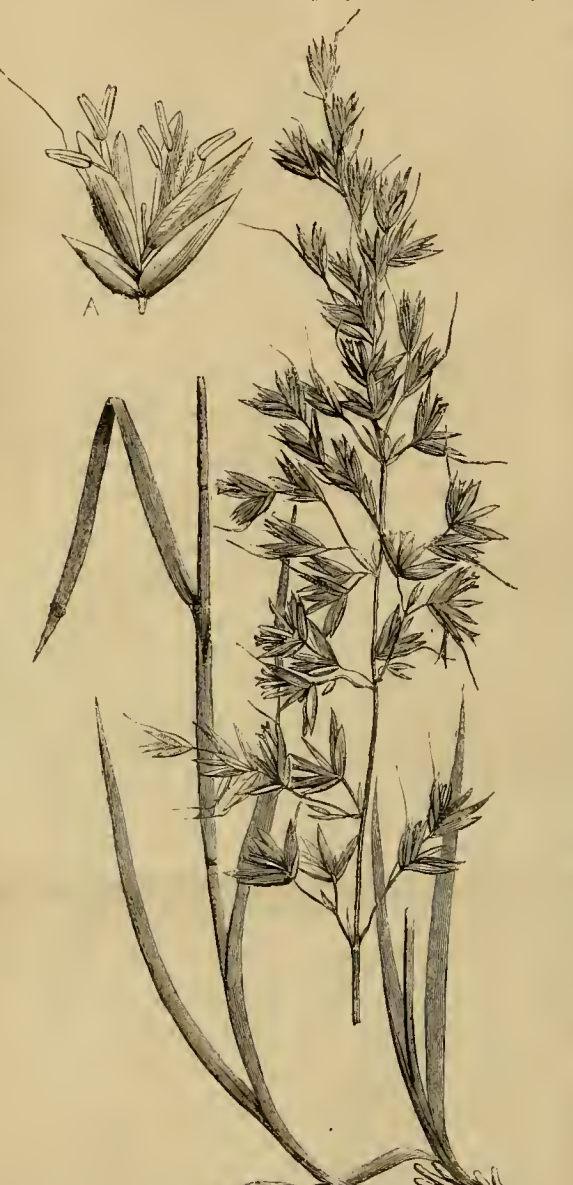
Fig. 3.—RIGHT.

A bed of this kind may be made in a retired part of the garden, and serve as the home of many choice alpines. Mr. Robinson gives an illustration, figure 5, of a bed of this kind made under his directions in the suburbs of London. We must defer a list of the readily obtainable plants suited for rock-work until another month.

The Tall Meadow Oat-Grass.

BY T. B. BAKER, THORNDALE, CHESTER CO., PA.

[The Oat-Grass, or Tall Meadow Oat-Grass, as it is variously called, at one time received considerable attention from agriculturists, but it fell into a neglect from which it now appears to be reviving, as the dealers inform us that they have considerable inquiry for the seed. It



THE TALL MEADOW OAT-GRASS.—(*Arrhenatherum avenaceum.*)

is usually in the catalogues under the incorrect name of *Avena elatior*. It is quite distinct in its structure from an *Avena* (oat). We give an engraving, showing the general appearance of the foliage and flowering panicle. At one side is a magnified single spikelet. It is two-flowered; the lower flower is staminate and barren, and bears upon its back an awn, or bristle; the upper flower, only, is perfect, or seed-bearing. The following article, by Mr. Baker, was prepared at the request of Mr. Henry A. Dreer, of Philadelphia, through whose kindness we are able to present it to our readers.—ED.]

Fig. 4.—WRONG.

"In the winter of 1862, or spring of 1863, I purchased from Henry A. Dreer three or four bushels of Tall Meadow Oat-Grass seed; in the spring of 1863 I seeded it, with barley, on two acres of good ground. The seed was mixed with the barley, and both drilled with the ordinary grain-drill. The greater portion of the grass seed did not come up, owing, I think, to its being covered too deeply; the grass was consequently thinner than I desired, but still I have been well satisfied with the result. In the fall of the same year (1863) the grass, I think, obtained a growth of 18 inches, the blades very numerous and fine. In the spring of 1864, and every year since, I have cropped it for seed and mowed the stubble for hay. The stubble makes superior hay, because of the numerous green blades, about a foot long, growing from the roots of the grass while the seed is ripening. I have now about 100 acres of land seeded with this grass and orchard grass mixed, and next spring I hope to have 50 acres more. The grass matures for hay about the 5th of June, and for seed about the 10th to 15th of June. The seed is very difficult to save. The moment, almost, that it is ripe it falls off; the top seeds ripen a few days earlier than the lower seeds. For two seasons I lost all the seed by delaying cutting a few days.

"Last spring was the only time that the two acres were top-dressed with a light dressing of shovelings from a cow-yard. The land, as I have remarked, was in good condition when it was seeded, but I do not think it is hard on the ground; certainly it does not impoverish the ground equal to timothy. It would do a farmer good to see the stand of grass now on the two acres. There is no difficulty about getting *three* crops a year for soiling cows. By the middle of May the grass will be from ten to fifteen inches high. In the beginning of July it will be fit to cut again, and a third time in the latter part of August. For pasture, it excels all the grasses with which I am acquainted. Cattle, horses, and sheep prefer it to any other grass I have on the farm. I have heretofore seeded it with wheat, in the fall; the only objection to this is that the grass grows as fast as the wheat, and is quite as tall at harvest as the grain. The straw, however, is better than most of the hay that is made. In the winter of 1868 and 1869, I fed 70 acres of this kind of straw to my dairy cows; they ate it better than they would timothy, and I am confident it was better for them than timothy hay. Next spring I purpose seeding 10 acres with 'Tall Meadow Oat-Grass' alone. I desire to have the ground prepared this fall, and sow the seed as early as possible in the spring. The quantity of seed to the acre should not be

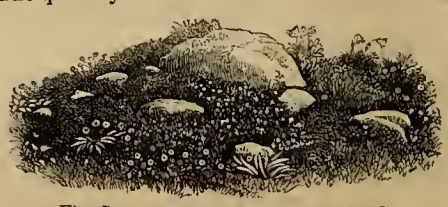


Fig. 5.—A ROCKY BED FOR ALPINES.

less than two bushels—I prefer three bushels. The grass ripens for hay rather earlier than clover, and is therefore better to sow with clover than timothy.

"I have given my driving horses, since the fall of 1863, no other kind of hay than 'Tall Meadow Oat-Grass.' These horses are valuable, and I feed them this because I think it the best hay I can grow for them. It is soft and pleasant to feel and look at, and not harsh and woody,"

THE HOUSEHOLD.

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

The Patching and Darning Exhibition.

"What a pity," exclaimed many a visitor to the late Patching Exhibition at 245 Broadway, "that

CLASS B—PATCHING—SECOND PRIZE—COAT.

all the ladies who have contributed cannot be here to see this display!" It *is* a pity, for truly the sight was strangely interesting and suggestive. And, "what a pity," have we echoed over and over again, "that they could not have seen the de-

CLASS E—DARNED STOCKING.

light of those who, after the show, opened the great bundles at the "Old Brewery" or Five Points Mission. That would have been reward enough for any one, even for the lady who sent the little cloak made of sixty-eight pieces, and the darner of the stocking with one hundred holes. To be sure the February *Agriculturist* stood ready to tell all that was to be told, but it was in a hurry to be off to the printers, and so could not take everything. There were photographs of garments, darns and patches to be shown, interesting letters, also, suggestions and hints to be communicated, and, beyond all, a document from the Committee of Award. "If we could but stretch the prize-lists," exclaimed one of the judges, when, after examining the mended garments again and again, they laid this piece aside as BEST, then that piece, and another, and then, after anxiously comparing the three, settled the matter with a sigh. The pressure of about fifty "nearly bests" was torture. At every award the Committee could feel the reproachful eyes of wonderful patchers and darners turned in surprise toward them. One lady was almost sure she heard a plaintive "O don't!" from a marvel of a mended stocking, when, after much discussion, it was placed on the no-prize pile.

So it happens, that while the February *Agriculturist* gave the prize-list entire, and, through the brilliant description of a lady visitor, took everybody to the show, this March number also has somewhat to do with the matter.

The following were awarded a copy of the *American Agriculturist* by the Publishers:

No. 83.—Mrs. Laura S. Bixby, Honesdale, Pa.; Class D, Men's Pantaloons. No. 195.—Master Newton G. Leslie, Comstock, Kalamazoo Co.; Mich.; Class A, Shirt; Class E, Socks. No. 92.—Mrs. (Widow) F. G. Chamberlin, Locust Grove, Saratoga Springs, N. Y., care of Luther W. Chamberlin, Saratoga Springs, N. Y.: Class F, Pair of Stockings. No. 482.—Miss Ellen A. Fisher, Georgetown, Ill.; Class B, Boy's Pantaloons (1 pair). No. 671.—Mrs. Betsey Baker, Genoa P. O., Pawnee Indian Agency, Platte Co., Neb.; Class D, Pantaloons; Class B, Coat.

COMPETITORS DESERVING HONORABLE MENTION.

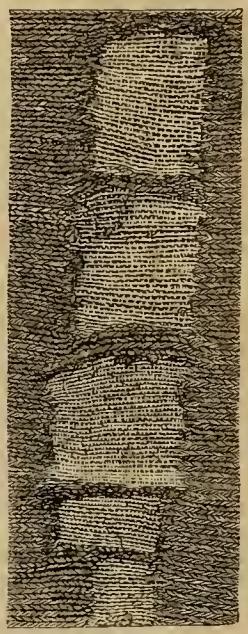
Ida Ingalsbee, N.Y.; Miss M. E. H. Hannetto, Conn. Mrs. E. S. Tank, N. J.; Miss J. Hague, N. J.; Mrs. S. S. Hooker, N.Y.; Mrs. B. K. Andrews, Mich.; A. B. Wilcox, Mass.; Mrs. S. D. Hopper, N. Y.; Eleanor Wood, N. Y.; Miss Jennie Megie, O.; Mrs. Jennie Minden, Ind.; Mrs. Cynthia Estler, N. J.; Mrs. Emily Clifton, Pa.; Mrs. J. B. Armstrong, Md.; Grace L. Sargent, Mass.; Mary A. Sargent, Mass.; Miss M. A. Chittenden, Mich.; Miss Annie E. Williamson, L. I.; Miss Libbie Miner, Conn.; S. Elizabeth Koons, Balt.; John Doolittle, Conn.; Newton G. Leslie, Mich.; Mrs. S. C. Cleveland, N. Y.; Ellie, care of C. S. Nichols, Esq., Mass.; Miss V. M. King, Md.; Mrs. E. J. Anderson, N.J.; Mrs. Elizabeth Barker, N.Y.; Miss Maggie J. Shaw, Pa.; Minnie Tululuh Bliss, Vt.; Miss Augusta Brown, N.C.; Flora Sortore, N.Y.; Abbie E. Saxe, Pa.; Miss J. L. Stephens, O.; Nellie B. Foote, O.; Miss H. T. Halkins, N. Y.; Mrs. F. G. Chamberlin, N.Y.; Emily Harrod, N. J.; Mrs. Nancy Randolph, Minn; Enrice Bassett, Ind.; Mrs. Margaret B. Rundle, Miss.; Miss V. M. King, Md.; Mrs. Mary B. Thompson, Mass.; Kate E. Sinclair, N. Y.; Abbie A. Haviland, Md.; Mrs. Wm. H. Steere, R. I.; Mrs. J. H. Reed, N. Y.; M. P. Wyatt, N. Y.; Miss M. A. Chittenden, Mich.; Mrs. W. A. Bass, Conn.; Emily Harrod, N. J.; Miss M. A. Fralick, Mich.; Mary K. Lillie, N. J.

FIRST PRIZE—CLASS B.

WASHINGTON, Iowa, Dec. 5th, 1870.

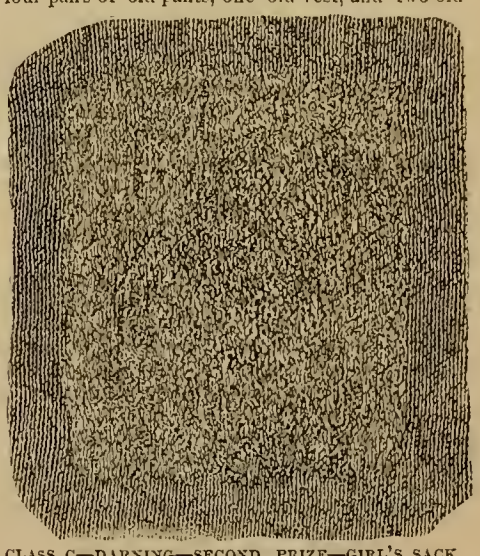
DEAR LADIES OF THE MISSION: You seem to be

CLASS B—PATCHED TROUSERS—FIRST PRIZE.



CLASS D—DARNING—1st PRIZE.

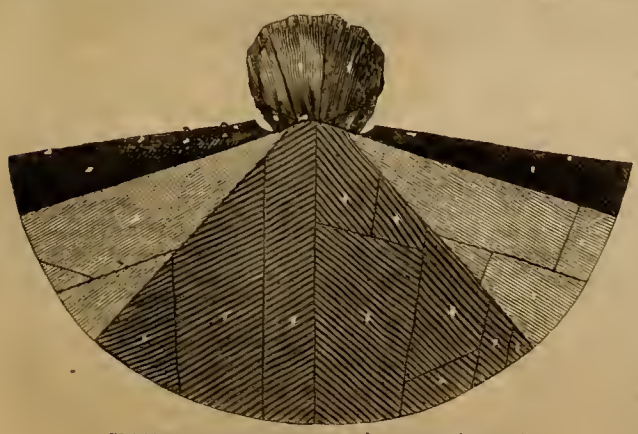
getting desperate in search of an economical woman. I presume, when you view this cloak, containing sixty-eight pieces, you will think you have found one. The garment you now see is made of four pairs of old pants, one old vest, and two old



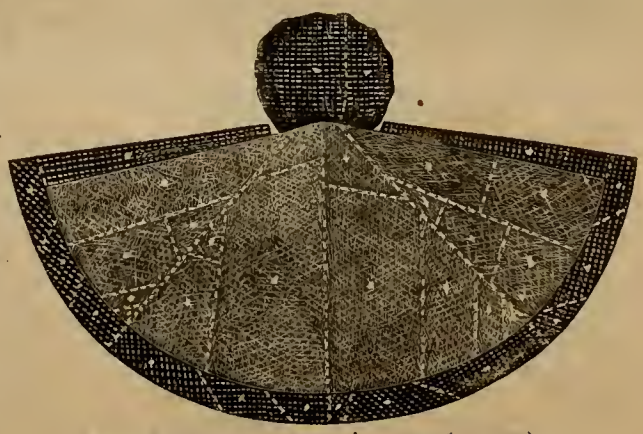
CLASS C—DARNING—SECOND PRIZE—GIRL'S SACK.

coat-linings. It has been worn by my little girl three years to public school just as it is now, with the exception of relining the hood and rebinding the cloak each season. Each garment from which this is made was worn over one year, and some of them were worn three and four years. I made this

Our readers have already heard of the wondrous little cloak, pretty and demure-looking, that concealed in its fair expanse we cannot remember how many old pantaloons, vests and coat-linings. Its picture is given on this page, and here is the letter that came with it:



CLASS B—FIRST PRIZE—GIRL'S CLOAK (INSIDE).



CLASS B—FIRST PRIZE—GIRL'S CLOAK (OUTSIDE).

in two days, and remarked when I was making it, "I deserved a pension," but I conclude now, if I can get $15 after three years' wear, I will be satisfied. I am not a tailoress, but I am over sixteen years old. I am just a poor man's wife. May this cloak keep some other parents' little darling warm this winter. P. S.—I attach these little white pieces to assist you in counting.

MRS. M. C. PARKER.

The specimen of darning, on girl's sack, comes out distinctly under the searching eye of the camera, and is so shown in our engraving, but it is hard to find in the garment itself. This little note was pinned to the sack:

WEST PHILADELPHIA, Dec. 31st, 1870.

DEAR MR. JUDD: I have seen your offer to little girls for them to send you samples of their skill in mending and darning clothes. I am now twelve years old and not a tailoress, and I thought I would send you this little sack, which I have been wearing for two years. I have darned it in several places entirely by myself. Hoping it may be of service to some poor little girl, LOUISE G. DREER.

The other illustrations need no explanation. They are as accurate as photographer and engraver could make them, and, though homely in themselves, will certainly interest all who from a distance took an active part in the show.

Many of the letters accompanying articles for competition contained excellent suggestions, showing that the true housewifely spirit is by no means extinct in this age of revolutionary ideas. Now and then a husband has something to say, and always he says it with a will.

"I am delighted," writes W. P. S., "to see that such encouragement is given to this branch of economy. I am pastor of a United Presbyterian congregation in this place, and, like many of our country pastors, live on a small salary. We are poor, and try to economize. My wife, though not a tailoress, but formerly a school-teacher, makes and mends most of the clothes for the family."

Julia M. S., a Western woman who evidently has kept her heart young through the "three times sixteen" years of her life, lets fall a few suggestions, that are scattered here in the hope that they may take root and ripen in ready places:

"Of old coats and pantaloons, I have none to experiment on, as we have a worthy indigent friend who wears all of my husband's half-worn clothes, from his hat to his boots." Who has not a "worthy indigent friend" somewhere who could be thus delicately and generously aided without cost or labor? "As to woman's clothing," adds the lady, "my own experience is this, that it is better economy, both for myself and those to whom I give, for me to patch and darn for ourselves, especially if the garment is of fine material, and buy new, stout and substantial material for those who need; for that class of people have seldom the 'know-how,' or the disposition, to make available anything that is half-worn and needs altering or mending."

Here comes a sweet, motherly bit of bragging: "I had one 'premium on patching' a short time ago; it was when I began to patch again after a long sickness, when other hands had done my sewing: I heard my two boys talking, as they looked at the knees of Wally's pants: 'There,' said one, '*that* looks as though mother was better; just see those patches.' 'Yes,' said the other, 'mother's patches look nice enough to wear to meeting any time.' I think, after that compliment, I can do without a premium, don't you?" Yes, indeed we do.

A clergyman's widow incidentally brings forward a wrong that is often thoughtlessly done by even kind-hearted persons who feel that 'a small account is of no account,' and therefore neglect it day after day, forgetting that little wages often are the hardest to earn, and the most sorely-needed when they are earned:

"I have been instructing the children of quite a wealthy lady, who now owes me about ten dollars, which for weeks I have had the promise of receiving. But I understand she is gay and fashionable, and . . . When a person becomes a slave to fashion the heart seems to evaporate." Later in the letter, however, comes these more cheerful words: "My son bids fair to make a good farmer, under his home instruction. As I have for some years past devoted myself to that branch of business, you can readily perceive that we need your papers." You shall have them, good mother.

Think of the patient industry of the home-life indicated in these simple sentences:

SECOND PRIZE—CLASS B.

O. JUDD & CO.—GENTLEMEN: This coat was two or three years ago so badly moth-eaten that it was considered beyond the possibility of repair. I have set in more than forty patches, and darned more than one hundred holes in it. A microscope would probably not reveal beauties in the work, but by it only can any considerable proportion of the number of the stitches taken in it be revealed. I have made all the repairs, am over sixteen, and am not a tailoress. CLARA M. BLODGET.

"Years ago," writes Mrs. Laura A. B., "patching and darning constituted so large a share of the work of the wives and daughters of the well-to-do farmers and mechanics of the country, that it was no unusual thing for them to go into a store and inquire for darning-needles, and good stubbed patching-needles (bethinking themselves, no doubt, that as their husbands' garments were of such heavy material, no slender or delicate needle would do the work). But now-a-days, instead of darning and patching-needles, we find instead worsted and crotchet-needles

"By all means," says another correspondent, "let us add a new department to our public seminaries for girls—such a one as is suggested in an article on 'Helpless Girls,' in the *Hearth and Home* of Dec. 31st. If near enough resident, I would most cheerfully lend my hand to assist the lady in her charitable operation, and help her instruct her young ladies some hours each day to put on patches neatly, darn stockings handsomely, etc. I should be most happy to meet with the new department. It will be a very trying undertaking; it will be much like putting up a new building on no foundation, but foundations may be prepared for those to come. I should, sirs, be happy to receive the address through your paper."

With these brief extracts we conclude this little extra gossip about the Patching and Darning Show.

Cows' Milk for Infants.

An English physician, Dr. Selby Norton, has recently been investigating the subject of rearing children by hand; his results are given in the London "Milk Journal," from which we condense the following notes: Dr. N. states that 90 per cent of the diseases of children fed by hand, are due to improper feeding. Mothers' milk is the very best food for the infant; next to this, stands cows' milk, properly diluted. So near a perfect substitute is the cow's milk for the mother's milk in chemical composition and adaptability to the infantile stomach, that he deems it a matter of indifference which is used. He utterly discards all the starchy forms of food for infants, that have from time to time been proposed. The milk should be mixed with an equal bulk of water for the first three months of the child's life; after this the quantity of water may be gradually lessened, until at six months the proportions are one-third water and two-thirds milk. From this point to the end of the year, the richness of the mixture is gradually increased to one-quarter water and three-quarters milk, but beyond this the quantity of water is never to be diminished. Among the common mistakes of those who feed cows' milk to infants, and which are to be avoided, Dr. Norton enumerates boiling the milk, which coagulates the albumen of the milk and renders it indigestible. The same result follows from adding the diluting water when too hot. Sugar should never be added to the milk. It is a very common custom to sweeten the child's food, but Dr. N. thinks that it interferes with its digestibility. Milk naturally contains a considerable proportion of sugar, but this is sugar of a peculiar kind, and cannot be replaced by ordinary cane sugar. Finally, the milk when fed, should be about as warm as new milk, and fresh and good, while the greatest care must be taken to keep the feeding-bottle clean and free from the slightest curd.

A Towel for Each.

It is not uncommon, in country houses, for all the members of the family to use the same towel for wiping their hands and faces. I am often surprised to see how this practice prevails even among people of considerable cultivation. Frequently the towel is made of three yards of good crash, sewed together at the ends, and hung over a roller. This seems very generous and nice when it is clean, but not so after it has hung there two or three days, used at morning, noon and night by half a dozen persons. We may be able to endure a good deal of *our own* dirt, when we are obliged to, but it is not a morbid delicacy that shrinks from using a towel soiled by other persons.

Each human body gives forth its own peculiar personal excretions from every pore of the skin—waste matter, more or less filthy. So it is not merely the impurity derived from external sources that we wash and wipe away when we perform our ablutions. It is also this one's dyspepsia, that one's biliousness, the other one's tobacco—ugh! Give me a clean towel, please!

And please give every child its own towel, and its own comb, as soon as it is old enough to use them. And now I want to add—please, O, fellow citizens! give *every* human being a chance to bathe the whole body, privately, whenever one wishes to do so, in a comfortable bath-room, with plenty of hot and cold water, and a good bath-tub, and all the clean towels desired! R.

Moreton Farm Cake.

BY AUNT HATTIE.

Take two pounds of butter, set it in the cake-bowl near the fire, until it is softened throughout, but not melted. Now add to the butter two pounds of nice, white, soft sugar, and mix them thoroughly together, or until creamed. Take out one half of this cream and reserve it in a separate bowl until wanted. To the cream in the bowl add one quart of pretty warm, sweet milk. Now stir in gradually four pounds of flour, and then mix in very thoroughly a teacupful of lively home-made yeast. Let it stand in a warm place until very light. In four hours it should be raised enough, when the remainder of the butter and sugar may be added, and a little more flour, if needed. Have two pounds of raisins nicely stoned (seedless raisins are not so rich as the others), and add them to the cake, a little pulverized mace, and, if at hand, some candied lemon peel. Let it rise again. When well raised, mix it well, using the hands, and proportion it off into well-buttered pans. Allow the pans to stand in a moderately warm place until the cakes are beginning to rise, then put them to bake in a *steady* oven, and bake them fully an hour, or longer, if only one or two pans are used. It will be better to try the cake in the usual way before removing from the oven. Thrust a nice clean straw or fine skewer gently into the thickest part of the center of the loaf; if it is perfectly clear when drawn out, the cake is sufficiently baked. I generally leave it in a few minutes longer, to make sure. Fruit cakes require a much longer time to bake than delicate and sponge cakes. There are no eggs used in this cake; none are needed. It is an excellent cake for economical housekeepers to make in winter, when eggs are scarce. Some persons never eat cake because eggs disagree with them. They will find this cake wholesome and delicious. If the top and sides of the cakes are frosted, they will keep moist and sweet for a long time.

Brown paper is nice for keeping cake. Wrap the cake in the paper before putting it in the crock or tin cake-box. The paper helps to keep out the moisture of the changing atmosphere, and of course the cake will keep longer the more completely it is excluded from the air.

BOYS & GIRLS' COLUMNS.

About Donkeys.

BY "CARLETON."

During the years that I have been knocking about the world, I have traveled in a great variety of ways—in cars, on steamboats, on ocean steamers, in sailing vessels, in stages, in hacks, on rafts, on horseback, on donkeys, and on foot. I have seen many amusing scenes, especially with donkeys. I venture a guess that not more than half of the boys and girls who read the *Agriculturist* ever saw one of the long-eared animals, for there are not many of them in the Eastern States. Their voice is not quite so tuneful as that of the nightingale, and when they attempt to bray they make such a botch of it that you cannot help laughing.

My Uncle Ben bought one once when he was in Brighton market, and sent it up to his farm in the country; it was the first one ever seen in the neighborhood. Zeke Simple, not knowing what had happened, went into the stable, and the donkey, seeing the door open, pricked up his ears, opened his jaws, and gave a bray so loud and unearthly, so unlike any thing Zeke had ever heard, that his hair stood on end, his cheeks were white, and his eyes started from their sockets. He ran into the house and asked if it was not the devil!

Unless you have had some experience with donkeys you do not know their qualities; they are the most cheerful, patient, plodding, obstinate creatures in the world. They will work patiently all day, and live on little or nothing. They kick, and they stop when you want them to go, and go when you want them to stop. Their ears are so large that they take in a great deal of sound, which they let out through their mouths. They have big heads, and would have you believe that they are honest, but they are wily and cunning, and play a prank upon you when you least expect it.

I remember a very funny scene that I saw during the war. We were roughing it in Tennessee. It was a few weeks after the battle of Pittsburg Landing, and the army was in camp in the grand old woods, waiting for the mud to dry up. There was little to do except to eat our breakfast, dinner, and supper, of hard-tack and salt pork; but one day we had a hearty laugh over a donkey-race, and this was the way it came about: Jim and Jake were negro teamsters, and each had a baggage wagon with six mules and donkeys to draw it. They had been slaves, but were in the Union army "A fitin' for de Union," as Jim said. They were proud of their positions and of their teams.

"My team is de best team dar is in the whole army," said Jake.

"No, it isn't, sah, my team is de bettermost. Dey is fat and slick, and can draw eber so much more dan yours," Jim answered.

"O, no sah, dey can't; dey can't do it, no how, sah. I've got de best donkey dar is in de whole army, dat grizzled one with a white nose. He can beat any one of your's, Jim, all boller, on a race," respounded Jake.

"No, he can't, sah. You bet. Dat black one of mine, he'll beat yours all to nuffin' in no time," was Jim's reply.

"I'll bet a dollar he can't. I'll bet two dollars he can run faster than yours."

"I'll bet one hundred dollars he can't."

"I'll bet five hundred dollars he can," said Jim, becoming quite excited. Jake, too, was getting warmed up, and the soldiers one by one came out from their tents to see what was going on. As they had n't five cents in the world they had set the stakes quite high enough.

"Bring out your donkeys," cried a wide-awake soldier, who wanted some fun; "here's a plug of tobacco for the one who wins."

Away went Jake, and away went Jim, and in a few minutes both were back again. Each mounted on his favorite donkey, without saddles, with rope halters round the necks of the animals, and each with a good switch.

"Go when I give the word," said the soldier, "and the one who rides out round that oak tree in the old cotton field and gets back here first will get the tobacco.

The riders raised their switches, and sat ready to strike the donkeys.

"One—two—three—go!"

Each switch came down with a whack, and each donkey leaped ahead."

"Go it Jim!"

"Put in Jake!"

Whack, whack, went the sticks. The donkeys ran and galloped. Now one was ahead, and now the other, and now they were neck and neck, and then Jake's donkey suddenly planted his fore feet into the ground, gave a kick with his hind ones, and the rider shot forward heels overhead, turned a summersault, and lay sprawling on the ground, while the donkey trotted off to a patch of green grass, and began to nibble it just as if he had played no prank; while Jim trotted back and took his tobacco. It was so funny to see Jake flying through the air that the soldiers laughed until the tears ran down their cheeks. Jake was so mortified that he did not show himself until the next day.

Had I space I would like to tell you what I saw in Egypt, how I rode a donkey from Cairo to the great pyramids, with a little Arab boy trotting behind and crying "har! har!" and how the donkey pricked up his ears and went ahead upon the trot; how one donkey played a prank on a friend and pitched him into the mud; how I rode out to the spot where Joseph lived when he was brought into Egypt and sold as a slave; how I went to the donkey market and saw thousands of them for sale,—and donkey colts, which I think are the funniest looking creatures in the world; how I saw a woman and a donkey yoked together and harnessed to a plow which was only a forked limb of a tree, and saw the husband of the woman holding the plow, and plying his whip to the team; how I saw a man traveling with his family—one donkey carrying two baskets full of children—one basket on each side of the animal; how the little black creatures, with laughing eyes peeped over the rims of the baskets and giggled at us. Probably they saw something funny in our stove-pipe hats.

Donkeys are very common in the East, and in almost all the houses of the poor people in the country they munch their hay and grain beneath the same roof that shelters the master. Frequent mention is made in the Bible of asses. As you are attending school and learning to read correctly, let me tell you how a minister once read a passage about donkeys, and by placing the accent on the wrong word, not only made an ass of himself but set the congregation to tittering. Thus it was that he read: "And he said unto his sons, saddle me the ass. So they saddled *him*, the ass." You see where the laugh comes in, and you will also see that in order not to make ourselves ridiculous we must give the right accent when we are reading.

Aunt Sue's Puzzle Box.

The answers are coming along merrily. In the April number you shall know who drew the prize for answering all the Anagrams in the Feb. No. The same reward is offered this month for the solution of the following

ANAGRAMS.

1. Viper event.
2. Chop a real gig.
3. Quit Somo.
4. Parcel trails.
5. Cell soap.
6. In same huts.
7. Go sot, lose it.
8. Red as grain.
9. Meet P. C. once.
10. O! Zebra but.

ALPHABETICAL ARITHMETIC.

The following is a simple sum in division in which letters are substituted for figures.

```
NMO)INMELS(OODD
   NMO
   ---
   GGE
   NMO
   ---
   OADL
   OGED
   ----
    OMAS
    OGED
    ----
     OEG
```

[CONCEALED GREEK AND LATIN PROPER NAMES.

1. This is the highest Pyramid, I ascend very slowly.
2. I cannot run now, Sir, I used to.
3. Since he has become a convert I cordially recommend him.
4. Why! Mat, you amaze us, is it true?
5. The pony is quiet, useful, and pretty.
6. Jacob, Benjamin, and even Eli rode him.

CHARADE.

First.

See the poor little *animal* homeless and lone,
How glad he would be if you gave him a bone.

Second.

You wont? Then my second, I freely confess
Serves you right, if he did tear a hole in your dress.

Whole.

Come in with your boat, for the rapids are near,
My whole is so strong, you have reason to fear.

NUMERICAL ENIGMA.

I am composed of 16 letters:
My 6, 2, 10, 3, 12, 14, is an article of dress.
My 1, 7, 8, 15, 13, 5, is a contemptible trait of character.
My 16, 4, 1, 9, is a bird.
My 11, 2, 16, is a fish.
My whole is good advice.

PUZZLE.

Take five hundred and fifty and one,
And then add a thousand to that,
If you place them in order required
You'll see something good, kind, or "flat."

SQUARE WORD.

1. An animal.
2. A girl's name.
3. An exclamation.
4. A tool.

AUNT SUE'S NOTICES TO CORRESPONDENTS.

FRANK. All communications for the Puzzle Box, must be sent to AUNT SUE, Box 111, P. O. Brooklyn, N. Y. Communications for the "Doctor," should be sent to 245 Broadway, New York. My respects to your father.

ARCHÆOLOGIST. Thanks for your history of relics, etc.

ANNA DAVISSON. Your affectionate welcome goes straight to my heart; many, many thanks. "Grandmother" is with us yet, and shall have your message.

EMMA BINGHAM. I love to be called "Dear Aunt Sue." Do it again.

CLARA A. G. Did you get your big brother to write your letter for you?

PRIZES.

The square word ("seven") prize was won by HORACE MILLER, Howard Springs, Tenn.

The prize for answering the greatest number of the January puzzles was won by LILLIE STREEPER, who answers correctly twenty-four.

Thanks for puzzles, etc., to Reen Ross, J. K. P., A. G. Pettinger, W., George E. Perry, W. H. Morrow, and Iowa.

ANSWERS TO PUZZLES IN THE JANUARY NUMBER.

RIDDLE. A book.

COUNTIES. 1. Rusk. 2. Jasper. 3. Victoria. 4. Polk. 5. Hunt. 6. Moore.

NUMERICAL ENIGMA. Mahershalalhashbaz.

TRANSPOSITIONS. 1. Break, brake. 2. Leaf, flea. 3. Deer, reed. 4. Nile, line. 5. Sloe, sole. 6. Lead, dale.

CAPES. 1. Henlopen. 2. Hatteras. 3. Lookout. 4. Sable.

PUZZLE. Cabbage.

SQUARE WORD. Seven, exile, vices, elect, rests. (This was correctly answered by Gussie Kilmer, C. E. Miller, S. L. C., Lillie Streeper, Henry Strohm, Olney K. Blanchard, Mary Louisa Bell, L. R. C., Nellie Sanxay, Jennie B. Lyford, J. H. Bird, Mary Bidwell, Mary Gidley, J. H. Charles, Iowa, Horace Miller, H. L. Morse, Frank, George E. Perry, and Emma Bingham.)

CHARADE. Mandate.

COMBINATIONS. 1. Arethusa. 2. Parasite. 3. Temperate.

REBUSES. 398. Chickasaw. 399. Be ye therefore wise as serpents and harmless as doves. 400. (Which should have been credited to HAUTBOY.)—The most arch deed of pitiful massacre.

☞ All communications intended for the PUZZLE BOX should be addressed to AUNT SUE, Box 111, P. O. Brooklyn, N. Y. (*Not* to 245.)

☞ Answers to the puzzles in the March number must reach me by the first of April. Those received later will not be credited.

404. *Illustrated Rebus.*—A line of poetry.

405. *Illustrated Rebus.*—A proverb to be heeded.

CASTLES IN THE AIR.—*Drawn and Engraved for the American Agriculturist.*

"What a queer name for that picture!" many a little reader will say, and big one, too, as soon as they look at this page, "why, it's only a party of children sewing."

True. But all the while their needles are flying, the busy little folks are doing something very like building castles in the air. They are laying plans upon a great big "if"—and an "if" nearly always forms the corner-stone of an air-castle. The walls are made of hope.

It is a lively scene. All the children, Kitty, Fan, Mary, Ann, Bessie, and even Tom and little Toddlekins are stitching, basting, darning, and talking with wonderful eagerness. It is no common occasion. They are working for the great Patching Exhibition, and Tom is n't at all ashamed to be of the party. "A fellow ought to know how to mend his own clothes," he says, "and that 's all there is about it"—and he gives his thread an extra jerk, proud of the strength of his young fist that can put in a stroke in boxing as well as any other boy's in that part of the country. He is working upon an old jacket.

Kitty is trying to thread her needle. She has taken an extra large one for the occasion, but the result is not encouraging. She pokes the thread at it first in one direction, and then in another, and finally declares that if it was a camel instead of a thread it could n't be harder to put it through. She wishes persons would make good needles, or that little girls' hands were more steady.

"Fair and easy wins," says Tom. "If at first you do n't succeed, try, try again. That 's my motto."

"Oh, it 's all very well to say, 'try, try again,'" said Mary, "but it is n't nice work a bit. It cramps one's fingers and do n't look like any thing when it 's done. I like to crochet and make lovely tatting and edging."

"Or any thing that is no manner of use," said Tom. "Just think how the poor folks will go for these duds."

"Oh, Tom, how slangy!" remonstrated Mary. "But, then, to be sure," she continued, "there 's the money. Perhaps some of us will get the fifteen-dollar prize."

"Oh, that 's the thing," said Ann, who was busily examining her elder sister's work. "Think of the loads of patched-up clothes there 'll be to compete with."

"Oh, never say die," said Tom. "You 've just as good a chance as any body else; there 's a hundred and thirty dollars, to say nothing of the papers, lying around loose. Among us all, it 'll be queer if we do n't get something."

"Toddy 'ep on," spoke up a sweet baby voice from the other side of the table. Ann could just see the top of the speaker's head appearing above the cloth. The little fellow was doing his best at darning a great hole in a yarn stocking with a piece of twine, to which Tom had tied a big brass bodkin. "Toddle get a p'ize."

"If I get the fifteen dollars, I 'll have a lovely gold chain to my locket," said Mary, "they 're so fashionable."

"If I get the ten-dollar prize I 'll buy a full set of Dickens," said Katie, who was very fond of reading.

"O, girls! I would n't," put in careful Fanny. "If I get the five dollars, I 'll ask mother to lay it away with the rest of my savings. See if I do n't."

"What will you do with your money, Tommy Tinker?" asked the girls, looking enriously toward him.

"Well," said Tom, "I do n't count my chickens before they 're hatched. I 'm not working so much for the money as for fun, and to give the poor folks a lift. I want to do a good piece of work to astonish the natives. I hope these old pantaloons will keep some other fellow's legs as warm as they have mine. Still, you know, if a prize falls to me I shan't cry. Upon the whole, I think I 'd like it; I 'd buy a great big wagon for Toddle."

"Toddle want the wagon now," put in a wee voice. Then they all laughed, and sewed the harder, feeling that Toddle was quite a little goose to be so sure about it.

The Icicle Prize.

What a number of expectant eyes will read this heading, and what a number of disappointed youngsters there will be! Well, boys, I can't help it. I might as well own up to having been right down sick. "Pretty business for a 'Doctor,'" you will say; but doctors are not much better than common mortals, and are quite as helpless when they are sick as any of you youngsters. Such a pile of letters, long and short, large and small, as there is to look over, and only two prizes! Under the circumstances, the best I can do, is, to promise to *try* to announce the successful ones next month. THE DOCTOR.

Have a Solid Foundation.

Even Sir Walter Scott, able as he was, and celebrated as a writer, felt the ill effects of careless and undisciplined study in his youth. "It is with the deepest regret," said he, when a middle-aged man, "that I recollect the opportunities of study which I neglected in my youth; through every part of my literary career I have felt hampered by my own ignorance; and I would at this moment give half the reputation I have had the good fortune to acquire if, by doing so, I could rest the remaining part upon a solid foundation of learning and science."

New and Choice Vegetables, Rare and Beautiful Flowers,

For Sale by B. K. BLISS & SONS, Nos. 23 Park Place and 20 Murray Street, (P. O. Box 5,712,) 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 & SONS, 23 Park Place, New York.

The Earliest and Handsomest Beet.

Early Dark Red Egyptian Turnip Beet.—A trial of this variety for the past two years, authorizes us in recommending it as a week or ten days earlier than any other variety—which makes it invaluable to the Market-Gardener as well as to all lovers of Early Vegetables. 30 cts. per ounce; $1.00 per 4 ounces; $3.00 per pound.

B. K. BLISS & SONS, Nos. 23 Park Place and 20 Murray St., New York.

Bliss's 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., 15 cts.; 4 oz., 50 cts.; 1 pound, $1.50, by mail, post-paid.

B. K. BLISS & SONS, P. O. Box 5,712, New York.

Jerusalem Artichoke.

This well-known but much neglected vegetable just begins to be appreciated, and is much inquired for. It will grow anywhere—in fence corners, ditch sides, old pastures, or wherever a piece happens to fall. The tubers make excellent pickles, and are very good boiled like potatoes. Sheep are fond of the green leaves, and hogs will never cease rooting for it as long as one can be found, and rapidly gain flesh. It also possesses anti-malarial properties, like the Sunflower, and should be grown where Fever and Ague prevails. 4 lbs. by mail, $1.00; by express, $1.50 per peck; $5.00 per bushel; $12.00 per bbl. Address

B. K. BLISS & SONS, P. O. Box 5,712, New York.

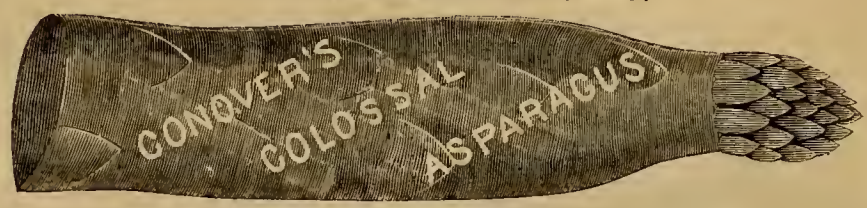
THE BEST TOMATO.

ONE-HALF THE AVERAGE SIZE.

The best in cultivation. Early, large, productive, and of the very best quality. 25 cts. per packet, 5 packets for $1.00, $5.00 per ounce. **B. K. BLISS & SONS,**

Nos. 23 Park Place and 20 Murray St., New York.

ASPARAGUS WORTH GROWING.



ONE-HALF THE AVERAGE SIZE.

SEED and ROOTS.—The experience of the past two seasons fully confirms all that was claimed for this variety when first offered, and it now stands unrivaled in size, productiveness, and quality.

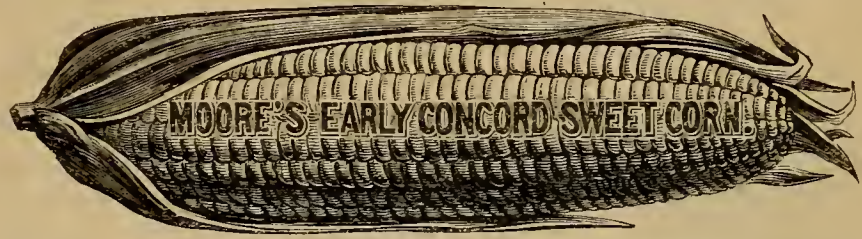
Specimens were exhibited the past season by Mr. Conover, which were grown alongside the best "Oyster Bay" varieties, and received the same care and treatment, which attained four times the size of that popular variety.

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. Our stock is all from the original Bed, and we guarantee its genuineness. *Seeds* in half-ounce packets, 50 cents per packet, $10 per pound.

Roots one year old, $2.00 for fifty, $3.00 per hundred; by mail, post-paid, $25.00 per thousand, by express, freight paid by purchaser.

B. K. BLISS & SONS, 23 Park Place, New York.

THE EARLIEST AND BEST SWEET CORN.



ONE-HALF THE AVERAGE SIZE.

Originated by Capt. J. B. MOORE, of Concord, Mass. The earliest, largest, sweetest, and best-flavored variety in cultivation, superior to any other for the market and family use. Ears average 12 to 16, and sometimes 20 rows. It was exhibited by the Mass. Hort'l Society every Saturday, from July 23d to Sept. 23d, in fine condition, and attracted the attention of all. A Silver Medal was awarded to this variety by the Vegetable Committee. Price, 50 cts. per packet. Selected ears, $1 each. Address

B. K. BLISS & SONS, 23 Park Place, New York.

The Best Potato.

ONE-HALF THE AVERAGE SIZE.

Peerless in Beauty.
Peerless in quality and Size.
Peerless in Productiveness.

A trial the past summer confirms all that was claimed for it when it was first offered by us in the spring of 1870, and it now stands without a rival for a general crop. J. W. Beach, of South Orange, N. J., raised from a single potato, weighing 21 ounces, cut into single eyes, 273 lbs. Several others report having grown from 600 to 800 bushels to the acre, with ordinary field culture.

4 lbs. by mail, upon receipt of $1.00. By express, $1.50 per peck; $5.00 per bushel; $10.00 per bbl.

The Earliest Potato in Cultivation.—Bresee's King of the Earlies (or No. 4). Known also as the Fifty-Dollar Potato. Ready for marketing from seven to ten days in advance of the Early Rose. By mail, 4 lbs., $1; by Express, $1.50 per peck; $5 per bushel; $10 per bbl. To avoid freezing, no potatoes will be sent out until the first of April, unless specially ordered.

B. K. BLISS & SONS,

Nos. 23 Park Place and 20 Murray St., New York.

Wethersfield Onion Seed (New Crop).

	oz.	4 oz.	lb.
Extra Early Red, very early	.40	$1.25	$4.00
Medium Early Red	.40	1.25	4.00
Wethersfield Large Red	.35	1.00	3.50
Yellow Danvers (True)	.40	1.25	5.00
White Portugal	.50	1.50	5.00
White Globe (extra fine)	.50	1.50	5.00

The above will be sent post-paid to any address upon receipt of price affixed. Address

B. K. BLISS & SONS,

Nos. 23 Park Place and 20 Murray St., New York.

LAWN GRASS SEED.

By the use of our improved mixture, a beautiful Lawn may be made in a very short time. Full directions for preparing the Lawn and sowing the seed accompany each package. Packages of 1 quart, 30 cents, mailed to any address, post-paid. By Express. Per peck, $1.75; per bushel, $6.00.

B. K. BLISS & SONS,

Nos. 23 Park Place and 20 Murray St., New York.

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 assortments postage free.

Collections of Kitchen-Garden Seeds.

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 60 varieties, $3.50
" No. 6 contains 40 varieties, 2.00
" No. 7 contains 20 varieties, 1.00

The above are prepared expressly for sending *by mail*, and will be sent post-paid upon receipt of prices annexed.

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 the **Seventeenth Annual Edition** of their celebrated

Seed Catalogue and Amateur's Guide to the Flower and Kitchen-Garden,

just published, and will be mailed to our customers of 1870 as rapidly as possible, and to all applicants upon receipt of 25 cts.; an edition beautifully bound in cloth, 50 cts.

This is without exception the largest and best Catalogue ever published in this or any other country. It contains 192 pages—56 of which are finely-executed engravings, including four beautifully-colored lithographs of favorite Flowers and Vegetables, and 136 pages of closely-printed matter, giving a descriptive list of upward of 2,500 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 upward of **One Hundred varieties of choice Gladiolus**, with many other **Summer-Flowering Bulbs**, and much useful information upon the subject of gardening generally. Also, a Descriptive Price-list of **Small Fruits**, embracing all the leading varieties of **Strawberries, Raspberries, Blackberries, Currants, Grapes**, etc.

Bliss' Illustrated Gardener's Almanac and Abridged Catalogue, containing a monthly calendar of operations, mailed to all applicants inclosing a 3-cent stamp.

B. K. BLISS & SONS,

(P. O. Box 5,712), NEW YORK.

Specialties for Spring.

Of which we have a heavy stock at very low rates.

Crab-Apples.	Red Dutch Currants.
Dwarf Apples.	Spanish Chestnuts.
Dwarf Peaches.	American Arbor-Vitæ.
Plums.	Irish Junipers.
Roses.	Clematis.
Honeysuckles.	Seedlings for Nurserymen.

Shrubbery—1 year old.

For prices, send for our New Wholesale Catalogue. For a full line of stock, send for Descriptive Catalogues.

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Cherry Hill Nurseries,
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C. DOWNING, Kentucky, and other Strawberry plants; Raspberry and Blackberry plants; Conover's Colossal Asparagus Roots and Seed for sale, at lowest market prices. Also, Early Rose, Peerless, and other Seed Potatoes. Send for price-list.

THOS. C. ANDREWS, Moorestown, N. J.

Trees and Shrubs.

Our large stock of the older, as well as those of the new and rare varieties, embraces, among others, those of the

FLOWERING SHRUBS.
ROSES, 1 and 2 years, strong plants.
RHODODENDRONS.
AZALEAS.
EVERGREEN TREES AND SHRUBS,

including a large stock of Arbor-Vitæ and Irish Juniper. Nursery-men and Dealers can be supplied on favorable terms. **PARSONS & CO., Flushing, N. Y.**

OSAGE HEDGE PLANTS

By the 1,000 or 1,000,000.

Special low rates to dealers; agents wanted; would exchange for unimproved Real Estate. For price, address (stating quantity) Barnes Bros. & Co., Young America, Ill.

COLUMBUS NURSERY.—Greenhouse and Bedding Plants give universal satisfaction. Spring Catalogue mailed to applicants. R. G. HANFORD, Columbus, Ohio.

Norway Oats.

$1.50 per Bushel; one peck by mail, $1.25. **Sanford Corn,** $3 per Bushel; 4 lbs. by mail, $1. Also, other choice varieties of Corn, Oats, &c. Send for circular and price-list. Address W. E. STITT, Columbus, Wis.

Osage Orange Seed

By mail, post-paid, 75 cents per pound.
Address L. G. PRATT & CO., St. Louis, Mo.

Black Defiance Strawberry.

The highest flavored large strawberry in cultivation. 50 cents per plant; $2 per half-dozen; $3 per dozen. The entire stock of plants, raised by the originator, for sale exclusively by REISIG & HEXAMER,
New Castle, Westchester Co., N. Y.,
or B. K. BLISS & SONS, 23 Park Place, New York.

NATIVE EVERGREENS.

Balsam Fir, Arbor-Vitæ, White Pine, Hemlock, American Spruce and Larch, 5 to 12 inches high, at $3 per 1,000; $12.50 for 5,000. Packing free. James A. Root, Skaneateles, N. Y.

FIRST-CLASS CONCORD GRAPE-VINES, 2 years, $60 per M.
Full assortment of Nursery Stock. Send for Catalogue to A. CLEMENT & CO., Lowell, Mass.

THE SMALL FRUITS yield the profits, and the plants sold at about the cost of raising them, in preference to keeping stock over. Send for Catalogue, and how to grow them. SILAS WALTON, Moorestown, N. J.

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Sardy's "Soluble Phospho-Peruvian."

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AMERICAN AGRICULTURIST

FOR THE

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VOLUME XXX.—No. 4. NEW YORK, APRIL, 1871. NEW SERIES—No. 291.

IMPORTED SOUTHDOWN SHEEP AT CENTRAL PARK, N. Y.—*Drawn and Engraved for the American Agriculturist.*

The fine expanse of lawn at Central Park have their beauty enhanced by the introduction of sheep, which give to the scene a pastoral air highly pleasing to those who otherwise might rarely enjoy the sight of a flock. The South-downs were first introduced, not for their beauty solely, as they are made useful in keeping the grass nibbled close, while at the same time they fertilize the turf. Animals of pure blood only being allowed in the flock, the sale of the increase has been a source of revenue, while the proceeds from sales of wool go toward paying attendance and winter keep. The present Board of Public Parks, has recently made an important addition to the flock by the importation of five ewes. The animals are from Messrs. Bowen & Jones, Ensdon House, Shrewsbury, England, who furnish the following pedigree: "*Sire*, Lord Clifden, winner of Bath and West of England and Royal Agricultural Society of England prizes; bred by the late Bryce Wm. Bowen of Shranardine Castle. Sire of Lord Clifden, Patentee, the prize winner of Royal Agricultural Society of England, by old Patentee, the prime winner of Royal Agricultural Society of England, Dam of Lord Clifden by Chester Billy, winner of two first prizes of Agricultural Society of England. *Dam of Ewes.* Ewes bred by Messrs. Bowen & Jones, Ensdon House, Shrewsbury, one of the original flock on which the Shropshire Sheep are founded." The public is to be congratulated upon the introduction of such fine animals, which are to be placed where they can be seen by all. It is gratifying that the Park authorities, while they offer instruction and amusement in a collection of wild animals, do not forget the domestic breeds, and we hope that in time the Park will be able to present the choicest specimens of them.

Contents for April, 1871.

INDEX TO "BASKET," OR SHORTER ARTICLES.

Black Walnuts.—G. M. Walrad, Wilkes Co., Ga.—We doubt if black walnuts which have dried for some months can be made to grow. The seed is very oily and soon becomes rancid, unless special pains be taken in the preservation.

Grapes in Va.—"Hollywood" writes that Grapes are successful in Fairfax Co. One of his neighbors sold fruit the first year of bearing, for enough to pay three-fourths of the expense of establishing his vineyard.

Calendar for April.

Day of Month.	Day of Week.	*Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon.* Sun rises.	Sun sets.	Mo'n sets.	*N. Y. City, Ct. 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	S	5 43	6 25	3 55	5 41	6 24	3 51	5 46	6 28	3 47
2	S	5 41	6 27	4 31	5 40	6 26	4 28	5 44	6 24	4 24
3	M	5 40	6 28	5 3	5 41	6 27	5 0	5 42	6 25	4 58
4	T	5 38	6 29	rises	5 39	6 28	rises	5 41	6 26	rises
5	W	5 36	6 30	6 43	5 37	6 29	6 43	5 39	6 27	6 42
6	T	5 35	6 31	7 59	5 36	6 30	7 57	5 37	6 28	7 55
7	F	5 33	6 32	9 15	5 34	6 31	9 12	5 36	6 29	9 9
8	S	5 31	6 33	10 31	5 33	6 32	10 27	5 34	6 30	10 23
9	S	5 30	6 34	11 45	5 31	6 33	11 40	5 33	6 31	11 34
10	M	5 28	6 36	morn	5 30	6 34	morn	5 31	6 32	morn
11	T	5 26	6 37	0 50	5 28	6 35	0 45	5 30	6 33	0 39
12	W	5 25	6 38	1 48	5 26	6 36	1 42	5 28	6 34	1 37
13	T	5 23	6 39	2 37	5 25	6 37	2 32	5 27	6 35	2 26
14	F	5 21	6 40	3 16	5 24	6 38	3 12	5 25	6 36	3 8
15	S	5 20	6 41	3 48	5 22	6 39	3 45	5 24	6 37	3 42
16	S	5 18	6 42	4 16	5 20	6 40	4 14	5 23	6 38	4 12
17	M	5 16	6 43	4 42	5 19	6 41	4 41	5 21	6 39	4 40
18	T	5 15	6 45	5 5	5 17	6 42	5 5	5 20	6 40	5 6
19	W	5 13	6 46	sets	5 16	6 43	sets	5 18	6 41	sets
20	T	5 12	6 47	7 44	5 14	6 44	7 41	5 17	6 42	7 39
21	F	5 10	6 48	8 43	5 13	6 45	8 40	5 16	6 42	8 36
22	S	5 9	6 49	9 43	5 11	6 46	9 38	5 14	6 43	9 34
23	S	5 7	6 50	10 40	5 10	6 47	10 35	5 13	6 44	10 30
24	M	5 6	6 51	11 35	5 8	6 48	11 30	5 11	6 45	11 24
25	T	5 4	6 52	morn	5 7	6 49	morn	5 10	6 46	morn
26	W	5 3	6 53	0 27	5 6	6 50	0 21	5 9	6 47	0 15
27	T	5 1	6 55	1 12	5 4	6 51	1 8	5 8	6 48	1 1
28	F	5 0	6 56	1 53	5 3	6 52	1 48	5 6	6 49	1 43
29	S	4 58	6 57	2 29	5 2	6 53	2 25	5 5	6 50	2 21
30	S	4 57	6 58	3 0	5 0	5 55	2 58	5 4	6 51	2 55

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	5	9 39 m.	9 27 m.	9 15 m.	9 3 m.	8 33 m.
3d Quart.	12	1 9 m.	0 56 m.	0 44 m.	0 32 m.	0 2 m.
New Moon	19	2 19 ev.	2 7 ev.	1 55 ev.	1 43 ev.	1 13 ev.
1st Quart.	27	7 3 ev.	5 51 ev.	6 39 ev.	6 27 ev.	5 57 ev.

AMERICAN AGRICULTURIST.

NEW YORK, APRIL, 1871.

To the good farmer, whose land is drained and clean and in good condition, who did more or less plowing last fall and top-dressed his grass land, who has his seed on hand and his implements and harness and teams in good condition, and who can avail himself of the first opportunity to put in his crops, April is usually a joyous month. But to the farmer whose land is undrained, who has not a field on the farm where there are not wet spots, who has part of his land dry enough to work, but where, in the low spots, the water follows the plow in the furrows, April, to such a farmer, is the most trying and disheartening month in the year. And the more intelligent he is the more gloomy is the prospect, for he knows that he is working to great disadvantage, and cannot in any event get remunerative crops. His only consolation can be found in a firm resolution to drain his land before another rotation comes round. Such land should be kept in grass until it can be drained. In the meantime, if it must be cropped, make an earnest effort to let off all the water of surface drains. This is far better than nothing. A few furrows with a plow will frequently let off more water in an hour than the sun can evaporate in a week. Not an hour should be lost in doing this work.

Giving Directions to Help—Tell the men the night before what you want them to do the next day. And tell them, "if it is *fine*, do so and so; if it *rains*, do this or that;" and enter into details. A good man likes to know beforehand what he has to do, and he will think the matter over and decide how best to do it, and what tools he will want, and where they are; and in the morning he can get to work half an hour earlier than if he did not know what he was going to do.

Hiring Farm-men.—That farmer is fortunate who has two or three active and intelligent sons able and willing to take hold of farm work. Make much of them. Those who have to hire should be willing to pay good wages for good men. We do not sufficiently discriminate. Wages are too high, but good men are not likely to take much less than they got last year. Farmers are very remiss in one thing: they do not insist on having "a character" from the last employer. It should be a hard matter for a bad man, or one who left his employer during the busy season, to get another place. Farmers should combine to drive an unfaithful servant from the neighborhood. Pay good wages, and treat them with kindly consideration, but insist on having respectful behavior, and good work. Know what a good day's work is, and get it; but do not ask for more. An unreasonable employer makes discontented servants. If they do well, tell them so; if not, reprove mildly but firmly.

Hints about Work.

Rainy Days.—These will be frequent this month. There is nothing more important than to *clean out the cellar.* It is madness to suffer any decaying vegetables to remain. It is the cause of much sickness, especially among the children.

Whitewash the walls, ceilings, etc. See that the windows will open and shut easily, so that the cellar can be readily and frequently ventilated. Clean empty pork and cider barrels, inside and outside, and make the cellar neat and tidy. *Water in the Cellar* must be got rid of, no matter what the cost of draining may be. If it *cannot* be drained, better fill it up, and make an outside cellar. Inconvenience can be endured better than ill-health. At any rate, those who are afflicted with a wet cellar should not delay a moment after the water has subsided to clean out the sediment and cover the bottom with lime, which should be removed in a day or two, and some chloride of lime be sprinkled about the cellar as a disinfectant. *In the Barn*, there is abundant of work for rainy days. Make every thing clean, and have a place for every thing, and see that every thing is in its proper place. Brush out the cobwebs. Clean the windows, and see that they will open and shut. Grind all the tools, rakes, hoes, and spades. Mark them, and rub the handles with petroleum or linseed oil. Scour off the rust, and rub on a little petroleum to keep them bright. Oil harness, and be sure to wash it clean with warm, soft water, soap and brush, before applying the oil. *An extra evener* for two, and especially for three, horses, will come handy on a stony farm before you are through plowing, and now is the time to make it. *See that the Plows* are in order; and if a new point or a new wheel is needed, get it now. Have the harrow teeth sharpened. Examine the drill, the roller, and the cultivators. If any of the wood-work is beginning to split, put in a carriage bolt. *Paint every thing* with petroleum, or with linseed oil paint. For old implements, machines, wagons, etc., the former is best, as it penetrates much deeper into the wood, and is far cheaper.

Sheep.—Tag any that need it. For mild cases of scours, nothing is better than milk-porridge, made with wheat-flour—say a pint of milk and a tablespoonful of flour for each sheep. For severer cases, give prepared chalk, or ten drops of laudanum, repeating the dose every four or five hours till the discharges are arrested. Give gruel and tonics to keep up the strength of the animal. Salt regularly, and mix a little sulphur with the salt—say three pints of salt and half a pint of sulphur, twice a week, for a hundred sheep. Ewes expected to lamb should be watched night and day. But be careful not to render assistance when it is not needed. Rub the lambs dry, and see that they get milk immediately; and after that, with ordinary care, there is little danger. A chilled lamb may be restored when apparently nearly dead, by putting it in a bath of warm water—say at blood-heat; or in the absence of this, place the lamb in a heap of hot fermenting manure. After the bath rub and dry, and be careful that it does not take cold.

Milch Cows that have but recently calved should have a liberal diet of good hay, with a pailful of warm bran-slops twice a-day; and in our opinion a quart of corn-meal, added to the bran, would be an improvement. Let the cows be kept in the stable nights and stormy days. See that their mangers are cleaned out every day. Whitewash the stable, and let it be well ventilated. Cows expected to calve should have exercise every fair day, and see that their bowels are not constipated. Bran

or oil-cake will regulate this matter. If the cow is very fat, it may be well to give a quarter of a pound of glauber salts ten days before calving, and repeat the dose every three or four days, if needed, to keep the bowels moderately loose.

Calves Fattening for the Butcher should suck the cow, and should be tied up in a warm, dry, well-ventilated apartment, that is not too light. Keep them as quiet as possible, and feed the cow liberally. After the third day there is little danger of milk-fever.

Calves to be Reared may be at once removed from the cow, and taught to drink milk from a pail, unless they are choice, thorough-bred animals, when it is better to let them suck the cow and have all the new milk they will take. Valuable shorthorn calves are sometimes allowed to take all the milk they want from two cows. Common calves that are not allowed to suck the cow, should have their own mother's milk for a week, and afterwards a little skimmed milk may be substituted for a part of the new milk; and in place of the cream removed from the milk, a little flax-seed tea should be substituted. It is a great loss to starve a calf. When the calf gets to be a month or six weeks old, the cheapest and best food for it is oil-cake boiled in fresh skimmed milk; or if the milk is too sour to boil without curdling, boil the oil-cake in water till it will form a jelly on cooling, and then mix it with the milk.

Pigs.—Last fall's pigs must be well fed, and got into a thriving condition before being turned out to clover. Do not begrudge them all the corn-meal they will eat. It will pay better at this season than next fall. Breeding sows should be put into a pen by themselves a week or so before they come in. Have a rail round the pen to keep the sow from crushing the little ones. It should be from eight to twelve inches from the ground, according to the size of the sow, and six or eight inches from the sides of the pen. Give a liberal allowance of *chaffed* straw for bedding. Give the sow, for a week before and a week after pigging, warm bran-slops and milk; and later give richer food, such as cooked corn-meal with the bran. As soon as they will eat, let the little pigs have a few oats or soaked corn, or cooked corn-meal, in a separate pen from the sow. On warm days let the sow run out for an hour or two, and feed the little pigs just before she is let in again, and while they are hungry. Our readers will find some useful hints on this subject in "Harris on the Pig."

Hens, to lay well, must have plenty of exercise and liberal feeding. Let all their apartments be kept scrupulously clean. Where they have but a narrow range, they must have animal food, as a substitute for the worms and insects they find when running at large. Hens, with young chickens, should be confined in coops, and the chickens should be abundantly supplied with soft food and fresh water. Let the coops be moved on to fresh ground every few days. A common mistake is to have the coops too small. They should be at least three feet high and well ventilated. During a rain-storm, place the coops so that the back part, which is boarded up, will keep out the rain.

Barley is the first crop to be sown. Plow the land only when it is dry, and sow as fast as it is plowed. It should be harrowed and cultivated until the soil is mellow. Drill in 1½ to 2 bushels per acre. Roll the land soon after the barley comes up.

Clover-Seed should be sown on the winter wheat. If the land is dry and hard, harrow the wheat before sowing the clover-seed. It will kill weeds and help the wheat, and the clover-seed is more likely to germinate. A smoothing harrow may be passed over the land after the seed is sown. If the land is mellow and in good condition, 4 quarts of clover-seed and 4 quarts of timothy seed per acre is enough. For permanent pasture add a pint of white clover. When nothing but clover is sown, we generally put in from 6 to 8 quarts per acre. Last year we lost our whole seeding from not sowing early enough.

Oats will do better on sod land than barley, but neither of them do as well on a tough sod as after corn or potatoes. Two bushels per acre is little enough seed. Land plowed last fall may be sown to oats without again plowing. Harrow them in thoroughly. If to be seeded down, make the land as smooth as possible after the oats are sown, and then sow the grass and clover-seed, and then roll.

Peas will do well on sod land, drilled in or covered with a Shares harrow. Sow as early as the land can be got ready—two bushels per acre. One or two bushels of plaster per acre will be beneficial.

Potatoes.—Plant early on dry land. Deep planting and harrowing the land, just as the potatoes come up, saves much hoeing, but increases the labor of digging. Plaster sometimes has a marked effect on potatoes, and sometimes appears to do little good. See "Walks and Talks."

Land intended for Roots should be plowed and harrowed, cultivated, rolled, and plowed again, and worked until it is as mellow as a garden. Parsnips should be sown as soon as the land is in good order, and carrots a week or two later. Mangels and other beets need not be sown until May, and rutabagus two or three weeks later. Make the land rich with well-rotted manure, and guano or superphosphate.

Work in the Horticultural Departments.

At the time we write these notes, early in March, the weather is as warm and mild as it usually is in April, and every thing bids fair for an early return of spring. But it is not safe to depend too much upon the weather at this season, as it is always very variable at the North. If, however, this weather should continue, much of the work in the horticultural departments that is usually done in April will have already been disposed of.

Orchard and Nursery.

The suggestions given last month will apply in many portions of the North for April. Trees for spring planting ought to be handled carefully and not allowed to become dry and shriveled; the nursery-man is often blamed for sending out poor trees, when the fault is with the planter who does not take care to preserve them properly until ready for setting. Never set out trees until the land is dry enough to work without leaving it in a lumpy condition, as the lumps will never pack close, and the air has a chance to circulate around the roots, often causing the death of the newly planted tree.

Pruning ought to have been done last month. Do not prune after the sap has commenced to circulate.

Scraping, however, can be done at any time, and the trees will be benefited by a thorough washing with whale-oil soap, or very strong soapsuds; this destroys many eggs which are found upon the bark.

Canker-worms.—This month is particularly favorable to the ascent of these pests of fruit-growers. Follow the directions given last month.

Grafting should be done this month. Care must be taken not to graft too early, as this is often more injurious than late grafting. Cions may be cut if the buds have not started, and preserved in sand or earth until ready to set.

Seeds for stocks ought to be put in early. The pits of peaches and other stone fruits, which have been buried during the winter, start very early; they should be handled carefully, so as not to break off the sprouts, if any have pushed. The seeds must have a good mellow soil to grow in, with a liberal dressing of well-rotted manure and ashes.

Manure may be hauled out and plowed in whenever the ground is dry enough.

Root-Grafts.—Set out in rows far enough apart to work with a cultivator.

Fruit Garden.

In many places the work suggested in the notes of last month has not been done yet; proceed as fast as possible with all planting, as the earlier plants are set, after the ground has become warm, the better growth will they make.

Strawberries.—Finish setting out new beds, and plow or spade up all old and unfruitful plants.

Gooseberries.—Set out the Houghton and American Seedling, and thin out the branches of old and crowded plants to admit light and air.

Currants.—When the old plants have been allowed to take care of themselves, and the clumps are filled with grass and weeds, the best way is to grub them up and make new plantations; cuttings root very easily, and will bear a small crop the second year if properly cared for after planting.

Raspberries.—Uncover the tender varieties, and make new plantations early, before the buds have commenced to grow. Among the blackcaps, the Seneca and McCormick are good sorts.

Blackberries.—Plant early. The Kittatinny is one of the best varieties for general planting.

Dwarf Trees.—Where trees are needed, order early, and in setting use great care so as not to injure the roots or bark, as a slight injury often does a great deal of damage to the after-growth.

Kitchen Garden.

This month is one of activity in this department, as the ground is warm enough for planting many of the hardier vegetables. Last month we enumerated some of the standard varieties of vegetables; these sorts should be ordered of the seedsman, if not done already. The hot-beds and cold-frames will need particular care this month, as a neglect to give air during a bright warm day, may scorch the whole of the plants in a few hours, so that the labors of the past month will be entirely lost.

Window Boxes ought to have an exposure to the air every mild day to harden the plants, so that they will not be put back when transplanted.

Asparagus.—Give a liberal coating of manure if not done last month. Go over the bed with a spading fork, and be careful not to break nor injure the buds or roots. If plants are to be raised from seed, sow in carefully prepared soil, in drills a foot apart. An ounce of seed will produce about five hundred plants. When well up, thin to three inches.

Beans.—Do not plant in the open ground until all danger of frost is over. Limas may be planted in hot-beds any time this month.

Beets may be sown early this month in rich, fine soil. Their growth is facilitated by soaking in warmish water for 24 hours, and then pour off the water and put in a warm place until the sprouts start; roll in plaster to facilitate sowing. One ounce of seed is sufficient for 100 feet of drill.

Cabbages.—Set out plants from cold-frame as soon as the ground is dry. Sow seeds in open ground, and as soon as an inch or two high, sprinkle with ashes to keep off the cabbage-flea.

Cauliflower.—Treat the same as cabbages; they ought to be planted 2½ feet apart in the rows.

Celery.—Sow seed in the hot-bed this month, and when the plants are an inch or two high, transplant to a frame and set three inches apart.

Cress must be sown for a succession in drills ten inches apart, and at intervals of a week or ten days.

Egg-Plants ought to be several inches high by this time; transplant to another hot-bed with a gentle heat, and use great care to prevent their becoming chilled.

Horse-radish.—The earlier this is planted, the better growth will it make. Set out the small roots which have been preserved during the winter in sand. This crop needs a large application of manure to secure the best results. The roots should be about two inches long and set out in rows from eighteen inches to two feet apart.

Herbs can be sown in hot-beds now, or in open ground as soon as it is warm enough; those most commonly used are Sage, Thyme, Savory, Sweet Marjoram, and Basil.

Lettuce, sown in hot-beds, may be transplanted to the open ground; sow seeds in warm dry soil.

Melons.—A few may be planted on sods in hot-beds for early; they must not be planted in the open ground until it is well warmed.

Onions, in order to succeed well, need to be sown as early as the ground can be worked. Sow in fine, rich soil, in drills a foot apart. Put out Potato and Top Onions in rows fifteen inches apart, and the bulbs four inches apart in the rows.

Parsnips.—Sow last year's seed in drills 15 inches apart; one ounce of seed is enough for 200 feet.

Peas may be planted on high ground where the soil has become thoroughly dry, in double rows.

Peppers.—Sow in hot-bed the same as Egg-Plant.

Potatoes, placed in a warm room to sprout last month, can be planted out in well-manured soil.

Radishes.—Sow in drills thickly once a week for succession.

Salsify should be sown this month and treated like parsnips.

Spinach for summer use may be sown now; that planted last fall will be ready to cut. The Perpetual Spinach Beet is valuable for early greens.

Tomatoes may still be sown under glass; those planted last month ought to be transplanted. Never set out in open ground until it is warm and dry.

Turnips for early crops should be sown in drills one foot apart; thin to 5 or 6 inches in the drills.

Manure.—See that the stable manure is not allowed to heat; turn it as often as it becomes hot, until ready to be plowed or spaded under.

Flower-Garden and Lawn.

Prepare the soil by plowing and spading. New beds can be cut, and walks made and repaired, as soon as the frost is out of the ground. If the soil in the flower-garden is of a strong loamy nature, it would be greatly benefited by an application of sand well mixed with the soil. Only well-rotted manure should be used in the flower-garden.

Flowering Shrubs.—A few of these will probably come into flower the latter part of the month; give them a dressing of fine manure to encourage the growth of wood during the summer. If any are without a few of the more common flowering shrubs, they ought to procure plants and set them out this spring. Syringas, Lilacs, Weigelas, etc., are perfectly hardy, and with little care will give an abundance of flowers during the summer.

Climbers.—The hardy climbers are numerous and very pretty for covering arbors, or used as screens; Wistarias, Honeysuckles, Virgins Bower, and last, but not least, the elegant Akebia quinata, are all perfectly hardy, and give an abundance of flowers.

Annuals started in hot-beds or window boxes last month, may be set out when the soil is dry.

Bulbs of Gladioluses, Japan Lilies, etc., may be planted now for summer flowering.

Lawns.—Care must be taken that nothing is allowed to cut up the lawn, and no one should be allowed to walk upon it until the ground is entirely free from frost and well dried.

Greenhouse and Window Plants.

Repotting—At this season most of the greenhouse plants need repotting, before they commence their growth. When very large plants are shifted, the best plan is to plant in a box of the required size; these always look neat, and if proper drainage has been provided, the plant will do as well as if planted in a pot; besides, all danger of breakage is avoided. The larger boxes ought to have hooks of iron attached to the sides, so that poles can be used in moving from one place to another.

Bedding Plants.—See that there is a good supply of bedding plants for out-door decoration as well as for growing in windows or boxes, during summer.

Dahlias may now be brought out and laid in a warm place with a little sand to retain moisture. When the sprouts are a few inches high, remove to pots or set out in the open ground if suitable.

Plants in flower need to be kept near the light and free from all insects.

Seeds of the finer and delicate annuals, like the Lobelia, Salpiglossis, etc., ought to be sown in pots and then transplanted to the open ground.

Tuberoses do best if started in pots and planted out when the soil is warm.

Roses and *Carnations.*—They are nearly hardy, and will do to go out any time after the frost is out.

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 16, 1871, 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.	234,000	397,000	416,000	15,450	111,000	267,000
25 days *last* m'th.	291,000	254,000	296,000	17,300	104,000	217,000
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
24 days *this* m'th.	317,000	1,305,000	1,107,000	49,000	206,000	908,000
25 days *last* m'th.	341,000	1,651,000	879,000	33,500	198,000	716,000

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

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
24 days 1871	234,000	397,000	416,000	15,450	111,000	267,000
22 days 1870	193,500	228,500	118,000	1,000	87,000	189,000
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
24 days 1871	317,000	1,305,000	1,107,000	49,000	206,000	908,000
22 days 1870	199,000	1,251,000	806,000	21,000	288,000	734,000

3. *Exports from New York, Jan. 1 to March 8:*

	Flour.	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
1871	397,126	1,628,358	491,703	——	——	9,129
1870	295,735	1,717,501	49,327	6,709	——	5,298
1869	194,449	1,712,169	656,051	——	31,646	——
1868	130,106	437,527	1,797,749	64,692	——	16,241

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

	Wheat. bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.	*Malt.* bush.
1871.						
March 13	1,523,785	204,388	150,514	329,319	1,133,897	218,231
Feb. 13	2,203,677	311,471	148,498	481,863	1,409,995	215,124
Jan. 16	3,685,110	272,618	157,730	554,491	1,736,936	216,394
1870.						
Dec. 15	3,060,762	208,319	148,069	500,397	2,085,137	231,129
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	237,453
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	1,281,913	483,540	28,816	98,600	655,068	109,478
June 7	706,478	69,845	21,891	91,630	488,143	108,775
May 10	1,158,052	110,829	20,502	126,043	410,517	83,000
April 11	1,845,186	285,916	23,249	187,172	756,811	99,988
March 7	2,509,608	484,176	39,089	278,905	1,105,194	97,139

CURRENT WHOLESALE PRICES.

	Feb. 18.			March 16.		
PRICE OF GOLD		111⅛			111¼	
FLOUR—Super to Extra State	$5 90	@	7 25	$6 00	@	7 50
Super to Extra Southern	6 25	@	11 50	6 25	@	11 25
Extra Western	6 65	@	10 25	6 50	@	10 25
Extra Genesee	7 80	@	9 25	7 85	@	9 25
Superfine Western	5 90	@	6 40	6 00	@	6 50
RYE FLOUR	4 35	@	6 85	4 35	@	6 35
CORN-MEAL	3 65	@	4 35	3 75	@	4 75
WHEAT—All kinds of White	1 55	@	1 90	1 65	@	2 00
All kinds of Red and Amber	1 20	@	1 62½	1 40	@	1 75
CORN—Yellow	82	@	87	88	@	90
Mixed	79	@	85	84	@	89
OATS—Western	66½	@	75	67	@	71½
State	70	@	—	69	@	71
RYE	90	@	1 10	1 10	@	1 20
BARLEY	85	@	1 15	1 00	@	1 20
HAY—Bale ₱ 100 lb	1 20	@	1 45	1 10	@	1 45
STRAW, ₱ 100 lb	80	@	1 35	85	@	1 55
COTTON—Middlings, ₱ lb	15¼	@	16	14½	@	15¼
HOPS—Crop of 1870, ₱ lb	5	@	12	6	@	12
FEATHERS—Live Geese, ₱ lb	70	@	80	70	@	80
SEED—Clover, ₱ lb	11¾	@	11¾	12	@	12¼
Timothy, ₱ bushel	6 00	@	6 50	6 00	@	6 50
Flax, ₱ bushel	2 15	@	2 25	2 12½	@	2 25
SUGAR—Brown, ₱ lb	8¼	@	11	7¾	@	10¾
MOLASSES, Cuba, ₱ gal	20	@	35	20	@	35
COFFEE—Rio, (Gold, in bond)	10	@	14	10¼	@	14¼
TOBACCO, Kentucky, &c., ₱ lb	6½	@	12½	6	@	12½
Seed Leaf, ₱ lb	12	@	75	12	@	75
WOOL—Domestic Fleece, ₱ lb	47	@	58	47	@	58
Domestic, pulled, ₱ lb	25	@	45	25	@	43
California, unwashed	20	@	33	20	@	33
TALLOW, ₱ lb	8½	@	9	8½	@	9
OIL-CAKE—₱ ton	40 25	@	42 00	39 50	@	42 00
PORK—Mess, ₱ barrel	22 00	@	23 00	21 75	@	22 00
Prime, ₱ barrel	18 50	@	19 50	18 00	@	18 50
BEEF—Plain mess	10 00	@	15 00	11 00	@	15 50
LARD, in tres. & barrels, ₱ lb	12¼	@	13¾	12¼	@	13¼
BUTTER—State, ₱ lb	20	@	42	20	@	42
Western, ₱ lb	12	@	33	12	@	33
CHEESE	5	@	16½	5	@	16½
BEANS—₱ bushel	2 90	@	3 10	8 7	@	8 25
PEAS—Canada, free, ₱ bu	1 30	@	1 35	1 40	@	1 45
EGGS—Fresh, ₱ dozen	26	@	32	18	@	20
POULTRY—Dressed Fowls	15	@	18	15	@	20
Turkeys, dressed, ₱ lb	16	@	20	17	@	20
Geese, ₱ lb	13	@	15	14	@	16
Partridges, ₱ pair	1 00	@	1 25	—	@	—
Ducks, ₱ lb	16	@	20	21	@	24
Ducks, Wild, ₱ pair	30	@	75	—	@	—
Quails, per dozen	1 25	@	1 50	—	@	—
Venison, per lb	8	@	16	—	@	—
POTATOES, ₱ bbl	3 00	@	6 00	2 50	@	6 00
SWEET POTATOES, ₱ bbl	3 50	@	4 00	3 50	@	4 00
TURNIPS—₱ bbl	1 00	@	1 25	1 00	@	1 25
CABBAGES—₱ 100	12 00	@	18 00	8 00	@	16 00
ONIONS—₱ bbl	4 00	@	4 50	3 50	@	4 00
CRANBERRIES—₱ bbl	7 00	@	10 00	7 00	@	13 00
BROOM-CORN—₱ lb	3½	@	6½	4	@	8
APPLES—₱ barrel	2 50	@	5 50	1 50	@	4 50

Gold has been rather steadier in price, on a more active demand for Custom-house purposes, as well as for export and on speculative account. The supply, however, has been liberal, and has served to prevent any material rise. The closing quotation, March 15th, was 111½.... Breadstuffs have been in fair request, partly for export; and, while flour has not varied remarkably in value, wheat, corn, rye, and oats, have been quoted decidedly firmer in price, on very limited offerings of desirable samples. There has been an unusually free export movement in corn, chiefly for English ports. At the close, the market was steady, though not active, for all kinds of grain....Provisions have shown a moderate degree of animation, the demand having been partly for home use and shipment, but largely on speculation, especially in mess pork and prime Western steam lard. Prices have been irregular, closing with more firmness.... Cotton has been offered freely at lower and unsettled prices, leading and extensive transactions for both prompt and forward delivery. The later dealings show a steadier market....Wool has been in reduced stock and moderate demand, at stronger prices....In the line of grass-seeds, clover has been the only active article, having been purchased freely, mainly for export, and it has been quoted decidedly higher....Tobacco has been moderately dealt in at steady rates....Hops have been more active, closing in favor of sellers.

New-York Live-Stock Markets.—

WEEK ENDING.	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	*Tot'l.*
Feb. 20th	7,850	57	739	28,518	9,947	47,181
Feb. 27th	5,755	83	989	15,887	11,808	34,522
March 6th	4,571	82	987	17,094	12,742	35,476
March 13th	5,195	54	947	18,781	14,529	39,506
Total in 4 Weeks	23,371	276	3,662	80,280	49,026	156,685
do. *for prec. 4 Weeks*	23,608	243	3,398	109,593	56,461	191,308

	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per Week	5,843	69	915	20,070	12,256
do. do. *last Month*	5,902	61	849	27,398	14,115
do. do. *prev's Month*	6,247	66	863	28,535	20,490
Average per Week, 1870.	6,847	97	2,240	28,151	17,108
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	91,033	1,499,509	798,199
Total in 1868	298,128	5,466	82,571	1,413,479	978,061
Total in 1867	293,832	3,369	69,911	1,174,154	1,102,643
Total in 1866	288,380	4,885	62,420	1,040,000	672,000
Total in 1865	270,271	6,161	71,991	836,733	573,190
Total in 1864	267,609	7,603	75,021	782,462	660,277

Beef Cattle.—Receipts have averaged a little less than during the previous month, but the demand, as is usual in Lent, has fallen off so much that a decline of 1c. per lb. is noted. Trade has been very unsatisfactory for the Western shipper. Not unfrequently have droves been sold on this market at just about what they cost in Chicago, thus losing the owners the freight, shrinkage, feed-bills, etc. Dealers have held on with the expectation of a turn in their favor, only to find the market here going from bad to worse. Their only salvation appears to be in getting the rates down at the other end, for it looks as though it will be hard to advance the prices here. Poultry has been very plenty and cheap, with eggs glutting the market. These largely take the place of beef.

Below we give the range of prices, average price, and figures at which large lots were sold:

Feb. 20th, ranged 8½@15¼c. Av. 12¼c. Large sales 12 @14¼
do. 27th, do. 8½@15 c. do. 12¾c. do. do. 12 @14
March 6th, do. 10 @15 c. do. 12¾c. do. do. 12 @13¼
do. 13th, do. 9 @15 c. do. 12¾c. do. do. 12 @13¾

Milch Cows.—When milk is scarce and high, fresh cows can be sold independent of the price of beef. Now there is a near affinity between the two, the very low rates of dry cows making a poor market for milkers. One other thing greatly injures the trade, and that is the poor quality of the cows sent here for sale. A good cow is worth keeping at home, but the worthless ones must be got rid of, and so are sent to this city. They have been sold as low as $30 per head, the calf thrown in at that. Good milkers are in moderate request. Common cows are quoted at $40@$55 each; medium to good, $65@$80, with a few prime at $90—occasionally $100 ...**Calves.**—The market has ruled weak until within a few days past. Prime milk-fed calves run down to 11c., but will now command 12c. per lb. live weight. A pen of 140 lb. State veals was just sold at 12c. There is a falling off in receipts of dressed, the weather being unfavorable for selling them. We call thin live calves worth 7c.@9c., with fair to prime at 11c.@12c....**Sheep.**—There has been quite a falling off in receipts of stock, farmers holding back for lambs and fleeces. Prices have advanced a full ½c. per lb. in consequence, and the market is active and strong. Thin lots sell at 5¼c.@5¾c.; medium at 6¼c.@6½c., with prime to extra 100@130 lb. sheep at 7c.@8c. A few weighing 150 lbs. were sold at 8½c. One lot of sheared sheep came in from Ohio a few days since. They weighed 75 lbs., and sold at 5¼c. Spring lambs are expected next week....**Swine.**—These are also in lighter supply, while Western dressed have almost entirely ceased coming forward. They are no longer quotable. With this light run of live hogs, prices have declined 1c. per lb., selling at 7¾c.@7¾c., and city dressed at 9¼c.@10c. The packing season is nearly over, which lessens the demand for hogs.

Pasturing Sheep on Wheat.—J. H. Sellman, of Anne Arundel Co., Maryland, asks: "Is pasturing sheep upon wheat during the winter months considered injurious or beneficial to the crop? Does it have a tendency to make the wheat thinner or thicker?—and adds: The practice prevails largely in this neighborhood. All acknowledge the benefit to the sheep, but I am sceptical about the advantage to the wheat."—Ans.: It is rarely of advantage to the wheat, except when there is a great growth of leaves, which smother the crowns and keep them too warm in case a good fall of snow comes. When fed off in the autumn a desirable thickening up of the stand often takes place, but when fed close after growth stops, injury occurs. The point is to know when to feed and when to stop. We never feed off grain with sheep on good farms at the North. Calves are used; their feet are not so sharp, and they do not bite close.

AMERICAN AGRICULTURIST.

ANNUAL SUBSCRIPTION TERMS (always in advance): $1.50 each for less than four copies: Four to nine copies, $1.25 each: Ten to nineteen copies, $1.20 each: Twenty copies and upward, $1 each. Papers are addressed to each name.

HEARTH AND HOME: $3 a year for less than four copies: Four to nine copies, $2.75 each; Ten to nineteen copies, $2.50 each: and twenty or more copies, $2.25 each.

Both Papers sent to one address for $4.00 a year.

ORANGE JUDD & CO., Publishers, 245 Broadway, N. Y. City.

$10, $15, $20, $25, $50, $75, $100, $125, $625.

Any one of the above Sums can be Easily obtained—by Men, Women, and Children even, by the judicious use of Odd Spells, such as evenings, rainy days, etc., during APRIL, or during APRIL and MAY, or during APRIL, MAY, and JUNE.

The above may, at first sight, appear a little sensational, but it is only a statement of what has been done by **many thousands** of persons all over the country; and what has been done by these thousands, can be done by other thousands *just as well.* It only needs the desire to do it, and the WILL to do it, and it will be done.

1*st*—There are now about **40,000,000** people in this country, nearly all within reach of the **28,000** Post-offices. The most of these people are pushing along, seeking to better their condition. Their success depends upon two things, viz.: Steady, hard WORK, with body *or* mind, and knowledge enough to *turn their work to the best account.* One drudges along and fails of success, because he does not know how to work to the best advantage; another works less, and yet succeeds better, because his knowledge *directs and aids* his physical or mental labor.

2*d*—It is a benefit to the former class to add to his or her knowledge by every possible means.

3*d*—Two Journals, viz., the *American Agriculturist* (monthly) and *Hearth and Home* (weekly) are prepared by those who make it their earnest business to gather all possible reliable information about the *best methods of doing work*, and of turning that work to *the best possible advantage.* These persons talk and write from large *experience* as workers, and from extensive observation, and from an immense amount of correspondence from practical men and women all over the country.

***4th**—It is impossible for any person, whatever his calling, to read the condensed information thus given in these journals without getting thoughts and hints that will directly or indirectly increase the value of his or her work MANY times more than the cost of the papers. The first one costs less than half a cent a day, and the second one less than one cent a day, and the two together less than 1¼ cents a day—sums easily saved.*

5*th*—It only needs some one to show the people these papers, point out their usefulness, and receive and forward their subscriptions.

6*th*—Out of 40,000,000 people, there is at least one in every forty, or a million in all, who could take one or both of these journals *with profit*, whereas there are only about 200,000 that now take them, or one in every two hundred.

7*th*—We offer fine Premiums, *as good as cash*, (see next column,) to those persons who will take the trouble to show the papers and collect and forward the subscriptions. It can be done at odd spells, without interfering with other work, and premiums all the way from $5 to $625 can thus be secured without cost.

8*th*—This has been done at 11,000 Post-offices by about 12,500 persons, with people enough left at these offices to make up twice as many premium clubs. There are **17,500** other Post-offices where no premium clubs have been raised, simply because no one has taken hold of the work.

9*th* and **10***th* — **READER,** you can do it, this month of APRIL. It is a good time; spring work is opening and people are wanting help and information, and they can get it from these journals. *You* can secure one or more of the excellent premiums. You can do it this month, and, if you wish, have May and June to swell your club up to a larger premium. **TRY IT.**

☞ **See Explanatory Notes.**

NOTE.—Many persons canvass all the time *as a business*, sell the premiums received, and thus clear large wages. One Lady actually thus earns over $3,000 a year, and multitudes in this way secure salaries of $300 to $1,500 a year.

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 *three* 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.

☞ **Full Descriptions of the Premiums sent free to ALL Applicants.**

[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*	$3 00	8	30	4	15
8	*Pocket Knife (Smith & Clark's)*	$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 Tablespoons (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 (Doff'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	69	200
39	*Piano, Splendid 7-oct. (Steinway & Sons)*	$625 00	520	1550	300	520
40	*Silver Watch (American Watch Co.)*	$10 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*	$20 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.)*	$90 00	46	150	23	75
46	*Tool Chest (Patterson Bros.)*	$45 00	60	190	30	95
47	*Case of Mathematical Instruments*	$9 00	13	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	480	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 (Paye'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 Cyclopedia (Appleton's)*	$30 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* (Unbound, Post-paid.)	$1 75	....	20	....	10
67	*Any Two Back Volumes do.*	$3 50	....	29	....	15
68	*Any Three do. do. do.*	$5 25	13	37	7	19
69	*Any Four do. do. do.*	$7 00	15	47	8	24
70	*Any Five do. do. do.*	$8 75	17	54	9	27
71	*Any Six do. do. do.*	$10 50	19	61	10	32
72	*Any Seven do. do. do.*	$12 25	21	68	11	34
73	*Any Eight do. do. do.*	$14 00	23	74	12	37
	—(*Each add'l Volume at same rate*)		....	....	....	....
76	*Fourteen Vols. XVI to XXIX* (Bound, Post-paid.)	$24 50	34	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. do.*	$7 50	16	48	8	24
80	*And Four do. do. do.*	$10 00	18	60	9	30
81	*Any Five do. do. do.*	$12 50	21	71	11	36
82	*Any Six do. do. do.*	$15 00	24	82	12	41
83	*Any Seven do. do. do.*	$17 50	27	92	14	46
84	*Any Eight do. do. do.*	$20 00	30	102	15	51
85	*Any Nine do. do. do.*	$22 50	33	110	17	55
	—(*Each add'l Volume at same rate*)	$25 00	....	....	....	....
87	*Fourteen Vols. XVI to XXIX*		47	143	24	72
88	*A $10 Library (Your Choice)* (All sent paid through by Mail or Express.)	$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	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.*		....	....	....	....
101	*A* **Steam-Engine** *that will GO*		3	24	2	6

☞ *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.* (Steam-Engine mailed for 36 cents extra.)

Special Premiums.

FOR A RENEWAL AND ONE NEW 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 guarantee of genuineness.

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.—Hasbrouck & 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 subscriber who, after this date, sends $1.50 for *American Agriculturist* for 1871, and 5 cents for postage, we will send 1 Package (100 Seeds) of Trophy Tomato Seeds.

II.—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.*

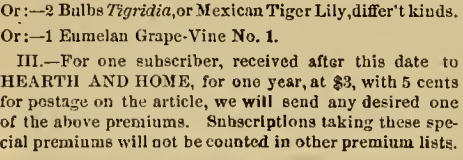
Or:—1 Bulb Long-flowered Lily, *Lilium longiflorum.*

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.

III.—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.



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.

Consulting Agriculturist.—In a large Agricultural Warehouse like that of R. H. Allen & Co., there are constant applications for advice about fertilizers, animals, implements, etc. To meet the wants of its patrons, the above-named firm has engaged the services of Col. Mason C. Weld, as consulting agriculturist. Col. W. is eminently able to fill such a position, both on account of his thorough chemical education and practical knowledge of agriculture, while his editorial experience upon the *Agriculturist* has made him familiar with the wants of farmers in different portions of the country.

Money in the Garden. By P. T. Quinn. This work, published by the Tribune Association, comes to hand just as we are going to press, and we cannot now give more than a mere announcement of its publication. Mr. Quinn is widely known as a successful cultivator, and being over-run by inquiries—as every man will be who allows his name to get into print—he has in self-defence put his garden experience in a book form, and says: "Friends, you will find it all in this volume." Sent from this office, by mail, for $1.50.

Smoked Meats.—"Subscriber," of Maryland, proposes the following questions: How long ought pork to be smoked, to keep—say one year from time of smoking? How long will smoked pork keep, properly cared for, without spoiling? And will it keep packed in barrels and stored in a cool place for one year?—Ans.: Meat should be well salted or pickled before it is smoked. It is the pickling quite as much as the smoking that keeps the meat. The length of time it will keep depends both upon the strength of the pickle, the length of time it remains in it, and the thoroughness of the smoking. A pickle containing a small quantity of alkali (potash) is very penetrating, and causes the meat to take smoke well. To keep a year, meat must be much salter than most people like, though sugar may be made to take the place of salt to a considerable extent. To keep hams and bacon, wrap in stout brown paper, and pack them in barrels in fresh wood-ashes. The potash of the ashes will do no harm even if it comes in contact with the meat.

Barley vs. Oats as Food.—(M. A. B., of Illinois.) When both are fed on the farm to horses, a crop of oats usually pays better than a crop of barley, and with you corn must be the more profitable crop for feeding hogs or cattle. Barley is a better crop to seed with than oats, and is excellent food for either pigs or horses. But you cannot get as large a crop per acre as from oats.

Death of Sanford Howard.—Just as we are making up the last pages of the paper, the intelligence comes of the death of Sanford Howard, Esq., at Lansing, Mich. For the present we must content ourselves with the statement that Mr. H. was widely known as an agricultural writer, and had been for several years Secretary of the Michigan State Board of Agriculture.

The Louisiana Fair, which had been announced for April 8th, has, on account of the burning of the fair buildings, been postponed until Nov. 18th.

Asbestos Roofing.—The advertisement of Mr. Johns is worthy the attention of those who desire a cheap, good roofing. Mr. Johns has been engaged for many years in making improvements in roofing, and means to treat his patrons well, which is saying a good deal, though we aim to admit no one into *our* advertising columns who we do not think will do this. Some of our editorial corps have examined and tried his later improvements, and are well pleased with them.

The New U. S. Loan is a matter of great interest to the whole country. It appeals not only to patriotism, but it opens a very convenient means of depositing money safely where it will pay Gold interest regularly over a long series of years, with no change. The Bonds can not be called in under ten years, and they will have an advantage over other securities in that they will always be convertible at once into cash. The **5-20s** at the present market price pay but a trifle more interest, and they are subject to be called in at par whenever the Government is in funds to buy them.

Horse and Horsemanship of the United States and British Provinces of North America. By Frank Forrester. This book was published fourteen years ago, and has had quite an extensive sale, as it was considered a necessity in the important public and private libraries of the country. It has now been thoroughly revised by Messrs. S. D. and B. G. Bruce, of the *Turf, Field and Farm*, whose knowledge of our thorough-bred and trotting horses is unexcelled. Pedigrees, performances, and importations of well-known horses have been revised and continued to date. In addition the histories and performances of the most celebrated horses of to-day are given with fourteen fine new steel portraits, which add much to its value to all lovers of fast horses. It is published in two large octavo volumes on fine paper, and contains in all thirty beautiful steel portraits. Price, post-paid, $15.

A Cheap Leveling Instrument, very convenient for drainage and other purposes, is advertised by the Warwick Tool Company. Send for their circulars which give full particulars.

Plants Named.—"J. C. H.," of New York. Your "Hibiscus" is Malvaviscus arborens...."Mrs. C. J. A.," Staffordville, Conn. No. 1. Abutilon Mesopotamicum. No. 2. Fringed Gentian, Gentiana crinita. No. 3. Achyranthes Verschaffeltii.

Samples of Seed.—We have just put into the chicken-feed a large number of samples of wheat, corn, oats, etc., which have been for some time accumulating. These parcels were all sent by mail, and no letters have been received informing us concerning their contents and the object in sending them. Our correspondents should always send an explanatory note by the same mail that the seeds are forwarded. No writing whatever, beyond a label, should accompany the seeds, unless full letter-postage is paid upon the parcel.

Gapes in Chickens.—J. M. J. Manning, of Calloway Co., Ky., informs us that he has never failed to cure gapes in chickens, by the use of soft-soap, mixed with the dough, just enough to color it slightly. We have heard this remedy spoken of highly by others who have tried it.

Raspberries.—D. B. Richards, Brewster's Station, N. Y. Plant from 4 to 6 feet apart each way, according to the variety. Set as early as possible. Cut off all of last year's stems. You might get a few straggling berries from them but no crop. The bearing will be next year from the stems which grow this year. The canes bear but once and are cut away when the fruit is off.

"Will posts put in the ground when green last as long as seasoned ones?"—We think not.

"Answer through the Paper" is a request we are obliged to disregard, when the answer is of no interest to any one but the person asking the question. All questions of a purely personal nature should be accompanied by a stamp for a reply—not a cent more. Nothing is more unpleasant than to receive 25 or 50 cents to pay for "information."—We answer private letters of this kind if we can, and when we can, but it is a matter of courtesy only, not one of obligation.

The Iron-clad Can Co. have removed to spacious quarters in a five-story building No. 51 Dey-street, in order to meet the pressing demands for their goods. Since the introduction on the market of their Iron-clad Milk-Pail about 60 days ago, they have disposed of 17,000 of the "Patent Bottoms." This Company commenced business in a small room a few months ago. See the results of advertising a good article in a good journal.

American Agriculturist or Hearth and Home?—Many correspondents address inquiries to Orange Judd & Co. without specifying whether they wish the answer to appear in the *Agriculturist* or *Hearth and Home*. We hope that all our friends will take both papers, but those who content themselves with one should indicate which one, as they are entirely different.

Canker of the Mouth and Head in Fowls.—Geo. Faulkner, Fleming Co., Ky. The new disease which you have among your fowls, by which their mouths and throats become filled up with a cheesy substance of very offensive odor, which causes in some cases a stoppage of the windpipe and death by suffocation is called canker of the mouth. We have treated it successfully in this way. 1st—If the fowl is not worth a good deal cut its head off. 2d—If worth saving, with a small spoon and pincers take out all the cheesy matter and wipe out all the slimy mucus from mouth, nostrils, and eyes. 3d—Prepare a solution of chlorinated soda or chloride of lime. If chlorinated soda (Labaraque's solution) is used, dilute it with one or two parts of water. Wash the head, eyes, nostrils, mouth, and throat, out thoroughly, using a soft swab with one of these solutions, and in 20 minutes give the fowl a good feed of chopped meat, mixed with bread soaked in ale or spirits and water, and well sprinkled with Cayenne pepper. Give some solution of iron in the water, and keep up the diet indicated until well. Put the whole flock on a similar regime for a few days, especially those having colds.

Mangels.—"S. S. F.," Somerset Co., Pa. The quantity of seed usually planted is 4 to 6 lbs. per acre.

Rose-Slugs and Green-Fly.—"Mrs. E. L. Crumb," Danville, R. I. You mistake in supposing the worm and fly, which attack your rose-bushes, to be the same. They are entirely different; the "worm" is known as the rose-slug, and the "insect" as the green-fly. If you have only a few rose-bushes, the best way to manage the slug is to lay a paper on the ground, under the plants, and shake them. If this be done early in the morning, the dormant slugs are easily captured. The green fly is destroyed by syringing with tobacco-water.

New England Poultry Club's Exhibition, at Worcester, March 7th to 10th, 1871. A. M. H. writes: "The entries were fully up in numbers to last year and far superior in quality. Attendance good.

"The competition was very close in many of the classes. In light Brahmas, especially, the judges could not decide between the best three coops, which should rank first, and two more persons were called in, and then they were unable to agree. Finally it was voted upon. This is unusual. The largest exhibitors were Messrs. Williams, Ball, Rice, Buzzell, Pogen, and Upham. A new feature, and a very pleasing one, was the '*Club Supper*,' held on the evening of the 8th. This was a reunion of Poultry fanciers from this and other kindred societies. About 100 sat down to a well-filled table. An address was given by the President, Mr. O. B. Hadwin, and a poem by the Treasurer, Mr. H. Woodward.

"The guests and members of other societies were then called upon for speeches. The addresses took a practical turn, and much interesting and valuable information was elicited. The resolution adopted by the *Poultry Convention* of Feb. 15, requesting Poultry societies to incorporate in their 'Rules for Exhibition,' the following, 'that exhibitors be required to name the *breeder* of the fowls exhibited, and that both the name of breeder and exhibitor shall be placed upon the coop during the exhibition,' was discussed and cordially agreed to by all present. This is a much needed regulation, and it is to be hoped will be *generally* adopted."

Gray's Botanical Works. — "How shall I study botany?" is probably asked a hundred times a year of the writer. The reply is essentially the same, but modified according to the age of the applicant. For a child, "How Plants Grow;" for an intelligent youth, the First Lessons, and for an advanced student, the Structural and Systematic Botany are recommended. These books are all by Prof. Asa Gray, and admirably adapted to the different classes of students. These works all teach the structure of plants. After this is understood, the examination and classification of plants may be undertaken; for this we have the Manual of Botany, which includes all the wild flowering plants of the Northern States, and the School and Field-book of Botany, comprising the most frequently occurring wild and cultivated plants. Either of these may be had bound up with the lessons." These works form the most complete botanical series ever published in this, or indeed in any other country. It is very fortunate that one who stands among the first of living botanists has given time and thought to the preparation of elementary works—a task too often left to mere book-makers. Even those who do not wish to study botany, will find the "Lessons" of great interest, as they give just that information about plants and vegetable growth, which every intelligent person should possess,presented in a form at once attractive and simple.

Homes in Kansas.—All who contemplate going West, will be interested in the advertisement of the "Kansas Emigration Society." This Association is organized under State authority, and is designed to furnish just the kind of information desired by emigrants. Every Western and Southern State and Territory should not only have such an organization, reliably officered, but also advertise the fact as widely as possible. A small increase of population will indirectly make up all the expense, and much more; and multitudes of emigrants will escape a vast amount of uncertainty and swindling.

Comstock's Hand Cultivator, Onion Weeder, and Seed-Sower combined, which we offer as premiums, will be found one of the most useful implements in the garden. It affords to amateurs the right kind of muscular exercise, enabling them to accomplish a great deal of garden work without fatigue. By practice the operator in weeding will soon learn to run it close to the rows without disturbing the young plants, and the implement works so easily and beautifully that it is a pleasure to use it. See our Premium List, No. 55. Descriptive circulars sent to applicants.

SUNDRY HUMBUGS. — The list of swindlers, of which accounts have been received within a month past, is appalling! Sorting, sifting, and cataloguing the bushels of letters, circulars, investigations, etc., before us, and condensing and classifying them, we find we have no less than **sixty-five (65)** different swindlers, and respecting the operations of single individuals, we have as many as fifty different letters detailing the attempt to fleece their several victims. If these 65 operators have scattered on an average only 15,000 letters each (some of them each send out 100,000 to 200,000 or more), they have tried their schemes on at least a million persons—probably many more. We will refer to a few.

Medical.—J. H. Tuttle, who (or his namesake) has been in various enterprises, is now making the kindly effort to furnish "electric bandages" for those weakened by self-abuse, etc. He says: "it is a well-known fact among physicians, that no man sick or well should fail at times to wear a bandage," etc., which is sheer nonsense, or worse. No man should wear any thing of the kind except after the examination and prescription of a reliable physician. Never send your money for any thing of this kind except to a well known, reliable party, if you expect to get what you pay for.....It would be amusing, were it not sorrowful, to see the swarms of poor nervous mortals that flock in companies and regiments after every self-dubbed peripatetic "doctor" who wanders through the country, especially in the South and West, sticking up his shingle at a hotel temporarily, and scattering huge bills —proclaiming his superhuman skill, his great reputation in N. Y. and London, etc., and professing to have made wonderful discoveries by means of which he is able to infallibly cure about every disease that flesh is heir to. As a rule, this class feed up their patients on stimulants, and keep up their hopes and faith, until their money is gone, and then the doctor moves on to "fresh fields and pastures new." Every such traveling doctor is positively a quack and a swindler.....The so-called "Benefactor and Medical Friend," issued at Albany, is a villainous sheet, and they will do the wise thing who at once burn the copies pushed into their hands through the mail. It abounds in falsehood as well as vileness and mischief .....It is passing strange that there are enough people so ignorant as to afford patronage to the advertisers of medicines sent out from N. Y. City, and elsewhere, as the prescription of some old granny, or ye Indian savage. ... . D. J. Henry Hodge of Owensville, Robertson Co., Texas, alias some other place, offers "Magnetic balls" for certain purposes, which they will not effect even were the results desirable. Better put the $5 in your pocket, and pick up the first round stone; it will be just as good, and a deal cheaper than this humbug's pretended nostrum..... T. L. H., of Penn., and other inquirers, are informed that we have no medicine or medical advice to sell or give away. No man can prescribe for disease except a thoroughly educated physician who can personally examine the patient

Gift Enterprises.—Aid for the suffering French should be sent direct to the Relief Committees, and not to any pretended Grand Diamond Gift Concerts, said to be open at Washington, D. C., but for which the money is to be sent to parties in Broadway, New York. You are more in danger of being struck by lightning, than of ever *seeing* one of those "$9,650 sets and separate articles, all in diamonds," offered to ticket-buyers at $6 each..... Another of these "Grand Gift and Musical" schemes, *alias* grand humbugs, is announced as to come off at Keene, N. H. If any new hands want to try their luck in this, let them first ask the advice of those who have been through the mill in San Francisco, Hamilton, Ohio, etc., etc.....A Gift Enterprise, *alias* lottery, is advertised at Denton, Caroline Co., Md., also at Wilmington, Del., offering engravings, farms, watches, sewing machines, etc., etc., and a paper, called the *Caroline Pearl*, is issued to advertise it. It is of a piece with several gift enterprises, which have so disgusted the participators during a year past. None but foolish people invest. Most of the gift enterprises in the country resemble one started in this city some time ago. A man tried to sell to various publishers (to those of this journal among others) some plates and lithographic stones, for printing large pictures, which had not sold on their own merits. The printed sheets would have *cost*, perhaps, 25 or 50 cents each, but they were not sold. Shortly after, a grand gift enterprise was announced, in which these same pictures were puffed to the skies, and purchasers invited at $5 each, with the bait thrown in, that each purchaser would receive a ticket, entitling him to a chance (one in 15,000 or 20,000), to draw a great farm, or something else, attractively described....If one wants pictures, the cheapest way is to see the pictures, and buy on their real merits, and not trust to exaggerated printed descriptions.

The "Queer," or pretended "counterfeit money" operators still abound. William Lewis & Co., 59 Cedar-street, N. Y., is a new name for James Fisher & Co., before exposed.....B. F. Cramer, Brooklyn, N. Y., is of like character.....Francis Ogden, 131 Fulton-street, *alias* Horace L. Austin, 5 Park Place, ditto, ditto, with the offer of tobacco stamps. The following are also of the same class; they make great pretensions of "dealing on the square," etc., etc.: James A. Holt, 9 Beekman-street; James Reed & Co., 62 Broadway, *alias* James Goodwin & Co., 67 Exchange Place; William Wade & Co., 59 Cedar-street; Albert J. Hackett, 85 William-street, and 11 Ann-street; William Cooper, 688 Broadway; R. H. Foster, *alias* B. W. Howard, Fourth-street, Williamsburgh. Smith & Co., 22 Ann-street advertise in the *Tribune* for "Agents," and to inquirers they send circulars with tempting offers (to the dishonest) to buy their pretended counterfeits. All these parties either make no return for money sent them, or send off a box of saw-dust and old paper, C. O. D.; or, if they get their victims into their dens, fleece them out of all the money they have, as previously described by us (see Oct. No., p. 365). No one corresponding with them, or calling upon them, dares to complain, or appear as a witness, lest he implicate himself as one trying to deal in counterfeit money. So the swindlers go on safely, cheating other would-be swindlers.. ...W. F. Langdon, agent of the U. S. & Canada Express, at Plymouth, N. H., writes us describing the receipt of C. O. D. boxes for parties with $50, etc., to be collected. The boxes, after being paid for, are opened, and found to contain old papers, chips, etc. This is a sample of multitudes of similar reports from all parts of the country. The victims are scarcely to be pitied, as they are trying to secretly get counterfeit money to circulate.—Many letters, *to* and about these chaps, we have no room for.

Various other Swindles. — A pretended "Watch Company," with a great show of names of officers, and a picture of a "manufactory," pretends to give for $4, a watch guaranteed to keep correct time for two years, in cases undistinguishable from gold, and for all practical purposes just as good as gold; all of which is sheer bosh printed on paper. *There is not a new watch sold any where for $4 or $5, that is worth a dollar to any body but the seller.* No one can now safely buy a watch, except of a well-known, responsible dealer, to whom he can *surely* return it, if not good, and get it put right, or his money back.....Every vinegar recipe offered for sale is to be avoided, no matter by whom recommended. One of these was unwittingly indorsed by two college professors; but we have their own letters, positively withdrawing their indorsement.....Don't send a dime to any *recipe*-seller, no matter how plausible he writes and prints. This applies to a score or more. There is *no* money to be made with any of these recipes, except as you temporarily humbug others into buying them of you.....Very many of the advertisements "Agents Wanted at $50, $75, $100 a week," and upward, contain a cat in a meal-tub, that will scratch you badly if you touch them—so beware. In *no* case advance any money for samples, or accept them C. O. D., or to be paid for afterward..... Frank Lewis, 103 Ludlow-street, N. Y., promises a valuable secret for 25 cents, but "no attention is paid to you, unless 25 cents is first inclosed to him." This is cool. We suppose there are people green enough to send 25 cents on such unsupported claims and promises; but such people ought to be scarce for their own good, and the good of the world..... The "Sunlight Oil," of which circulars, etc., still come, was exposed by us as a humbug in May, 1870. The "Great American Oil" is of like character. The $35 a week promised is "all in your eye."....Advance no money for Ink recipes or Powders, Tobacco-Substitutes, Corn-Extractors, etc.; the money will never be seen again.....Isaac H. Hitchcock, of Philadelphia, is sending out circulars, offering for $15 to sell a secret of saving 80 per cent of seed potatoes. We make this offer to *him*: If he will send us the secret, we will examine it, and will keep it secret, and if it seems plausible, we will tell a good many hundred thousands of farmers so, and how the $15 will flow in to him! Until he accepts our proposition, we advise all *our* readers to hold on to their $15. We would willingly invest the $15, and get the secret, but we have no security that it will come, if we send the money. So, though we spend any amount of money freely for information promising to be useful to our readers, we can't make up our minds to this trial—it do n't look right!.....We repeat for the twentieth time, give a wide berth to all Destroyers of Insects on Trees by any powder, etc., no matter how well fortified by bogus recommendations. The devil himself could get up a number of recommendations of character—fictitious and otherwise. We once heard a clergyman say, in the pulpit, that the devil was a gentleman, and understood good manners, because he was brought up in good society—that he would enter no man's house (or heart) where he was not invited!. ....The (rhubarb) wine-plant humbug is alive again—a swindle that has cost the farmers of our country hundreds of thousands of dollars, and not a few have lost their farms by it, too. As a humbug, it beats the *morus multicaulus* "all to pieces."....The so-called "Enterprise Publishing Company" of Broadway, N. Y., will be advoided by all decent people, and they will take care that their sons avoid it. Any one sending his money there, ought to lose it.....*Swindling soldiers*, is about the *meanest* act we can think of. Parties here and there, especially at the West, advertise to collect their bounties, and ask soldiers to send them a dollar or two for this purpose. Of course they pocket the money, and answer no further inquiries. Soldiers should consult with no one but a well-known lawyer of first-class character. Such men will give advice freely, and if they undertake the collection of bounties, will at most charge only a very small sum for necessary expenses..... Some Railroads allow peddlers to go through the cars and sell prize packages for 50c. guaranted to contain silver or gold coin of 5c. or 10c. to $10. These parcels contain 4c. or 5c. worth of candy, and *very* seldom over 5c. or 10c. It is a small lottery swindle, that ought *not* to be allowed. We have recently seen these operators on the Erie, and the N. Y. & New Haven railroads. The news agents on some roads constantly thrust into the faces of respectable ladies the basest sort of semi-obscene illustrated journals. The nuisance ought to be obviated by the railroad officers, without requiring the public to come to the rescue..... A so-called "Spanish Policy," is advertised (by mailed documents) by G. B. Chappell & Co., 680 Broadway—a swindle.....A book, called "Silent Friend" extensively advertised, is to be let alone severely except by those who are anxious to buy the sheer nonsense.....For the "Royal Havana Lotteries," many persons advertise themselves, as "Agents." Nine-tenths of these are swindlers who pocket your money, and give no answer, and your *chance*, through any real agent is not worth a sixpence a ticket. None but the lunatic or insane will invest a dime through *any* agency real or pretended... .. Galvanized wire for clothes-line, if of good quality and at a reasonable price, is useful. Some who have acted as agents complain of receiving it of poor quality from those issuing good certificates. We have hardly time to investigate all these cases, and only insert this paragraph to put buyers on their guard....."Co-operative" Insurance Companies are, in our opinion, not worthy of being patronized, whether advertised by reliable parties or not. We have seen some bogus advertisers of them who of course pocketed all the funds received.....But our space is exhausted and we must wait until next paper before finishing the pile of swindling schemes before us.

What to mix with Hen-Manure.—"J. H. F.," Lima, Pa., asks what is the best thing to mix with hen-manure to make a compost to put in the hills of corn. A mixture of hen-dung, unleached wood-ashes and plaster, frequently has a wonderful effect on corn. Whether they would not have just as good an effect if applied without previous mixing, has not been determined. If the ashes and hen-manure are perfectly *dry*, no decomposition or chemical change will take place when they are mixed together. But if moist, more or less ammonia will escape, and the plaster will *not* hold it. The only advantage of mixing these articles together, aside from the ease of applying them, is probably this: When the dry hen-manure is thoroughly broken up fine, and mixed with the ashes and plaster, and applied in the hill, the moist soil soon induces chemical action. This produces more or less heat immediately under the seed and favors germination; carbonate of ammonia would also be given off and would be absorbed by the soil immediately in contact with the roots of the young corn plants, and would, if everything is favorable, cause them to grow rapidly and assume a dark-green color. And we all know that nothing is more important in the management of a corn crop than to give the plants a good start. But care must be used in applying the mixture or it may do more harm than good by burning the roots. It should be well mixed with the soil and not come in direct contact with the seed. Some farmers apply it on the hill after the plants are up, just as they frequently apply plaster or ashes alone.

A Run-down Rhode Island Farm.—A lady-farmer in Rhode Island says: "I want to ask a few questions about bringing a run-down farm into bearing order. What is the best fertilizer, when stable-manure is out of the question, for meadows without plowing? What would be the best to spread on a cornfield, with stable-manure, or on a soil that is not very light?"—One of the best means of renovation for worn-out grass lands is a subsoil plow, run eight or ten inches deep at intervals of two feet, first lengthwise and then across. This should be done early in the spring, and followed with a dressing of two or three hundred pounds to the acre of finely-ground bone-dust, Peruvian guano, or a *reliable* superphosphate of lime. After several rains have fallen, and before the grass has become too high, it will be well to pass a roller over it, to smooth down the elevated tracks of the subsoiler. Any of the special fertilizers mentioned above would be well to use in connection with stable-manure for corn; one-half the amount being applied in the hill before the first hoeing, and the other half is to be sown broadcast before the second hoeing.

The Cottage without a Cess-pool.—A correspondent in Westboro', Mass., asks, with reference to the plan described on page 52 of the present volume, what effect frost has on the drainage, thinking that the drains must be closed in winter when the ground is frozen.—The author of the article referred to informs us that, with more severe frost this winter than he has ever before known in Newport, there has been no trouble; the drains having worked uninterruptedly. In a colder climate, like that of Massachusetts, the ground immediately over the drains, and for a foot or two on each side, should be covered with a coating of coarse manure, or some other protection, unless there is a sufficient growth of grass to keep the frost from penetrating to the pipes. The covering should, of course, be removed early in the spring, as no manuring of the land will be necessary beyond what the house-drainage itself would supply.

Multum in Parvo Pocket-knife.

The various combination pocket-knives, are almost always too heavy and clumsy to be constantly carried in the pocket. When in London, four years since, we chanced to find the one here illustrated that contained many useful articles in a length of 3 inches, and only weighing about 2 ounces. We have carried it ever since, and twenty dollars would not buy it if we could not get another. Its weight is not inconvenient in the pocket. The handle is of ivory.—DESCRIPTION: Fig. 1 shows it closed. *a*, fig. **2**, is an excellent saw with double teeth, so that it cuts smooth on both sides. We have often cut off an inch board 3 or 4 inches and more wide. It is very handy to cut a notch in a stick instead of straining the hands in using a blade. We have found hundreds of occasions for using it. *b*, is a good pen, or nail-blade; *c*, is a strong screw-driver, seen on one end of the closed knife (fig. **1**). This we have also used hundreds of times on all sizes of screws up to an inch or more; *d*, is the large blade; *e*, is a very handy hook, useful for lifting stove covers, prying open small boxes, doors, etc., pulling on shoes, cleaning horses' hoofs, and in many other ways. It is rasped at *f*, and, when shut down upon the hollow, *g*, is a convenient small nut-crack. The flat back of *e*, when closed, is much used as a small hammer for driving tacks, pins, etc.; *h*, is a brad-awl for punching or enlarging holes in wood, leather, harness, etc; *i*, is a good gimlet; *j*, is an effective cork-screw; *k*, when drawn out, is a good pair of twezers for extracting slivers, etc.; and *l*, when drawn out, is a long, slim, pointed brad-awl, or punch, for many purposes. There is no end to the uses for the various parts of such a knife. It has saved us a great deal of time that would have been consumed in looking after other tools. We have no doubt that it saves us as much, or more, than the annual interest on a cost of $50 (one cent a day). After four years of constant use, every part is as good as new. We name it the "Multum in Parvo Knife"—"much in little."

We have sent to London and Sheffield several times to get two or three dozen for friends and for holiday

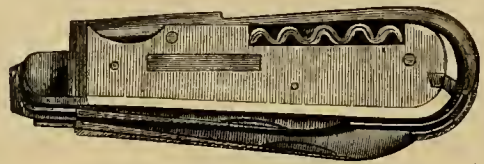


Fig. 1.

presents, but never succeeded in securing one with all the parts in so convenient a size and weight. The original maker is reported deceased. At last we called upon our Bronxville friends, Messrs. Smith and Clark, and we are happy to announce that they have reproduced for us a lot every way like the original—a little better, if possible. They can be sold at $3.50 each, (sent by mail at same price). We intend them, however, chiefly as Premiums, and

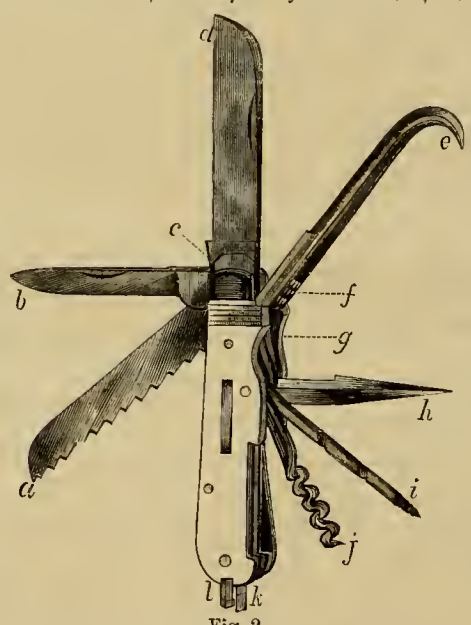


Fig. 2.

make the following offers: One of these Multum in Parvo Knives will be presented to any Boy (or man) who will now send us *eight* subscribers for the *American Agriculturist* for 1871, at $1.50 each; or four subscribers for *Hearth and Home*, at $3 a-year, to begin at any time. Or a club may be partly for both papers, counting one subscriber to *Hearth and Home* the same as two subscribers to *American Agriculturist*, or *vice versa*. It will also be sent for eight combined subscriptions—that is, eight subscriptions at $4 each for the two journals. The knives will be sent any where in our country, post-paid.

How much Food does an Animal require to Sustain the Vital Functions?—Mr. R. S. Hinman, of Conn., writes: "'Walks and Talks,' in the February No. of the Agriculturist, says he 'cannot find any experiments that show the exact maintenance ration of well-bred cattle, etc.' In the same number he says: 'An animal will eat 3 lbs. of hay per day for each 100 lbs. of live weight.' I have a breeding mare, weighing 1,150 lbs, and a cow weighing, I judge, about the same, that I have kept so far through the winter on 16 lbs. of hay per day, and I think they are in as good order as they were last fall. I fed the same to a couple of heifers coming two years old, with calf, I suppose, but I find that growing animals need much more in proportion to their weight; and I find that full-grown animals make more manure from the same amount of hay than growing ones." These are precisely the kind of facts we want to get at—provided they *are* facts. All the evidence we have tends to show that, on the average, an animal that is growing, fattening, giving milk, or working, requires about 3 lbs. of hay or its equivalent per day for each 100 lbs. of live weight. And what we want to ascertain is, how much of this food is used to keep up the animal heat and sustain the vital functions and how much of it is left for the production of growth, or milk, or force? Mr. Hinman thinks *about half* the food is required for this purpose. If the animal is of a quiet disposition and is kept warm and comfortable, he is probably not far from right. But we believe that *two-thirds* would be much nearer the average. That is to say, that a cow weighing 1,000 lbs. and eating 30 lbs. of hay per day, would use 20 lbs. of it to "run the machine," and only 10 lbs. of it to produce growth or milk. But this is precisely the point we want to get at. And we hope others will make similar observations to those of Mr. Hinman, and especially ascertain the exact weight of the animal before and after the experiment. In regard to old animals making more manure from the food consumed than growing animals, such is, of course, the case, provided the old animals do not use up as much of the food in fattening or in nourishing their young or in producing milk as the young animals do in producing growth. The difference, however, is far less than is usually supposed. The heifers referred to must have grown better than we should suppose they could on the amount of food mentioned if they took out, for growth, 5 per cent of the food consumed. It requires liberal feeding and a well-bred animal to get 10 per cent of the food retained in the growth.

About Railroads and Farmers.

During a business trip out on the Erie Railroad the other day, we were particularly impressed by the frequent announcement "Passengers change cars for the —— Railroad;" that is to say, every few miles there was some branch railway extending off from ten to a hundred miles or more into a rich valley, so that the whole southern part of the State, but recently almost an inaccessible wilderness, is now supplied with a net-work of railroads that branch off from the great trunk line like the limbs or roots of a tree. And this is the case with the various trunk roads leading from the Atlantic sea-board westward. Each one of these roads, by bringing the regions through which it passes nearer to a market, greatly increases the value of every acre of land, and every house, for a wide distance on each side. We doubt not that it could be demonstrated that there is hardly a region penetrated by a railroad where the real estate has not advanced enough to pay the entire expenses of the road. For illustration, suppose we estimate the cost of the railroads to average $31,680 per mile, or $6 per foot. If we confine the benefits to a strip 6¼ miles wide on each side, each *foot* of railway would then benefit 1¼ acres, and if taxed upon the land would amount to $4 per acre. Is there a region penetrated by a railroad where the advance in real value has not been more than twice $4 per acre on the average?.....The annual interest on $4 we will call 30 cents. That is equal to 2 cents per bushel on 15 bushels of wheat, or 1 cent per bushel on 30 bushels of corn; or 30 cents on a ton of hay, and so of other products. Is there a point reached by a railroad where the advance in the value of produce has not been many times greater than this? It would be nearer the mark to say that the advance in price is enough to pay for a new railroad every year. The inevitable conclusion is that railroads are of an inestimable value to the agricultural regions of our country, and we hail with pleasure every new railway enterprise, no matter where it is located.

As above stated, every great trunk railroad is the center or main artery of a wide system of branches. This is true of the N. Y. Central R. R., the Midland R. R., approaching completion, the N. J. Central and Pennsylvania Central, and the Baltimore and Ohio R. R. And now we are soon to have still another further southward, the Chesapeake and Ohio R. R.—which will have advantages of grade, climate, etc., even more favorable than any of the others. The construction is in rapid progress, and will be finished by the middle of next year. All of these trunk lines, aided by their many branches and their through business from the great West, have proved profitable—at least their first mortgage bonds are, we believe, at par or above, and there is no doubt whatever that they will continue so. They furnish a safe, good interest-paying investment for any surplus funds. The Chesapeake and Ohio R. R. offers a comparatively moderate amount of bonds per mile, as stated in the advertisement of Messrs. Fisk & Hatch in another column, and these bonds are especially inviting to all who have money to invest.

Corn-husking Machine in Kansas.—A couple of young men at Mission Creek, Kansas, who "have each a homestead, and intend to make farming their business," wish to know if it would pay them to buy a husking machine. "There is but one thrashing machine in this section, and it pays well." No doubt; and so will the husking machine when it is brought to the same degree of perfection as the thrashing machine. Until this is done, we would advise our young friends to stick to the farm and not invest their capital in new machines. They can use their money to better advantage in improving the land and introducing good stock.

American Agricultural Annual for 1871.—Though tardy in making its appearance, this *Annual* has lost nothing by the delay. The usual variety and value of the articles has been more than maintained, and the Farmers' Directory, which has been for two or three years a prominent feature, has been much extended and better classified, giving the addresses of reliable manufacturers and dealers in seeds, fertilizers, implements, and live-stock over the whole Union. *The Annual* contains, besides the usual review of the year, and the prospects of the year to come, with the notes upon Progress in Dairy matters, Veterinary Medicine, Fish Culture, and the record of valuable Agricultural Inventions, etc. Articles upon Peat for Fuel, Steaming Fodder, Gas-Tar Walks, New Harrows, Fish for Sport and the Table (Black Bass); on Leguminous Plants, by Joseph Harris; on the best Potatoes of 1870, by Dr. Hexamer, on Mutton Sheep and other articles of practical value. Many of the illustrations are of rare excellence. There is a complete list of the agricultural and kindred papers of North America, and of the books of the past year having even a remote reference to agriculture.

The five volumes now issued form a neat *Farmer's Library* of themselves, containing really a great fund of very valuable information upon many topics. They each contain 152 pages, are beautifully illustrated, and are bound either in enameled paper or cloth covers. The price per volume is 50c. in enamelled paper; 75c. in cloth. Sent post-paid on receipt of price by Orange Judd & Co., 245 Broadway, New York.

Lands in Iowa.—J. H. W. We must decline publishing such letters as yours; if we allow one to present the claims of his locality we must allow all to do so, and we could easily fill the paper with nothing else.

Grubs in Cattle.—C., Oregon City. The grubs under the skin of cattle along the back, come from an egg deposited by a fly. The common name of the trouble is warbles. A full account, with illustrations, was given in August last. The grubs may be killed by pressure, or by pricking them with a hot sharp wire.

Hog Disease.—J. M. Mitchell, Knob Noster, Mo., Mar. 6, 1871, writes: "I wrote you a month since referring to a hog disease prevailing here. Since that time this neighborhood has lost probably 1,000 hogs. The disease or diseases seems to resemble Measles, Pneumonia, and Erysipelas as described by Youatt and Martin. One additional matter has been noted, viz., the existence of large balls of small worms in the windpipe of the Pneumonia cases—no pleurisy."—All the symptoms and lesions you describe, are those of malignant or irregular Measles or Rubeola, which has broken out in the epidemic form in your neighborhood. The causes are little known—want of cleanliness, atmospheric changes, individual predisposition, and contagion, being the principal ones. It is a blood disease, usually associated with severe derangement of the bowels, also with pulmonary troubles; in the first case often called blue disease, or hog cholera. The treatment in mild cases is generally simple.—great attention to cleanliness, free ventilation, and little medicine. If the eruption is slow to appear as in severe cases, diffusible stimulants such as camphor and carbonate of ammonia may be used with good effect. Much benefit is also obtained from elder-flowers, and chamomile teas. Inoculation has not succeded yet in producing a milder form of the disease."—[The former letter of this correspondent was sent to the Veterinary Editor, but was accidentally mislaid and unanswered.]

A Word to "The Farmer."—There comes to us by the foreign mail a paper called "The Farmer—The Farm—The Field—The Forest—The Garden—A Journal for the Country House." This journal is published in London, Edinburgh, and Dublin. Having reached its 16th volume, one would think it ought to have arrived at years of discretion and a knowledge of the distinction between *meum* and *tuum*. A frequent inspection of this "Farmer" shows it to be a most unblushing literary thief. For months it has published the "Tim Bunker Papers" as if they were original contributions. There was no accidental omission to give credit, as it has adapted the articles to the English reader by the use of £ s. d. instead of our currency, and various verbal changes have been made, to try to give the papers an English air. This is, of course, a lame attempt, as the papers are so thoroughly American in character, that no intelligent person can be deceived. Besides this, "The Farmer" has taken whole chapters from books published by us, and used them in its pages as communications, signing the name or the initials of the author, to make it appear as if the matter were written expressly for its columns. We have allowed these things to pass unnoticed until, emboldened by our silence, "The Farmer" has committed an outrage upon propriety which calls for the punishment of exposure. Timothy Bunker, Esq., is the *nom de plume* which a well-known agriculturist and agricultural writer uses for a certain class of his articles, and is as much his own property as "Boz" was that of Dickens, or as "George Elliot" is now that of Mrs. Lewes. What would be thought of a writer who should sign an article George Elliot? He would be branded by the whole press as a literary forger. This is exactly what this "Farmer" has done. Not content with stealing "Timothy Bunker's" articles, it now filches his good name. In "The Farmer" for Jan. 30th we find a note, in which the writer says that, not being in a writing humor, he has prevailed upon Mark Twain to send an account of his experience as an agricultural editor—and this note is signed "Timothy Bunker, Esq.," with a coolness that could only come of a long persistence in the habit of appropriating other people's property. We know that there is no written law to prevent these things, and our only redress is in exposing its thievery and forgery.

Great Mortality among Swine.—We continue to receive a great many letters from different parts of the United States and Canada, in regard to the diseases of pigs. A farmer in Ohio writes that he has lost over 60 pigs. We cannot tell, from his description, what the disease is. He sends us some of their teeth, which are discolored at the top, and asks if the disease can be the "black tooth." We have seen many healthy pigs with teeth much blacker than those he sends us. Black teeth *may* be an effect, but cannot be a cause of the disease. His pigs are "fat," and have been fed on middlings, shorts, and corn-meal, cooked, with a little raw corn. We could not wish for better food, and we are assured that they have had good care and treatment. And many others make similar statements. We cannot account for this great mortality, unless the ancestors of the pigs have been badly treated. The whole subject needs thorough investigation. We would advise not only good treatment of the pigs we have, but also the exercise of great care in selecting animals to breed from that have for several generations back also received good treatment, and which were selected to breed from because of their health, vigor, and general superiority. We are aware that it is a difficult matter to find such pigs, but this, at any rate, should be our aim. We can suggest no remedy for pigs actually diseased. As a rule, the best thing to do with a sick pig is to make soap-grease of him. Our whole attention must be turned to keeping the stock healthy.

Inflammation of the Lungs in Lambs.—The most fatal disease to which lambs, especially of the English breeds of sheep, are subject, is inflammation of the lungs. When once attacked, it is rare that a lamb recovers. When a farmer loses a lamb, he should examine the lungs, and if inflamed, or there are parts which look somewhat like liver, cut out a piece of this inflamed part and throw it into water, and *if it sinks*, we may conclude that the lamb had what physicians call infantile pneumonia, or inflammation of the lungs; and the next lamb that is taken sick, if the symptoms are similar to the one that died, may be treated for this disease. And, what is more important, we should take immediate measures to prevent the spread of the disease. Not that it is infectious, but the same causes that produce it in one case will be likely to produce it in others. It is not believed to be hereditary, though we have known a lamb die of the disease in less than twenty-four hours after it was born. We shall, probably, be safe in concluding that there is something wrong in the management of ewes and lambs. Damp and poorly-ventilated sheds, barns, or cellars, wet or fermenting manure, that the poor sheep and lambs are compelled to lie on, or exposure to draughts of cold air, are among the most frequent causes of this fatal disease. The month of March and beginning of April is a particularly trying time for young lambs. Better have them come in February, or defer it until the latter end of April or May. In the steady cold weather of February lambs will do much better than in the damp, rainy, cold, and changeable weather we frequently have the latter part of March and beginning of April. The rain and melting snow make the previous damp, and we sometimes have a warm day, with the thermometer at 75°, followed by a night ten or fifteen degrees below the freezing-point, and the sheep-breeder who has not every thing properly arranged will be likely to suffer great loss. We know a farmer who, two years ago in March, lost fifty nice Merino lambs in two weeks, "and yet," said he, "I kept them very warm in a basement-cellar." They could not have been in a worse place. Had he put them on the barn-floor, or in the bays above the cellar, he might have saved every lamb. Dry cold is not half as bad as warm dampness. Comparatively little can be done for a lamb attacked with inflammation of the lungs. The first thing is to put it in a warm room, and wrap it in flannel; or, what is better, make a flannel wrapper for it. Put some tincture of cantharides on the chest, or, in the absence of this, a mild mustard-blister; give half a teaspoonful of castor-oil and 3 drops of laudanum, and repeat the latter every four hours; give a little warm new milk frequently, but not too much at a time. If taken in time, the lamb may be saved, but rarely otherwise. Should it get better, it would be well, when it is taken back to the ewe, to put them in a pen by themselves, and to leave the flannel wrapper round the lamb for a few days.

Price of Wheat in Connecticut Eighty Years Ago.—Mr. L. M. Lane, in looking over some old papers, came across a table his grandfather had prepared, showing the price of wheat per bushel at different times, from 1790 to 1818, and he has forwarded it to the *Agriculturist*. From February 12, 1790, to April 12, 1791, the price was 5s. 3d. The next year it was 4s. 6d., and the next, 4s. From February 11, 1792, to January 12, 1795, it was 4s. 6d, and during the next two years it was 9s., showing that prices fluctuated then as much as they do now. In 1798, it was down to 6s., and in two years, up to 9s. again, and the next year, 10s. 2d. In 1803, it was down to 6s. 4d., and in 1805, 11s. 9d; in 1808, 7s. 6d., and in 1810, it reached 12s. In 1813, it reached 12s. 6d., which is the highest figure reached during the twenty-six years. In 1816, it was 10s. 6d., and in 1818, 12s. The prices are taken from Mr. Lane's own books, and the table is prepared with great neatness, and doubtless with much care.

Milk-rooms.—Mr. A. O. Bagley, of Derby, Vt., asks for a plan of a good milk-room. He describes a room built by his father many years ago, which for some unknown reason is useless. It is 15 × 20 feet, 3 feet below the ground, and 6 feet above it; the foundation-wall and floor being of stone. It is ventilated by a door at one end and a window at the other. The thermometer stands, during hot weather, at about 60° in the lowest part, and 65° in the highest. Still he does not get more than two-thirds of the cream that he does in another room where the thermometer stands at 80° at the same time, and the cream is of no better quality.—Unless his thermometer is incorrect, we are at a loss to account for the difficulty. Common thermometers are often faulty; and if his marks two or three degrees too high, then his cellar milk-room is too cool; for 60° is the lowest that should be allowed under any circumstances, and unless the ventilation is very free, 65° would be better. We would suggest the experiment of putting another window in the side of the room that is most exposed to prevailing summer winds, so as to secure as free an admission of warm air as may prove to be necessary to secure the best product of cream. We know several milk-rooms, built on the plan of this one, that are entirely satisfactory; and in all successful milk-rooms, arrangements are made to keep the temperature down to 65°, or lower. About Philadelphia, where the best butter is made, they sometimes use spring-houses, built of stone, in the side of a bank, setting the milk-pans in water of even less than 60° temperature. Others have dry milk-cellars, the whole of which, except room for ventilation at the eaves, is below the surface of the ground. In these rooms cream rises much more slowly than in a warmer temperature; and it is possible that our Vermont friend would have more cream if he gave it a longer time to rise.

Value of Clover.—Mr. Harris, in his January "Walks and Talks," falls far short of my standard of faith in the manurial influence of clover. I believe, and I think I have had good reason for the belief, that "necessarily and immediately the actual field" on which an abundant crop of clover has been grown is much richer by it, though two cuttings a year for two years may have been removed entirely

from it. As Dr. Voelcker's experiments clearly prove, there remains in the soil, after the removal of the crop, an enormous weight of clover *roots*, which on their decomposition supply, in an available form, a large amount of plant food that this vigorous feeder has collected largely from sources that would have been inaccessible to the finer tendrils of wheat roots. Furthermore, clover roots penetrate deeply into the subsoil, and when they decay they leave open a well-furnished and inviting channel by which the roots of more delicate plants can descend beyond the influence of drouth. This is in addition to the accumulation of nitrogen in the substance of the roots, and in the fallen leaves of the crop. Whatever the reason may be, the fact is most obvious whenever I have been able to observe its effect, that the growth of clover has *invariably* added to the apparent fertility (the available fertility) of the soil. The good effect is much more obvious after two years' growth of the clover.

Tim Bunker on Selling Land.

MR. EDITOR,—"Ye do n't say ye 're gwine to sell that Horse-Pond lot and the Mash, do ye?" inquired Seth Twiggs, with an astonished air, as he walked up to my shed where I was chopping and splitting wood. It was a bitter morning, and the frost hung upon Seth's long beard and whiskers like a mantle of snow, and the smoke curled up from his pipe as from the top of a chimney.

"Why not?" I asked. "The time to sell any thing is when you can get your price for it; and Deacon Smith has offered me more than I think the land is worth to me for farming purposes."

"I should as soon have thought of your sellin' your house, blam'd ef I should n't, Squire," said Jake Frink. "I did n't s'pose you could buy that hoss-pond lot ef you kivered it with greenbacks, it growed such smashin' big crops sence you got hold on 't."

"And did ye say the Deacon was gwine to buy the Mash, too?" inquired Uncle Jotham Sparrowgrass, as he knocked his cane against the hickory log on which I was chopping. "The Deacon is a master critter to get hold of land. He's allers wanting more."

"And what 's the price?" asked George Washington Tucker, who is a good deal worried about the price of land, as most landless people are apt to be.

"Four hundred dollars an acre," I answered, "cash down. The Deacon never runs in debt; has always paid as he goes; and if you had gone on that principle, you might have owned the best farm in Hookertown to-day, instead of living in a wood-colored house, with old hats in the windows. It was running up scores at the tavern, and at the grocer's, and at every place where they would trust you, that fixed you, and always kept you a poor man."

"Four hundred dollars an acre! What a price for land in Hookertown!" exclaimed Benjamin Franklin Jones. "It will surtinly be the death of us; and we might as well get into our graves at once, to find a spot where we can rest. I s'pose I shall have to move agin, Squire, this Spring."

"May-be not," said I. "The Deacon has got to let the house to somebody, and if you pay the rent promptly I suppose he will let you stay."

"That, you see, is just where the shu pinches. I have been bothered to death to pay the rent to you, and 400 dollars an acre means higher rent next year. Land is gettin' skase, and I shall have to emigrate."

My neighbors are at a loss to know why I will sell land that is producing such crops as grow on the Horse-Pond lot and the Marsh—two and three tons of hay to the acre, selling this year at 30 dollars a ton. It pays a big interest. I expect that was what Deacon Smith looked at, when he offered me four hundred dollars an acre for it. Then it was as productive grass land as lies in Hookertown, requiring very little care to keep it up, and never wanting the plow, save with top dressing, to produce paying crops as long as grass grows anywhere. Banks fail sometimes to make dividends, and sometimes fail entirely. Since I knocked the bottom out of that pond-hole, the Hookertown bank has gone up entirely, and the stockholders will not get the first red cent of their capital. It used to be thought as good as Government bonds. I was fool enough to buy bank stock once. That thousand dollars haunts me yet. Not a dollar ever came back again. But this land that I bought of Jake Frink, thirteen years ago, for forty dollars, has given me nothing but satisfaction. I got rid of a nuisance by draining it. That has been a comfort every time I have looked at it, and I have seen it about every day since. It produced big crops, where nothing but green grass and hard-hack grew before. That was a sight worth seeing. The cattle ate the hay well, and that was cheerful, and grew fat and sold for cash, which was not bad to take. The improvement of the land cost me nothing, for the first two crops paid for every ditch and tile put down, and left a surplus. I have now sold for 800 dollars what cost me but 40 dollars. The purchase is a good one for Deacon Smith, and the sale a good one for me—*i.e.*, I can afford it. The Deacon has not so much taste for poor land as I have; don't like novelties so well. He is contented with three tons of hay to the acre straight along. I get sick of one thing after a while, and after raising that crop for a dozen years, I had rather begin on a new piece of worn-out land or swamp, and astonish the barren acres with new crops. The Marsh has not increased so much in value, because it was not so well purchased. It cost a hundred dollars an acre, and sold for 400 dollars. There was a strip of upland with it that will answer for building-lots, so that the price of the Marsh reclaimed perhaps might not be stated at more than three hundred dollars per acre. An increase three-fold upon stock that has paid regular dividends of 10 per cent for thirteen years in succession, would be considered a fair business by bankers or railroad men. I find a good deal more satisfaction in buying poor land, and fixing it up, than in holding on to land that is producing about all it can. This sale of land to Deacon Smith will give me capital enough to buy another piece of marsh four or five times as large as the old, and to reclaim it. That improvement led to a good many others in the neighborhood; and as the story was told in the *Agriculturist*, it led to many more in other parts of the land. I have visited two in Massachusetts, upon a much larger scale, and I have heard of one, at least, in California. I calculate that the country is richer by a good many hundred thousand dollars for this Hookertown experiment. You see the light that is put in your candlestick shines a great way, and helps a great many people. Mrs. Bunker sends her respects, and says she hopes you will keep shining.

Hookertown, Conn., Feb. 7, 1871. Yours to command, TIMOTHY BUNKER, Esq.

Ogden Farm Papers.—No. 16.

I have, in my time, lost two good "native" cows by milk-fever, and I have seen enough fatality from this dreadful disease among my neighbors' cattle to have made me fear it more than any non-contagious ailment that ever appeared in a herd, and to give some attention to studying its character and treatment. The first result of my examination was a conviction that the *worst* thing to be done in the premises, is to call in the assistance of a country cow-doctor, with his drugs and lancet—and the best, to leave nature the fullest control of the case; adopting always such aids as warmth, quiet, and cleanliness, and, above all, the utmost care of the diet as a *preventive* measure.

It is reported that cures have been effected when the disease has progressed so far that the animal can no longer rise, but I have never seen such a case, nor would I have much faith in recovery at this stage under any form of treatment—least of all under the violent handling of common farriers, who know nothing beyond the *recipes* of a school, whose science is sealed to them, and who lack the judgment of its trained practitioners. I would always appeal to a sensible physician rather than to a cow-doctor; but the latter is often an excellent nurse, and will be a valuable aid to the physician, if he can only be made to leave his lancet and his bottles at home. The worst thing about the country farrier—after his remedies—is his "gab." He always "knows all about it;" and he has a power to bully a farmer (who knows nothing himself, and who is helpless to prevent the death of his beast) that is difficult to resist. But it must be resisted or all is lost.

As most farmers are so situated that they cannot procure proper aid for the treatment of such sudden and severe illness, it will be well for them to know what to do to avoid it, and, so far as it is in their power, to help nature to cure the disease when it does arise. The great safety lies in prevention.

From three days to a month before the calving time—longer with a large milker or a fleshy animal than with a small milker or a lean one—stop all feed except dry hay; if there is much milk in the bag, milk it half out three times a day, even two or three days before calving; if the bag is hot and hard, rub it every hour with the hand wet with *cool* water. After the calf is born, give the cow half a pailful of *warm* water with a little bran or flour in it, not hot and not too much. Give absolutely *nothing* beyond this one drink, and now and then a little warm, pure water, for twenty-four hours. *The great source of danger is in food given before or soon after calving.* There is no safeguard like starvation—and nothing will so surely prevent fever. On the second day give a warm mash—a pailful this time—and about a quarter ration of hay. The next day give a half ration. Until after the fourth day do not give even *cool* water to drink, nor so much hay as the cow would like, nor *any other food whatever.* The danger will now be passed, if the food is gradually increased in quantity and in richness. Another week of good feeding will bring the milk to its full flow. If the calf is removed at once, the cow should be milked from three to six times a day, according to the quantity of milk in her bag, until after the fourth day, and then gradually reduced to the regular milkings. I think ten drops of tincture of aconite on a bit of bread given once a day until the milk flows regularly would add very much to the security of the treatment. But the great cause of the fever is kindness. We

all have an insane idea that food is the great cureall, and your country cow-doctor will pour gruel through a horn into the stomach of a cow that is down with milk-fever, when she is already bloated with the gases of her undigested food, and burning up with a fire to which his food is only additional fuel. What we want to do is to get the food out of the cow—not to pour more in. Our fault has been in giving too much. Until health is fully restored, and the cow raises a natural cud, the less she gets to eat the better—she *ought* to have absolutely nothing. Have no fear of starvation. No cow falls with milk-fever without food enough in her stomach and fat enough on her bones to carry her safely through any duration of the disease, and the great fear is that she has too much of both. I believe in high-feeding in health and high-starving in all febrile disease.

There is little or no danger with heifers calving for the first time, and the disease is less frequent in winter than in summer.

I wish we were a more thorough people and did not do things on so cheap a basis. Especially would it be well if we used a little more wrought-iron instead of cast-iron. During the frosty weather, an important casting of my wind-mill was broken. I soon had a new one with which to replace it, but the weather was, incessantly, too cold or too windy for the renewal to be made. During all this time, we were suffering immensely for want of water. The two wells near the barn were nearly dry, the pond frozen nearly to the bottom, and it was with difficulty, and at great outlay for labor, that we could scrape together barely enough to water the stock and to make steam for driving the cutting machine and grist-mill. We could not get enough clean water for wetting the cut feed, and so we could not steam it; thus an important advantage of the machinery was lost. Had the piece in question been made of wrought-iron, all this bother would have been saved, and we would not have lost more than its cost in labor and in inability to cook our fodder. The milk and butter, too, fell off seriously in the absence of the steamed forage to which the cows are accustomed—possibly, too, from their not always having water at hand.

There is a great advantage in having a tight, warm, well-ventilated barn, and as I went about among the cattle in the bitter, winter weather, I could not help thinking, that, however poor I might be, if I were going to start afresh in farming, I would make a snug, comfortable, airy stable the first object of my efforts; for, in cold weather, while badly sheltered animals were piling in all the hay they could get to keep up the animal heat which was being constantly robbed from their coats by the cold air moving about them, mine seemed not to be eating more than in mild, winter weather. They never looked better and never seemed more flourishing.

I commenced last fall a new extravagance, and I am satisfied that it pays well. I had hitherto wintered my young calves on the same food with the yearlings, and always succeeded in bringing them through the winter in tolerable condition—quite as good as the average. This winter I have given to each from half a pint to a pint a day of whole oats, and I am satisfied that they have grown as fast as they would have done on summer pasture. The growth, too, is of the right character—in the bones; they are thrifty and lusty without being at all fat, and I think have a better chance of becoming copious, bony cows and good milkers than if they had received only the usual rations. Some of my neighbors feed corn-meal to their calves, and I observe that the effect is very different from that of oats, producing less development of bone and more of fat—the opposite of what we want in milking stock.

We have had some reason to apprehend trouble from the cattle disease (*Epizoötic Aphtha*), as there have been several cases on the Island and much of it in different parts of the State. We hope to escape it by applying, in addition to the strict measures adopted by the State authorities, a rigid system of quarantine for our own farm. No horned cattle, sheep or swine are allowed to come upon the place under any pretext, nor are our own animals allowed to go upon the highways—the oxen being used for home work only. If this system were adopted by all farmers in whose vicinity the disease breaks out, its spread would be prevented and it would die out in a few weeks.

After weighing the question of corn-growing in all its bearings, I have concluded to make the experiment of giving it up. This year I shall grow none for grain. Instead of it I shall put in double the quantity (nearly twenty acres) of fodder corn, perhaps even more. In this I am "experimenting," for I have never known fodder corn to be largely grown as a substitute for hay. It may be a failure, but I think the chances are good enough to justify the trial. My reasoning is this: If corn-stalks that have produced and ripened their ears, and are only cut when fully mature, and containing their full measure of woody fibre, are a good forage for milch cows—and they are—younger stalks, which contain in their sap much of the material from which grain is formed, have very little woody fibre, and are sugary and tender, ought to be much better. The rock on which there is the most danger of splitting is the difficulty of getting the fodder sufficiently cured to store without molding. I think this may be done if we treat it as we do ripe corn fodder, save that it should be well dried, lying on the ground until thoroughly wilted, before being shocked up. Then the stacks must be small and they must stand for some weeks. When they are well dried I think the bundles may be put up in small stacks with safety. By the middle of November the stalks may be mowed away with hay, unthrashed oats, or other well-dried forage intermixed in layers. It will be none the worse for feeding for the admixture.

After all, corn is one of the grasses, and I am inclined to think that if we can overcome the difficulty of curing, it will be the best of all from which to make hay for milch cows. As to the quantity that may be produced from an acre, I can form no just estimate, but I believe it will be less than those who have only used the crop for soiling would suppose. If the amount could be brought up to five tons per acre even under the best circumstances, I think we may be satisfied. From the trial I have had of its quality I believe that it will make as much milk or butter, ton for ton, as the best quality meadow or clover hay. However, this is only an opinion, and I hope to know more about it next winter and to report satisfactory results.

It is pleasant to see that the teachings of brother Harris, as they have been set forth in his invigorating Walks and entertaining Talks on the Farm, are taking root and producing so good an effect. This is observable in many ways, but especially with reference to Essex pigs. Two years ago I was offered animals of this stock at quite moderate prices from all sources. A short time since, my own litters having been sold down to low-water mark, and applications constantly coming for more, I applied to all the breeders within my knowledge for young animals to supply the demand. Only one among them all could offer sow pigs even at $30 each, and when I wrote a few days after to say that I would take them, they had all been sold to go South. I think that the simple fact of his influence in extending a knowledge of this breed, is an ample "reason to be," as the French say, for all his writings, for there is no direction in which so widely valuable an improvement is likely to be effected as in the general introduction of these swine. The "improved" Berkshires may be as good—I have never seen them; it is hardly possible they should be better.

Speaking of pigs, I hardly know which makes me the more glad, the rise of the Essex or the fall of the Chester, for a considerable experience and much more extensive observation have convinced me, that of all mongrel-bred, mix-blooded brutes that ever had a name given them, the Chesters are entitled to the palm. I have three or four of them now, bred from parents (not akin), purchased from the best breeders in Chester Co. and warranted pure Chester, among which a skillful zoölogist might find clear traces of at least a half-dozen distinct porcine races. The only quality in which they are all alike is the size of the ears. If there is any difference in them in this regard, it is that one has larger ears than the other. There seems to have been an effort of nature to prove how much ear a given amount of pig can carry, and any one of them would supply material enough to furnish the ears of my whole family of Essexes—father and mother and six children.

In my reports made last summer of experience with Thomas' Smoothing Harrow, I expressed the opinion that it was not so good as the inventor believed for the cultivation of corn. I think that this was the opinion of many others who gave it a fair trial. Mr. Thomas has, since that time, made several important modifications of the implement with a view to overcoming the difficulties suggested. So far as I can judge without a trial, he has probably succeeded, and it is especially noteworthy that he offers to supply the new implement to those who were dissatisfied with the old one on very fair terms. Whether the new tool will be a complete success, of course only a season's trial will show, but what it proposes to accomplish—the entire work of cultivating field-corn without hand hoeing—is so important as to justify a thorough trial, and the fullest publicity of the result.

Riding on Horseback.—No. 2.

The practice prescribed in our last having been persevered in until the pupil has made himself perfectly at home in the saddle, and so suppled his loins that the motion given to the upper part of the body has no effect on the seat, he may now resume the stirrups and learn their use. They are very important as a matter of convenience and comfort, but they should aid a rider to easily regain his seat when he has lost it, rather than to keep it. It is very fatiguing to ride, even at a walk, with the legs dangling at the horse's sides, and especially so when they are kept in the position indicated in the previous

article—the only position that can give a secure seat. In walking, a gentle support of the stirrups will help keep the body from swaying from side to side as the horse moves. In trotting, where stirrups are almost indispensable, they enable the horseman to either "rise to the trot," or to so distribute the shock in "riding hard," that it shall be no shock at all, but an easy, quick movement, distributed between the feet, the seat, and the thighs.

The length of the stirrups should be carefully attended to. Take the proper position in the saddle, with the whole inner part of the thighs, as far down as the knees, pressing firmly and immovably against the saddle, and the legs below the knees hanging vertically—the toes pointing a little downward. Then have the stirrup-leathers so adjusted that the irons will *just touch* the hollows of the feet, giving them support without raising their position. There will then be no danger that the stirrups will disturb the seat, either by raising the knees or by the effort of the rider to reach down to them when the straps are too long, while by drawing back the feet, so that their balls rest on the irons, a leverage will be given—from the balls of the feet to the ankle-joints—that will be sufficient to maintain an even pressure, even if the person is thrown a little from the saddle by the movement of the horse. As men's legs and their arms are generally of proportionate length, and as the stirrups are usually fastened a certain distance down on the sides of the saddle, the stirrups are of the proper length when the whole length of leathers and irons is a trifle less than that of the arm and hand; that is, lay the tips of the fingers on the band of the leathers where they pass around the bolt on the saddle-tree, and draw the irons toward the arm-pit. If they just touch the muscle under the shoulder-blade (not reaching away into the ribs), the straps are usually of the right length.

In ordinary riding, it is best to have the *ball* of the foot touch the stirrups, as the play of the ankle-joint gives more elasticity to the support; but in rough galloping or leaping, it is best to "drive the feet home," and carry the stirrup in the hollows. Especially must small stirrups be avoided. The irons should not, of course, be so large that the boot-heels can, by any accident, get through them, but there should be ample room for the foot to be thrust in and out with

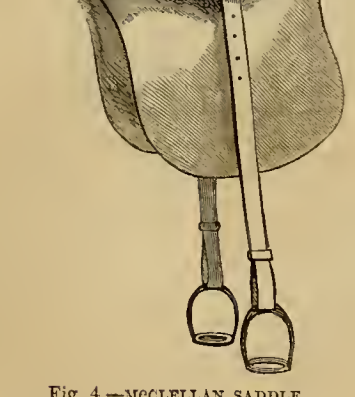


Fig. 4.—MCCLELLAN SADDLE.

perfect freedom. This will be one of the best safeguards against the worst mishap that can befall an unhorsed rider—that of being dragged by the heels by a runaway horse, owing to the binding of the foot in the stirrup. There have been numerous devices made to prevent this calamity. The only one of them that is even

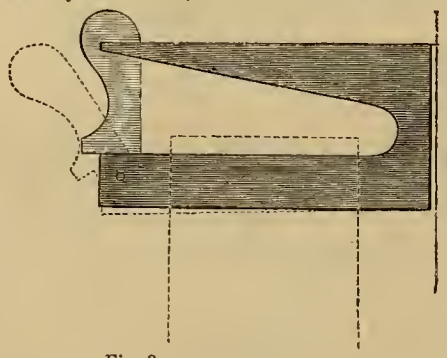


Fig. 3.—SAFETY STIRRUP.

tolerably sure (and that one is nearly perfect), is shown in fig. 3. This is simply an arrangement for closing the back part of the iron by which the stirrup-leather is fastened to the saddle,

Fig. 5.—MEXICAN SADDLE.

with a movable piece held in place by a spring, exactly as the blade of a pocket-knife is held. It takes a sharp jerk to open this catch, but (unless it is allowed to become fastened with rust) it will yield to much less strain than that of a falling rider. These safety irons are attached, as a matter of course, to all English saddle-trees. At some future time, we shall enter at length into the question of the construction of saddles, but the beginner is most likely to use the saddle that he can get most conveniently. Whether this is a "McClellan" (fig. 4), saddle, a Mexican (fig. 5), or the better English (fig. 6) saddle, is not very important at the commencement.

Precisely as he has schooled his muscles to the requirements of his new position without the aid of stirrups, so must the learner now learn to make proper use of them, and he should attempt nothing further until he has learned how to use these accessories—that is, how to use them *as accessories only*, not as an essential dependence. Their most important office is to rest the legs, and to relieve the muscles of the fatiguing work of keeping the seat firm at all times. So long as there is no unusual disturbance of the position, it is well to depend mainly on the stirrups to preserve it; but any sudden start, in whatever direction, should find the knees and thighs at once ready to perform their duty of grasping the saddle. This cannot be the case if the weight is thrown too much on the feet; but it is also important to learn to stand in the stirrups (while the horse is in motion), turning so as to look to the rear, and to throw the weight first on one foot and then on the other; in short, to assume every possible position rapidly and easily, for all this adds immensely to the security, freedom, and grace of the seat. It is only in this way that one can hope to become so perfect a horseman as to justify the old description as being "a part of the horse," of "seeming to grow out of the horse's back."

This branch of the subject—acquiring a good seat with and without the aid of stirrups—may be appropriately closed by a quotation from "Man and Horse": "When you can sit your horse *perfectly* in his trot and canter, you possess a seat such as not one rider in half-a-dozen ever acquires. You are still far from being a good horseman. You cannot, indeed, properly speaking, be termed a horseman at all. But you may look forward with confidence to becoming what most men would consider an excellent horseman; because you have had the patience and perseverance to drudge on until you have been bumped and jolted into a smooth and solid union with your saddle. It is by the absence of this union, and by the abrupt shocks and displacements to which they are consequently exposed, that so many riders are disabled from acquiring the proper use of their hands and legs; consequently from ever becoming masters of their horses."

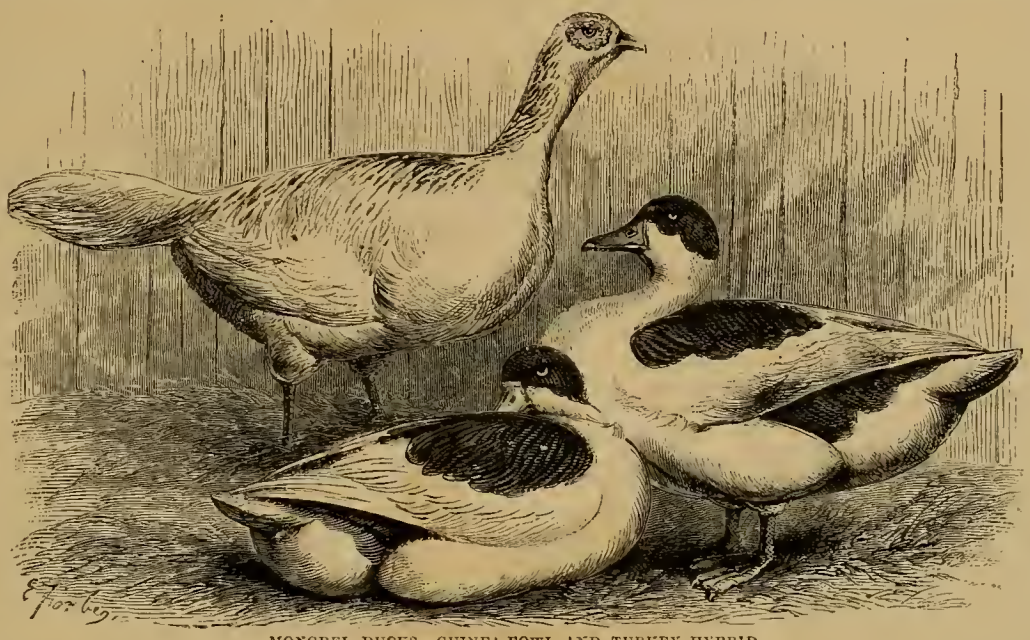
The next step should be to free yourself from your bondage to the person who has up to this time managed your horse for you; and a real bondage it is, as you will find when you first attempt to take him in hand yourself. You may even have been somewhat accustomed to riding before your present exercises commenced, yet you will feel very awkward when you first attempt to repeat your lessons while managing the animal yourself; for the mere fact of having to do something with your hands will have a tendency to constrain your position. It gives the body another employment, and the *combination* of demands upon it, and upon the attention, must be made familiar before it can become easy. There is no other rule than to learn one thing at a time, and then to learn the combination of each with all that has preceded it, before taking the next step;

Fig. 6.—ENGLISH SADDLE.

and this rule is equally applicable to the man and to the horse. Both are "getting the knack" of an artificial habit, and they must learn it *gradually*, or they will never learn it at all.

Hybrids among Domestic Poultry.

At the recent Poultry Fairs at Philadelphia, New York, and elsewhere, several interesting hybrids have been exhibited. Two of these we have had drawn and engraved. They are shown in the accompanying picture, and, with quite a large class of similar origin, form a subject which will repay the close study of naturalists. The curious fowl in the background is a cross between the Turkey-hen and Guinea-cock. Its appearance is so totally dissimilar to that of either parent, that strong efforts were made to throw a doubt upon this statement of its origin; but after a close canvassing of the testimony, we see no reason to doubt the truth of the breeder's assertion, especially as it was confirmed in a singular and conclusive manner by a gentleman from Kansas, who recognized the fowl at once as the product of this cross, from having seen similar ones at the Far West. In this bird we have a style of plumage much like that of the barn-door fowl. The body somewhat like the Turkey, but more like the former. The shape of the head is also more like the barn-door fowl than the Turkey, and totally dissimilar to the Guinea-hen. There is, however, a caruneulated ring about the eyes, and a pendant curtain-like appendage which hangs below the bill, not unlike that of the Turkey, but covered with feather, as is the whole head. The tail is much like that of the hen, but set drooping; and we regard the fact, that the legs are considerably feathered, to be, on the whole, the most remarkable feature of this strange animal; neither of the parents have feathered legs, nor, so far as we know, have ever shown any tendency to feathering upon the legs. With the exception of its curious form and dissimilarities to its parents, this bird is totally uninteresting, being shy and wild, and apparently foolish, and uttering a peculiar sharp, startled cry, not like that of any of our domestic poultry. In sexual character it is a true mule. A Turkey-hen was left solitary upon the farm where this bird was bred, and accepted a Guinea-cock for her mate. She laid several eggs, which hatched; but this, we believe, was the only bird which was raised. The pair of beautiful ducks shown in the engraving, are as comely as their companion is the reverse. They were bred by crossing the Musk-drake upon common ducks. These are mules also, but of symmetrical form; and we believe others like them have not unfrequently bred with one or the other of the parent breeds, as do also the mongrel geese, which are bred between the China or African and the common geese. The valuable characteristic of these "mongrel" ducks, as well as geese, is their excellence for the table. They grow rapidly to a large size, fatten very easily, and are of excellent flavor, without the musky odor of one of the parent species. These birds always bring a good price in market, and it is rather remarkable that more of them are not raised.



MONGREL DUCKS—GUINEA-FOWL AND TURKEY HYBRID.

Pickerel Shooting.

Those who fish for "pot" resort to means of capture that the regular sportsman looks upon with contempt. One of the ways of taking fish in an unsportsmanlike manner is by shooting them. Mr. R. E. Robinson, of Vermont, sends us a sketch of the manner of hunting for pickerel, and the following account:

"When the ice thaws out in the marshes of Lake Champlain and the more sluggish of its tributaries, the pickerel come in great numbers into the shallow water, lying basking in warm, sheltered places, or, in bright still days, playing, with their back fins just breaking the surface of the water. I do not know whether they come to spawn, but conclude so from the fact that there are almost always two or more together, a female and male, or a female and several males. With many, shooting them at this season is a favorite sport. The fowling-piece is most used, though some prefer the rifle. The sportsman, if so he may be called, walks slowly along the shore, or wades cautiously in the shallow water; or, what is better, is paddled in a light boat by the skillful hand of a companion, and examines closely every place in which fish are likely to lie in, and watches for the ripple of a fin on the glassy surface. When a fish is discovered, he approaches it with the utmost caution as closely as he can without disturbing it, for it is useless to fire at a fish at a greater distance than ten or twelve yards; nor even at that, unless it is very near the surface. Having come as close as may be, the hunter aims low, to allow for refraction, and fires. If he is near enough, and has aimed correctly, he is rewarded by seeing the gleaming belly, or bellies, of one, two, three, sometimes as many as eight or nine pickerel, turned up, stunned and motionless. Now he must bestir himself with all speed to secure them, or such fish as are not killed outright—and they seldom are — will come to their senses and be off like lightning. If the sportsman shoots from a boat, he should have a spear, gaff, or landing net for this purpose; but if on foot, he must trust to his hands alone. Sometimes, all the conditions being favorable, great numbers of fish are taken in the manner we have described, and the sport is very exciting. Now and then a monster pickerel, of fifteen or twenty pounds' weight is killed, but the average weight is from two to six pounds. Very large fish are seldom taken, as they are scarce, and very wild."

PICKEREL SHOOTING.

Walks and Talks on the Farm—No. 88.

The Deacon has been visiting a farmer in an adjoining town, and brought me a sample of his clover hay. It is as bright, sweet, and almost as green as when cut. "I thought I would let you see," said the Deacon, "what kind of hay a good old-fashioned farmer makes. He says he would not have one of those spreading machines if you would give him one. The less you stir clover hay the better."—"It is splendid hay," I said; "but I am not sure that I have not got some that is just as good, though not quite so bright."—"All his hay is just like this," said the Deacon; "I picked this out of the barn just as it came. It is a good sample of the whole."—Now, it so happened that the Deacon had not his spectacles with him, and there was a good-sized thistle in the sample of hay. "Well, Deacon," said I, "if this *is* a fair sample of the whole, your friend has as many thistles on his farm as I have, though I presume I can beat him in docks."—By thorough cultivation, I have made encouraging progress in reducing the number of all weeds on my farm except docks. It would seem that the more we work the land the more the docks grow. It causes the seeds to germinate. There ought to be some way of killing the young dock plants in a wholesale way, but I have not yet discovered it. The Deacon says he will cure his clover hay in future as his friend does, and thought I would do the readers of the *Agriculturist* a good turn by publishing the method. It is simply this: Cut the clover with a machine in the morning. Let it lie until toward evening, without stirring it, and then put it in moderate-sized cocks, and let it remain in these cocks until it is well cured and fit to draw into the barn. Last year he let the cocks remain out five or six days. Now this is a capital way of curing clover hay, *provided* you could be sure of the weather. I was with Lawes and Gilbert when they made their well-known experiments with different manures on red clover, and I took duplicate samples of 25 lbs. of the clover, as soon as it was cut from each plot, for analysis. Of course we had to save every particle of it, and we wrapped each sample in large sheets of brown paper, and conveyed it to a well-ventilated room warmed by a stove. Better hay was never made, and nothing would please me better than to have a hundred tons of such hay to feed out every winter. And if the Deacon will cure it for me in this way, I will let him have the job: Cut the clover when the dew is off, and draw it in immediately without bruising it, and then cure in thin layers in a warm ventilated room in the shade; this is the perfection of hay-making. But this cannot be done in practice. Now, what is the next best method? To bruise the clover as little as possible, and dry it by means of the wind rather than by the sun; and never let it be exposed to dew or rain, especially after it is partly cured. *But*, this is comparatively a slow method; and every day's delay, and in fact every hour's delay, increases the risk of having the hay damaged by rain. Taking this into consideration, and after giving considerable thought and study to the subject, I have concluded that, all things considered, the best plan is to cure the hay as rapidly as possible. If you chew a blossom of clover, you will find it quite sweet. It contains considerable sugar. And this sugar is soluble in water. And yet the heaviest rain falling continuously on a field of growing clover in full blossom will not wash out a particle of the sugar. The sugar is soluble, but the water cannot get at it. But cut down the clover and let it wilt and become partly dry, and the water will then wash out the sugar.

Experienced hay-makers know very well that a heavy rain or dew, falling on clover only just cut down, will not injure it. But rain or dew, falling on a field of partially-cured clover, does considerable damage. And the more the clover has been bruised in shaking it about, the greater will be the damage done by the rain. Bearing these facts in mind, when there is considerable clover to cut, I would start the machine about five o'clock in the afternoon, and cut as long as I could see; and unless there was a very heavy dew, I would start the machine soon after daylight in the morning, and keep on cutting until nine or ten o'clock. By this time the hay cut the night before will need moving. How best to do this is, with me, an open question. Some good farmers do it with a tedding machine. My own plan has been to take a self-acting steel-rake, that can be easily raised and lowered rapidly, and pull the clover into small windrows, five or six feet apart. In an hour or so afterward, turn these windrows by hand, and if any of the clover is green and matted together, shake it out. Treat the morning-cut clover in the same way. And if you have time, turn the night-cut clover again before dinner; but if not, turn it immediately after dinner. If it has been spread out much in turning, the horse steel-rake can be used again to considerable advantage. I have a twelve-year-old boy that does this work with the rake to perfection. The rake is lifted by the wheel, and it is thrown in and out of gear by a lever. He moves this lever back and forth, and keeps the rake going up and down about every second. The object is not to rake the grass together, but to turn it. The oftener the green hay can be stirred the more rapidly it cures, and this is the main object of the first day's operations. About three o'clock, pull the hay together into windrows with a wooden revolving-rake, and put it into moderate-sized cocks. At the same time, let the boy with the steel-rake run it between the rows of cocks, and make every thing clean and snug. The next morning, if necessary, turn over the cocks, and spread out any part of the hay that is still green. And it may be necessary to turn the hay again in an hour or so. By one o'clock the hay should be fit to draw in. The objections to this method are (1), that it takes more labor, and (2) that opening the cocks, if done carelessly, may shake off the leaves of the clover, which, except the blossoms, are the best part of the hay. The advantage is simply a gain of time, and less risk from bad weather.

A heavy growth of clover, badly knocked down, and twisted together by rain and wind, is a bad crop to handle. Better cut a heavy crop early, rather than run the risk of having it fall down. What you lose in the first crop by early cutting, you will gain in the second, or in the seed. Or, if you are short of pasture, an early-cut field of clover soon gives a capital bite for recently-weaned lambs. But early-cut clover shrinks a good deal, and it requires extra care in curing. The hay is very deceptive. It appears cured when it is not. The sap is quite weak, and the ingredients of the clover are only partially organized, and consequently more inclined to run into injurious fermentation. Early-cut clover, therefore, must be thoroughly cured. It then makes capital hay for milch cows.

One of our large potato-dealers remarked today: "Early Rose will be cheap next fall, and Peachblows scarce and high. Everybody is going to plant Early Rose." I wish I could be sure that Peachblows would bring a good price. There is no crop that pays better, in this section, than Peachblow potatoes, provided you have a good yield, and get a fair price. I sold mine this year, in February, for $1 per bushel of 60 lbs. If I could be sure of 50 cents a bushel at digging-time, potatoes would pay much better than any other farm-crop. But we should make our land rich enough to average 200 bushels per acre. The labor of digging is the main objection to the crop, and the only practicable way of lessening this labor is by getting a large yield per acre. It costs very little more to dig an acre that will yield 200 bushels, than one that only yields 100 bushels; and if the poor crop is weedy, as it is likely to be, it will cost more to dig the hundred bushels than the two hundred. I think you can raise more potatoes per acre, provided the land is rich enough, by planting in rows than by planting in hills, but it costs more to hoe them, and a good deal more to dig them. And so, except on high-priced land, it is, perhaps, better to plant in hills, say three feet apart each way. Last year I planted my Peachblows 3½ feet apart each way, and two sets in each hill, and the tops completely covered the ground. I am convinced that we talk too much about "large vs. small potatoes for seed," "planting in hills or drills," and depth of covering, and far too little about enriching and preparing the ground, and keeping the crop free from weeds. If the land is dry, rich, and clean, and the potatoes are planted in good season, and the soil kept well stirred by the use of the cultivator until there is actual danger of cutting off the roots and tubers, and any weeds that have escaped the hoe are afterward pulled out by hand, the chances are favorable for a good crop, no matter what system of planting is adopted. And, on the other hand, if the land is wet and poor, and the weeds are suffered to choke the crop, it is no use sending to Dr. Hexamer for seed, or of asking him what is the best method of cultivation. With all his skill, he cannot tell you how to raise a good crop in such circumstances. Get the land right, and if you have then time to talk about new varieties, and the best method of planting, well and good; but do not try to get a good crop by any species of agricultural legerdemain. You cannot cheat nature; and all who attempt to do so are ultimately found out and punished. It is the greatest evil connected with our farming.

Mr. Cook, of Perry Co., Pa., says he has two hundred acres of land that has been dressed with lime at the rate of 100 to 150 bushels per acre. This puts it into paying condition, but not much more. And he wants to bring it into a high state of cultivation, and he cannot possibly make barn-yard manure enough for this purpose, and he asks if it will pay to use pure bone-dust at $50 per ton. With ordinary farm-crops I do not think it will. It would pay better on turnips and mangel wurzel than on any other crop, and if we could get it for about $25 per ton, it would be a profitable manure for turnips, and, probably, for old grass-land in the dairy districts. I think Mr. Cook can make manure much cheaper than he can buy it. Land that has received such a liberal dressing of lime ought to produce capital crops of clover. And the clover may be fed out on the farm in conjunction with bran and oil-cake, and thus the

richest of manure would be obtained. It is much more economical to buy bran and oil-cake than to buy bone-dust at $50 per ton.

The present condition of the artificial manure-market in this country is eminently unsatisfactory to the farmer. The manures are mostly poor in quality and very high in price. If we could get Peruvian guano, containing 15 per cent of ammonia and 25 per cent of phosphates, for $60 per ton in gold, we could afford to use it. Formerly it was not difficult to obtain guano that would come up to this standard. But, as I understand the matter, the deposits of guano on the Chincha Islands are exhausted, and the guano now sold by the Peruvian Government is very variable in composition, and of inferior average quality. Some cargoes are worth as much again per ton as others equally "genuine as imported." It is not the fault of the dealers. It is owing to the variable quality of the guano on the islands. There is but one remedy for this evil. The Peruvian Government should instruct its agents to sell the guano in accordance with its intrinsic value, or in other words, according to its composition. Take, for instance, a guano containing 14 per cent of ammonia and 25 per cent of phosphates as a standard, and worth say $60 per long ton in gold. The ammonia would then cost us 14 cents per lb., and the phosphates 3 cents per lb. The Peruvian Government *is* selling *some* guano in our markets at these figures, and all we ask is that it shall sell *all* its guano at the same rates. If the rates are not high enough, put them higher; say 16 cents per lb. for the ammonia, and 3 cents for the phosphates. But whatever price is determined on, let all the guano sent here by the Peruvian Government be sold at one uniform price, *according to its composition*. We have a right to ask this; and until some such an arrangement is made, there can be no satisfactory trade in guano. I have no doubt that the United States would take 200,000 tons of Peruvian guano a year, if the trade could be placed on a satisfactory basis. Until then, our dealers should turn their attention to nitrate of soda. Cannot it be imported for $70 or $75 per long ton, in gold? Ordinary commercial nitrate of soda contains nitrogen equal to 19 per cent of ammonia. It acts quicker than guano, and I would be willing to pay 20 cents a lb. for the equivalent of ammonia. This would be $85.12 per ton for the nitrate. Cannot it be sold at this price?

I have an orchard of over two hundred Northern Spy apple-trees, set out about a dozen years ago. I want to keep it in grass, as it is very conveniently situated for pasturing my Cotswold sheep, and in hot weather the shade of the trees is grateful to the sheep. I have given it a liberal top-dressing of manure, but if I could get nitrate of soda at a reasonable price, I would sow 50 lbs. per acre, two or three times a year, during showery weather. I should expect to see the grass immediately assume a dark green color, and, when closely cropped by the sheep, the field would look as handsome as a well-kept lawn. And furthermore, if the grass could not take up all the nitrates, they would sink down into the soil and be taken up by the roots of the trees. I believe nitrate of soda will prove to be our cheapest source of nitrogen for some years to come. Let our manure-dealers turn their attention to the matter.

M. S. Clark, of Vermont, has a piece of land that was in corn last year that he wishes to sow next fall with winter rye and seed down with grass. His object is to get a good permanent meadow or pasture. He has no manure, and proposes to sow the field this summer with buckwheat and turn it under, and asks my opinion of the plan. If the soil is clayey, I should prefer a good summer fallow. Make the land as smooth and mellow as a garden, and sow on the grass-seeds the last of August without any other crop. Mr. C. asks me "how many crops of buckwheat would be equal to a dressing of 25 tons of barn-yard manure." We have not the necessary data to answer this question, but judging from what facts we have, I think it would take eight or nine average crops of buckwheat to furnish as much nitrogen as is contained in 25 tons of good manure.

The New York State Agricultural Society offers a prize for the best pen of five spring pigs, without regard to breed. In the "small breed" class the prize was awarded to me, for a pen of cross-bred Essex and Berkshires. We killed them yesterday, when they were just one year old. The following is their live and dressed weight, with the percentage of dressed weight to live weight:

—	Live Weight.	Dressed Weight.	Percentage of Dressed to Live Weight.
	lbs.	lbs.	
No. 1 Barrow	430	382½	88.95
" 2 Sow	438	384½	87.78
" 3 Sow	461	404	87.63
" 4 Barrow	371	321½	86.65
" 5 Barrow	380	328	86.31
Average of the five Pigs.	416	364	87.48

There is nothing remarkable about these weights. In fact, they are insignificant in comparison with the big hogs we often read about. All that can be claimed for them is, that they are quiet and docile, are good graziers, fatten at an early age, and make the choicest of pork and hams with a minimum of offal. As things now are, they are better for the consumers than for the producers. I question if the butchers will give me more than half a cent per lb. above the market price for them, and yet they are well worth three cents per pound more than ordinary hogs. The lard is well grained and remarkable for its whiteness and solidity, and the choice parts of the carcass are fully developed, while there is comparatively little bone, ears, snout, and legs. The whole hog is practically solid meat. A good many Western subscribers of the *Agriculturist* have written to me in regard to Berkshire and Essex pigs. The above facts will answer their inquiries. They seem to think that they are too small. They can judge for themselves. For my part, I think pigs that will average 364 lbs., dressed the day they are a year old, are large enough. The only objection I can see to these fine-boned pigs is, that they are worth more than we can get for them. But I live in hopes of seeing the day when the pork-packers will discriminate between good and poor hogs. And in fact they are now making more difference than formerly. As a rule, what is good for consumers will in the end be good for producers. And I believe that Berkshire pigs are as well suited to the circumstances of Western farmers as any other breed. But they must judge for themselves. A Western breeder of Chester Whites accuses me of "puffing" the Berkshires from interested motives. He does not know that I do not breed any Berkshires for sale. If his hogs at a year old will dress over 87 per cent, I should be glad to know the fact.

A subscriber of the *American Agriculturist*, in one of the Western States, says he has a neighbor who makes a good deal of money by raising mustard-seed, but he will give no information in regard to the business, and he writes to know if we can tell him how to raise and harvest the crop. I do not exactly see how a farmer can keep the management of a crop a secret. In this section my neighbors know a good deal more about what I am doing on my farm than I do. I supposed there were no secrets in farming, any more than there are in medicine—the secrets belong to the quacks. There is certainly no secret about mustard-growing. The chief difficulty is in harvesting it. It requires considerable skill, energy, promptness, ingenuity, and judgment, to cut at the right time, cure properly, and gather and thrash the crop. I know an English farmer who has had considerable experience in raising mustard, and I will get him to write an article on the subject for the *Agriculturist*; and as he is personally acquainted with our soils and climate, he will be able to give just such directions as we need. The profits of the crop are sometimes very large. A story is told of an English farmer who took a load of mustard-seed to market and got $2,500 for it. Mustard for seed requires rich land, and it should be got ready the year previous. If I was going to raise a crop, I should summer-fallow the best field I had, and manure it with well-rotted manure next fall, and drill in the seed in good season the next spring. The great point is to make the land rich and clean. The seed is drilled in rows one foot apart, and the plants are singled out with a hoe about ten inches apart. The young plants grow slowly at first, and, unless hoed in good season, the weeds will smother them. Hence, the importance of rich, clean land. When the plants are hoed and get fairly started, they need no farther hoeing. The mustard grows so rapidly as to smother every thing. Nothing more is required until the crop is ready to harvest. There are two varieties of mustard, the white and black mustard. The black is the most pungent, and makes the best table mustard, but both kinds are used by the manufacturers. The white is extensively grown as a green food for sheep. It is often sown after harvest on wheat stubbles, and is eaten off by sheep in September and October.

A Reclaimed Salt Marsh.

In the summer of 1869, E. Chesebro reclaimed about ten acres of salt marsh at Stonington, Ct. The principal part of the work was a dyke, eight or ten rods long, thrown across the narrow neck of land that connects the marsh with tide-water. This and the tide-gate cost about three hundred dollars. Previous to the improvement, the marsh was overflowed in the high tides, and produced but two or three loads of black marsh grass, very good for bedding and manure, but of little value for fodder. The past season it has yielded three or four times as much hay as before, and of much better quality. The blue grass is every where making its appearance. Formerly, cows did not care to go upon the marsh to graze at all. Now they crop the aftermath with great relish. It only remains to top-dress with a light coat of soil and to sow grass-seed, to transform the whole into a productive meadow. Mr. Chesebro considers the question of reclaiming as fully solved. The following figures will very nearly represent

the expenses and profit of the enterprise:

To 10 acres of marsh, $20 per acre, Dr..	$200
To cost of reclaiming.....	300
By 10 acres of reclaimed meadow, at $200 per acre.....	2,000
Profit.....	$1,500

We have no doubt the land will pay the interest on this sum, if nothing further be done for it. By sowing grass seed, top-dressing, and further draining, it can be easily made to pay the interest on three hundred dollars an acre. One of the largest crops of hay we ever cut upon this kind of meadow was from a top-dressing of mud, taken from a salt-water ditch. This mud lies in inexhaustible quantities within a stone's-throw of this reclaimed meadow. Three tons to the acre are not a large yield of hay for such top-dressed land. Hay is now selling in this locality for thirty dollars a ton. But at twenty dollars the crop would be worth sixty dollars an acre, and the cost of haymaking in good weather, with our improved implements, is not over three dollars a ton. We are glad to notice the progress that is making in this class of improvements.

Home-made Horse-powers Again.

Mr. J. K. Leonard writes: "I was much interested in the article on 'Home-made Horse-powers' in the December Number of the *American Agriculturist*. I wish to have one under my barn, and as there would not be room between the posts that support the barn, I want to know if it would be practicable to run a hollow shaft around one of these posts, and what kind of bearing would be the best for the lower end of the shaft to run upon."—We think there would be no difficulty about constructing such a power. First, mark a circle, *a a*, fig. 1, not more than 12 inches from the bottom of the post, and another as near the top as will leave room to oil the wheels. Then with a chisel cut a nick all round the post where you have marked, an inch deep, and in the form represented at *a a*, fig. 2. The bottom slope of the lower nick and the top slope of the upper one should then be covered by an iron ring, ¼-inch thick and 1 inch wide, to act as a railway for the small friction-wheels. This requires fitting with nicety. Perhaps the better plan is to have the ring *screwed* on in halves, when, by packing up one place and screwing down another, a level track can be made with small trouble. Then surround the post with a square box, *b*, *b*, *b*, *b*, as shown in the section, fig. 3, made of 3-inch pine. Let it be strongly spiked together, and banded with iron in three or four places. Get from a foundry eight small wheels, *c*, about 6 or 8 inches in diameter and ¾-inch wide, with a bore of 1 inch. Each wheel must be fitted with an axle, *d*, fig. 2, 18 inches long, cramped at *e* to an angle of 45°, and with bolt-holes to bolt it securely to the box, *b*, as shown in fig. 2. Adjust them so that each wheel stands at the same angle, and presses equally upon the tramway. The engraving is shown with beveled wheel-gearing; but the same principle is applicable to any other method of transmitting power. Make your sweep out of white ash or hickory, as long as your room will allow. A great defect in many horse-powers is making the sweeps too short. A horse cannot exert his strength to so much advantage when walking in a circle 15 feet in diameter as he can in one 25 feet in diameter; and it is preferable to get the speed by increasing the size of the driving-wheel, rather than by decreasing that of the horse-walk. If possible, therefore, make your sweep 13 feet long, and 5 inches square at one end, decreasing to 3 inches at the other. Select a *straight grain*, which may save you the trouble of replacing it at some future day, when you can ill afford to lose time. Saw it down the middle, as far as *f*, and secure it from splitting by a substantial iron hoop driven on over the end. Force the cleft open, wide enough to admit the square shaft, *b*, about 2 feet to 2 feet 6 inches from the ground. Let the cleft ends into the upright shaft, just enough to make them fit down close, and secure by two good bolts through the sides of the hollow shaft. Such a pole or sweep will be difficult to break, and has so much spring as to prevent jerking and irregularity in the motion.

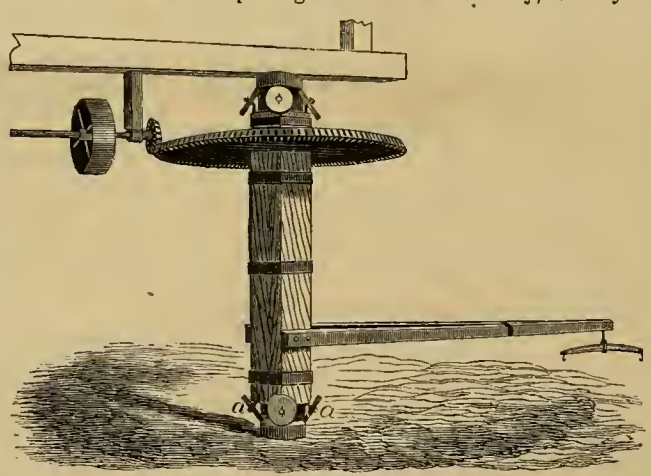


Fig. 1.—HOME-MADE HORSE-POWER.

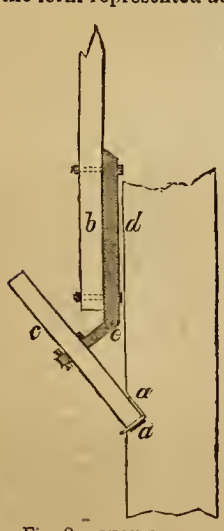


Fig. 2.—SECTION OF WHEEL.

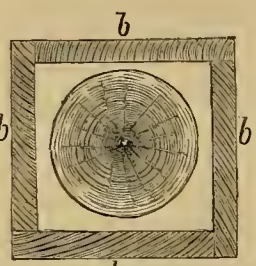


Fig. 3.—SECTION.

Abortion in Cows.

Mr. Charles L. Sharpless, well known as a breeder of Jersey cattle, has written an article for the *Practical Farmer*, in which he advances the idea that the tendency to abortion may be overcome by giving a rest to the generative organs. He says: "A neighbor, in the early spring of 1869, had thirteen cows which aborted. It happened when they were on winter keep, in January, February, and March. Instead of putting them to the bull in the summer, he adopted the suggestion of keeping them over until November, December, and January, which brought them to calve from August to October, 1870. They all carried to maturity. This success, if understood, was reached from the fact that they had time to heal before being again stinted; and that after a good wintering, they came out on the grass of 1870 with the calves very young in them, before the aborting time, which is from five to eight months from conception."

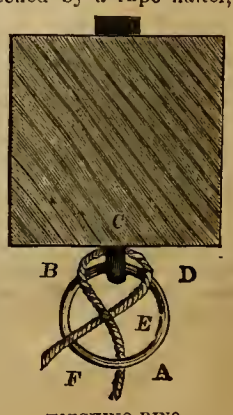
How far this explanation may be scientific, we are not prepared to say; but whether scientific or not, the fact of such decided success in practice must have great influence in determining the owners of aborting cows to try the experiment. The experiment will be attended with no risk, save loss of time; and it certainly seems natural, that after such a shock to her system as the loss of a calf must occasion, the animal must be decidedly benefited by the functional rest of the injured parts. If Mr. Sharpless means by the use of the word "heal," the cicatrizing of any open wound, we think that his reasoning needs the support of experimental proof; but if he means a general restoration to health, he is probably quite right.

MILK-FEVER.—In the same article, Mr. Sharpless makes some very sensible remarks on the subject of milk-fever, saying that there is danger of its occurrence in winter as well as in summer, in the case of very large milkers, or of animals in high condition. He recommends that such animals be restricted to an exclusive hay diet from the time they first begin to spring bag; advising the same treatment even in summer-time, unless the animal is kept in very close pasture, and shows no tendency to fatten. He advises, also, that a moderate feeding of hay, only, be continued until the fourth or fifth day after calving, at which time the full flow of milk is established, and the danger of puerperal fever has become slight.

Mr. Sharpless suggests the propriety of giving all cows a daily dose of aconite for two or three days after calving, increasing the frequency of the doses on the least indication of fever (hot horns, dry muscle, or glassy eyes). Mr. Sharpless, no doubt, wrote after much consideration of the subject, for it is less than half a year since he lost his best imported Jersey cow by milk-fever. In like manner, the writer of this article has had his attention drawn to the subject by the recent loss of a very fine native cow from the same disease, evidently brought on by the mistaken kindness of her attendant, who kept her too fat before calving, and fed her too much immediately after.

Hitching a Horse.

When a horse is hitched by a rope halter, tied in the common way, it often happens that by backing, the knot is drawn so tight that it is difficult to untie it. H. H. H., Riverside, Maine, sends us his manner of overcoming the difficulty, illustrated by a diagram. Instead of tying the rope in the ring in the usual manner, with a slip-knot around the "standing" part, he puts the end of the rope up through the ring, as at *A*, in the engraving; it then passes over the ring at *B*, under the staple at *C*; over



HITCHING-RING.

the ring again at *D*, under the rope at *E;* and over the ring at *F*. This, he claims, will not get drawn tight, and will not untie itself.

Curing small Skins.

The market value of a skin is greatly affected by the care taken in removing it from the animal, and in drying it. The common way for boys in the country is to tack the skin to the barn-door and let it remain stretched until quite dry. The trapper in the woods, having no such convenience as the barn-door at hand, is obliged to resort to other methods. One plan is to dry the skin on a hoop. A skin to be dried in this manner must not be ripped down the belly, but it is cut from the lower jaw of the animal to just below its fore-legs; the lips, eyes, and ears being cut around, the skin is stripped off, leaving the fur side inward. The hoop consists of a branch of hickory or other elastic wood, an inch through at the butt. This is bent and pushed into the skin, which is drawn tight, and fastened in place by notches in the bow, drawing the skin of the lip into these notches, as in figure 1. A much neater way, and one generally preferred, is to use stretchers of thin wood. As these have to be carried by the trapper, they are made of light wood and very thin. They are $^{3}/_{16}$ of an inch thick, 20 inches long, 6 inches wide at the larger end, and slightly tapering. They are rounded to a blunt point at the lower end, and the edges chamfered. The skin is drawn over the board, as in figure 2, and secured with tacks. Skins stretched by either of these methods should not be dried in the sun nor by a fire, but in a cool place where they will be sheltered from the rain. No salt or other preservative is used upon skins intended for the market.

Fig. 1.—BOW STRETCHER.

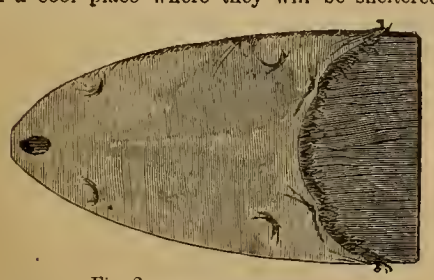
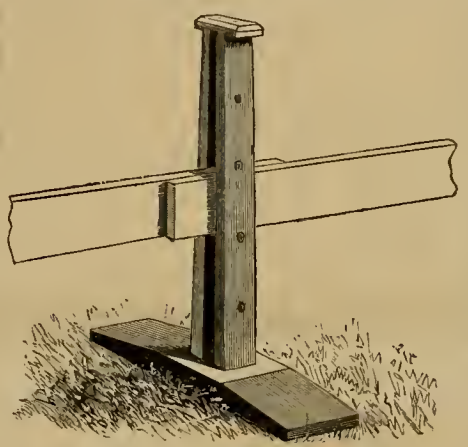


Fig. 2.—BOARD STRETCHER.

SAVING TIMBER.—It may be we are all right on fuel, and that the coal basins and peat swamps are inexhaustible. Should these fail, it may be that we have oxygen and hydrogen enough in the water to give us lights and fuel for all coming time. But these substances can never supply the innumerable other uses to which we apply wood. Ten millions of acres of woodland are said to be swept off every year by our present population, and the destruction is constantly increasing. This must eventually make some impression even upon a continent. Alaska and St. Domingo will not supply us with timber. For the good of the whole country, for its highest productiveness, we want at least one-fifth of its whole surface covered with forest. A wise regard to his own pecuniary interests should lead every farmer to retain at least a fifth part of his land in wood. Timber is constantly appreciating in value. He can not better provide for his old age, or leave a safer inheritance for his children.

Another Portable Fence.

The Rev. W. B. Wells, Butler Co., O., sends a model of a post for a movable fence, which he has tried with much satisfaction. The engraving will show the construction. The upright portion of the post consists of two boards, fixed wide enough apart to allow two boards of the fence to enter the space between them, and rest upon pins placed for the purpose. A post like this is used for the reception of the ends of the fence-boards, and an intermediate one is used for each pannel to support them in the center. This middle post has the space only wide enough to admit one board.



POST FOR PORTABLE FENCE.

Bringing in Clover.

White clover will not come into any soil by any process whatever where the seed is not already sown. On most old meadows and pastures, the seeding has been going on for many generations; and it is so abundant, that when the land is laid down to grass, no white clover seed is sown with the timothy and red-top. It takes care of itself, and is seen in the hay and aftermath for several seasons, and then disappears. It is highly esteemed for hay, and makes the best of dairy feed. This very desirable feed may be secured in many old pastures by sowing plaster at the rate of a bushel or two to the acre. The action perhaps has never been satisfactorily explained, but it does act, and the dormant seeds sprout, and the field is thickly strewn with clover blossoms the next season. In many districts, the pastures have been completely renovated, and are kept in high condition by this cheap fertilizer. Feeding with sheep on some farms greatly increases the growth of white clover. Spreading stable manure, compost, or ashes, secures the same result. Burning over old pastures, especially if infested with briers and brush-heaps, helps the growth of clover and the grasses. Sometimes scarifying an old moss-bound sod with a harrow has an excellent effect, and gives a new start to the grass. Almost any pasture will improve by close feeding, if the animals are suffered to remain upon it at night.

Traps for the Muskrat and Bear.

In the article upon "Trapping the Bear and Muskrat," given last month on page 94, we had not space to give engravings of the traps in use.

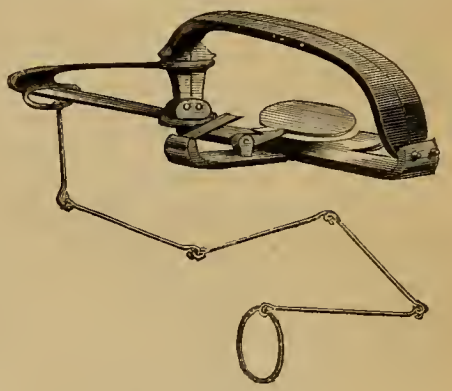


Fig. 1.—MUSKRAT TRAP.

Good trappers, after trying various devices, have fallen back upon some modification of the old steel-trap. Many of the traps found upon sale are nearly worthless. They either lack power to hold the animal; the jaws are so thin as to cut off the animal's leg by the spring of the trap; or there is some defect in the moving parts that prevents the trap from springing with the requisite quickness. An old trapper is as particular about his traps, and is as well acquainted with their peculiar merits and demerits, as is a huntsman with his rifle or shotgun. For the muskrat, mink, etc., the trapper chooses as light a trap as possible, as large numbers have to be carried on an expedition. Those in use are but little larger than the common rat-trap, but are made with a spring strong enough to hold a larger animal than the muskrat, if necessary. Figure 1 shows one of the approved forms. For the bear, a very powerful trap is required, like that in figure 2. It differs from the traps for smaller animals in having two powerful springs. The jaws have a spread of some 16 inches. In the one figured the jaws are furnished with strong teeth; but the utility of these is a point upon which experienced woodsmen are not agreed. The pan is small in proportion to the size of the jaws, in order to bring the animal's leg as near as possible to the center. To retard the movements of the animal a strong chain is attached to the trap, and is terminated by a three-pronged grapnel, or attached to a heavy clog.

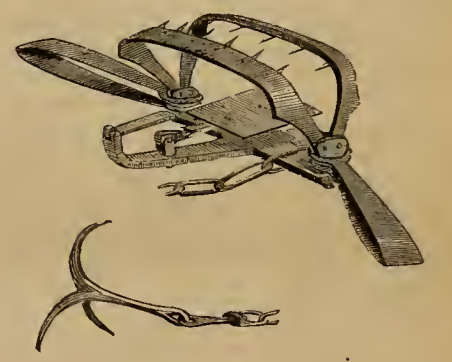


Fig. 2.—BEAR TRAP.

Coal-Ashes for Earth-Closets.

If there is any truth in the idea that reforms are to be spread by dint of giving "line upon line and precept upon precept," we shall be justified in recurring again and again to the simple means by which all persons in town and

country may effect the perfect deodorization and disinfection of human fæces, and convert what is usually a great source of annoyance and waste into a valuable manure and source of profit. One great obstacle to the rapid introduction of the earth-closet is to be sought in the idea that people dread the difficulty of obtaining suitable earth in the proper state of preparation. Wherever coal is used for fuel, this obstacle is entirely removed, for the coal required to heat an ordinary house will yield ashes enough to supply the closets of its inmates. In our own experience, with a family of six persons, the fire of a small furnace which only partly heats the house, supplies the three earth-closets, which are the only conveniences of the family, and a sufficient surplus will be accumulated from that and the kitchen range during the winter to carry them through the summer. Aside from the ease with which this provides the necessary material, there is a further advantage in the regular sifting of the cinders that the system requires. A great deal of half-burned coal, that would otherwise be thrown away, is thus economized for a second burning, and the ashes themselves, instead of accumulating until the public dustman can be induced to take them away, are made very valuable for use in the garden. It seems to make no difference whether the ashes are made from anthracite or from bituminous coal. We are using anthracite ashes, and find them as good as the best earth, while in New Orleans, the ashes from bituminous coal from Pittsburgh have been used five times over, and seem to be perfectly inoffensive at the end.

How to have Good Mutton.

The sheep is a delicate feeder, and makes one of the most delicious and digestible of all the butcher's meats. Like most animals, it improves in flavor by age, and attains its perfection, in most breeds, at the age of three years, when it makes, in Daniel Webster's language, *red-mutton*—so-called because the gravy, though well done, is *red* and of high flavor. In feeding sheep for the luxurious table, there should be but few together, which allows them greater variety of food and more repose. In large flocks the strong sheep monopolize the best herbs and grasses, and the weaker ones are poor and mean meat; besides, there are always restless sheep where many feed together, and the others of the flock are ill at ease whilst any are on foot. Sheep well-grazed are better than the stall-fed, and have that "gamey" and juicy flesh so liked by epicures. The best table-sheep in the British isles are the small Welsh breed, which have the wide range of those mountains.

But the best sheep in the world are often spoiled by bad butchering, and I propose to show how this should be done. Many persons become disgusted with, and never eat, mutton, because of what they term the "wool-taste." Now, a sheep well-dressed, may be wrapped in the skin and wool, as well as in the purest linen, and never have a "wool" flavor. The intestines of the sheep are, like those of all the ruminating animals, very long and powerful in capillary absorption; and, if allowed to remain in the body after death, infuse the odor and flavor of their contents into the meat, and thus give that ill taste. Everything, then, depends upon *rapid dressing*. While yet alive, the sheep should be suspended by the hind legs, well apart, to two pegs, or hooks, to a cross-timber, so that the body may be easily reached on all sides without turning it. The butcher should be prepared, with a sharp knife, ax, meat-saw, thread, and water; also, with a block, or low stool, to stand upon, if need be; for the sheep, when suspended, is too long generally to be easily reached in all parts. The throat should then be cut, severing both arteries, and the blood entirely let out; if Professor Bergh is about, the animal may be knocked on the back of the head with the pole of the ax, before using the knife. The skin should then be rapidly taken off, at least from the parts to be cut in taking out the intestines, and pinned back, so as freely to allow that operation. This finished, the blood should be well washed out by casting on the body clean water freely. Should the intestines at any time be broken, let them be tied up at once, and the soiled parts well cleansed. The body should then hang until it is well dry, when it is ready for use. Mutton (and all meats) never ought to be salted, if possible, until it is ready for the cook. Salt absorbs the juices, dries and preserves the meat, but spoils the flavor. Meat should be hung in a cool, dry place, so that all parts may be aired. Do not allow it to become frozen, but if frozen, it should be used, at once, if possible. In some parts of Mexico, beef will hang in the air for weeks in the warmest weather, because of the dryness of the climate. The Indians and hunters dry their meats with slow fires.

After large experience in many parts of the world, I should say that "flesh, fish, and fowl" should be eaten as soon as possible after the animal heat is out. Persons in cities learn to like "high" and stale meats, because they get no other; but it is a depraved taste, as men may learn to use tobacco, which will kill most animals and make a dog sick! C.

[REMARKS.—We commend the above suggestions to the readers of the *Agriculturist*. They are from a gentleman of great experience and observation. We think he should have added that *cooking* is also an essential point. The allusion to "red-mutton" is very suggestive. It is dependent, to some extent, on the age, breed, and food of the sheep, and also on so cooking the mutton that the juices will be all retained in the meat. The flavor of mutton is undoubtedly influenced by the food; but we can hardly expect farmers to do more than to rid their land of all noxious weeds, and encourage the growth of nutritious grasses. If they provide their sheep with good pasture, on dry upland, in summer, and plenty of clover hay, or bright straw and grain in winter, with abundance of fresh water, the mutton even from Merino sheep will not be bad flavored. A well-fatted Merino sheep has little of that "woolly taste" so much complained of. The trouble is, that not one Merino sheep in a thousand is fatted at all before being sent to market. It has been proved, by the experiments of Lawes and Gilbert, that the juiciness of meat is due, in a good degree, to the fact that it contains a less proportion of water. In a well-fed sheep the water in the lean meat is replaced to some extent by invisible fat. This fat does not evaporate in cooking, as water does, and consequently the meat is juicy. Flavor, perhaps, requires age, but juiciness and nutriment can be obtained without keeping sheep until they are four years old. And it is certain that, in the older-settled parts of the country, we cannot afford to keep animals designed for meat, month after month, and year after year, merely to give the meat a little higher flavor. We must have early maturity, or we cannot afford to keep animals at all. On all farms worth $100 per acre, there is no profit in raising sheep for mutton, unless they can mature before they are two years old.—ED.]

The Fresh-Water Bass.

In the newly awakened interest in fish-culture, and the rage for stocking ponds, there is great danger that our waters may be permanently injured by transplanting inferior kinds of fish. Immense damage has already been done by transplanting pickerel to waters admirably fitted for trout. The rule should be to stock with the best varieties of fish that the water will sustain. Deep, cold ponds, and brooks that are congenial to the Salmonidæ, should be devoted exclusively to these fish. Ponds that are too warm in summer for trout should be given up to Black-bass (*Grystes nigricans*, of Agassiz), the best of all the fresh-water fishes that go by the name of bass. It costs no more to get the best variety, they are as easily raised, are better game, and will give much better satisfaction in every respect. It is a serious matter to introduce a hardy fish into new waters. They often take complete possession, and they can only be got rid of by introducing a fiercer and stronger fish.

We place the Black-bass (*Grystes nigricans*) at the head of the list of fresh-water bass. It was found originally in the St. Lawrence basin, and from thence probably made its way through the Champlain canal into the upper waters of the Hudson. It is caught in great abundance in the St. Lawrence, and in most of the lakes and ponds of Central and Northern New York. It has all the good qualities of the other species, in addition to the excellence of its flesh, which is by many persons considered equal to salmon. It runs from three to nine pounds in weight, as taken in its native waters, and in ponds that have been long stocked with them. Few, however, are taken that weigh over five lbs., and six lbs. is considered a very large fish of this variety. It is readily distinguished by a carmine dot in the eye, and by a strong musky odor. This fish early attracted the attention of the late Samuel T. Tisdale, and was regarded as the only worthy substitute for trout in the ponds of eastern Massachusetts. They were transplanted thither from Saratoga Lake in 1850, and from thence have been widely distributed. Nearly all the ponds in New England that contain this fish—and there are over a hundred of them—have received their stock directly or indirectly from Saratoga Lake.

The Black-bass of the South (*Grystes salmoides*) looks much like the northern Black-bass to the casual observer. Its habits are similar, as are its fins and color, but it has a larger head, and grows to a larger size. Its flaky meat is soft and watery, and in this respect it is quite inferior to the St. Lawrence fish. It abounds in the rivers of Florida, and is found in many of the rivers of the Western States, as far north as Minnesota. It was first introduced to our Eastern waters by Mr. Stabler, a conductor on the Baltimore and Ohio Railroad, who brought them from Wheeling Creek, in his locomotive tank, and put them into the Potomac at Cumberland. All the tributaries of this river, down to Great Falls, are now abundantly stocked with them. Last fall they were planted in the Delaware, at Easton, which we consider a very serious error, as it must damage the prospect of restoring shad and planting salmon in the upper waters of that river. It is well known to sportsmen that there are no finer trout-streams than the tributaries of the Delaware in Penn-

sylvania and New York, and that salmon will flourish in any water congenial to trout. It would seem to have been a much wiser policy to have reserved this stream for the king of the river fishes. The Black-bass of the South cannot fail to prove very destructive to salmon spawn and fry, should it ever be attempted to stock the river with salmon.

The Oswego bass is named from Oswego Lake, in which it is found, but it is by no means confined to those waters. It is found in most of the lakes in the interior of this State, and in the waters of Ohio and Kentucky, and in the west part of Canada. It is similar to the *Grystes nigricans* in all outward marks, except that it has a larger head, lacks the double curve at the end of the lateral line at the joining of the tail, and has no red in the eye. Its flesh is softer and more watery. We are not aware that any efforts have been made to transplant this fish.

The Spotted-bass and the Rock-bass of the lakes, are both smaller varieties, rarely reaching two pounds in weight, and though considered very good pan-fish, are not worth propagating where the larger and better varieties will flourish. These different species of bass have led to a good deal of confusion in the minds of fish-culturists. Some persons have exported fish called Black-bass both to England and France, but whether they were the *Grystes nigricans* is quite questionable. Many are now inquiring for the best fish to stock ponds that will not support trout, and are liable to be misled for want of the information we have here endeavored to lay before our readers. The *Grystes nigricans* does well wherever it is introduced. It has gone into Pennsylvania; and for all places north of the southern line of that State, we have no doubt it is the best lake fish we have.

The Steaming and Cutting of Fodder.

Wm. Q. Elliott, of Centreville, Ind., asks: (1.) Are there steam-powers in use which both furnish the power to cut the feed and steam to cook it with? (2.) If so, where are they to be got, and what is the cost of one of sufficient capacity to cut and steam for 100 head of cattle? (3.) We have manufactured, in Indiana, a feed-cooker designed to boil corn in a large hopper, and it does it effectually. From your experience in cooking and steaming, would you think that a tight cover, placed over this large vat, and fastened down to save the steam, would make this answer to steam fodder in a large box, or chest, at a short distance? (4.) What do you use to cut with—what to steam with? (5.) What precautions have you against fire? (6.) The size of your car from which you feed?

(1.) The only steam-power we know any thing about is the steam-engine. This, with its boiler, does all you ask about. (2.) They are to be had from many machine-works in all parts of the country. The cost of a boiler and engine, to cut and cook for 100 head of cattle, would be from $500 to $900, according to circumstances. (3.) The principal objections to this apparatus would be that it would not make steam fast enough, and would not bear pressure enough to allow the steam to be raised to the most economical degree of heat.—For further particulars on this point, see Ogden Farm Papers in our March number. Whether this apparatus, or a better one, is used, the distance to the steaming-box should be as short as possible. If you have this apparatus, and cannot conveniently incur the expense of getting the better one, it will, of course, be possible to cook with this, but it will take longer and cost more. You will need to have some mechanical power to cut your fodder, and an engine is the best; consequently, if you have 100 head to feed—or even 50 head—it will pay you to start right. (4.) We use Cummings' Cutter (Rochester, N. Y.), driven by the steam-engine, and steam from the same boiler that drives the engine. (5.) The engine-room is built outside of the stone wall that forms the north side of the first story of the barn; the boiler (in this room) stands in a pit 4 feet deep, so that all the firing is done in a safe place, and the smoke-stack is carried high above the eaves of the barn. (6.) The floor of the car is about 4x6 feet, and its sides are two feet high.

The Progress of the Earth System.

It has been a source of surprise to ourselves and to all who were enthusiastic in the belief that the earth-closet would effect a rapid reform in the habits and economies of our people, that its progress has thus far been, comparatively, slow; but on reflection it seems not unnatural that this should have been the case. Until now, the system has been adopted mainly by the better educated and more intelligent classes. The masses—those for whom it really promises the greatest benefits—are slow to change their habits in any respect. The inconvenience, the wastefulness, the danger to health, and the annoying exposure of the system that prevails, especially in villages and in the country, and above all in the Southern States, are deplorable in the extreme; but they have so long been accepted as a necessary evil, that those who endure them have come, by long habit, to disregard them, and to look with indifference upon any plan proposed for their avoidance. The means for the application of the reform are so perfectly within the reach of even the poorest people, that the bringing of the closet within the house itself, cannot fail sooner or later to approve itself to the minds of all.

If it were necessary to the establishment of a satisfactory earth-closet, that the patented apparatus should be adopted, even the moderate cost that this would entail would be a sufficient reason to deter many persons. But as the full essential benefit of the system lies within the easy reach of all who can provide themselves with earth of almost any description, or with coal-ashes, without the least necessity for the outlay of money, it is certainly reasonable to suppose that the amendment of our customs, which has taken so strong a hold among those who are in more comfortable circumstances, will in due time secure universal adoption. And when we reflect that the benefits of the use of earth in stables are hardly less marked than those of its use in closets, we are impatient to see its influence brought to bear, to check the appalling waste of every kind of animal manure that is now threatening the entire agricultural prosperity of the country.

How to make a Simple Hive.

BY M. QUIMBY.

A subscriber to the *Agriculturist* in Florida wishes a full description of the frame hive so often referred to, and directions for use. He says: "The woods are full of bees, but they do not seem to work well in the old hive, many swarms leaving the day after hiving from the tree. If I knew how to make them stay, I could get as many swarms as I could tend in a month. Information on these points will be gladly received."

The "information" may possibly benefit Northern bee-keepers also. A full description, and directions for making and using the simple, movable comb-hive will be found in "Bee Keeping Explained." There is another hive, still more simple, particularly adapted to the honey emptying machine, which, from present indications, is just what is wanted in Florida. The frames are about 11×18 inches square; strips for top and ends 1½-inch by ⅞-inch; the bottom may be square or triangular. These frames are held upright by a short piece of hoop-iron, bent in this shape, ⌐, and nailed on the bottom of the frame thus, ▭, and hooked on the edge of another piece of hoop-iron, nailed to the bottom board; one edge, raised slightly, is sufficient to hook the bent piece under; the bottom board may be any size. Cut out a space for ventilation, a few inches square, in the center, and cover with wire cloth. Set up a half dozen frames close together, and put boards on each side just the size of frames, and you have a hive very near perfection for the warm climate of Florida. Farther North, an outside box, simply set over the frames, will be an additional protection from the weather. The boards forming the box may be held at the corners by hooks instead of nails. If surplus boxes are used, holes can be made through the top, and boxes set directly on the frames. I think Mr. Warner would find it to his interest to make his bottom board large, and putting some twenty-five such frames together, making an enormous hive, and then use the honey emptying machine for his surplus. If the honey thus obtained is as much superior to the ordinary Southern honey, as our machine-extracted is superior to ordinary strained honey, the difference in value would be inestimable.

From the south somewhere, honey now comes to our market by barrels, tierces and hogsheads. The flavor is very unpleasant, which, if not natural to it, may, and probably is, caused by carelessness in mashing up dead bees, larva and bee-bread, etc., in straining. It only finds a ready market here when Northern honey is scarce. But let pains be taken in preparing it for market, and sending a *pure* article—no taste of bee-bread or other adulteration—and our Mohawk Valley honey, that is now unsurpassed for fine flavor, would find a serious competition in quantity as well as quality. But the reflection that ten times the amount will be used that is now, when we have a better article, thereby increasing the demand, ought to satisfy our Northern producers that I have not wholly ruined their business by my instructions. Where bees are so plenty in the woods that they may be had for the taking, swarms can be no object, and swarming should be controlled. The large hive alluded to above would have a tendency to discourage preparations, but would not always do so. Find and clip one wing of the old queen, and when the swarm issues, the queen, unable to fly, will be found near the hive; or if there is not time to watch for their issuing, the hive may be opened once a week, and whenever any queen cells are found sealed up, destroy all but one. The old queen, also, not being of much account, should be destroyed, otherwise more cells will continue to be started. Another examination should be had in four or five days, to destroy other cells which *might* be started from the brood. In this way the whole force that accumulates may be employed in one hive. By

SNOWY OWL. LITTLE ACADIAN OWL. GREAT VIRGINIAN HORNED OWL.

emptying the combs every few days, and returning ready for refilling, the bees lose no time in making comb, and collect several times the quantity they would if compelled to do so. To get combs in these frames, procure the contents of several of the trees from the woods, bees, combs, brood, etc., transfer to the frames—rejecting most of the drone comb, according to directions in "Bee Keeping Explained"—being sure to retain but one queen, with wing clipped. You would then have a mammoth swarm to begin with. It can be kept so by frequently emptying the combs, and keeping a supply of empty cells ready for the queen to deposit eggs in during the whole honey season, whatever may be its length.

If combs have to be built for a full supply, the frames should have a piece of guide-comb stuck in the top, and then put in between others near the middle of the hive. When these are filled, others may be added until the hive is as large as wished. We hope to furnish artificial comb soon, that will save time to the bee as well as honey. This style of hive involves the use of a honey-emptying machine—melextractor. This machine, introduced only a few years ago, is rapidly growing in favor in the North.

The Snowy, and other Owls.

The Snowy Owl, *Nyctea nivea*, though not rare in the Northern States during the winter months, is regarded as only a transient visitor, as it does not breed within our limits. Indeed, its resting-place is not known with certainty, but it is supposed to be very far to the northward. Its large size and white plumage make it a very noticeable bird. Though designated as the White, or Snowy Owl, its plumage is not entirely white, it having spots and bars of brown. These markings vary greatly in different individuals. Nearly all owls are nocturnal in their habits; but this species hunts in the daytime, and proves a serious enemy to grouse, ducks, and pigeons, which it pounces upon when they are upon the ground, or upon the wing. It is said to be very annoying to trappers, as it robs their traps of muskrats. Not only does this bird prey upon quadrupeds and birds, but it is expert at fishing. The Snowy Owl is sometimes found as far south as Georgia, but it is more frequently met with in the New England States than in any other part of the country, and even there it is of very rare occurrence after the early part of February.

The Great Horned Owl, *Bubo Virginianus*, is readily recognized by its large ear-tufts. This is also a large owl, being about twenty inches in length. It is found all over the United States, and is one of the most rapacious of the owls. It is variously mottled with brownish black, light brown, and gray; there is a conspicuous white spot upon the chin.

This species inhabits so wide a range—extending into South America—and presents such a variety in its color and markings, that several of its forms have been described as distinct species. It is a bird to be classed with "the pests of the farm," as its nocturnal forays are not confined to a search for wild food. The turkey-breeder has cause to regard him as an enemy; and those who do not give their fowls secure roosting-places, are losers by this owl. In full sunshine the bird may be approached and captured, but in diffused sunlight it is able to see sufficiently well to escape. The smallest of the trio in the engraving is the Acadian, or Saw-whet Owl, and it is the smallest owl of the Northern States. It is only seven to eight inches in length, and its general color is reddish brown. It is called the Saw-whet Owl, because its note resembles the sound produced in filing a saw,

The Swiss Stone, or Cembrian Pine.

(*Pinus Cembra.*)

A few weeks ago we received from M. F. R. Elliott, of Cleveland, Ohio, some notes upon the Cembrian, or Swiss Stone Pine. Mr. E. regretted that a tree of so many merits should be so little planted, and suggested that it ought to be brought more prominently to the notice of the public. We regret having mislaid Mr. Elliott's note, as we would be glad to present the evidence of so experienced a planter in favor of this tree. Coming from the highest limit of tree-growth upon the Alps, it possesses the important requisite in an evergreen—hardiness. No matter what grace of form or beauty of foliage an evergreen may present, if it be not hardy, it must be discarded from our lists. It possesses another quality which adapts it to general cultivation: it is not at all particular about soils, but will grow in the poorest, and in the most exposed and unpromising situations. It is true it will grow more rapidly in a fine deep soil, but it is a satisfaction to know of one evergreen that does not need to be coaxed and petted, and that will grow and flourish in soils and situations in which no other will maintain itself.

The young tree is of slow growth, and presents great regularity of form. We give an engraving of a specimen in the grounds of Parsons & Co., Flushing, L. I., which shows the appearance of the tree before it becomes old and broken in outline. The dark foliage makes it valuable in grouping with other evergreens. To the great majority of those who plant trees, one evergreen is as good as another, and we find place after place presenting nothing but Norway Spruce and Arbor Vitæs. These are two most useful trees, but their constant repetition produces the effect of sameness. There is quite a long list of evergreens that may be obtained, that will give a pleasing variety in color and habit. The flowers and young cones of the Cembrian Pine are bright purple, and very ornamental. This tree, in its native localities, attains the hight of fifty feet or more. The wood is very soft, fine-grained, and exhales a pleasing fragrance; it is much used in Europe for the interior finishing of houses, and is the wood from which the beautifully carved Swiss toys are made.

SWISS STONE, OR CEMBRIAN PINE.

MYRSIPHYLLUM IN FLOWER.—(*See next page.*)

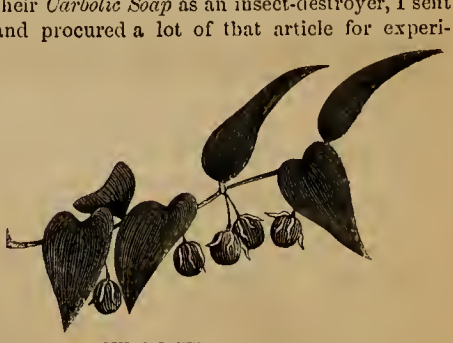
Cheap Remedy for the Peach-Borer.

BY M. B. BATEHAM, ESQ., PAINESVILLE, O.

I have been more or less engaged in the business of "peach-culture for profit" for the past twenty years, and have flattered myself that I thoroughly understood this branch of fruit-growing; but on reading Mr. Fulton's little book on Peach-Culture, published by Orange Judd & Co., I have gained some hints which would have been some hundreds of dollars advantage to me if I had read them before planting my present orchard of 3,000 trees, six years ago. But my object in writing, at this time, is not so much to commend this book, as to make known what I believe to be a simpler, more effective, and cheaper method of preventing injury by the *peach-borer*, than any contained in that or any other book within my knowledge.

In the chapter on Insects, Mr. Fulton very justly says: "The Borer (*Ægeria exitiosa*) is the most common, as it is the most troublesome enemy of the peach." * * * "*But it must be destroyed at all events.* There must be no truce, no mercy, if you wish to save your trees. If you leave even one, it will probably be the death of your tree, for it will eat, and eat away, until it will destroy it. The greatest care should be taken to remove *all*. Sometimes quite a number will be found in one tree. Five and six are not at all unfrequent; and even more will sometimes be found." Then follows a description of the methods of destroying the borer. The first and second years after planting my orchard, the borers were quite troublesome, and I fought them with the knife and wire, but still lost about one-tenth of my trees, and more were badly damaged. I then tried *coal-tar*, thickened with wood-ashes, to the consistence of paint or cream, and applied with a paint-brush around the base of each tree to the hight of 6 or 8 inches. This did not kill the worms that were already in the trees, but was quite useful in preventing the moths from depositing their eggs, if the application was made early in June, or just before they commenced their mischief; but the remedy was not completely effective, because the growth of the trees being quite rapid in summer, the outer bark would expand and form little fissures, in which the insect could deposit its eggs, during July and August, safe from the effects of the coal-tar; and even a second application would not reach them all. This remedy is also objectionable as being sometimes injurious to the bark of young trees at least, in hot weather. I next tried the application of tarred roofing-paper, in the form of collars fastened around the base of the trees, and I found these quite effective and cheap, but requiring a good deal of care in their application. I therefore abandoned this method for the much better one which I am about to describe.

Having read the circular of Messrs. Buchan & Co., of New York, describing the effects of their *Carbolic Soap* as an insect-destroyer, I sent and procured a lot of that article for experiment, and after two years of trial, I feel quite safe in recommending its use as the cheapest and best method yet found for the prevention of injury by the peach-borer. (I presume it will prove equally effective for the apple-borer,



MYRSIPHYLLUM IN FRUIT.

but I have not as yet tried it for that purpose.) My method of using this remedy is as follows: Take a five-pound can of the soap (costing only $2), and turn it into a barrel one-third full of hot water; stir it occasionally, and let stand a few hours, or over night, for the soap to dissolve; then fill up the barrel with cold water—or I sometimes use soapsuds from the kitchen for this purpose. The liquid is now fit for use. It is of a milky appearance, and pungent but not offensive odor. It is too strong for using on plants, but will not hurt the bark or wood of trees. Applied with a paint-brush around the base of the trees, taking care to have the liquid enter all crevices, it immediately destroys all the insect-eggs that have been deposited, and any young worms which have not penetrated farther than the bark; and I believe that for some weeks, at least, unless heavy rains occur, the odor prevents the moths from depositing eggs. I at first thought that, for this purpose, a second application of the liquid might be necessary; but my experience the past season has convinced me that one application in July, or early in August, is sufficient.

The barrel of liquid described is enough for a thousand trees of bearing size, and an active lad can do the work, in two days, if the orchard is in fair condition. But if many weeds are in the way, it will be necessary to first clear the surface around the stems of the trees with a hoe. The average expense of this remedy is not over five dollars per year for a thousand trees, or less than one-fourth that of the old method of killing the worms by hand (after they had done much mischief); and then, too, the new method is vastly more effective.

The Myrsiphyllum, or Myrtle-leaf, as a House Plant.

In December, 1869, we figured the *Myrsiphyllum asparagoides*, a beautiful climber, which is often incorrectly called Smilax. The engraving referred to had leaves only; we now give fragments showing the flower, which is very small and white, and the small and asparagus-like berries. Our especial object in referring to the plant at this time is to call attention to its great value for window cultivation. The portions here figured are from a fine wreath sent by a lady to show how successful she had been with the plant in her window garden. The lady lives in the country, where gas and furnaces are not, and grows house plants in great perfection. The Myrsiphyllum, which in a city window will hardly keep alive, with her runs all over the window-casing, and flowers and fruits most freely. It needs a good rich soil and a sunny window, and the poison of gas and the drying heat of a furnace being absent, it will grow most luxuriantly. The plant bears cutting well, which is fortunate, as the graceful branches are in great demand for floral decorations, especially for the hair. Indeed, in the winter, the florists in New York charge a dollar a yard for the stems, and find it difficult to meet the demand.

MARKET-GARDENING IN THE RURAL DISTRICTS.—The census often shows the drift of farm-life more accurately than any partial observation, however minute. It is quite clear, from the returns already examined, that there is a decrease in the amount of live-stock in the New England and Middle States during the past decade, and likewise a decrease in the yield of staple grains, while there will be shown a large increase in the crops of vegetables and in garden products. This shows pretty conclusively that grain-farming and live-stock raising, does not pay so well as some other branches of farming. The city and village population has increased, and the farmers in the immediate vicinity of these large towns are turning their attention more and more to supplying their daily wants. They can sell potatoes and turnips every day in the year if they have them, and garden products all through the summer and fall. There is, however, a brisk demand for poultry, eggs, milk, calves, lambs, and swine, and they very properly raise what the market demands.

Horticultural Memoranda from Tennessee.

BY ANGERON PAGE.

MAGNOLIA GRANDIFLORA SEED.—I obtained a few seeds, gathered in Memphis, Tenn., on Christmas, 1869. These I planted on a rich, sandy loam, cast up to a ridge. I covered the ridge lightly with oak leaves, and stuck down a row of cedar switches on the south side to break off the sun. Late in the spring they began to come up, and now I have eighty beautiful plants in my seed-bed. Other seed that were kept in sand until spring, and then planted out, did not germinate at all. These other seeds were, however, gathered at a different time and place. [The seeds of our hardy magnolias may be preserved until spring if removed from the cones as soon as they open, and then mixed with an abundance of sand and kept cool.—ED.]

SEED OF OTHER EVERGREENS.—At the same time, I planted fresh seed (so said the seedsman), bought in New York—viz., one pound each of Hemlock Spruce and of Norway Spruce, the soil and all being the same as for the Magnolia. The Hemlock came up beautifully, the Norway Spruce not at all. The summer heat killed out a great many of my little Hemlocks. The rest made a poor growth, and look feeble now. [It is impossible to raise seedling conifers unless the young plants are shaded. The Hemlock is particularly sensitive to exposure to the sun until it is well established.—ED.]

AZALEA INDICA.—I planted out-doors and in-doors, on hot-beds and on borders, seeds of this shrub without securing a single plant. I have equally failed in trying to germinate our native Holly, and, on hot-bed planting, failed to germinate a single seed of the Chinese Tea Plant. [The Azalea requires nice management to raise it from seed. The Holly seed does not come up until the second year after sowing.—ED.]

TEA PLANTS.—Grow well here out of doors. They are hardy in this State, and I think will stand a degree or two north of us. But my experience is that tea made from the leaves without rolling or baking, bears no comparison to tea prepared by the Celestials. I know no reason, however, why that preparation might not be imitated.

Let your readers, however, bear in mind that the writer has no seed, and no plants of this or any thing else to sell. Tea plants can be had of P. J. Berkmans, Augusta, Georgia, at moderate prices. They are a beautiful evergreen.

GROWING GRAPE CUTTINGS IN CLAY SOIL.—We have to haul our sand here, and pay for it, too. Our stiff clay soil is the worst in the world for all sorts of cuttings. I secured a few hundred cuttings of Clinton, Concord, and Hartford grapes, from S. E. Dake, Rochester, N. Y. These I buried, top downward, in a ditch, below frost. I trenched my ground and underdrained each row; then I hauled dirt from the creek and filled with it a furrow run through each row. In this I planted my cuttings in February, and secured almost as uniform a stand and growth as I did from rooted plants.

MISCELLANEOUS ITEMS.—Our fall and early winter have been so warm that our strawberries all bloomed out in November, and continue yet to bloom (middle of December); a few ripe berries have been gathered, but the whole prospect for a spring crop is, I fear, utterly blighted. I have pinks in bloom in the open ground at this time. A light covering of cedar brush protects them. A large jar containing a Camellia Japonica was left out until a few days ago (January). When I moved it into the pit, it was as fresh as if it were midsummer.

Greenhouse and Hot-house Plants from Seed.

BY PETER HENDERSON.

Very few not engaged in the cultivation of flowers as a business, know that many of the most beautiful ones used to decorate flower-beds in summer, and the hot-house, or parlor, in winter, can be raised from seed. The price of seeds, as compared with plants, is very low; a package of seed costing twenty-five cents will usually raise as many plants as could be bought from the florists for $25. It is true that care and labor are necessary in starting them, but the pleasure derived from the operation alone, well repays that, independently of economic considerations. April is the best month for sowing most of the seeds of tropical plants, and it is best done, where there is the convenience, by hot-bed. The hot-bed is made in the usual manner. The soil used should be, if possible, of a light, sandy nature, mixed with at least one-third of leaf-mold from the woods; if the leaf-mold is not procurable, pulverized muck, or stable manure rotted to the condition of mold, will do nearly as well. This is spread over the manure of the depth of about six inches. The sashes of the hot-bed should fit close, and there should be some material ready for covering the sash at night; either straw, mats, or shutters. We, ourselves, use shutters made out of ½-inch stuff, and exactly the size of the sash. All these preparations being made, insert a thermometer in the soil covering the hot-bed, and when it indicates a *declining* temperature of 75 degrees, the seeds may be sown. Most of the flower-seeds may be sown in a hot-bed just as we sow egg-plants or tomatoes, which is best done for private use by sowing in rows from a quarter of an inch to an inch in depth, according to the size of the seed, the distance between the rows being two or three inches. Let me here repeat a caution that I have often given in connection with seed-sowing: Be sure that the soil used for covering the seed is light; nothing is better than leaf-mold, but if it cannot be got, use the other substitutes before named. One-half of the loss in seeds is in consequence of their being covered with a heavy, clayey soil. The vital force of different plants in this respect is widely different. Thus, while the seeds of tomato will germinate in almost any soil, the egg-plant—a vegetable of the same class—requires the utmost care. As soon as the seeds have grown so as to attain the first true leaves—that is, the first leaves that show after the seed-leaves—they must be replanted carefully in soft, light soil, at from one to three inches apart, according to the kind. This will not only prevent

them from damping off, as many of them are very apt to do, but they will be much stronger and suffer less when replanted to the open ground. We prefer to replant the seedlings in shallow boxes—a soap-box cut in three, making a depth of two inches; they are more portable thus than if planted again in the soil of the hot-bed; though, of course, after planting in the boxes these are put again in the hot-bed. I may here mention that after the seedlings have been planted in these boxes they should be lightly watered and shaded for two or three days. As the season advances, ventilation, watering, and covering up at night, should be attended to.

To such as have not the convenience of a hot-bed, the flower-seeds may be sown in the shallow boxes above mentioned, and placed in the window of a south or east room, where the thermometer does not average less than 70 degrees. Success would be more complete, however, if panes of glass were placed over the seeds, resting on the edge of the box an inch or so from the soil. This would prevent evaporation, and render watering, which has the effect of caking the surface of the soil, and preventing germination, less necessary.

We will name the varieties of flowers most suitable for sowing at this season.

Canna Indica, or Indian Shot, grown mainly for the beauty of its foliage. Sown in hot-bed in April, and planted out in the open ground in June, will, by August, attain a hight of six or eight feet. In addition to the rich, tropical-looking foliage, the flowers of some sorts are handsome—colors yellow, scarlet, orange, etc.

Antirrhinum, or Snap-Dragon.—A beautiful summer-flowering plant, presenting a great diversity of coloring, is easily raised from seed in the hot-bed. The Antirrhinums may be planted out in this latitude in May, and flower from middle of June throughout the summer.

Cobæa Scandens.—A climbing plant, which will attain, from seed, a growth of twenty or thirty feet in one season. The flowers are bell-shaped; purple; 3 inches in length by $1\frac{1}{2}$ inch in breadth. The seeds of this plant are thin and flat, and will germinate more safely if placed on edge when sown.

Coleus.—This famous ornamental-leaved plant is easily raised from seed, and breaks into endless varieties. It is exceedingly tender, however, and had better not be sown before May, nor planted out before June.

Zonal Geraniums are, perhaps, the most valuable of all plants for summer-blooming in our climate. They are easily raised from seed, and will well reward the amateur by the endless variety produced. A few years ago the only colors of these were scarlet and pink. Now we have them of every shade, from white to crimson, with endless tints of scarlet and rose. The Zonal Geraniums may be lifted and potted in the fall, and if well pruned in when lifted, will bloom finely in winter.

Lantana is another summer-flowering plant, easily raised from seed, the flower resembles somewhat the Verbena, but has, besides many of the colors found in the Verbena, orange, and yellow, which are not found in that flower.

Lobelias.—Dwarf plants, well suited for hanging-baskets, or for ribbon-lining. The flowers range from pure white to blue. The blue of the Lobelia is often of the richest azure, unsurpassed by that of any other plant.

Pansy, or Heart's-ease.—The usual mode with the florists is to sow the seeds of Pansy in the fall, so that the plants may be large enough to be in bloom when he sells in May. In this condition it will flower, perhaps, only to the middle of June, for by thus being prematurely forced into flower it becomes exhausted and stops blooming, and often dies outright; but when sown in spring the growth is natural and unchecked, and it will grow and flower without cessation, from June to November.

Petunias, being of rapid growth, will flower the first season, even if sown in the open ground, but usually not before July or August. If sown in the hot-bed in April, they will bloom in June, and make much larger and finer plants.

Dianthus.—The Pinks are numerous and varied, many of them having a rich, close fragrance. They present an endless variety in color and style of flower.

Salvia Splendens, or Scarlet Sage.—Seeds of this sown in April will flower by July or August, and continue throughout the season; this, perhaps, is the most gorgeous plant of our gardens; single plants often attain a hight of 6 feet, and nearly as much in diameter, having a hundred scarlet, plume-like flower-spikes; the color is so intense when seen against a green background, that it is often visible at the distance of half a mile.

Verbenas.—The most popular plant of the day, is easily raised from seed, and no other plant that we know of will so well reward the trouble. The number of varieties now attained is something wonderful, even to us in the trade. Every year develops some new strain. Every color seemingly is obtained, but *yellow or orange*; these we never expect to have, as there seems to be a natural law of the floral kingdom that blue, yellow, and scarlet, are never found in varieties of the same species. Thus we have in Dahlias and Roses, yellow and scarlet colors, but no blue, just as we have in Verbenas blue and scarlet, but no yellow. Your readers will do well to remember this, and be saved, as they occasionally are, from investing in "blue" Roses or Dahlias, and "yellow" Verbenas, and know that the seller must either be ignorant of his trade or dishonest.

Double Zinnias.—These, like Petunias or Balsams, can be raised to flower by August, if sown in the open ground, but if sown under glass in April, will flower in June, and throughout the entire season, making larger and finer plants. There are few plants that have improved so much as the Zinnia, it being only ten or twelve years since the first double ones were introduced, and few of us then imagined that the present perfection of form and great variety would be obtained. We have now dazzling scarlets, yellow, orange, lilac, rose, white, and crimson, rivaling the Dahlia in symmetry of form.

An Orchard Record.

Every orchard, at least those in which there are several varieties of trees, should be recorded. The planter may perhaps be able to remember the names of the trees he sets out; but orchards do not always remain in the possession of those who plant them, and a record is of the greatest importance to the one who succeeds to the property. Aside from the convenience to himself, it is a duty to those who come after him for each one who plants an orchard to make such a record as will be readily understood by others. Many plans have been proposed; the simplest is the best. We are reminded of the matter at this time by a letter from M. S., Hawleytown, N. Y., in which he gives his method. He numbers his rows from south to north, beginning at the southeast corner of the orchard, and the trees east and west. This being stated at the head of the record, the name of each tree may be easily found by its position:

Tree.	Row No. 1.	Tree.	Row No. 2 (next north).
1	Baldwin.....	1	Newtown Pippin.
2	Lady.....	2	Bough.
3	Peck's Pleasant.....	3	Porter, etc., etc.

Osage Orange Seed.

We have quite frequently stated the manner of treating the seed of the Osage Orange, yet as several new subscribers send us inquiries about it, we reply briefly. The seed is to be soaked in blood-warm water for a week, changing the water every day. At the end of a week turn off the water, and cover the seed with thick woolen cloths in order to keep them moist, and set them near the stove until they sprout. Examine the seed daily, and stir them with the hand. When minute sprouts appear just breaking through, the seed should be sown. The seed-bed should be good, light, rich land, and the seeds be sown as early as possible. Sow in drills, two inches deep and a foot apart, putting about twenty-five seeds to the foot, and covering before the seed is dry. The young plants are to be carefully weeded and cultivated during the summer, and thinned wherever they are crowded. In the fall the plants are taken up, assorted into sizes, and heeled-in.

That Grape-vine.

We say *that* grape-vine, because it is likely that the majority of our readers who live in towns and villages are obliged to content themselves with only one vine. What will apply to one vine, will serve for a dozen, or a whole vineyard; but this is written for those—and unfortunately it is a large class—who have no vine at all, never grew a vine, and are more likely to go wrong than to go right. In the first place, you cannot have fruit within a few days after the vine is planted. Some jobbing gardener may come along with a clump of a vine two inches through, and promise it to bear the same season. It may bear a few poor bunches, but the vine will never be a satisfactory one. Get a young vine, at most two years old, with good roots. If the vine comes with two or three feet of stem to it, cut it nearly all off, leaving only a short portion with three buds upon it. Set it in a sunny place if at command; but if it must be put in some particular place in order to cover a trellis, give it the best possible chance. A vine will stand almost any kind of abuse, except giving it a wet spot to grow in. If the ground is wet, make a large and deep excavation, and throw in stones, bricks, or other rubbish for drainage. See that the roots are placed in good soil; it need not be over rich, but it should not be worn out and impoverished. When the buds push, and the shoots have grown a few inches, rub off the two weaker ones and leave but *one* shoot. It will be hard for most persons to do this, the young shoots all look so promising; but the future success of the vine depends upon its being done. The first season after planting, the whole business of the vine should be to grow one strong and vigorous shoot. We shall be expected to name some varieties, and for every body every where we think that the Concord is best adapted. There are vastly better grapes, but it is so hardy and so reliable, that the novice had better make his first essay with the Concord. Among the newer varieties there is none of greater promise than the Eumelan, which is a new, black grape, of most excellent quality. It is offered in the publisher's premium-list.

The Dwarf June-berry.

One of the most widely-distributed of our native shrubs is that popularly known in various parts of the country as June-berry, Shad-bush or Shad-flower, Service-berry, Swamp-pear. It is found in all parts of the United States, and as far north as the arctic zone, and from Hudson's Bay to the Pacific. Having this wide range, it presents a great diversity of appearance, and the earlier botanists described as distinct species the different forms, which are now considered as varieties of one widely-distributed plant. The varieties differ in the length of the petals, the shape and downiness of the leaves, size of the flower, cluster, etc. While some may be considered as full-grown when only four or six feet high, others attain a hight of thirty or forty feet. Notwithstanding these differences, the forms seem to run into one another, and they are all put under one species, *Amelanchier Canadensis*. The shrub, or tree, is very common in swampy places, and along streams, and opens its clusters of white flowers in April. It is a very graceful shrub, and flowers so profusely as to be conspicuous in the landscape. We have often wondered that such an early-flowering shrub was not cultivated in ornamental grounds. The popular New England name, Shad-flower, has reference to a belief that the flowers open at the time shad ascend the streams. The flowers are in long drooping clusters; they have the same general structure as the apple and pear, to which the plant is closely related, but they are much smaller, and the petals are long and narrow. The fruit is a more or less pear-shaped berry, containing several seeds. The pulp is sweet and pleasant, though the fruit of our common varieties is seldom seen, as it is a great favorite with the birds.

DWARF JUNE-BERRY.

Many years ago, Nuttall discovered, in the Rocky Mountains, a dwarf variety of the June-berry, which has, within a few years, been sparingly cultivated for the sake of its fruit. It blooms and bears profusely when only a foot high, and old bushes only attain the hight of four or six feet. We have had for some time a bush of this variety among our ornamental shrubbery, where its neat habit, and early and profuse flowering, makes it an interesting object. Last spring we procured a number of plants of Mr. H. A. Terry, Crescent City, Iowa, and placed them in the fruit-garden. Mr. T., who has been foremost in introducing this plant into cultivation, states that it has become quite popular in his vicinity, where, besides the name of June-berry, it also bears that of Mountain or Highland Huckleberry. The fruit has already appeared in their market, where it meets with a ready sale at good prices. We are always pleased to see any addition to our list of small fruits, and consider the Dwarf June-berry worthy of a trial by those curious in such matters. The great fondness of the birds for the berries is likely to prove an obstacle to its cultivation, our only bearing-bush being stripped before the fruit reached maturity. The fruit is red, turning to a blackish-purple when it is fully ripe.

Lady Banks' Rose.

The Banksian rose was so named in honor of the wife of Sir Joseph Banks, upon its introduction from China into England in 1807. The plant is a vigorous climber, attaining the hight of 30 to 50 feet. Unfortunately it is not hardy in the Northern States, but our friends at the South can avail themselves of it as a most charming plant with which to ornament the pillars to their verandas. The flowers are only about half an inch across, and grow in clusters, which are produced most profusely. The engraving gives the flowers of the real size; there are white, yellow, and salmon-colored varieties. This species is sometimes used to train over the rafters of a greenhouse, and when its numerous flowers are seen among its glossy foliage, the effect is most pleasing; but as it blooms only once in the year, florists generally prefer to give the space to some more frequent flowering variety. It is to be regretted that this highly ornamental species of rose is not generally hardy; and we hope that our readers who live in the milder parts of the country, will see that it is more generally grown than it is at present.

LADY BANKS', OR BANKSIAN ROSE.

Starting Sweet-Potato Plants.

It is not necessary to start sweet-potatoes under glass, although when but few are wanted it is often convenient to use a part of a hot-bed for the purpose. Florists sometimes turn the unoccupied benches of their greenhouses to good account in raising sweet-potato plants. In the Gulf States it is not necessary to use any heating material at all. Beds about four feet wide are made in a sheltered, sunny place; they are well enriched, and made to slope a little toward the sun. The potatoes are laid upon the beds, an inch or two apart, and covered to the depth of three or four inches with rich, light soil. Ten bushels of potatoes are allowed for each acre to be planted. Farther north, heating material is required, and a rude hot-bed is made by excavating a pit three or four feet deep, which is to be nearly filled with coarse fermenting horse-manure. Six inches of sandy soil is put upon the manure, and the potatoes are placed upon this, and covered as above stated. The bed is covered with planks at night and during chilly days. Water is given as needed; this should not be cold, as it would check the growth of the plants. Add hot water to bring it to the temperature of the bed; and if the bed becomes too hot, it is cooled by making holes down through the manure by means of a stick. This is a cheap but efficient substitute for a hot-bed, but not so convenient to manage.

THE HOUSEHOLD.

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

Fashions in Boot-jacks.

One would suppose that a boot-jack was not susceptible of much improvement, and that a simple notched board, with a cleat to give it the proper elevation, would be all that was required. Yet boot-jacks have been improved, and have even been the subject of numerous patents. If one has to use an implement daily, he desires it to be made in as comely a form as possible; hence it is pleasant to have the crude appearance of figure 1, with its sharp angles, modified into the neatly-rounded implement of figure 2. Those who travel much prefer carrying their own boot-jack to trusting to the uncertain resources of ordinary hotels. For the convenience of packing in the trunk, the folded

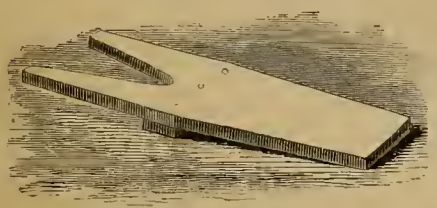


Fig. 1.—COMMON BOOT-JACK.

implement, shown in figure 3, has been contrived. Another folding style is shown in figure 4; the shorter portion has two stout pins, which, when in use, sufficiently elevates the end from the floor. When the parts are folded together, the pins fit into holes in the longer portion. All of the forms are easily made of wood, and numerous fancy patterns in iron may be had at the furnishing-stores. A bench for resting the foot while blacking, and which also serves as a box to hold the brushes, etc.,

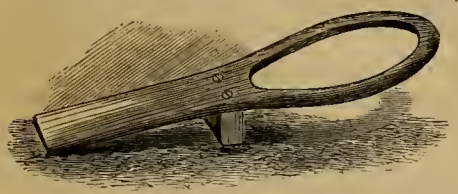


Fig. 2.—IMPROVED BOOT-JACK.

is given in fig. 5. It is made in such a manner as to shut up and occupy but a small space. The box, *D*, forms the top of the bench, and holds the blacking and brushes. The lid, *A*, serves, when open, to hold the two folding legs, *C*, in place. When packed away, the lid, *A*, shuts down upon *B*, and the legs are then folded together, and secured by a hook.

A few Hints to Carvers and others.

BY MRS. J. W. T.

When carving a joint of meat, always keep the guard, or prong, open on the back of the carving-fork. Although you may have no fears for yourself, some of your guests may suffer exceedingly from fear that the knife will slip and injure you or the person sitting at your left. Aside from this consideration, it appears very awkward when the

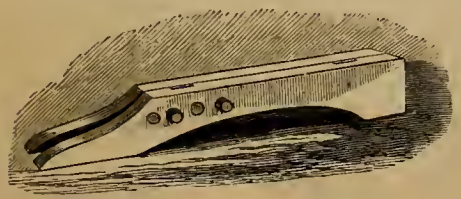


Fig. 3.—TRAVELERS' BOOT-JACK

guard is shut during the process of carving a joint. In cutting up a beefsteak, or in helping to ham, mutton-chops, etc., the guard should be shut, as then it seems just as awkward to have it open.

Never place a guest at the left hand of the carver if the carver is right-handed, nor to the right if the carver is left-handed. Some nervous persons, if seated in the line of a large, sharp-pointed, highly polished, carving-knife blade, would imagine all kinds of possible casualties to themselves, and would be exceedingly uncomfortable during the whole process of carving. When the meat is a joint, do not help a guest to slices from the dish, but cut them fresh from the joint as required.

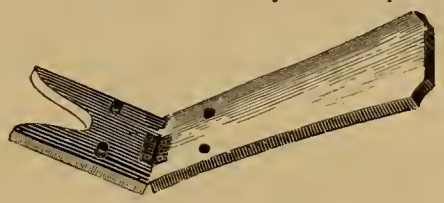


Fig. 4.—FOLDING BOOT-JACK.

When carving from a joint of cold meat that was partly used the day before, do not help a guest to the outside slice. The reason for this is obvious: the juice has drained out, making it dry; it has also been exposed to the atmosphere, and is altogether a very undesirable piece of meat. It is, however, the piece which an unthinking carver generally gives to the most honored guest, because he helps her first. In helping persons the second time from the same joint, do not give them so much as at the first time. Where the first person helped prefers the meat rare or underdone, the carver will be under the necessity of cutting off several slices from the outside; these pieces may be placed neatly on the joint until wanted. It is usual to cut up the whole of a chicken or duck without removing the fork, afterward helping to any portion preferred. A guest should never hesitate when asked by the carver which part of the chicken, turkey or duck he will take. He should anticipate the question, and be ready to say which part he would like. If the guest is embarrassed, and says, "I have no choice," the carver must not press the question, but help to any part. It is well to give some of both the white and dark meat. It is quite enough for the carver to help to the meat. He should have nothing to do with the vegetables or accompaniments. The waiter should attend to this, always going to the left of the guest, in order to allow of the right hand of the guest being used. Where there is no waiter, the persons sitting opposite each vegetable will kindly help to it. The most convenient place for a carver to sit is facing the doors where the servants pass in and out. In this position he commands the whole situation of affairs. Many carvers are put in the center of the table, which is very inconvenient. The carver sits at the end of the table; he has much more room than if in the center.

The use of Soda and Saleratus.

BY A. H.

I have seen housekeepers who seem to be ignorant of the effect of soda upon the materials used in cooking. They seem to have an idea that soda alone has a tendency to make any thing rise. Hence they use it indiscriminately in bread, biscuit, or cake. Years ago I knew an old lady who had this idea, and it was impossible to convince her to the contrary. Whenever she was afraid that the bread would not be light enough, she would add a quantity of saleratus. Her bread was often as yellow as saffron and not fit to eat. I often see yellow pie-crust, especially upon chicken and meat-pies, plainly showing that soda has been used. Soda or saleratus should never be used unless the bread or pastry is sour, or unless you add to the flour, or to the dry soda, before mixing, a proportionate quantity of acid—such as cream of tartar. If you add soda alone to a perfectly sweet material, it has no more effect in making it rise than would so much salt. It will, however, affect the flavor and color of the material. When using soda, be careful to use only enough to neutralize the acid. Some persons consider the use of soda at all in cooking, as positively injurious. They labor under a mistake, I think. Where the alkali and acid are properly proportioned and come together in the moist material, they completely neutralize each other and form a compound—Rochelle salt—the presence of which in small quantities is not perceptible, nor is it considered unwholesome. When too much soda has been used in bread or biscuit, it is readily manifested by the color. In cookies or sponge-cake, it is not so easily detected, as the yellow tinge may be supposed to be due to the egg used. I am not thus deceived. The color given to cake and cookies by eggs is a bright, rich, golden yellow, while that from the use of too much soda is a dull, smutty, heavy-looking yellow. There are those who consider the free use of soda as very beneficial to health. *They* make a serious mistake. Soda is sometimes used as a medicine, to correct acidity in the stomach. It is better at such times to take the quantity prescribed mixed in a little water, and not in the food. The free use, for a length of time, of cookies, cake, etc., in which there is a superabundance of alkali, will result in an impaired digestion.

How to choose Meat.

BY ESTELLE EDGERTON.

I have often been surprised at the large number of persons who seem to have no idea of the great difference there is between good and inferior meat, and who also seem to have implicit faith that the butcher will give them the best and primest parts

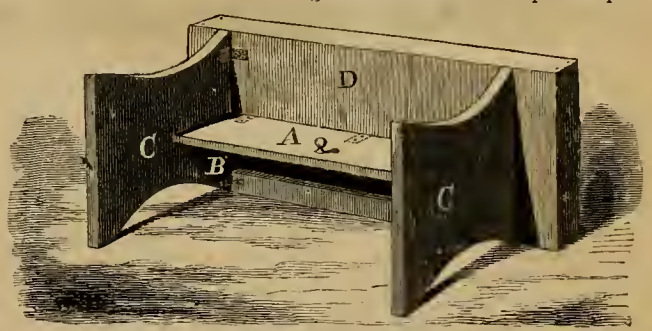


Fig. 5.—BOX AND BENCH FOR BLACKING SHOES.

of the animal. Now, it is not probable that he will give his best meat to persons whom he has found by experience will be satisfied with that of ordinary quality. There is always a demand for prime cuts, and as much the smaller portion (especially in beef) is prime, the butchers are very glad to dispose of those cuts that are not so desirable, and the more so when they get the "prime beef" price for it. Depend upon it, the only way to get the best meat the butcher has, is to be able to judge of the quality yourself. In this case it would not always be necessary for the purchaser to look at the meat before ordering it, for the butcher will very soon find out that you know good meat when you see it.

It is very poor economy to buy inferior beef for a roast, even if you get it at a lesser price, because a considerable portion of such meat is wasted. Poor beef, if you buy it at all, should be boiled or stewed, or made into soup.

A good housekeeper should know exactly what to do with a piece of meat that has been sent in. If her husband has ordered a roasting-piece of beef, and the butcher has sent up a piece only fit for boiling, she should either send it back, or have it boiled or stewed. It would be folly to roast it, as all the gristle and tough muscle which would soften, if gently stewed, would harden in the oven; and if it were stewed in water for a week afterward, it could not be softened.

Good beef will be very fat, and the grain smooth and fine. The fat should be more inclined to be white than yellow; the lean a bright healthy red. Beef should be mature. I do not like it when it is

neither veal nor beef. Heifer or very young beef may be easily told by the color. It is far less bright than matured beef, being of a dull, bloodless-looking color, something between that of veal and beef. The bones are small, and the fat white. Bull beef is known by its high color, its coarse grain, and unpleasant-looking fat. It is of very strong flavor, and undesirable, especially when old.

In good beef the fat is thoroughly mingled with the lean; but those cuts where there is the largest amount of this intermingling of fat with the lean, are not always the best to buy. The ribs and the rump, in my opinion, are the best for roasting. I am quite well aware that the latter is usually salted and boiled, but it makes an excellent roasting-piece nevertheless; tender, juicy, and of fine flavor. The sirloin is the tenderest part of beef, but when roasted, has not so fine a flavor as the ribs. Many prefer it, however. It is generally cut up into steaks for broiling, for which purpose it is the best adapted. Steaks are often cut from the middle of the rump, and also from the shoulder. These are very good, but not being prime parts, a much less price should be paid for them. A round steak from good, tender, fat beef is good and of excellent flavor; but care must be taken not to purchase when the leg, from which the round is taken, has been cut down too far. The muscular leg should not be cut into steaks, but the butchers will do it so long as they can sell it. The thick ribs next to the shoulder are often sold by butchers to their best customers, as the primest part, and at a prime price. It makes a thick, firm, compact-looking roast, the lean very handsomely intermingled with fat. The shoulder-blade runs three inches or more deep into the meat. This is removed, and a piece of solid suet neatly inserted in its place, thereby deceiving the unwary. It makes a very inferior roast.

To choose Mutton.—It should be fat, and the fat clear and white. Have nothing at all to do with mutton where the fat is yellow. Good mutton is of an entirely different color from good beef. The latter is a bright carnation, whereas mutton is of a darker and deeper hue. Mutton should be made from fully-matured sheep. If only a year old, it would be lamb. It should be three years old to be good, and five years old to be prime. The hind-quarter is best for roasting. The fore-quarter of lamb is excellent roasted, but the fore-quarter of fully-matured mutton should be boiled. The ribs may be used for chops, however. Chops are cut from the ribs, the loin, and the middle of the leg. I think the rib chops the best, though where the butcher charges the same price for both, the leg-cutlets are the more economical, as there is much less bone, and no hard meat, as on the ribs.

The butcher will sell to the inexperienced buyer chops cut from the neck; also chops where the neck and shoulder join, and more than half bone.

Many persons, because they do not like fat, buy lean meat. This is poor economy. It is better to buy the fat meat. The butcher is generally willing to cut off considerable of the fat.

Veal should be clear, white, firm, and not too large. It is not fit to eat when neither veal or beef. Do not buy veal when it is dark and thin, and where the meat shows through the surface-skin.

Hints on Butter-making.

A lady who thinks that much that is written about butter-making is by "men," and not by experienced butter-makers, gives a few hints. For the improvement of winter butter, she very sensibly begins with the cow, and advises feeding Indian meal. She says: "My rule in winter is to let the milk stand on a table in the cellar for 24 hours; set it on the stove until the cream wrinkles (do not let it get too hot), then let it stand another 24 hours, and skim. Use a skimming-ladle with holes, in order to have as little milk as possible with the cream. Stir the cream every day; and the day before churning put the pot near the stove to allow the cream to warm and get sour. Some have the mistaken idea that cream should not get sour; but it makes better butter, and more of it. Stir the cream well, as much depends upon that. If a clear, yellow skin forms on the cream, it will make the butter strong; it is as bad as mold, or worse. In summer throw a handful of salt into your cream-pot when you first set it; it will keep the cream sweet longer. Be sure to ventilate the cellar or milk-room. It is a mistake to churn sweet and sour cream together, as it makes the butter streaked. Do not work the butter too long; it will become oily; but have a fine cloth, squeezed out of cold water, to take up the buttermilk with."

How I Wash my Dishes.

Of course, I make sure before breakfast or dinner that there is plenty of water in the boiler, and also in the tea-kettle. After the table is cleared, the table-cloth brushed off and neatly folded away, and the dining-room disposed of, I proceed with my dishes. First, I take my large dish-pan, put into it a piece of soap, and pour over the soap three or four dipperfuls of hot water from the boiler. Then I add two or three dipperfuls of cold rain-water. Then my dish-cloth. The water should now be so cool as not to turn the hands red when put into it. Take the dish-cloth and rub from the soap the melted surface, and put the remainder away. Wash a dish at a time and pass it to another pan; a milk-pan is generally used. When all are done, or the pan is full, take the tea-kettle and pour over enough hot water to thoroughly rinse and heat them. Now take them from the water, one at a time, and place them bottom-side up upon a tray or pan to drain. If they have been properly washed, this hot rinsing water will run off or evaporate in a minute, leaving the dishes nearly dry. However, they should now be wiped with a clean, dry towel, and put away. Dishes must be washed in soft water. Especially is this necessary where soap is used. And soap is really indispensable in washing dishes properly. The dishes should be scraped free from grease, crumbs, bones, etc., before commencing to wash them. A neat housekeeper will have the same dish-cloth in use until it is worn out, when it should be put into the rag-bag. Never allow the dish-cloth to be used for any thing else but washing dishes. MRS. W. T.

How to make Head-Cheese.

BY MRS. I. W. T.

Select the cleanest and fattest and most perfect pig's head. The butcher splits the head only once—through the center of the forehead and snout—taking off the jowls. Direct him to give it a cross cut—by the eyes—separating the snout from the forehead. Now ask him to take out the eyes, which he can do very readily with his sharp knife; see that he takes out both eye-lids—upper and lower—with the sac, in which is the eye and the surrounding membranes. He must go close to the bone socket, in order not to break the eye. Now let him take off the ears, including the wrinkled portion of the skin surrounding them, and going deep enough to remove the whole canal of the ear. Open the ear, and scoop out the horny portion, about as large as an egg, containing the wax, drum, and dirt. It is easily done. The bones of the snout may now be removed without loss of flesh. The pieces should then be put to soak in plenty of lukewarm water. The water should be drained off and renewed until all the blood is removed. The flesh, especially the fat part, and also the skin, will be of a very white and delicate appearance. Hair will remain on some parts of the head and on the ears, which the knife will not remove. These must be singed off with a piece of lighted paper. It is well to examine the fleshy part of the snout and lower jaw, and with a knife scrape off the skin which the butcher cannot remove before the head is split. I always find scalded skin here, which comes away with a mere touch of the knife. After this is done, wash again and then salt. Take a quart of salt and a tablespoonful of finely pulverized saltpetre, mix them thoroughly together, and rub the pieces of pork with the mixture, adding sugar or molasses if you wish. I add neither; nor do I put any water to the salt, nor over the meat; but I am careful that some of the salt shall touch every part of the meat. I pack the pieces closely in a crock, and let them stand for ten days or two weeks. It is well to turn them occasionally, letting the top pieces go to the bottom into the brine that has been formed. In two weeks, or perhaps less time, I take the pieces for the cheese from the crock, wash the brine from them, and boil them gently until very tender. If the bones do not slip from the meat without the aid of a knife or force, it is not tender enough. When boiled sufficiently remove from the kettle, and take out all the bone. Now cut it up fine with a knife and fork—some use a chopping-knife and bowl, but I do not like that way. Season with black pepper—the meat is probably quite salt enough. Many add pulverized sage. This is also objectionable to me and my family, so I do not put any in. I use only pepper. A little mace might be good, as it improves almost every thing when sparingly used. When the meat is chopped or cut up fine, it must be put into bowls to be pressed into shape. I think the practice of putting head-cheese into milk-pans is wrong. It is a very inconvenient shape from which to cut the slices properly. A two-quart bowl is the shape I use for my family. Where two or more bowlfuls are made, only one is removed from the bowl as wanted, as the cheese keeps better. It will keep for some time if not loosened from the sides of the bowl, while a head-cheese exposed to the air soon deteriorates in flavor. A weight is necessary to press the meat in the bowl. An inverted plate and a flat-iron will do. The jowls or cheeks are seldom used in the cheese, as they are too fat. I salt mine with the rest of the head; and at the time of making the cheese remove them from the brine, wipe them dry, wrap them in a paper, and hang them up to dry and cure. They will be nice with roast or boiled chicken, or veal, next Summer. Cut head-cheese in very thin slices—the thinner the better—and eat with mustard and vinegar.

To Boil Ham.—The ham should be nicely washed in warm water and put into *cold* water. Allow a quarter of an hour to each pound of ham. When sufficiently boiled, remove it from the water and place it in a baking-pan; remove the rind, and roast or bake one hour in a quick oven, dredging it frequently with a mixture of finely-powdered and sifted bread-crumbs and flour, in the proportion of one part of flour to three of bread-crumbs. If not scorched, it will look finely upon the table. The flour prevents the crust of crumbs from scattering over the ham when cut. W.

Buckwheat Cakes.—Nanna W. thinks that her buckwheat cakes are so good that others ought to know how they are made. One cupful of corn-meal, two cupfuls of wheat flour, four cupfuls buckwheat flour, two teaspoonfuls of salt, one teacupful of yeast, and sufficient warm water to make a pouring batter; mix, and let rise over night, and bake in the morning. Leave a pint of the batter to set the next lot, and you need not use any more yeast the whole season. Keep the "stock" cool when not wanted. If the batter turns sour, stir in, just before using, a teaspoonful of baking soda dissolved in cold water.

Green Spinach.—At the head of that class of pot-herbs commonly called "greens," stands spinach, admitted to be the most delicate in texture and acceptable in flavor. Many like their greens boiled with meat—a treatment that may be well enough for turnip-tops, cabbage-sprouts, and the like coarse herbs, but to drench the refined and delicate spinach in greasy pot-liquor, is to my notion out-and-out sacrilege. Often, with the best of intentions, the cook will send spinach to the table of an olive or nearly brown color, instead of the dark, pleasing green, which makes it as welcome to the eye as it is to the palate. This want of proper color is because the cook does not know one simple dodge. Always boil spinach in an uncovered pot. When the spinach is done, drain it on a colander, chop it fine, warm it up with a good lump of butter, and, when well heated through, serve.

BOYS & GIRLS' COLUMNS.

The Icicle Prizes.

When I offered prizes for the best essays on the icicle, I little thought that it would be until the mild days of April before I should announce who were the successful competitors. I told you last month the cause of the delay. There is another thing I did not foresee—that I should have over a hundred and twenty essays to read! This was a little laborious, but it was very interesting to see the different ways boys would express themselves upon the same subject. One boy wrote six pages, and only two of them were about the icicle. The briefest article was from a boy in Dutchess Co. He condensed the whole matter as follows: "An icicle grows downward from its base. It is formed by drops of water freezing one upon another." Some used many more words without telling any more than that. It was very difficult to choose between the half-dozen best essays, as some touched points not noticed by others; but upon the whole I think the first prize must go to Rileigh T. Scott, Yellow Stone, Wis., and the second to John Senger, St. Vincent's, Pa. Master Scott's account is printed in another column. Those whose articles were so good as to puzzle me in the decision, should be named. Here they are: Wm. T. Cooke, Scituate, R. I.; Albert W. Bee, Dorchester, Mass.; Jerry W. Jenks, St. Clair, Mich.; Edward Jackson, Westchester, Pa.; H. M. Seymour, Hawley, Mass.; Olin Landreth, Rushville, N. Y.; Felix G. Owen, Springfield, Mo. I hope that we shall have other and more promptly decided contests another winter, and that the girls as well as the boys will be able to take a part. THE DOCTOR.

Note from "Carleton."

MR. EDITOR:—I am under great obligations to my young friend, for such I take him to be, who lives away out in Kansas, for calling my attention to the mistake in my talk with the young folks about Vesuvius, in the Feb. *Agriculturist*. I said that Plutarch was a Roman. I had no right to say so, for he was n't. I was writing about the old Romans, and it was the most natural thing in the world for me to speak of him as a Roman historian, whereas he was a native of Greece.

Now let me say to the boys and girls that it was Master Still, of Leavenworth, Kansas, who had eyes sharp enough to see the mistake, and I am much obliged to him for calling my attention to what may seem to be a very small affair; but it is best to be always right.

CARLETON.

Aunt Sue's Puzzle-Box.

I again offer a prize for the longest list of correct answers to all the puzzles. Also, a set of anagram-letters, to be drawn by lot, for a correct solution of all the anagrams.

That those sending answers may be saved the trouble of writing the titles, I shall number the puzzles consecutively.

Answers to these must reach me before the first of May. Those received later will not be credited.

Address AUNT SUE, Box 111, P. O. Brooklyn, N. Y.

ANAGRAMS.

1. I run lame, Ben.
2. Lo I rum it.
3. Aiding me.
4. Runs alive.
5. Erie Daw.
6. Bridle us.
7. Card soake.
8. Crop Street.
9. Be less him.
10. Angle-oet.

DOUBLE ACROSTIC.

11. The initials and finals will name two different colors.

1. To plot. 2. A leather thong. 3. Legally elsewhere. 4. A fruit. 5. A game. SKI.

WORDS ENIGMATICALLY EXPRESSED.

12. Cut our hair.
13. It is not smaller. KEYSTONE.
14. My crows contend.
15. The string of the hotel.
16. An article at a distance.
17. Fruit pitcher.

PUZZLE.

Find the word out of which the following sentence was made (repeating the letters, of course).

18. A modern Matron had on a Roman garment and tore it on a thorn.

DECAPITATIONS.

19. Behead a portion and leave an animal.
20. Behead an animal and leave part of the human frame.
21. Behead part of the human frame and leave a fish.
22. Behead a fish and leave an animal.
23. Behead an animal and leave a grain.
24. Behead a grain and leave a luxury.
25. Complete I go through many a board;
Behead,—a weapon unlike a sword;
Behead once more you 'll plainly view
Nickname applied to many a Jew.
ADOLPH M. NAOEL.

ZOOLOGICAL ENIGMA.

26. I am compose' of seven letters:
My 1, 2, 3, 4, is an animal found in cold climates.
My 4, 5, 6, 7, is an animal found in warm climates.
My whole is an animal found in cold climates.
A. M. N.

NUMERICAL ENIGMA.

27. I am composed of 22 letters:
My 17, 7, 14, 15, is an officer.
My 19, 5, 4, 13, is an actor.
My 16, 20, 21, 11, is a tube.
My 6, 8, 18, 11, 22, an edentate animal.
My 10, 2, 9, 1, 3, 12, 5, is a country in Africa.
My whole is good advice. J. I. M.

AUNT SUE'S NOTICES TO CORRESPONDENTS.

HARRY H. I do "love children." Is it not against the rule to "write in school hours"? If not, thanks for your puzzles.

HARRY (No. 2). It would make the anagrams too easy of solution to define them as you suggest.

HARRIS. Thanks: they will "do" very nicely.

UNCLE ED. Only the little ones make cross-word enigmas; can't you soar higher?

A. H. H. You can study those things in school.

BK. I hope you will find occasion to write every month.

GRANT. It is a pleasure to furnish entertainment to one so courteous as yourself.

JOHN A. BOSTON. The same remark applies to you.

D. E. STEVENS. Suppose I give you the words "Sly ware," and tell you it is an anagram for you to solve. You print the letters "S L Y W A R E" on a card, then cut them separate, and transpose them until you make the original word with them; which is "Lawyers." To understand the acrostics,—study the original, with its answer.

JOHN AND GRIZ. I was rather sorry for the poor dog on the gridiron; but never mind, it will do very nicely, thank you; our artist will straighten him out.

NELLIE B. CHAPMAN. Thank you for telling me just how you went to work. Did you suppose I should offer a prize for any thing that was "as easy as rolling off a log"?

AUNTIE. I am very glad to hear from you and RONNIE again. Your case must be discussed.

CORA E. SHULTZ. Did you write that letter your own self? I never saw such pretty writing for "twelve years old."

BLUE BIRD. I give a prize every week in HEARTH AND HOME, for the solution of anagrams.

JOS. H. BIRD. Your answers were so clearly and beautifully arranged that I was in hopes you would win the prize: but alas! your solutions of Anagram No. 8, and Numerical Enigma No. 2, were incorrect, and two others you did not attempt to answer.

IDA B., AND O. B. MCC., will please read the paragraph in the Special Notice to Puzzlers, which alludes to original puzzles.

SARAH G. BATES. If you "really cannot wait for the chances," you can have a set, by inclosing twenty-five cents to Box 111; but you must promise not to give up trying to find out the Anagrams.

PRIZES.

The Anagram prize was drawn by David Baird, N. E. cor. 109th-street and Second Avenue, New York

I had to exclude several names from competition because one word in each of their lists was wrong; but to the prize for the greatest number of correct answers I counted all the Anagrams which were right.

JOHN A. BOSTON, P. O. Box 246, Newburyport, Mass., answers 22 of the puzzles correctly, and wins the prize. He failed to answer the eighth Anagram, and answers the CHARADE with "Steam Boats"; which, though very ingenious, will not quite do.

WM. TAYLOR, and Lillie Streeper, each answer 20. Correct answers, more or less, have been sent by S. L. D., Harry, E. S. K., Lillie G., Mary Bridge, H. S. H., Harris, A. W. K., Adolph M. N., Julie A. T., Bk., H. W. O., Grant, J. H. S., Mary H. Cole, W. T. C., Bertha S., Benjamin J., Clarence Clifford, Lizzie L. A., Clinton F., D. E. S., T. H. H., Willie, C. S. M., F. W. H., and H. W. L., G. H. F., O. B. McC., M. Byrto, Nellie Bache, Hattie E. P., Harry Anderson, H. M. C., E. Carr, S. E. Ober, M. Richardson, B. W. P., C. W. Drury, Jere Plumer, N. Walker, Jessie F. G., C. B. Jr., B. Rockwell, Robbie Eddowes, Annie Batchelder, Cora E. S., Claison S. W., Sarah G. B., and Blue Bird.

ANSWERS TO PUZZLES IN THE FEBRUARY NUMBER.

RIDDLE. A letter.

ANAGRAMS. 1. Medicament. 2. Anecdotes. 3. Mulattoes. 4. Between. 5. Original. 6. Consolidate. 7. Braodished. 8. Betrothal. 9. Reopening. 10. Pantomime.

TRANSFORMATIONS. Scold, cold, fold, gold, told, sold, bold, hold, old.

DOUBLE ACROSTIC. Battle-fields: brief, alibi, trifle, tall, lightning-rod, express.

CHARADE AND DECAPITATION. Scare-crow: care, row, car.

DIVISIONS. 1. Wardrobe. 2. Tomahawk. 3. Jarring. 4. Grandam.

CONUNDRUM. The waist (waste).

NUMERICAL ENIGMA, No. 1. Egotism. 2. Envy is a self-executioner.

REBUSES.—401. Labor, either brain or manual work, will be sure to pay: perseverance and patience pay doubly for efforts bestowed. 402. United we stand, but divided we fall. 403. Isle of Man.

Thanks for puzzles, etc., to A. R., I. H. Plummer, Harry, Uncle Ed., Bertha Stout, Clarence Clifford, H. W. L., Jesse Plummer, Maria L. B., Geo. E. Perry, W. H. M., Louise E. Turner, E. B. Jr., M. Richardson, Clinton F., Iowa, S. L. D., and Bayard W. Purcell.

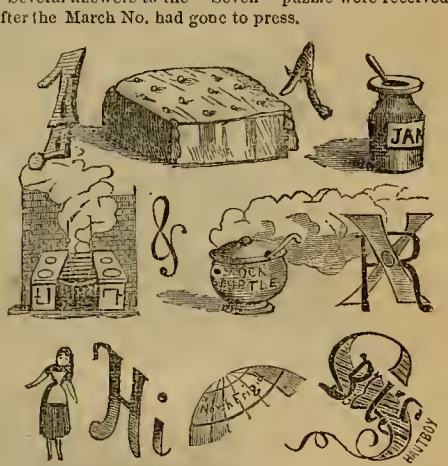
SPECIAL NOTICE TO PUZZLERS.

We do not want any Anagrams, so do n't waste your time over them on our account. As we give prizes for their solution we prefer to make them ourselves.

Be kind enough to send none but original riddles. It would be a poor compliment to our clever puzzlers to serve them up ancient and second-hand affairs.

If you will write your answers in the same order that you see them printed, it will save me much trouble.

Several answers to the "Seven" puzzle were received after the March No. had gone to press.



406. *Illustrated Rebus.*—Good advice, but it will be found difficult by some to follow it.

407. *Illustrated Rebus.*—The name of a Western locality.

Let us have a Garden.

We do not know how boys and girls can get more instruction and amusement than in cultivating a little garden. Almost every one of them who lives in the country can easily have a small piece of land. Dwellers in cities must have their garden in the back-yard, or even be obliged to content themselves with a box of earth. Whether it be large or small, the things that grow in it will be more valued in the eyes of the owner than acres belonging to others. What shall you grow in it? That will depend upon what seeds you can get. If you have no money to spend for seeds, you must depend upon the kindness of others for a supply. If you know of a man or woman who really loves flowers, you need not be afraid to ask for seeds. The culture of flowers opens the heart and lets in kindness. That is one reason why we wish you to have a garden. You will have beautiful flowers, and you will enjoy them so much, that you will wish others to have them too. Sow the little seeds in the earth, after the cold rains are over, covering them very slightly, and mark the place where they are. The next day you will probably go to see if the seeds are up, and as they are not, you will think something wrong, and perhaps be tempted to dig where they were sown to find out what the matter is. Do not do any such thing. Another reason for having a garden is, that it teaches

THE APRIL SHOWER.—*Drawn and Engraved for the American Agriculturist.*

patience; some seeds will break the ground in four days, and others in a fortnight after they are sown. Wait; for you have committed the seeds to the care of mother Earth, and she will not be hurried. By and by the flowers come, and then the seeds—seeds, little dark or black things, dry, seemingly dead, and so unlike the flowers from which they came! Yet you feel sure that next year these dry grains will give beautiful flowers, and you have been taught a lesson of faith. So let us have the little gardens; the flowers will please the senses of all, and to the more thoughtful they will bring lessons of kindness, patience, faith, and love.

An Icicle Prize Article.

BY RILEIGH T. SCOTT, YELLOW STONE, WIS.

The air must be at a certain temperature to form icicles well. If too warm, the water runs away without any forming; if too cold, there is no water to run. From what I have noticed, icicles form mostly on the north side of a building, and while the weather is steadily mild, for winter. If you will notice the eaves of a house, or any other place that water drips from, you will see that it drips off in pretty regular places. These places are where icicles are formed. At times the rain or snow-water begins to drop slowly, but steadily, from the roof; and as the air gets colder, a small drop of water that has collected on the eaves becomes chilled, and, before another comes, is frozen into ice. This is the foundation of an icicle. The particles of water are gathering and moving down all the while; soon they are gathered in the form of another drop and hang from the first, are chilled by the cold winds, and frozen. A dozen drops or more may go through the same change, making the icicle half an inch or more long. The water, when it comes to the ice of which the little icicle is composed, wets it all around in its descent to the lower end, and this thin film or wetting is frozen to it, thereby increasing its diameter. So the process goes on, adding drops to the lower end, and thin sheets of ice to the sides of the icicle, until the flow of water is stopped by Jack Frost. I have seen forked icicles. They are caused by a drop of water starting down the main icicle, and, being chilled by the ice and wind before it gets many inches, is frozen to the side; the particles of water gather another drop to this frozen one, which is frozen likewise. In this way a fork is formed, perhaps half, or maybe equal in length to the main icicle. Icicles are sometimes caused to slant at many degrees from a perpendicular, by the steady blowing of wind. It seems to me that icicles are more frequent on kitchen roofs than any other, because kitchens are generally built only one story high, which brings the roof closer to the stove, causing the snow to melt very slowly, thereby making icicles; while on a two-story building the snow lays until a fine day, when the sun takes it off as "slick as a whistle."

The April Shower.

The pets of the poultry-yard were out for a promenade. The bright sun of the fine April day made the plumage of the beautifully-marked Bantams more brilliant than ever. How they enjoyed the walk—especially the newly-arrived Japanese Bantam rooster, who appeared to feel as if he was the Tycoon himself! He strutted to such an extent that his tail-feathers nearly touched his comb. Some ducks had joined themselves to the party, and were not altogether in favor with the Bantams. They did not strut at all, but only waddled—and such feet! The aristocratic Bantams felt scandalized at being seen in such company, and tried to get rid of them. "My dear," said Mrs. Seebright Bantam to the mother duck, "you had better not go with us; the grass is likely to be damp, and your little ducklings will get their feet wet." "Just see that Rouen drake," said the Japanese dandy; "he puts on airs because he has some bright feathers; his voice shows him to be a coward, who would run at the first sign of danger." Just then, with but slight warning of gathering clouds, down came one of those showers such as only come in April. Such a dashing of large drops! At the first sprinkle away went the Bantams in search of shelter, their proud bearing and airs of superiority quite forsaking them, their only thought being to save their well-dressed plumage from a wetting. At last they succeeded in finding a friendly vine, which served as shelter, and, when fairly assured of their own safety, they looked out to see what a ludicrous sight the ducks must make in hurrying to get under cover. Much to their surprise the ducks made no effort to get out of the rain; and the little ducklings, about which Mrs. Bantam was so much concerned, were actually swimming in one of the little pools formed by the rain. The artist has made a beautiful picture, which shows the state of affairs just at this point; and we might add that the little story teaches a bit of a moral, only we prefer to let our young friends find out the lesson by themselves.

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Coll. A—contains twenty choice varieties of Annuals..$1.00
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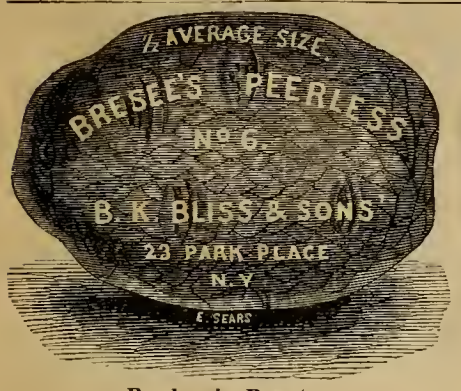
No. 1, $20.00; No. 2, $15.00; No. 3, $10.00; No. 4, $5.00.



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	oz.	4 oz.	lb.
Extra Early Red, very early	40	$1.25	$4.00
Medium Early Red	40	1.25	4.00
Wethersfield Large Red	35	1.00	3.50
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Comstock's Hand Cultivator and Onion Weeder will do the work of SIX MEN with hoes. It is the only implement that *pulls the weeds* and thoroughly pulverizes the soil. As much superior to the hoe for all small drill crops, as the mowers and reapers are to the scythe and cradle. PRICE, $9.00. Boxing, 25 cents.

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Per bush. of 40 lbs., $3.00; peck, $1.00; or 4 lbs., by mail, for $1.00.

Broad-leaved Sage,

True, fresh, yields more, and is stronger than common kind, 60c. per oz.; $5.00 per lb.

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Genuine, at 20c. per oz.; $2.00 per lb.

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Rare and Fresh Flower Seeds, &c.

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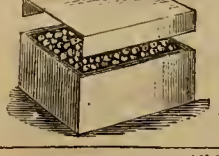

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All kinds of
Fruit, Berry, and Truck BASKETS. Sole Agents in New York for the *American Basket Co.'s* baskets; also, Agents for and Dealers in the *Beecher, Mellish,* and other styles.
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Best Grape. Circulars free. **EUMELAN** Merrell & Coleman, Geneva, N. Y.
$1 to $2 ea.; $6 to $18 doz.; $50 per C.; $350 per M.

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WOLF CREEK NURSERY,

And delivered to Railroad at following rates:

Apple, 2 and 3 years	Ft.	10	100	1,000
" " " No. 1	5 to 6 "	$ 2.50	$18.00	$150.00
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Dwarf Apples, 5 to 6 years		4.00	30.00	
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Peaches, 1 year, extra	5 to 6 ft.	2.00	10.00	90.00
" " No. 1	3 to 4 "	1.50	8.00	70.00
"	2 to 3 "	1.00	5.00	40.00
Golden Dwarf	2 to 3 "	2.50	15.00	
" " 10 to 18 inches		2.00	10.00	
Plum on Peach, fine	5 to 6 "	3.00	16.00	
" " "	3 to 4 "	2.25	12.00	
Early May Cherry, 3 to 4 years, extra		3.25	20.00	180.00
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Osage Plants, No. 1, per 100.... ..... $3.00, per 10,000, $75.00

Egyptian Joint Pop-Corn, 10 ears to a stalk, 500 grains, 40 cts.; 1 pk., $1.00.

Other Trees and Plants at equally low rates.

JOHN WAMPLER,
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SALEM:—A first-class Grape for Market.
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The best red Grape adapted to general cultivation. Original stock; strong plants. EUMELAN. MARTHA. All varieties, *cheap.* One extra three-year Salem sent for $1, post-paid.
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We offer, for the Spring Trade of 1871, the largest and most elegant stock of STANDARD and DWARF FRUIT-TREES, GRAPE-VINES and SMALL FRUITS, ORNAMENTAL TREES, SHRUBS, ROSES, etc., etc., ever offered by us. ☞Particular attention called to our stock of

New American and Kilmarnock Willows,
Weeping Mountain Ash, Mountain Ash,
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and Dwarf Pear Trees.

Descriptive Catalogues will be furnished on application. Also, Trade list for Nursery-men and Dealers.

GOULD BROTHERS,
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BLOOMINGTON NURSERY, ILL.

19th Year. 600 Acres. 13 Greenhouses.

Largest Assortment—all sizes. Best Stock! LOW PRICES!

Would you know What, When, How to Plant?

Fruit, Shade, Evergreen Trees; Root-Grafts; Seedlings; Osage Plants; Apple Seed; Early Rose Potatoes; Shrubs; Roses; Greenhouse and Garden Plants, etc., etc.

FLOWER and VEGETABLE SEEDS!

Finest, Best Collection, Sorts and Quality.

Send 10 cents for New, Illustrated, Descriptive Catalogue—90 pages. Send stamp, each, for Catalogues of Seeds, with plain directions—64 pages, Bedding and Garden Plants 32, and Wholesale Price-List—24 pages.

Address **F. K. PHŒNIX, Bloomington, Ill.**

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FULL Assortment for the Spring of 1871. *Specialties*—Apple Seedlings, Pear and Cherry Seedlings, Stand. and Df. Pear, Peach and Cherry Trees (Plum-Trees $150 per M.), Grapes, Currants, Gooseberries, Raspberries and Blackberries, Pear, Plum and Apple Root-Grafts, etc. (Established 1832.)

Address W. F. HEIKES, Dayton, Ohio.

Commercial Nurseries.

Established 1830.

Just Published, the New Circular of Prices per doz., per 100, per 1,000, for the Spring of 1871. **Colored Plate**, of the splendid New *Winter* Pear **"MT. VERNON,"** sent free. Order direct from the Nursery, and address,

W. S. LITTLE, ROCHESTER, N. Y.

Evergreen and European Larch SEEDLINGS.

		$1,000.	$5,000.	$1,000.
Norway Spruce,	2 yrs., 2 to 4 inches,	$4.	$15.	No. 2, $2.
Scotch Pine,	2 yrs., 3 to 8 "	$3.	$50.	" $5.
Austrian Pine,	4 yrs., 3 to 5 "	$8.	$90.	" $5.
European Larch,	2 yrs., 3 to 12 "	$6.	$25.	" $4.

The above are grown from seeds on our own grounds. For 50c. we will send 50 plants per mail, post-paid, for samples. Also, Native Evergreens, 5 to 12 inches high. Arbor-Vitæ, Hemlock, and White Pine, $2.50 per 1,000; 5,000, $10. Balsam Fir, $4 per 1,000; 5,000, $15. American Spruce and Red Pine, $5 per 1,000. Also, Larch, and Sugar Maple, $2 per 1,000; 10,000, $15. Packing free.

JOHN UECKE,
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Native Evergreens,

5 to 12 inches high, at $3 per 1,000; $12.50 for 5,000. Balsam Fir, Arbor Vitæ, White Pine, Hemlock, Am. Spruce and Larch. Packing free. JAMES A. ROOT, Skaneateles, N.Y.

100,000 ARBOR VITÆS for sale, from one (1) to five (5) feet high. Price, from $4 to $15 per hundred.

Address H. K. SCHUYLER,
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4,000,000 EVERGREENS for Sale. Very low. See WM. MORTON & SON'S advertisement on another page.

Grape Vines by Mail.

Eumelan, Walter, $1; Martha, Salem, 50c.; Delaware, Iona, Diana, Rebecca, Israella, Crevelling, Adirondac, Hartford, Concord, 25c., all No. 1 two-year-old Vines; Orange Quince-Trees, one year old, 25c. Order must be for $1 or more. Address C. L. VAN DUSEN,
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7,000 MARTHA GRAPE-VINES, No. 1, at $250 per 1,000. Send 10 cents for Descriptive Catalogue, with illustrated cut of this most valuable Grape. O. W. FRAZIER, General Agent, Lawrence Nurseries, New Castle, Pennsylvania.

☞ 1,000,000 GRAPE-VINES. ☜

CONCORD VINES, 2 years old, No. 1, only $25 per 1,000.

The largest, cheapest, and most superior stock of leading varieties of well-rooted Grape-Vines ever offered.

Without fail, cheaper than you can buy elsewhere.

Address Bloomington, Ill. DR. H. SCHRŒDER.

GET THE BEST.—Charles Downing Strawberry Plants at $3 per 1,000.
SAMUEL C. DE COU, Recklesstown, Burlington Co., N. J.

Innisfallen Greenhouses.

12 Fine Plants for $2.00.

The following named plants I will send by mail, prepaid, on the receipt of $2.00:

1 Monthly Tea Rose,	1 Golden Coleus,
2 Fuchsias,	1 Achyranthus Lindenii,
1 Scarlet Salvia,	1 Monthly Carnation,
1 Heliotrope,	1 Double Geranium,

1 Gozania, 1 Scented Geranium, and 1 Zonale Geranium.

Our Illustrated Catalogue of 58 pages, containing a fine Colored Plate of a new Double Geranium, is now ready, and will be mailed free to all applicants.

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DOUBLE TUBEROSE BULBS (in quantity). To all who inclose 10 cents, with their address, I will send 2 flowering bulbs of this exquisite flower. Send for circular. CHAS. T. STARR, Avondale, Pa.

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For spring of 1871, we offer our usual large and well assorted stock at

VERY LOW PRICES.

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FROST & CO.,
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New and Rare Hot and Greenhouse Plants—Ornamental Foliage and Bedding Plants, Fruit-trees, Grape-vines, Small Fruits, Ornamental Trees, Shrubs and Evergreens, Lily, Gladiolus, etc. Send stamp for Catalogue. The choicest New and Hardy Ornamental Plants, Bocconia Japonica, or Macleya Jedoniensia—Salvia tricolor, Delphinum grandiflorum maculatum, 25 cents each. Daphne cneorum, best hardy Shrub. It blooms all summer; 50 cents each, by mail; $2.50 per 100.

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Can turn an honest penny by selling

AMERICAN SWEET

CHESTNUT
TREES.

Spring is the time to plant. Now is the time to take orders. Can't do your neighbors a greater kindness than to urge them to buy, as it is the best farm tree planted, both for

TIMBER AND NUTS.

Terms and Circulars free. Address,

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ALSIKE CLOVER.

Fresh seed, per bushel, $15; per peck, $4; per pound, 75 cents. Pounds sent post-paid.

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FIRST-CLASS CONCORD GRAPE-VINES, 2 years, $60 per M.
Full assortment of Nursery Stock. Send for Catalogue to A. M. CLEMENT & CO., Lowell, Mass.

50,000 4 and 5 yr. old Apple Trees, v. fine, $125 per M.
20,000 2d class Apple Trees, 3 to 6 ft., $90 per M., packed.
10,000 1 yr. old " " $30 per M., packed.
5,000 2 yr. old Plum on Peach Stock, $100 per M., packed
5,000 Cherry Trees, 5 to 8 ft., $100 per M., packed.
ADFRED S. SHELLER, Riverside Nurseries, Lewisburgh, Pa.

Westchester Black-Cap Raspberry

Is pronounced by Committees from the Fruit Growers' and Farmers' Clubs of the City of New York, by Reports dated July, 1869, the *earliest*, the *most productive*, and the *best flavored* of all the Black-Caps. Plants, $2 per dozen, post-paid; $3 per 100, $60 per 1,000.

L. J. MABIE, Tarrytown, N. Y.

See Sept. *Agriculturist*, 1869.

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NEW SEEDLING RASPBERRY, EARLY ANDREWS, ripens a week earlier than any other kind; fruit red, large, firm, sweet, excellent; strong cane, stand up without tying, perfectly hardy; Plants, $3 doz.; $20 100. Strawberries, Boyden's 30, Charles Downing, Nicanor, 30c. doz.; $1 100; Kentucky, Wonderful, "extra," Hudson's No. 9, Hudson's Early, $1 doz., the 7 varieties 1 doz. each, by mail, $4. W. S. CARPENTER & SON, Rye, Westchester Co., N. Y.

THE cheapest and best BERRY BASKET and CRATE, Verbena and Plant Baskets, Grape and other Boxes for forwarding Plants by mail, are manufactured by AM. BASKET COMPANY, New Britain, Conn. Send to them for Circulars. New York Agents: A. D. HOPPING & WILSON, 214, 218 & 220 Washington-street.

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FRUIT AND ORNAMENTAL,
For Spring of 1871.

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The highest flavored large strawberry in cultivation. 50 cents per plant; $2 per half-dozen; $3 per dozen. The entire stock of plants, raised by the originator, for sale exclusively by REISIG & HEXAMER,
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GRAPE-VINES.—IVES, NORTON'S, MARTHA, Eumelan, etc., *low*, yet *prime*. Philadelphia, Clarke, and other Red and Black RASPBERRIES, large, fine stock. STRAWBERRIES, new and common sorts. CURRANTS, three best. EVERGREENS. Price-lists Free.

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PLANTS—STRAWBERRY, sent by mail, post-paid, at price per dozen and hundred; others at dozen rates only.

	Doz.	100.	1,000
Turner's Beauty, Nonsuch, Prolific, Queen, and Favorite; new; all should try them.	$1.00	$6.00	$30.00
Kentucky; new; large and valuable	50	3.00	20.00
President Wilder; of great promise	1.00	5.00	40.00
Lady Finger and Philadelphia	30	80	4.00
Agriculturist and Peak's Emperor	30	80	4.00
Stinger and Durand	40	1.00	6.00
Nicanor and Lady of the Lake	40	1.00	5.00
Naomi and General Grant	40	1.00	5.00
Golden Queen and Green Prolific	40	1.00	5.00
Boyden's No. 30 and Lennig's White	40	1.00	6.00
Stump Seedling (a seedling of the Hovey)	40	1.00	5.00
Triumph of America and Michigan	50	1.00	10.00
Charles Downing and Albany	30	80	4.00
Downer, French, Cutter and Colfax	30	80	3.00
Mammoth Asparagus, one year	25	75	3.00
" " two "	50	1.50	5.00
Conover's Colossal, true to name	50	3.00	25.00
" " seed crop 1870	1 oz., $1.	½ lb., $5.	

Also, other varieties of Strawberry, and all the valuable varieties of Raspberry, Blackberry, Currants, Gooseberry, Grape-Vines and Seed Potatoes. Also, agent for the Rochester Berry Basket. Send for Price-list.

THOS. C. ANDREWS, Moorestown, N. J.

JOHN S. COLLINS,
MOORESTOWN, N. J.,

Sells pure Plants, One hundred or less, post-paid, by mail.

	Doz.	100	1,000
Kentucky Strawberry	40	$1.50	$10.00
President Wilder	80	4.00	35.00
Boyden No. 30	40	1.00	6.00
W. Albany or Downer	30	0.75	3.00
Chas. Downing	30	0.75	3.00
Turner Seedlings, 5 sorts, 3 of each, $1; 20 of each, $6; 200 of each, $30.			
Philadelphia Raspberry	50	3.00	15.00
Conover Colossal Asparagus	50	2.00	15.00
" " Seed, one ounce	80	¼ lb. 6.00	1 lb. 10.00

New and Rare Plants for Spring of 1871.
JOHN SAUL'S

Catalogue of new and beautiful plants will be ready about February 1st, containing a beautiful colored plate of two fine new Geraniums (Coleshill and Lady Edith), mailed free to all my customers; to others, price 10 cts., or a plain copy to all free.

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FRUIT FARMS FOR SALE; good soil; healthy climate; 30 miles from Philadelphia, and near New York Railroad. A desirable Farm of 30 acres, well located; modern new 2-story house, 9 rooms; good barn, sheds, etc., in order; 2 acres in strawberries, 1½ acres blackberries, 1 acre raspberries, 500 peach, 300 pear, 100 apple trees, grapes, etc. Price, $4,000; one-half can remain. Also, 25-Acre Farm, $1,500; 15-Acre Farm, $1,800; 13-Acre Farm, $1,500; 5-Acre Farm, $1,000. For information address R. J. BYRNES, Hammonton, New Jersey.

SILVER MAPLE.—Fresh seed sent in May, with full directions for cultivation, *warranted good*, post-paid. 1 oz., 10c.; 8 oz., 60c.; 1 lb, $1. J. M. BENTHALL, Quasquoton, Iowa.

FINE TOBACCO DUST,

PUT UP EXPRESSLY FOR

HOUSEHOLD USE,

AND FOR

Gardeners, Nursery-men and Farmers.

It will prevent Moths in Clothing, Carpeting and Furs. Also destroy the Currant-worm and Lice on Plants, and Vermin on Sheep, Cattle, etc.

Manufactured and sold by

WM. S. KIMBALL & CO.,
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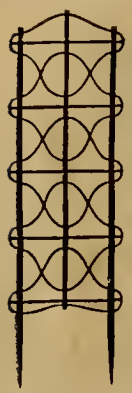

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Westboro, Mass.,
Manufacturers of
Pot, Plant, Garden, and Veranda Trellises,
AND
Nourse's Folding Plant Stand.

Also, **Bulb Tables, Ferneries, Wardian Cases,** and various **Floral** and **Horticultural Adornments.**

Plant and Dahlia Sticks from 2 to 6 ft. high. We are now prepared to fill orders for Spring trade, to any extent required. Our Trellises are made wholly of *wood* and *reeds*, being much lighter, cheaper, and more durable than wire, and include a great variety of styles and sizes. Catalogues sent upon application.

For sale generally by dealers in Agricultural and Horticultural Implements.

GREEN ISLAND GRAPE-VINES (Thompson's), Propagated and for Sale by
RYDER & CO.,
Send for a Circular. Sing Sing, N. Y.

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100 Bus. Evergreen Broom-Corn.—Seed well matured and clean, unexcelled in quality. One peck, 75c.; ½ bu., $1.25; one bu., $2. JAMES L. PACE,
Kingston, Luzerne Co., Pa.

6,000 DOWNING'S SEEDLING GOOSEBERRY. Send stamp for price.
G. W. FRAZIER, New Castle, Pennsylvania.

Special Notice.

2,500 No. 1 Cold-frame **Jersey Wakefield** Cabbage Plants now ready, at **$8 per 1,000.** *No charge for packing or delivery to Express office.* **$1 per 100,** *by Mail, post-paid.* **25,000 Genuine Trophy** Plants ready in May; **150,000 Nansemond Sweet-Potato** Plants in May and June.

FLOWER SEEDS.

20 choice varieties, annuals, $1; 20 choice varieties, perennial and biennial, $1; 10 choicest varieties, extra fine, perennial and biennial, $1. The three collections **mailed free** on receipt of $2.50.

VEGETABLE SEEDS.

Conover's Colossal Asparagus; 10 varieties Bush Beans; 12 var. Pole Beans; 5 var. Celery; 8 var. Sweet Corn; 6 var. Egg-plant; 7 var. Lettuce; 8 var. Water-melon; 5 var. Onions; 10 var. Peas; 6 var. Pepper; and many other varieties of seed, at 10c. pkt. *Mailed free on receipt of price.* **New Valparaiso Muskmelon,** very large and fine, 15c. pkt. Joint Pop-corn, 25c. Joint Sweet-corn, 50c. per pkt., or 5 pkts. for $2. Sanford Corn, 10c. pkt. New Egyptian Beet, 10c. pkt. Moore's Early Concord Corn, 50c. pkt. **Trophy Tomato** Seed, **Free,** as previously advertised. **Special Offers to Clubs.** Catalogues free.

Address **H. E. ACKER,** Seed-Grower,
Woodbridge, N. J.

"GUANO."

No. 1 Peruvian.

Sardy's "Soluble Phospho-Peruvian."
do. "Ammoniated Soluble Pacific."

The use of the above "Soluble Phospho-Peruvian," and "Ammoniated Soluble Pacific" Guanos, is particularly recommended, being compounds of the richest Phosphatic Guanos, rendered soluble, and highly ammoniated; making the most concentrated and profitable fertilizers in use for all Cereal and Root Crops.

For prices and full particulars send for pamphlet.

For sale in quantities to suit, by **JOHN B. SARDY,**
88 Wall-st., New York. P. O. Box 5,883.
"Feed your land and it will feed you."

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AMMONIATED SUPERPHOSPHATE,

Superior to, and much cheaper than, PERUVIAN GUANO.

Orders solicited from Dealers or Consumers. Send for a Pamphlet. JOHN VANDERBILT & BROTHERS, General Agents. Warehouse for Choice Seeds, Fertilizers, and Implements. 23 Fulton-st., N. Y.

Blood & Bone Fertilizer.

The Bergen Fertilizing Co. are prepared to offer an article which is, as it is represented to be, simply blood and bone, *equal to pure Peruvian Guano.* Price, delivered in New York, $65 per ton.

Agents, HENDERSON & FLEMING,
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BONE-MEAL,

For Agricultural purposes, free from adulteration. Send for Circular. LISTER BROTHERS, Newark, N. J.

JERSEY CATTLE FOR SALE.—Cows, Bulls, Heifers, and Calves. Address, RICHARD YOUNG,
Morton's P. O., Springfield, Del. Co., Pa.
Catalogues sent free.

FOR SALE, HERO, Thorough-bred Jersey Bull, with Pedigree, 20 months old.
F. A. NOURSE, Milford, N. H.

GREAT AUCTION SALE of Choice Ayrshire Cattle.—Being under the necessity of reducing my stock, I will sell at auction on Wednesday, the 19th day of April, at 2 o'clock, P. M., from 30 to 40 head of *Pure-bred Ayrshire Cattle.* Cows, Heifers, and Bulls, a majority of which were bred with *great care* under my own eye. The sale will take place at my farm in the City of Springfield, Mass., about one mile north of the Railroad Depot. Catalogues sent on application.

J. R. PAGE, Auctioneer.
WM. BIRNIE,
Springfield, Mass.

BEAUTIFUL BAY STALLION, 16 hands high, coming eight years, trots in three minutes, sired by "*Kemble Jackson.*" Price, $1,500. Thorough-bred Shorthorn Durham Bull, 3 years old. Price, $300. Imported Alderney Bull, 3 years old. Price, $150. For sale by
N. GUILBERT, Gwynedd, Pa.

ALDERNEYS (JERSEYS) for sale, by
G. W. FARLEE, Cresskill, N. J.
One hour from New York.

PRIZE JERSEY OR ALDERNEY COWS, Heifers, and Calves for Sale, low. Every Animal guaranteed as represented. Full pedigree. Send stamp for Circular.

J. M. HALSTED, 571 Broadway, New York.

Premium Chester White Pigs.

Bred and for sale by
GEO. B. HICKMAN,
West Chester, Chester Co., Pa.
☞ Send for Circular and Price-List.

2806 LBS. WEIGHT of two Ohio Improved CHESTER HOGS. Send for Description of this Famous Breed, and a great variety of other Thoroughbred and Imported Animals and Fowls.

L. B. SILVER, Salem, Ohio.

PURE-bred CHESTER PIGS and choice POULTRY. Also, Peerless, Early Rose, and Climax Potatoes, and Norway Oats. Send for Circular. Eggs, after March 1st. P. W. HARBAUGH, New Lisbon, Ohio.

PURE BRED CHESTER WHITE PIGS, Bred and for Sale by C. C. FULLER, Nelson, Portage Co., Ohio. Send for Circular and Price-List.

PURE-BRED CHESTER WHITE Pigs, Fancy Poultry, &c., bred and shipped by J. W. & M. IRWIN, Pennington ville, Chester Co., Pa.
Eggs for Hatching a specialty. Send stamp for Illustrated Circular.

GREAT GOLD MEDAL,
NEW YORK.

SECOND TIME DECEMBER, 1870.

Silver cup for Dark Brahmas, Silver cup for Buff Cochins, Silver medal for Black-red Game, Silver medal for Geese, also seven Bronze medals, five Diplomas and one Honorable mention on Dorkings, Spanish, Brown-red Game, Crevecœur, La Fleche, Sultans, Rouen and Aylesbury Ducks,—winning at the same time in Dublin and Cork Exhibitions, in nearly all these varieties, and notably, both 1st Prizes with Houdans.

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	Per doz.		*Per doz.*
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Three " "	the policy	6 " "	27 "
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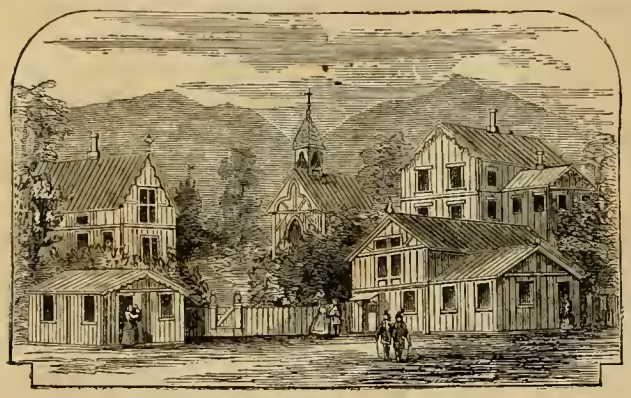

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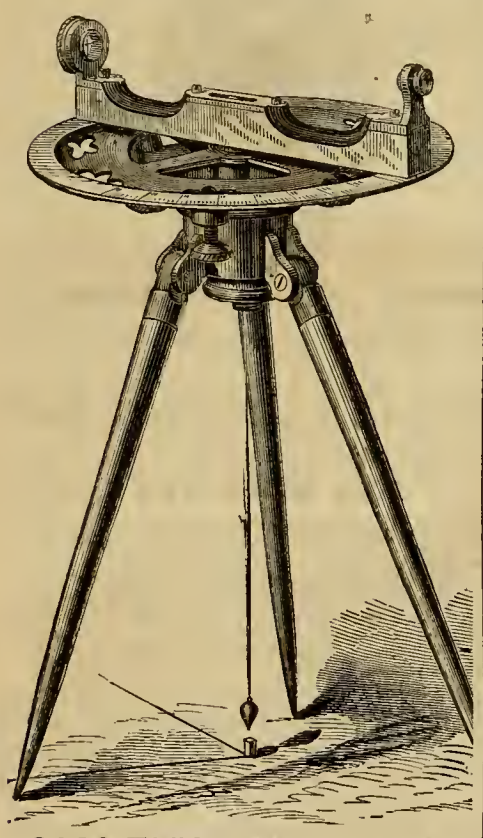

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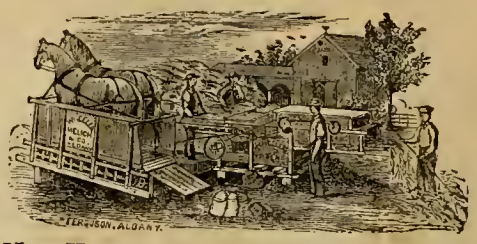

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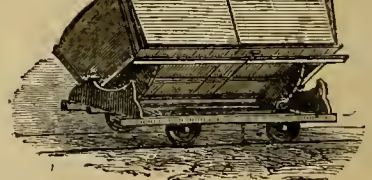

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Have received a full assortment of

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NEW LOAN

OF THE

UNITED STATES.

IMPORTANT CIRCULAR.

Treasury Department,
Washington, February 28, 1871.

Public notice is hereby given, that books will be opened on the sixth day of March next, in this country and in Europe, for subscriptions to the National Loan, under the Act approved July 14, 1870, entitled "An Act to authorize the Refunding of the National Debt," and the Act in amendment thereof, approved January 20, 1871.

The proposed loan comprises three classes of Bonds, namely:

First. Bonds to the amount of five hundred millions of dollars, payable in coin, at the pleasure of the United States, after ten years from the date of their issue, and bearing interest, payable quarterly in coin, at the rate of five per cent per annum.

Second. Bonds to the amount of three hundred millions of dollars, payable in coin, at the pleasure of the United States, after fifteen years from the date of their issue, and bearing interest, payable quarterly in coin, at the rate of four and a half per cent per annum.

Third. Bonds to the amount of seven hundred millions of dollars, payable in coin, at the pleasure of the United States, after thirty years from the date of their issue, and bearing interest, payable quarterly in coin, at the rate of four per cent per annum.

Subscriptions to the loan will have preference in the following order, namely:

First. Subscriptions that may be first made for five per cent bonds to the amount of two hundred millions of dollars; of which there will be reserved for twenty days, one-half for subscribers in this country and one-half for subscribers in foreign countries.

Second. Subscriptions for equal amounts of each class of bonds.

Third. Subscriptions for equal amounts of bonds bearing interest at the rate of four and a half per cent, and of bonds bearing interest at the rate of five per cent.

Fourth. Subscriptions for any five per cent bonds that may not be subscribed for in the preceding classes.

When a subscription is made, the subscriber will be required to deposit two per cent of the amount thereof in coin or currency of the United States, or in bonds of the class to be exchanged, to be accounted for by the Government when the new bonds are delivered; and payment may be made either in coin or in bonds of the United States known as *five-twenty bonds*, at their par value.

The coin received in payment will be applied to the redemption of five-twenty bonds, and the debt of the United States will not be increased by this loan.

The bonds will be registered or issued with coupons, as may be desired by subscribers. Registered bonds will be issued of the denominations of $50, $100, $500, $1,000, $5,000, and $10,000; and coupon bonds of each denomination except the last two. The interest will be payable in the United States, at the office of the Treasurer, any Assistant Treasurer, or Designated Depositary of the Government, quarterly, on the first days of February, May, August, and November, in each year.

The bonds of the several classes aforesaid, and the interest thereon, are exempt from the payment of all taxes or dues of the United States, as well as from taxation in any form by or under State, municipal, or local authority.

After maturity, the bonds last issued will be first redeemed, by classes and numbers, as may be designated by the Secretary of the Treasury.

The bonds will be issued at the United States Treasury, but the agents for the negotiation of the loan in Europe are authorized to make arrangements with subscribers for the transmission of the bonds to the agents through whom subscriptions may be received.

Subscribers in the United States will receive the new bonds of the agents with whom the subscriptions are made.

In the United States, the National Banks are authorized to receive subscriptions, and subscriptions may also be made at the office of the Treasurer of the United States, or of any Assistant Treasurer, or the Designated Depositaries at Buffalo, N. Y.; Chicago, Ill.; Cincinnati, Ohio.; Louisville, Ky.; Mobile, Ala.; and Pittsburgh, Pa.

The following banking-houses are also authorized to act as agents in receiving subscriptions in the United States, viz:

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Brown Brothers & Co.	Morton, Bliss & Co.
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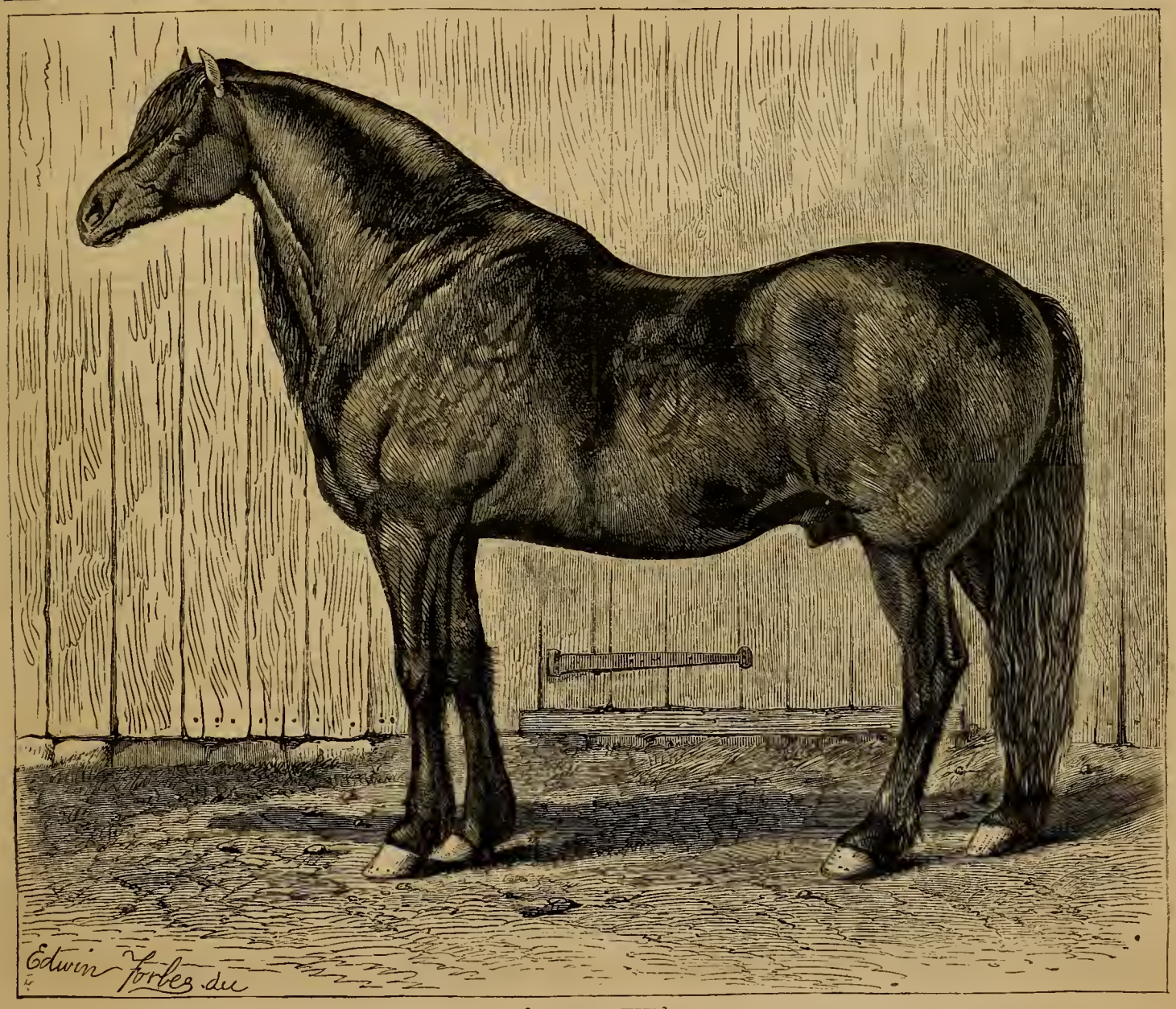

CLYDESDALE STALLION "LORD CLYDE."—*Drawn and Engraved for the American Agriculturist.*

The race of Clydesdale, so called because they are principally produced in the Valley of the Clyde, in Scotland, is supposed to have originated from a cross between the Flemish stallion and the native mares of the country. The animals of this race, while very large, have remarkable activity, and move with great promptness under very heavy loads. The characteristic length of body and hight of shoulder are well shown in the animal above figured. Unlike some other large races, the Clydesdales have well-developed feet with remarkably strong hoofs, which are important points in a heavy draught-horse. The colors are usually bay, or brown, but gray and black sometimes occur. The Clydesdales are especially docile and intelligent, and these qualities, combined with their great strength and activity, make them prized for farm work. Experiments were made at the School of Agriculture, at Versailles, in 1850, in which two Clydesdale mares were put at the same work with two each of Suffolk, Percheron, and Boulogne mares, and it was found that the two Clydesdales would do the same work as three animals of the other races. On the other hand the two consumed as much food as three others. Lord Clyde, of which we present an engraving, is a fine specimen of his race. He is now owned by Wm. Crozier, Esq., Beacon Stock Farm, Northport, L. I. His color is a dapple bay, with a heavy black mane and tail; his legs are all black, and he has a small star in the forehead. He stands 16 hands high, and weighs over 1,700 pounds. His sire was "Lord Clyde," bred by Mr. S. C. Crawford, Lanarkshire, Scotland, and he was by Crawford's celebrated Clyde, winner of the first prize of the Highland Agricultural Society, and sold to the Douglass Society for £460 sterling. The present "Lord Clyde" took the first prize, with diploma, at Hamilton, Canada, and has besides taken several prizes at local fairs.

Contents for May, 1871.

INDEX TO "BASKET," OR SHORTER ARTICLES.

Old Slaked Lime.—"B. F. S." can get some lime that has been exposed to the weather for six months, and asks if it is worth the drawing to spread on the land for manure?—Certainly it is. Probably not more than half the lime has been converted back into carbonate of lime; the remaining half is just as good as fresh-slaked lime, and even the carbonate is valuable for manure. Put it on at the rate of 2 bushels of the slaked lime to a square rod, and work it into the soil.

Cure for Hog Cholera.—"J. B. C.," of Kentucky, gives the *Agriculturist* "an almost infallible cure for Hog Cholera," viz.: One part slaked lime to three parts soft-soap. "My hogs," he says, "were affected with cholera, and I used it by smearing it on the corn or mixing in their feed, and it cured in every instance, almost. My neighbor refused for a long time to use it, on account of its simplicity, and lost seven hogs to my one. It is not a new remedy, however, by any means."

Calendar for May.

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	M	4 56	7 0	3 32	4 59	6 56	3 30	5 2	6 52	3 28
2	T	4 54	7 1	3 50	4 58	6 57	3 58	5 1	6 53	3 58
3	W	4 53	7 2	4 28	4 56	6 58	4 29	5 0	6 54	4 29
4	T	4 52	7 3	rises	4 55	6 59	rises	4 59	6 55	rises
5	F	4 51	7 4	8 7	4 54	7 0	8 4	4 58	6 56	7 59
6	S	4 49	7 5	9 24	4 53	7 1	9 20	4 57	6 57	9 15
7	S	4 48	7 6	10 38	4 52	7 2	10 33	4 55	6 58	10 27
8	M	4 47	7 7	11 42	4 51	7 3	11 36	4 54	6 59	11 30
9	T	4 46	7 8	morn	4 49	7 4	morn	4 53	7 0	morn
10	W	4 44	7 9	0 34	4 48	7 5	0 29	4 52	7 1	0 24
11	T	4 43	7 10	1 17	4 47	7 6	1 13	4 51	7 2	1 8
12	F	4 42	7 11	1 53	4 46	7 7	1 49	4 50	7 2	1 46
13	S	4 41	7 12	2 21	4 45	7 8	2 19	4 49	7 3	2 16
14	S	4 40	7 13	2 43	4 44	7 9	2 47	4 49	7 4	2 46
15	M	4 39	7 14	3 10	4 43	7 10	3 10	4 48	7 5	3 10
16	T	4 38	7 15	3 35	4 42	7 11	3 35	4 47	7 6	3 36
17	W	4 37	7 16	3 59	4 41	7 12	4 1	4 46	7 7	4 2
18	T	4 36	7 17	4 23	4 40	7 13	4 28	4 45	7 8	4 31
19	F	4 35	7 18	sets	4 39	7 14	sets	4 44	7 9	sets
20	S	4 34	7 19	8 37	4 39	7 15	8 30	4 43	7 10	8 24
21	S	4 33	7 20	9 30	4 38	7 16	9 24	4 43	7 10	9 19
22	M	4 32	7 21	10 22	4 37	7 17	10 17	4 42	7 11	10 12
23	T	4 31	7 22	11 10	4 36	7 18	11 4	4 41	7 12	10 59
24	W	4 31	7 23	11 52	4 36	7 19	11 47	4 41	7 13	11 42
25	T	4 30	7 24	morn	4 35	7 20	morn	4 40	7 14	morn
26	F	4 29	7 25	0 29	4 34	7 20	0 25	4 39	7 14	0 22
27	S	4 29	7 26	1 3	4 34	7 21	0 59	4 39	7 15	0 56
28	S	4 28	7 27	1 33	4 33	7 22	1 30	4 38	7 16	1 28
29	M	4 27	7 28	1 59	4 32	7 23	1 58	4 38	7 17	1 57
30	T	4 27	7 28	2 26	4 32	7 23	2 26	4 37	7 17	2 27
31	W	4 26	7 29	2 55	4 31	7 24	2 56	4 37	7 18	5 58

PHASES OF THE MOON.

MOON.	BOSTON.	N. YORK.	WASH'N.	CHA'STON	CHICAGO.
	D. H. M.	H. M.	H. M.	H. M.	H. M.
Full.....	4 6 16 ev.	6 4 ev.	5 52 ev.	5 40 ev.	5 10 ev.
3d Quart..	11 9 39 m.	9 27 m.	9 15 m.	9 3 m.	8 33 m.
New Moon	19 6 1 m.	5 49 m.	5 37 m.	5 25 m.	4 55 m.
1st Quart.	27 8 18 m.	8 6 m.	7 54 m.	7 42 m.	7 12 m.

AMERICAN AGRICULTURIST.

NEW YORK, MAY, 1871.

May is always a capricious month; fine weather alternates with drenching rains, and not unfrequently the snow-flake flies, and "Winter lingers in the lap of May;" but the diligent farmer is not thereby discouraged, but patiently toils on, improving every moment, until all the appointments of his farm are in perfect order, and the labor of planting and sowing is at last done, and well done. Always do what is most urgent and most important. Early rising, and punctuality in every thing, is now most necessary to success.

Hints about Work.

Beef Cattle.—Roots may be employed as a relish, with the usual dry feed. Curry and brush off every day; give an hour or two of exercise in some dry, pleasant yard. Bring them to green feed by degrees, increasing the rations of meal daily as the warm weather advances.

Beets.—Those who raise stock, should now put in their field-crop of beets. Select a piece of ground where the soil is deep and rich—not less than one-fourth of an acre—an acre would be better. For good land, from fifteen to twenty two-horse wagon-loads of barn-yard manure to the acre will do. Break up and harrow the land well. Throw the surface into narrow ridges by back-furrowing—from two to two and one-half feet apart. Rake off the tops of the ridges, and sow on them with the seed-drill, from the 1st to the 15th of May, from five to six pounds of good seed to the acre. Expect from 20 to 25 tons of roots in a good season, when the crop is well taken care of.

Buildings.—Take away the earth or other banking from the lower beams and wood-work of farm-buildings. Wherever foundations have settled, level them up. Examine barn and stable floors, and where there is a defective plank, replace it. General repairing and refitting continued this month.

Birds.—In many of the States, laws are in force for the protection of birds. Where such is not the case, each farmer should take upon himself the office of their defense. Most birds are his friends.

Bones.—It is not practicable for farmers to grind bones themselves. Where a bone-mill is accessible, sell the bones and buy the ground material. The best way to treat bones on the farm is to break them as fine as practicable, and mix them with good ashes. The whole being kept moist, not so wet as to leach, the bones will after some time crumble.

Calves.—The remarks of last month upon calves, both for rearing and fattening, are applicable to this.

Carrots.—Sow a broad space to the Long Orange, or White Belgian carrot, as soon as the ground becomes warm and dry. Distance between the rows, from sixteen to twenty inches. Test your seeds. Sow two pounds good seed to the acre. Yield, with good attention and a good season, three hundred bushels of the smaller kinds, and four hundred and fifty of the White Belgian per acre. Extra cultivation has produced one thousand bushels of the latter per acre.

Corn.—Devote to this, the greatest of our farm crops, all the ground that can be spared—old mossy pasture-land—meadows choked up with daisy or wild grass, or where the grass-seed has not taken well. Manure heavily; plow deep. After the ground is prepared, mark out green sward with a light plow or marker; plow land with a subsoil plow. Plant same day. Choose a variety of seed sure to ripen. Soak in warm water; stir in a little pine or coal-tar when swelled, and roll in plaster before planting.

Cows.—The remarks in regard to the feeding of beeves, will apply equally to cows, except that the quantity of meal per head need not be increased as the warm weather advances. Accustom them to green feed, by degrees. Look closely after those that are calving, and guard against constipated bowels and swelled udders by remedies heretofore recommended. If the calf sucks, strip out the milk left. Milk clean, and as fast as possible.

Drains.—Inspect underdrains all over the farm when it is rainy weather, and see that the water from above does not throw out the tiles, and fill the inside with obstructions. Clear away the outlets, so that the water can have a free passage. Open all the ditches in your grain fields, so that the springing crop may not be water-killed.

Grain Fields.—Early this month scatter over the fields put down to grain, such fertilizers as plaster, ashes, guano, etc. Common house-ashes are more easily obtained by farmers at a distance from large cities. Leached ashes may be obtained if there be an ashery in the immediate neighborhood.

Horses.—See that harnesses fit well; sponge and rub off the shoulders, feet, and legs of laboring horses, and blanket them only after severe exercise.

Machines and *Tools.*—Find out what you need for the coming season; order them promptly, so that there need be no delay when they are required. Mowers, particularly, should be ordered at once, as early grass will be ready to cut next month.

Manure.—Neither sell nor waste any manure, and take every opportunity of increasing the stock on hand. It is like money in bank. Make a tank for liquid manure, and start a compost-heap wherever convenient to do so.

Meadows.—Never pasture your mowing ground at this season. Buy hay in preference. The same fertilizers may be applied to meadows as are recommended above for grain fields. Liquid manure is the best application for irrigated meadows, and is equally good for any other kind of hay land.

Peas and *Oats.*—This, as a forage or soiling crop, will be ready before corn. Plow in the peas, and give the oats a light harrowing. Sow the first part of the month.

Potatoes.—Plant early, and let what manure you use be spread equally over the surface. Plant good full-grown seed.

Poultry.—As soon as the gardens are planted, place the poultry where they will not trouble them, and where they can have plenty of air, water, and exercise. Young chickens may be allowed to run in the garden, if the hens are cooped near by. Geese, ducks, and hens should be set early; turkeys not so soon, by two or three weeks.

Pumpkins.—Where corn is not planted too thickly, and the land is underdrained and well manured,

pumpkins will do no damage to the crop, and will be so much clear gain to the farmer.

Roads.—This is the month to work roads, rather than September. The track becomes hard and beaten before the fall rains. Level off the slopes and sides, and sow red-top or Kentucky blue-grass. The sod thus formed will rarely gully, even during freshets.

Sheep.—Let your sheep run under some kind of a shelter during the cold storms, which often occur this month. Introduce them gradually to the grass at the close of the foddering season. This is the period when grain and roots are required to keep up the heart of the animal, and to provide against the scours. Shear early; it is now common to omit the washing.

Sorghum.—Plow the ground deep, and till thoroughly. Plant very early, and on ridges, instead of in a furrow or drill. Good corn ground will produce good sorghum. From two to three quarts will plant an acre.

Work in the Horticultural Departments.

The time for reading will necessarily be short this month, on account of the great pressure of spring work, and these notes must be brief and to the point. The gardener, to succeed, must toil early and late, and if he has laid his plans well during the preceding months, there will be little need of much reading now.

Orchard and Nursery.

Planting must be forwarded as fast as possible, and if the trees have been properly heeled in, they can be set out several weeks after those in the nursery have started. If any crop is planted between the rows of young trees, be sure to supply plenty of manure, so that the trees will not be robbed.

Trees received from the nursery now are often shriveled and apparently worthless; to restore them, bury root and branch in the ground for a week. When packed close, the buds sometimes start; cut back to a dormant bud before planting.

Grafting, except with stone-fruits, may be done early this month; but use great care where vegetation is active.

Root-grafts, if not already set out, must not be delayed; plant in rows four feet apart and twelve inches in the row; press earth firmly around them.

Mulch newly-set trees with coarse hay or straw; it enables them to bear the drouth, and also prevents weeds.

Insects.—Destroy all tent-caterpillar's nests as soon as they appear; the best time to do this is either at night or in the morning. Wild cherry-trees should be cut down, as they only serve as a harbor for these pests.

Seedlings of all kinds of trees must be kept free from weeds by constant stirring of the soil. If any seeds remain to be planted, do it early this month; they need to be shaded and have a free circulation of air around them; a shelter of laths is the best and cheapest in use.

Fruit Garden.

Planting may be done at any time when the stock has been heeled in to prevent growth, as recommended under the orchard notes.

Cuttings of currants, gooseberries, etc., which were put in sand last fall, may now be set out in rows three feet apart and six inches in the row, and after one season's growth taken up and planted.

Grape-vines.—In working among the vines, be careful not to break the buds. With newly-planted vines only one cane should be allowed to grow the first year; select the strongest, and cut off the rest that start.

Layers.—Put down layers of last year's wood in trenches, and leave uncovered until the buds are well started, then gradually cover with soil.

Currants.—If the plants look weak and sickly, it is a pretty sure sign that borers are at work; cut out all the injured portion, if it takes the whole bush. When currant-worms make their appearance upon the leaves, dust with powdered white hellebore. Mulch all newly-set plants early.

Strawberries must be set as soon as possible, before they have started into growth. Keep the beds clean, and if a mulch is given, it will save a great deal of trouble in hoeing the weeds. A mulch should always be put on before the berries begin to ripen, as it keeps them free from dirt.

Packages.—Where fruit is sent to market, a supply of baskets and crates should be provided for sending off the crop. There are many styles offered.

Raspberries and *Blackberries.*—Tie up the last year's growth to stakes or trellises, as preferred, and keep the ground clear of weeds.

Kitchen Garden.

Many of the hardier vegetables were sown last month, and in southern localities the early crop of peas, beets, radishes, etc., are being harvested. Where the ground has been wet and cold, there is little use of sowing seeds until it is warm and dry. In most localities all kinds of seeds may be sown this month.

Asparagus may be cut on beds which are two years or more old. New beds may be set.

Beans.—When all danger of frost is over, plant in rows three feet apart. Limas started under glass may be set out after the ground is dry and warm; they may be planted to poles four feet apart.

Beets.—The early plantings must be thinned out and kept carefully hoed; the plants which are pulled up make excellent greens.

Cabbage, and its varieties, Broccoli, Cauliflower, etc., all need the same general treatment when young. Set out the early plants from the hot-beds and cold-frames, and keep well hoed. Seeds for later crops may be sown in the open ground.

Carrots must be kept free from weeds, especially when they are small, for if allowed to grow they soon exceed the carrots in size.

Celery.—Sow as directed last month; stir the soil between the rows as soon as up, and weed.

Cress, or *Pepper-grass.*—Sow every week where one has a good locality to grow it well.

Corn may be planted this month, in rows four feet apart, which, in a garden, is preferable to hills. Plant once in two weeks for a succession.

Cucumbers.—Where there are cold-frames or hot-beds from which the plants have been removed, they can be profitably devoted to cucumbers. Plants started in pots or beds early, may be set out when the weather becomes warm. Sow plenty of seed, to allow for losses by the "bugs."

Egg-plants.—Set out as soon as all danger of frost is over, in a warm, rich spot.

Lettuce.—Set out the early-sown sorts; give plenty of manure. Sow seed for a succession.

Melons need the same treatment as cucumbers. Give liquid manure when convenient; it aids the growth of the plants very much.

Onions.—Weed as soon as up, and keep the ground constantly stirred. A dressing of ashes, worked into the soil between the rows with a hoe, is very beneficial.

Parsley.—Sow in open ground this month after soaking the seed in warm water.

Peas should be bushed before they fall over. Earth up in hoeing. Late sorts may be sown.

Potatoes.—Hoe as soon as up; finish planting.

Radishes.—If a constant supply is wanted, sow every week, and keep clear of weeds; when insects appear, dust with air-slaked lime.

Parsnips ought to be sown early this month; they require the same treatment as carrots.

Rhubarb.—Do not remove the stalks from plants set last fall. Never cut the leaves, but pull with a slight sidewise twist; remove flower-stalks.

Squashes for late use may be planted the latter part of this month in well enriched soil. The early sorts are managed the same as cucumbers.

Tomatoes.—Transplant from hot-bed as soon as danger of frost is over; set four feet apart.

Turnips.—If the black fly attacks the young plants, give a sifting of fine air-slaked lime.

Flower-Garden and Lawn.

Evergreens, if set during this month, usually do the best; the great secret is to transplant them just as they begin their annual growth. As soon as they are taken from the nursery, see that the roots are protected from the air, as a tree of this kind, the roots of which have become dry, seldom recovers and does well. Among the best for specimen trees, or screens, are the Hemlock, Norway Spruce, Arbor Vitæ, etc. In planting select, if possible, a moist, cloudy day; the soil around the roots should be fine and rich; fresh manure ought never to be used, but, when well established, give an annual dressing of good compost, with plenty of vegetable matter in it.

Deciduous Trees may still be set in cool localities, where the yearly growth has not commenced.

Flowering Shrubs, if not set last month, may still be put out; for varieties, see last month's notes.

Margins around beds, or along walks, must be kept cut smooth by the use of the edging-knife. The outlines of the beds may be preserved by driving down stakes even with the surface.

Annuals.—The hardy ones must be sown immediately, while the tenderer sorts should be left until the ground becomes warm and dry, or they may be sown in boxes in the house now.

Perennials may be sown in beds apart from the annuals; keep free from all weeds. Sow seed of those coming into flower as soon as ripe.

Bulbs.—Plant out Gladioluses, Lilies, etc., as soon as the ground is dry. Tuberoses ought to be started in pots in the house or greenhouse.

Climbers.—Sow seeds of the Sweet-pea, Cypress-vine, Morning Glory, etc., to hide old fences and other unsightly objects, or to cover trellises, etc.

Dahlias, which have been started, may be planted out the latter part of this month.

Lawns.—In order to have a fine close turf, it is necessary that the ground should be rich, the seed sown thickly, and the grass mowed often. Weeds generally flourish best in a poor soil, where the grass does not make a growth strong enough to crowd them out. Lawns must be mowed often to keep the turf thick, and to destroy all annual weeds; the grass ought to be allowed to remain in the ground, where it acts as a mulch and fertilizer.

Greenhouse and Window Plants.

It has usually been the custom to put all house-plants, and most of those in the greenhouse, out of doors during the summer; many plants are injured in this way, and when in the fall it is found necessary to return them to the greenhouse, they often present a very unsightly appearance. By ventilation, and shading of the glass, plants may be kept in excellent condition during the summer.

Shelter.—Plants out of doors need shelter from the sun and winds, especially Camellias; the pots ought to be placed upon a layer of coal-ashes, to prevent the worms from getting into them.

Plunging, or setting the pot in soil up to its rim, is often advisable, to avoid the necessity of frequent watering during very warm weather.

Bedding Plants may be set out in the open border as soon as the ground is warm and dry.

Wants to be a Florist.—Amateur Florist, 29 years old, states that he is a genuine lover of plants and flowers, and wishes to be a florist. He asks our advice in regard to the matter.—His love for flowers would not specially help him in following the occupation of Florist as a business; in fact, it is rather considered a hinderance to success, as sometimes the tendency is to grow and admire particular sorts to gratify one's individual tastes instead of discriminating for the taste of the public. In learning the business with any of the large Florists, he would be considered as an apprentice, and would only receive $4 or $5 a week for two years or so. The age (29) would be no hinderance; some successful ones in the trade having begun later than that.

AMERICAN AGRICULTURIST.

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1st—There are now about **40,000,000** people in this country, nearly all within reach of the **28,000** Post-offices. The most of these people are pushing along, seeking to better their condition. Their success depends upon two things, viz.: Steady, hard WORK, with body *or* mind, and knowledge enough to *turn their work to the best account*. One drudges along and fails of success, because he does not know *how* to work to the best advantage; another works less, and yet succeeds better, because his knowledge *directs and aids* his physical or mental labor.

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4th—*It is impossible for any person, whatever his calling, to read the condensed information thus given in these journals without getting thoughts and hints that will directly or indirectly increase the value of his or her work* MANY *times the cost of the papers. The Agriculturist costs less than half a cent a day, and Hearth and Home less than one cent a day, and the two together less than 1¼ cents a day—sums easily saved.*

5th—It only needs some one to show the people these papers, point out their usefulness, and receive and forward their subscriptions.

6th—Out of 40,000,000 people, there is at least one in every forty, or 1,000,000 in all, who could take one or both of these journals *with profit*, whereas there are only about 200,000 that now take them, or only one in every two hundred.

7th—We offer fine Premiums, *as good as cash*, (see next column,) to those persons who will take the trouble to show the papers and collect and forward the subscriptions. It can be done at odd spells, without interfering with other work, and premiums all the way from $5 to $625 can thus be *secured without cost.*

8th—This has been done at 11,000 Post-offices by about 12,500 persons, with people enough left at these offices to make up twice as many premium clubs. There are **17,500** other Post-offices where no premium clubs have been raised, simply because no one has taken hold of the work.

9th and **10th**—**READER,** you can do it, this month of MAY. It is a good time; spring work is progressing and people are wanting help and information, and they can get it from these journals. *You* can secure one or more of the excellent premiums. You can do it this month, and, if you wish, have June to swell your club up to a larger premium. **TRY IT.**

☞ **See Explanatory Notes.**

NOTE.—Many persons canvass all the time *as a business*, sell the premiums received, and thus clear large wages. One Lady actually thus earns over $3,000 a year, and multitudes in this way secure salaries of $300 to $1,500 a year.

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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 this and the next month, 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.

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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	at $1.	Or Hearth and Home. Number of Subscribers required at $3.00	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.)*	$3 00	13	37	7	19
6	*Fluted Steel (do. do.)*	$2 50	6	25	3	13
7	*French Cook's Knife, Fork, and Steel*	$3 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 Tablespoons (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 (Lest—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	1550	260	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	420	75	225
53	*Patent Cylinder Plow (B. 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	....	20	....	10
67	*Any Two Back Volumes do.*	$3 50	....	29	....	15
68	*Any Three do. do. do.*	$5 25	13	37	7	19
69	*Any Four do. do. do.*	$7 00	15	47	8	24
70	*Any Five do. do. do.*	$8 75	17	54	9	27
71	*Any Six do. do. do.*	$10 50	19	65	10	33
72	*Any Seven do. do. do.*	$12 25	21	68	11	34
73	*Any Eight do. do. do.*	$14 00	23	74	12	37
	(Each add'l Volume at same rate)		....	....	....	....
76	*Fourteen Vols. XVI to XXIX*	$24 50	84	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. do.*	$7 50	16	48	8	24
80	*And Four do. do. do.*	$10 00	18	60	9	30
81	*Any Five do. do. do.*	$12 50	21	71	11	36
82	*Any Six do. do. do.*	$15 00	24	82	12	41
83	*Any Seven do. do. do.*	$17 50	27	92	14	46
84	*Any Eight do. do. do.*	$20 00	30	102	15	51
85	*Any Nine do. do. do.*	$22 50	33	110	17	55
	(Each add'l Volume at same rate)		.....	....	....	....
87	*Fourteen Vols. XVI to XXIX*		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.*		....	....	....	....
101	*A Steam-Engine that will GO*		3	24	2	6
102	**Pocket Knife** *(Multum in Parvo)*	$3 50	8	28	4	14

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Commercial Matters—Market Prices.

Gold has been depressed in price, having receded to 110⅛. The closing quotation, April 14th, was 110½.... There has been a fairly active business in Breadstuffs since our last, but at variable prices. The export demand has been good for Wheat and Corn. The home trade inquiry has been moderate. Prices of Flour and Wheat have been comparatively well supported, on restricted offerings of desirable grades. Corn has been in liberal supply and much cheaper. Rye, Oats, and Barley, closed heavily....Provisions have been generally quoted lower, with freer sellers, and a less confident demand from all sources....Cotton has been less sought after, and prices have been irregular....Wool has been held with a fair degree of firmness, on a limited supply of choice qualities, but the demand has been less animated... Hay and Hops have been in request at comparatively steady figures....Seeds have been dull and lower....Tobacco has been quiet, and tending downward.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, show at a glance the transactions for the month ending April 15, 1871, 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.	261,000	473,000	827,000	13,000	121,000	293,000
24 days *last* m'th.	234,000	307,000	416,000	15,450	111,000	267,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days *this* m'th.	283,000	1,413,000	1,336,000	25,000	292,000	795,000
24 days *last* m'th.	317,000	1,305,000	1,107,000	49,000	206,000	908,000

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

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days 1871	261,000	473,000	827,000	13,000	121,000	293,000
27 days 1870	224,500	478,000	153,000	2,650	313,000	217,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days 1871	283,000	1,413,000	1,336,000	25,000	292,000	795,000
27 days 1870	216,000	1,485,000	897,000	18,500	321,000	659,000

3. *Exports from New York, Jan. 1 to April 13.*

	Flour.	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
1871	559,351	2,662,210	1,071,549	——	39,065	12,929
1870	391,329	2,336,354	87,593	6,709	——	5,818
1869	272,219	2,114,624	788,273	——	——	34,934
1868	205,245	815,889	2,893,946	158,822	——	24,407

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

1871.	*Wheat,* bush.	*Corn,* bush.	*Rye,* bush.	*Barley,* bush.	*Oats,* bush.	*Malt,* bush.
April 10	811,871	180,947	150,961	164,393	709,363	171 897
March 13	1,123,785	204,388	150,514	329,319	1,133,897	218,231
Feb. 13	2,203,677	311,471	148,498	481,863	1,499,995	215,124
Jan. 16	3,685,116	272,618	157,730	554,491	1,736,936	216,394
1870.						
Dec. 15	3,060,762	208,819	148,069	500,397	2,085,137	231,129
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	237,453
Sept 12	1,387,487	761,894	50,869	107,474	1,053,079	130,881
Aug 8	1,148,876	589,973	25,437	106,101	691,766	119,046
July 11	1,281,913	483,540	28,816	98,600	655,068	109,478
June 7	706,478	69,845	21,891	91,630	488,143	108,775
May 10	1,153,052	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	2,509,603	484,176	39,089	278,905	1,105,194	97,139

CURRENT WHOLESALE PRICES.

	March 16.	April 15.
PRICE OF GOLD	111¼	110½
FLOUR—Super to Extra State	6 00 @ 7 50	$ 6 15 @ 7 25
Super to Extra Southern	6 25 @11 25	6 00 @11 00
Extra Western	6 50 @10 25	6 50 @10 00
Extra Genesee	7 35 @ 9 25	7 25 @ 9 00
Superfine Western	6 00 @ 6 50	6 15 @ 6 55
RYE FLOUR	4 35 @ 6 35	4 25 @ 6 15
CORN-MEAL	3 75 @ 4 75	3 50 @ 4 45
WHEAT—All kinds of White	1 65 @ 2 00	1 65 @ 2 00
All kinds of Red and Amber	1 40 @ 1 75	1 45 @ 1 70
CORN—Yellow	83 @ 90	78 @ 80
Mixed	84 @ 89	75 @ 78
OATS—Western	67 @ 71½	66 @ 71
State	69 @ 71	67½@ 70
RYE	1 10 @ 1 20	95 @ 1 18
BARLEY	1 00 @ 1 20	85 @ 1 18
HAY—Bale ₩ 100 lbs	1 10 @ 1 45	1 15 @ 1 50
STRAW, ₩ 100 lbs	85 @ 1 55	75 @ 1 35
COTTON—Middlings, ₩ lb	14¾@ 15½	14½@ 15¼
HOPS—Crop of 1870, ₩ lb	6 @ 12	6 @ 12
FEATHERS—Live Geese, ₩ lb	70 @ 80	65 @ 75
SEED—Clover, ₩ lb	12 @ 12¼	10 @ 10¾
Timothy, ₩ bushel	6 00 @ 6 50	6 25 @ 6 50
Flax, ₩ bushel	2 12½@ 2 25	2 15 @ 2 25
SUGAR—Brown, ₩ lb	7¾@ 10¾	7¾@ 10½
MOLASSES, Cuba, ₩ gal	20 @ 35	20 @ 45
COFFEE—Rio, (Gold, in bond)	10¾@ 14¾	10 @ 13½
TOBACCO, Kentucky, &c., ₩ lb	6 @ 12½	6 @ 11
Seed Leaf, ₩ lb	12 @ 75	13 @ 70
WOOL—Domestic Fleece, ₩ lb	47 @ 58	45 @ 57
Domestic, pulled, ₩ lb	25 @ 43	25 @ 43
California, unwashed,	20 @ 33	26 @ 33
TALLOW, ₩ lb	8¾@ 9	8¾@ 9
OIL-CAKE—₩ ton	39 50 @42 00	39 50 @42 50
PORK—Mess, ₩ barrel	21 75 @22 00	19 50 @19 75
Prime, ₩ barrel	18 00 @18 50	16 75 @17 25
BEEF—Plain mess	11 00 @15 50	10 00 @15 00
LARD, in tres. & barrels, ₩ lb	12¼@ 13¾	10½@ 11¾
BUTTER—State, ₩ lb	20 @ 42	15 @ 43
Western, ₩ lb	12 @ 35	12 @ 33
CHEESE	5 @ 16½	5 @ 16
BEANS—₩ bushel	87 @ 3 25	75 @ 3 20
PEAS—Canada, free, ₩ bu	1 40 @ 1 45	1 50 @ 1 55
EGGS—Fresh, ₩ dozen	18 @ 20	14 @ 17
POULTRY—Dressed Fowls	15 @ 20	15 @ 18
Turkeys, dressed, ₩ lb	17 @ 20	15 @ 18
Geese, ₩ lb	14 @ 16	12 @ 16
Ducks, ₩ pair	— @ —	1 00 @ 1 25
POTATOES, ₩ bbl	2 50 @ 6 00	3 00 @ 6 50
SWEET POTATOES, ₩ bbl	3 50 @ 4 00	4 00 @ 5 00
TURNIPS—₩ bbl	1 00 @ 1 25	1 00 @ 1 25
CABBAGES—₩ 100	8 00 @16 00	6 00 @15 00
ONIONS—₩ bbl	3 50 @ 4 00	3 00 @ —
CRANBERRIES—₩ bbl	7 00 @18 00	5 00 @ 9 00
BROOM-CORN—₩ lb	4 @ 8	4 @ 8
APPLES—₩ barrel	1 50 @ 4 50	1 50 @ 6 00

New-York Live-Stock Markets.

WEEK ENDING.	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	*Tot'l.*
March 20th	4,545	97	1,247	13,928	12,504	32,321
March 27th	7,023	68	1,586	29,201	13,592	51,270
April 3d	7,123	74	1,947	18,957	16,039	44,140
April 10th	6,307	107	2,479	15,876	9,773	34,542
Total in 4 Weeks	24,998	346	7,059	77,962	51,908	162,273
do. *for prev. 4 Weeks*	23,371	276	3,662	80,280	49,026	156,685

	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per Week	6,249	86	1,765	19,490	12,977
do. do. *last Month*	5,843	69	915	20,070	12,256
do. do. *prev's Month*	5,902	61	849	27,398	14,115
Average per Week, 1870.	6,847	97	2,240	28,151	17,108
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	4,327	91,083	1,499,500	798,199
Total in 1868	298,128	5,466	83,571	1,413,479	973,061
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	836,733	573,190
Total in 1864	267,609	7,603	75,021	782,462	650,277

Beef Cattle.—Beginning with the close last month, and the first general market, with a light supply of cattle, ruled strong at nearly 1c. per ₩. advance, every thing selling off early, and drovers making money. The receipts were much larger the following week, and the market showed less firmness. In fact, it nearly amounted to a decline. For the next market we find a still larger number, and the rates could no longer be sustained, holders yielding to a decline of ½c.@¾c., else they had to keep their cattle, but the succeeding was the hardest market of all, coming when butchers and nearly every body else were participating in, or enjoying, the grand German Peace Demonstration, leaving the yards deserted. Besides, butchers were feeling sore under heavy losses caused by the unseasonable hot weather, which spoiled abundance of beef and other meat before it could be sold. Since then, the few scattering lots are selling very slowly, and at even lower rates, fair 7 cwt. steers going at 12½c.@13c. per ₩., net weight.

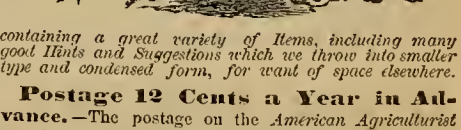
Below we give the range of prices, average price, and figures at which large lots were sold:

Mar. 20th, ranged	11 @16	c.	Av. 13¾c.	Large sales	13	@15
do. 27th,	do. 11 @16	c.	do. 14 c.	do.	13	@15
April 3d,	do. 10¼@15½	c.	do. 13½c.	do.	13	@14½
do. 10th,	do. 10 @15	c.	do. 13¼c.	do.	do.	12½@14

Milch Cows.—As is usually the case at this season of the year, more fresh cows have been sent in for sale, partly because it is the natural period for cows to come in, and partly because there is more demand for them. The trade is unusually dull this spring, and long rows of milkers stand in the sale stables day after day awaiting purchasers. This city is each year becoming less and less a market for cows. Just at present the depressed state of the beef trade operates against selling fresh milkers. Common cows are quoted at $45@$55 each; medium to good, $65@$75, with a few prime at $85@$95.

....**Calves.**—These have been pouring in rapidly, both dead and alive. The former run down very low during the heated spell, very many of them selling at 2c.@3c. each, while hundreds were taken by the sanitary police, entirely spoiled. Nor is there much improvement now, live calves selling in large quantities at 6c.@8c., while the best hog-dressed rarely go above 13c. Load after load of small calves has been sold at 4c.@6c. per ₩. A pen of 120 ₩. State calves was just weighed off at 7c. We call thin live calves worth 4c.@6c., with fair to prime at 7c.@9½c....**Sheep.**—About one-half of the stock arriving at present has been sheared. If very thin, the fleeces are left to hide their leanness, keep them from freezing, and help sell them, the pelts being the most valuable part. Prime sheep, except from the North, where the weather is too cold, are generally sheared, as more can be got in a car, and they show their good points to advantage. Trade is dull, and prices unsatisfactory for owners. A few spring lambs are arriving, but in such small quantities, that they sell at 18c.@20c. per ₩., some of the finest reaching 22c., but they will rapidly decline. Thin lots of wool sheep sell at 5½c.@6c.; medium at 6½c.@6¾c., with prime to extra 100@130 ₩. sheep at 7½c.@8c. Clipped sheep range from 5c.@7c., the latter price for extra fat lots....**Swine.**—With only a slight increase over the receipts of the previous week, prices have steadily declined, and the markets have shown an unusual dullness. The decline in all hog products, both at home and abroad, is the cause of the lower ruling of live and dressed hogs. The former are quoted at 6½c.@6¾c., and the latter at 8⅛c.@8¾c.

How to Fatten Hogs.—N. P. Pierce, of Iowa, wants to know "the best way to prepare food for hogs, which with us in Iowa is principally corn." "I think," he adds, "there must be some better way to raise pork than that practiced about here, which is, to feed hogs on dry corn some 18 months to get them up to 250 lbs."—One trouble is, that they do not feed *enough* corn. It seems hardly possible that any breed of pigs that any man of ordinary common sense would tolerate on his farm, could have all the corn they would eat for 18 months, and then only weigh 250 lbs. We presume the breed is partly to blame, but the feeder still more. It is not the best method of preparing the corn that is so much wanted, but a disposition to feed liberally every day during the pig's life.



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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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 afterward send 10 more subscribers with only $8; making a club at $20; and so of the other club rates.

Conant's Binder.—A very good article for preserving papers may be had at our store, or they will be sent, post-paid, on receipt of the price. Size for *American Agriculturist*, 75 cts.; *Hearth and Home*, $1.25.

Mr. Judd's Residence.—Sixteen years ago Mr. Judd, the senior publisher of this journal, settled in Flushing, L. I., seven miles east of this city, and purchased a quantity of land which was then in the outskirts of the village and adapted to cultivation. But the rapid growth of the village, from 3,000 or 4,000, to 12,000 or 15,000, has surrounded him with a large number of residences, including about 30 of his own construction, and the land has become too valuable for mere cultivation. He has therefore sold out most of his real estate, and "pulled up stakes," surrendering his residence for a Female Seminary, to which it seemed specially adapted. He has located temporarily in this city while prospecting for a future permanent residence at some desirable point within convenient reach of the business office. The present railroad facilities in every direction make it quite easy for one to live twenty to forty or more miles away, and yet come to the city at any and all business hours. With such smooth iron ways, and easy cars, as we now have on the principal railroads, one can read almost as well riding as if sitting still, so that little time is lost in traveling to and fro.

Milk-rooms.—"W.," Germantown, Pa., writes: "Say to A. O. Bagley, in addition to the good advice already suggested, try ventilation from the floor of his milk-room before he abandons it as useless. In Eastern Pennsylvania we often have our milk-rooms or vaults in the cellars of our houses, instead of spring-houses, and ventilation secures good results with us. I built one in my cellar, which was every way satisfactory. It had two windows in it, but depended, as I believed, for its success, on having a flue brought down from the kitchen chimney to the floor of the room. The flue gives a current from the lower part of the room, and keeps the air always sweet."

Onion Sets.—"A Friend." Light, fine, and not very rich, soil is required. The seed is sown thickly in rows 9 inches apart. To facilitate working, every eighth row is omitted in planting, so as to leave a walk. The plants are kept free from weeds during the season. The sowing is done in April, and the sets are ripe in August. It is estimated that about 40 lbs. of seed are required for an acre, and that a pound of seed will, under favorable circumstances, give three or four bushels of sets.

Many Questions.—A letter containing from ten to twenty questions on widely differing subjects is very likely not to be noticed, as long as there are letters with only one or two queries awaiting a reply.

Peas.—"E. W. J." asks how to tell when peas are large enough to pick "without pinching them."—One familiar with peas can tell by the looks of a pod whether it is "filled" or not.

Excellent Schools for Young Ladies.—The opening of a portion of the N. Y. and Midland R. R. has brought into direct connection with N. Y. City and the rest of the country, the beautiful and healthful village of Ellenville, Ulster County, N. Y., where is located the Ulster Female Seminary, under the care of S. A. L. Post, A. M., Principal, with an excellent corps of teachers. Mr. Post, a graduate of Yale, in 1853, has had long experience as principal and teacher, and this, with the choice character of the School, the desirable location, the family and parental care given to the pupils, and the low rates for board and tuition, renders the Ulster Seminary a desirable institution to parents having daughters to be educated. For particulars, address the Principal as above.....Miss M. Macgregor has for several years past maintained a most excellent Boarding and Day School for girls and young ladies, at Flushing, Long Island, and has given great satisfaction to parents desiring their daughters to secure a thorough education under a conscientious, faithful, and competent teacher. At the desire of many of her patrons, she has purchased the commodious residence and beautiful grounds of Orange Judd, Esq., to which she will remove May 1st, and be prepared to receive, under her direct family care, a limited number of young ladies. From our personal knowledge of her competence, we unhesitatingly commend Miss Macgregor's school to the attention of those who are fortunate enough to secure a vacancy for their daughters in her family. Flushing has long possessed one of the best boys' schools in the country, the "Fairchild Institute," and the opening now of Miss Macgregor's School in the new location, will enable parents to place their children of both sexes in institutions located in the same town. Flushing is a most beautiful place, seven miles east of N. Y. City, and connected with it by railroads furnishing communications at all hours of the day.

Hoop-poles.—"E. H." wants information about preparing and selling hoop-poles. Will some of our readers furnish it?

SUNDRY HUMBUGS.—We note with pleasure that the *N. Y. Tribune*, *Sun*, and a few other journals, have recently been using the cudgel upon some of the swindlers. Now, let these journals exclude all humbugs from their advertising columns, and then constantly keep up a fire upon the swindling establishments, and they may help save to the people a vast amount of money. Right glad would we be to enjoy a rest and let our cotemporaries take the field.

An Ohio correspondent asks us to ventilate the case of a man hailing from Cleveland, who is traveling as agent for certain N. Y. papers, but apparently pockets the money. The particulars and proofs given are too indefinite for us to make out positive charges in this case; but we may say in general that care and discrimination should be used in paying over money to agents far from home, without positive evidence of their reliability. .....A Providence, R. I., chap, is writing letters to distant people, pretending that some aged relative of theirs has recently died, and that he, as attorney, has documents for securing them $800 each as heirs; and here comes in the milk of that cocoa-nut—he wants $20.50 cash, for preliminary expenses. This is an old dodge, often revived, with variations..... Advertisements for a proposed new journal on gardening, to be issued in this city, are being solicited, and we are asked about it. We suspect it to be a covert scheme, especially as no location is given, except a P. O. Box number..... "B. Fox & Co.,' a suspicious name, ought to have a local habitation and number, to keep all the immense assortment of things he advertises by printed circular to supply; but he is only to be reached by mail at "Station A." Any man who will offer to youth, as he has done, or to old people either, such villainous things as are found in his catalogue and description, would not be a very safe person to send money to, even for the good things he offers.

Cheap Sewing Machines have often been referred to, and we will here only add: First: Buy no machine to be turned by hand—that is, no one without table and foot-pedal. Second: Send no money for any new, cheap machines, until you have seen one of them well tested and approved. Third: Accept no "agency" from any one asking a portion of the money in advance with the balance C.O.D. Fourth: Accept no agency for sewing or knitting machines from parties resident in large cities who omit to tell you on what street and at what number they may be found. Fifth: As a rule, the $5, $10, and $15 machines are not worth a sixpence, except as old metal, *no matter* how strongly commended by certificates on paper. These certificates are readily manufactured by the thousand. The pretended signers are seldom to be found when you go to their reported residences..... "Family Rights" to make Baking Powders, Soaps, etc., etc., are extensively offered to "agents" at a tremendous discount. We are safe in asserting, from no little investigation, that most, if not all these are humbugs. A lot of printed recipes, costing less than a halfpenny each, and of no value, are sold at $15 to $50 per 100 to agents who are advised to sell them at $1 or more apiece; sometimes nothing is returned for money forwarded.

Among the new names of those pretending to supply counterfeit money, we have: J. B. Page & Bro., 200 Broadway, who have the impudence to promise "fair dealing," etc.; Day & Wallace, 143 Fulton-st., N. Y., who advise you to "invest with them all the money you can spare;" Daniel H. Kappock, 35 Liberty-st., or No. 11 Ann-st., Room 8, who pretends to have got your name from a neighbor of yours; Albert H. Smith, 22 Ann-st., Room 6; Wm. Wade & Co., 59 Cedar-st.; Albert J. Hackett, 85 William-st., who sends out genuine $1 and $2 bills to promising customers, as samples of his immense stock, expecting these will bait on his victims to large investments in sawdust boxes; Samuel Davis & Co., 34 Liberty-st., who can't get any thing through the Amer. Merchants' Union Express; E. D. Milton, *alias* Thos. Morgan, 599 Broadway. Several of these offer tobacco stamps, and nearly all urge you to call at their dens, of course to get robbed of all you carry with you, as we have previously explained. That these parties find enough other would-be swindlers green enough to bite at the bait, is evident. We have hundreds of their circulars coming in from all directions, and especially from the South and West....."Spanish Policy" is a humbug. Neither Ed. A. Blanchard & Company, nor Oliver Elmore & Co., 102 Nassau-st., nor any other so-called agents, will keep any promise to send a $200 watch on receipt of $10.50.....We make no exceptions, in warning our readers against *all* gift enterprises, whether ostensibly gotten up for foreign sufferers, or professed good home objects. Even when genuine, if there be such, a large percentage of the money goes into their pockets, and a very small one reaches the objects of sympathy. On the average, $1 sent as a direct contribution to responsible parties, is of far more value to the sufferers than $10 sent through any gift enterprise. It is not worth while to lose the other $9 for the very remote chance of yourself getting some enormously over-valued "prize." This is a plain, common-sense view of all these benevolent gift enterprises... ..Circulars of Wood, Mt. Vernon, N. J., continue to come. He has been too frequently exposed to need further caution to our readers.

If there were no fools, or very ignorant people left, such operators as "Dr. F. E. Andrews, of Albany." (and 404 East 58th-street, New York,) would shut up shop and seek a respectable employment..... A Detroit, Mich., man, offers $76,995 in Premiums, including a $42,000 Steamboat, a $9,000 House, and $25,000 in Cash, as premiums for 40,000 Subscribers, at $5.00 each. Whew! Will any body get *any* prize if only 39,999 subscribers can be secured? As only 1,393 subscribers get prizes, how about the other 38,607 subscribers who pay $5.00 apiece! Suppose a back-woodsman should draw the steamboat, what would he do with it? Will the publishers take it off his hands? and, if so, how much will they pay for it in available cash? Ditto of the "House and lot."....Remember that all offers of gratuitous cures for consumption, private diseases, etc., etc., whether by Rev. Wilson, Inman, Reeves, or a hundred others, contain a very large "cat in a meal-tub," and that the free offers will amount to nothing until they get some money out of their victims, and not any thing then either.

Young men and others should know that every single one of the Doctors, Howard Associations, Medical Universities, etc., that advertise to cure or remedy 'private diseases," "errors of youth," and preventive powders, pills, etc., is a downright humbug. We know there are no exceptions to this sweeping statement. We have received accounts of multitudes of cases where these operators have squeezed the last dollar out of their victims, and without any benefit in return. The details are not proper for publication. Albany, N. Y., has several of these swindling, self-styled Doctors. Philadelphia is also a sort of headquarters, and N. Y., Boston, Cincinnati, Chicago, etc., are not without a few of them ..... Every advertising "Indian Doctor," and "Cancer Doctor," is a humbug. We *know* there are no exceptions.

Thornless Honey Locust.—"L. P.," Alsbach, Mo. This is no novelty. It was figured and described 75 years ago. The variety has been for a long time in cultivation, as there is a tree of it in England over 60 feet high. As an ornamental tree, it is preferable to the ordinary form, which is often annoying by dropping its thorns.

Hedge under Trees.—"W. B. E.," Plymouth, Ill., has maple-trees 20 feet apart, and wishes to make a hedge between them. The roots of the maples completely occupy the ground, and it will be very difficult for a hedge-plant to live close to the trees.

Steam-engines for Farm Use.—Messrs. Wood, Taber & Morse, Eaton, N. Y., send us an exceedingly neat pamphlet, which, though particularly intended to describe their own engines, contains items of interest to all who contemplate using steam as a motive power, or for cooking food. The engines made by W., T. & M. have a good reputation.

Barn Weevil.—G. W. Allwright, Isabella Co., Mich., writes that powdered lime, sprinkled over the grain and on the barn floor, will cause the weevils to "emigrate to a more congenial climate."

Bones for Hens.—"F. M. T.," Buffalo, N. Y., finds great benefit from feeding *unburnt* bones to hens. He breaks them up in an iron mortar with a cover to it.

Raising Turkeys.—"B.," Vt. As a rule, we think it best to confine the hen in a coop until the young turkeys are a month old; although in a very dry season we have sometimes had better success by letting them run at large. As to who has choice poultry to sell, we must refer you to the advertising columns of the *Agriculturist*. We hear a good many complaints of the firm you allude to, and do not allow them to use our advertising columns.

How to Introduce Agricultural Implements.—A subscriber of the *Agriculturist* in Ohio writes that he has a neighbor who has "invented a hay-fork that has taken the premium over all other forks at the County Fair, and wherever exhibited, and it is thought by those who have tested it to be the best that has ever been invented. I would be pleased to know the best method of introducing it to the public favor." The best, and cheapest, and speediest method of introducing all good things is to advertise them in the *Agriculturist*.

Farmer or Carpenter.—"E. L. E." is the only son of a Tennessee farmer of 160 acres, and writes us that he is "ingenious and apt, and has some notions of learning the carpenter's trade. Would you advise me to do so, or stay on the farm?" If your father wishes you to stay on the farm, do so; you will find abundant exercise for all your ingenuity; but if your father thinks you had better be a carpenter, follow his advice, and make up your mind to be a good one.

Peruvian Guano or Poudrette.—Mr. Edmund Lee, of Florida, asks what he had better buy, poudrette or Peruvian guano—freight from New York being $3 per bbl. We should prefer the guano.

Curry-combs and Brushes.—"G. P.," Eureka, Mo., writes: "Please tell us something about curry-combs and brushes. I cannot do without them; and still, after trying about half-a-dozen kinds, have not found anything to suit me." As a rule, the curry-comb is used too much, and the brush too little. When a horse is brought into the stable, covered with sweat and mud, he should be rubbed dry with straw. Then, the next morning, with a curry-comb in one hand and a good brush in the other, he can be thoroughly cleaned—the curry-comb only being used to straighten the hair ahead of the brush. The difficulty about getting a good curry-comb arises from the neglect to rub the horse clean with straw before leaving him for the night. Much care should be used in cleaning a horse's legs with a curry-comb, so as not to injure the joints.

Charcoal for Earth-closets.—Inquirer.—We cannot state the value of charcoal as a

fertilizer, after having been used as a deodorizer in an earth-closet. In one of our southern cities (New Orleans) charcoal is used exclusively as a substitute for earth, and the deposits from the closets find ready sale through a Fertilizing Company of that city. Charcoal applied directly to the garden would be of little use, except mechanically, on a stiff soil. Its proper employment would be as an absorbent in the compost-heap.

The Tea as an Ornamental Shrub.—Mrs. P. M. Edmondston kindly sends us from North Carolina some tea nuts, and states that she highly prizes the shrub as an ornament to her garden. It grows 10 feet high with her, and is an evergreen, which has endured the severe cold of the past winter without injury. With protection, it would be hardy further north. Mrs. E. prepares from the leaves tea of satisfactory quality.

Vegetables and Fruits.—"G. W. L.," Dacosta, N. J., offers the following as defining the difference between vegetables and fruits: "Fruits are the production of plants which live through the winter, vegetables are grown from seed planted annually."—Under this classification melons would be vegetables and asparagus a fruit!

Tame Deer.—"H. G. P.," Weehawken, N. J. We cannot answer your question; but had you signed your name, as every man who writes a letter should, we should have taken pleasure in referring you to one who could give you the information you seek.

Pomegranate.—Mrs. J. C. Agard, Tolland Co., Conn., has a dwarf pomegranate, leaves of which turn yellow and drop off. If she will put her plant in the cellar during the winter, it will start into growth when brought out in the spring.

Fattening Chickens.—"P. H.," Burlington Co., N. J., gives the following account of an experiment in fattening fowls: Weight of 25 chickens before fattening, 85½ lbs. After feeding 12 days, weight, 98 lbs.; weight when dressed, 92¼ lbs. The food given was 4½ pecks of corn, 1½ pecks cracked corn, and nothing but pure water to drink.

Osiers.—M. Leroy, Hancock Co., Ill. The profitableness of the osier crop will depend upon facility for marketing. Good canes meet with a ready sale in New York. They are always sold with the bark removed. There are several willow-peeling machines, but we do not know the names of the makers. We have no statistics to show the profitableness of the crop.

Pear-Tree in a Garden.—"E. D. W.," Cheshire, Conn., says: "There is a large pear-tree in my flower-garden. In spading up the garden, five years ago, many of the tree-roots were broken off. These now sprout up, and with the flowers I have numerous little trees. It becomes worse each year."—We are afraid that our correspondent must give up either his pear-tree or his flowers. If any one will suggest a remedy in his case, we shall be glad to publish it.

Brushing Peas.—C. W. Judd, Mass., proposes to suspend the brush from poles supported above rows upon crotched sticks. He thinks that this will present the spray of the brush to the young plant more perfectly than the usual manner of setting the brush. The objection to this plan is the difficulty of keeping the brush from being moved about by the winds. Where white birch is plenty, most excellent pea-brush can be obtained, and one can hardly invent any thing better.

Large Duck's Egg.—Mr. Wm. Crozier, Northport, L. I., sends in a Rouen duck's egg which measures 9¼ inches in its circumference, lengthwise, and 7¾ the other way, and weighs 6 oz. Who beats that?

Windmills.—A subscriber from Illinois writes: "I see that Col. Waring gets his corn ground at a windmill; now the thing I would like to know is, can a windmill be used to grind corn? Is it strong enough? And how many feet must it be in diameter to be three horse-power strong?"—This not only can be done, but has been done for centuries. In many parts of Europe, where there is no water power, previous to the introduction of the steam-engine, no other means of grinding were known, and windmills are still in use. The mills still standing on the Island of Rhode Island, have five arms, from 26 to 30 feet long, carrying a frame-work some 5 feet 9 inches to 6 feet wide, set angling to the wind. When it is desired to work, canvas sails are unfurled, and made to cover the frame-work. In light winds the whole sail is used, and in very high winds only a small part. The shaft to which the sail-arms are attached is fastened to the hood of the building, which, by a cog-wheel arrangement, can be turned, so as to make the sails face toward any point of the compass from which the wind may be blowing. The modern self-regulating mills have their sails arranged to occupy the entire area of the circle, and they are kept face to the wind by large vanes, working like a weather-cock. The sails are made of wood, arranged like window-blinds, so as not to offer too much resistance to a gale. These sails, furthermore, adjust themselves to the force of the wind, sometimes presenting more and sometimes less surface. Probably such a mill as this, to give three horse-power in an ordinary wind, should be about 20 or 25 feet in diameter.

Poultry Manure.—Mr. Geo. Hoover, of Stark Co., Ohio, has about fifteen bushels of poultry manure, and asks how he shall apply it to corn.—The best way will be to mix it with twice its bulk, or more, of dry earth, or dry coal-ashes, turning the heap several times to mix it thoroughly. Then give it a good wetting in every part, make it into a compact conical heap, and cover it with 2 or 3 inches of fresh earth. It will soon ferment, and the manure will disappear, diffusing itself throughout the mass. This compost may be used in the hill, but should not be allowed to touch the seed, lest it cause it to rot.

Buying Manure.—A correspondent asks: "What can I afford to pay for manure; I live half-a-mile from town?"—The answer to this question depends entirely upon circumstances; on the amount of grain fed to the animals making the manure, on the work they are doing, on the amount of litter that has been used in making it, or its degree of fermentation, or the condition of the land to which it is applied, and on the value of the crops that are to be grown by it. It may be worth from $1 to $25 per cord, according to the circumstances named above. There is no safe rule, except the local custom. The price of manure is regulated by the farmers who buy it. As a general proposition it may be stated, that it is a good purchase at its market price, for farmers will not habitually pay more than they find profitable. The writer has purchased this spring forty cords of manure at $8 per cord, delivered, made by artillery horses, receiving twelve quarts of grain and doing very little work. The tobacco farmers on the Connecticut River pay $15 per cord for manure of the same quality, and haul it five miles or more.

Jersey or Alderney.—"M. K. G." asks the difference between Jersey cattle and Alderney cattle. So far as the animals in this country are concerned, there is not necessarily any difference—that is, Jersey cattle are called Alderneys, but the same name also applies to cattle from the Island of Guernsey, which are very different from those from Jersey. We know of but one animal in the country from the Island of Alderney, and she looks like a Jersey.

Night-soil.—Henry Anderson, of Jamaica, L. I., has a nice light loam, about 4 feet deep, with a sandy subsoil under it. He can get plenty of night-soil, and asks advice as to the propriety of using it, and the best mode of application. The land is very poor. If there is either grass or grain on the land, the best plan will be to apply the manure broadcast, at the rate of from ten to twenty loads to the acre. If the manure is to be used for hoed crops, a night-soil bank should be made by throwing up a ridge of earth about two feet high, inclosing a space—say ten feet square. Fill this half-full of night-soil, and then throw in earth enough to absorb all the moisture. After standing a couple of weeks, the mixture will be entirely inoffensive, and may be used like any other manure, in a hill or otherwise. There is no better manure for any crop than human excrement.

Setting Milk in Summer.—A milkman in Paterson asks if there is any method of treating milk in summer to prevent its souring—say within 24 hours, and at the same time not to injure its quality. We know of no method except that of cooling the milk immediately after it is drawn, and setting it either in a very cool milk-room, or in vats of ice-water.

Cotton Seed vs. Plaster.—"J. H. M.," of Tennessee, says he can buy cotton-seed at $9.00 per ton, and Virginia plaster costs $8.00 per ton, and asks which is the cheaper manure? These articles are so unlike in their action, that we cannot compare the two. We should use both, especially if the cotton-seed can first be used for food and afterward for manure.

Fall-Fallowing.—A correspondent in Conn. writes: "I have been much interested in what 'Walks and Talks' says about fall-fallowing. I had supposed that fall-fallowing made the land poorer." Fallowing not only destroys weeds, but develops the latent plant-food in the soil. If the crops are all removed from the land, and no manure is returned, fallowing is an impoverishing process. But if the crops are fed out on the farm, and the manure returned, fallowing will make the land permanently richer and more productive.

Are Chester White Hogs too Coarse?—Mr. R. S. Hinman, of Conn., writes: "'Walks and Talks,' says that the Chester Whites he has seen, 'are altogether too coarse.' I have some Chester Whites that were obtained from Chester Co., Pa., which are believed to be pure bred, and some of my neighbors object to them because they are *too fine*. They are remarkably easy to fatten, and spring pigs weigh at nine months old about 250 to 275 lbs." Have they not got a dash of Suffolk blood in them?

Plants for Rock-work.—In an article on rock-work given last March, we promised to enumerate some of the plants suited to planting upon it. We name some of the most readily obtained. Plants of a trailing habit are particularly useful upon rock-work. Among them are the Ivies, several species of Clematis, Ampelopsis Veitchii, Money-wort, Vinca (Myrtle), especially the variegated. Among our native plants are Liverleaf (*Hepatica*), Wood and Rue Anemone, Columbine, Harebell (*Campanula rotundifolia*), *Corydalis glauca*, Dutchman's Breeches, or Squirrel Corn, Moss Pink, Bloodroot, Two-leaved Solomon's Seal, Bird's-foot Violet, Prickly Pear. If we were to turn to the nursery catalogues a very long list could be made out. Most of the Sedums and Houseleeks are excellent for rock-work. The beautiful Sedum Sieboldii, both plain and variegated, makes a fine show if placed so that its pendant branches can hang over the edge of a rock. Some things may be raised from seeds, such as Arabis alpina, Aubretia deltoidea, Alyssum saxatile, Iberis sempervirens, Tunica Saxifraga, Saponaria ocymoides, Cerastium tomentosum, Calandrinia umbellata, Campanula Carpatica, Myosotis, several species, Androsace, etc. If it be desirable to make a show with annuals, before the perennials become established, Portulacas, Dwarf Tropæolums, etc., may be used.

Sows Eating their Young.—A New-York subscriber of the *American Agriculturist* has a "very fine sow that had a litter of 14 pigs, which she ate all up a few hours after they were born;" and he asks us what he can do to prevent her eating up her next litter? We answer, make her fat, and then kill the brute. But, are you sure she did eat the pigs alive? We have seen sows eat up their own dead pigs, and have had sows eat up other sows' little pigs, but never happened to have a sow that ate her own live pigs. A number of remedies are suggested for this evil, such as making the sow drunk, or giving her succulent food, or bran, or oil-cake, to prevent costiveness, for a week or ten days before she is expected to come in. The latter is certainly good practice, whether it will or will not prevent the evil. Perhaps, giving her plenty to eat, would also modify her unnatural craving for animal food. A sow that could eat up 14 little pigs in an hour, weighing a lb. each, could not have had her stomach greatly distended with food before she commenced her meal. The best remedy, however, is the butcher's knife. A breed that produces such sows ought not to be propagated.

Plan of a Hog-pen wanted.—N. R. Pierce, of Iowa, writes: "I want Mr. Joseph Harris to inform me through the *Agriculturist* the best style of hog-pen for a farmer keeping some 75 hogs."—In his book on the Pig, Mr. H. has given several plans of pig-pens, and among them a plan of his own piggeries, which are cheap and simple, and well adapted to his wants; but probably some of our Western breeders can furnish a plan better suited to the requirements of a Western pig-breeder, and we should be glad to hear from them.

Plowing under Clover vs. Feeding it Off.—An Indiana farmer thinks there must be some mistake about our assertion that animals do not remove more than 5 per cent of the ingredients of food most valuable for manure. We cannot give our data for the assertion, because it is based on Lawes & Gilbert's experiments, the results of which, on this point, are not yet published. And we presume the investigation, though commenced over twenty years ago, is not fully completed. From private information kindly furnished us by Mr. Lawes, however, we think it will be found that these figures will not vary far from the truth. Even if as much as 10 per cent of nitrogen is removed from the food, it seems a great waste to plow under a good crop of clover hay. But our correspondent must determine the question for himself.

How much Corn can a man Husk in a Day?—In a late number of the *Agriculturist*, "Walks and Talks" desires information concerning the amount of corn that can be husked by one man in a day. Two of my neighbors, B. Funk, and L. Funk, tried their skill for half a day. Each husked seventy (70) bushels ears of corn. Another person husked eighty-three (83) bushels in five hours and twenty minutes, and eighteen years ago the same person, in the working hours of one day, husked one hundred and forty-five (145) bushels ears of corn. In each case the corn stood in the hill and was untopped. Four rows being thrown in one row of piles. The above can be proved correct. C. C. F., Rowsburgh, O.

Selection of Dairy Cows.—D. C. Scofield, of Ill., writes: "Cows of extraordinary milking qualities are found as often among *native* as among grade and thorough-bred animals. The greatest milker that has come under my observation was a native. She would fill two pails of two-and-a-half gallons each, or five gallons at each milking, during four or five months of the year. The best milkers in my dairies have been, with few exceptions, natives. The grades of Durham and other stock, never excelling. As a rule, the progeny of these extra milkers become the best cows; and every heifer calf from such should be raised, except it fail to carry the prevailing mark indicating a good milker. This mark is the upward growth of the hair on the inside of the thighs of the calf from immediately behind the udder, as high as the hair goes. If it be found running up in a smooth, unbroken column, all other things being equal, with good care and continued thrifty growth, there will scarcely be a failure. But whatever extraordinary qualities the cow may possess, unless this mark is found on the calf, it is not worth raising for a dairy cow. There are several other signs, or conditions, indicative of valuable milking qualities, some of which attend the first described. Smooth and fair-sized teats; a large and long milk vein; slim neck; and sometimes six teats; a yellow skin apparent about the eyes and nose, and other bare spots, are indications of rich milk, and one of the characteristics of a good cow."

Colic in Pigs.—"A. J. M.," of Rhode Island, writes: "I have a pig three months old, which eats and grows well, but has spells of falling down, trembling all over, breathing fast, and squealing frantically."—He probably has the colic. For immediate relief, give two table-spoonfuls of castor-oil and fifteen or twenty drops of laudanum. But try to discover and remove the cause. It is probably indigestion. Do not make his food too sloppy, but see that he has a daily supply of fresh water in a separate trough from the food. Give him a little glauber salts—say not more than the size of a wheat kernel, given with his food three times a day; given in these small doses, they seem to have a wonderfully beneficial effect in correcting the disorders of the stomach and bowels.

Boughton Wheat.—"T. P. C.," Perry Co., Pa. The Boughton is not a new variety. We have known it in Western New York for a dozen or fifteen years. It was introduced there from Maryland. It ripened early, and could be grown in sections, where the Sonles was seriously injured by the midge. It never became, however, a favorite variety. On good, rich land it produced a fair crop of handsome wheat, but in unfavorable seasons, or on poor, undrained land, it was apt to winter-kill. The Diehl has all the good qualities of the Boughton, and is early enough to escape the midge, and is not so liable to winter-kill, or be smothered by heavy snows. We believe the Tappahannock, Boughton, and Early May are one and the same variety.

Norway Oats.—Thomas P. Cochran, of Penn., writes: "Last spring I got of Ramsdell & Co. one bushel of Norway oats, for which I paid $7.00. Sowed them on ¾ of an acre of good black, flint loam, early in April. Yield, 12 bushels of poor oats. As nice a swindle as ever was got up."—We ["Walks and Talks"] never had any faith in Norway oats. But it is evident, in this case, that there was something wrong either in the soil or season. People "swindle" themselves, when they imagine that there is any breed of animals or variety of plants that will give great returns without food and care. All that can be claimed for the Norway oats is, that in favorable conditions of soil and season, they give a large return of a somewhat inferior product.

Cranberry Lands.—"New Subscriber." New Jersey is the great cranberry region. We gave the whole story of Cranberries upon Uplands in November last.

Chinese Yam.—C. W. Mills, Rome, Ga. The tubers are usually sold by seedsmen, but are rather scarce this year. Ordinary price is $2 per dozen. The small bulblets may be had. The great depth to which the tubers descend, and the consequent labor of digging, is the reason the plant is not grown more. It is perfectly hardy at the North.

Earth from Under Old Houses.—J. A. Forney, Mo., states that during the war he saw a great deal of saltpeter made, by leaching the earth taken from under old houses, evaporating the lye, and allowing it to crystalize. He asks if earth of this kind is not valuable as a fertilizer?—Certainly, any earth containing nitrate of potash or saltpeter is valuable as a fertilizer. For a similar reason the lime rubbish from old houses, which contains a considerable portion of nitrates, is much valued by gardeners.

Raisins.—"J. W.," Shirley Village, Mass.—Raisins can not be made from any American grape. The grapes raised in Califoroia are European varieties, some of which make raisins.

Gang Plows and Percheron Horses.—A Constant Reader asks: "Do Gang Plows pay?"—Double ones do...."Do they work well on ordinary prairie land?"—Yes...."Would not a pair of large Percheron horses handle a gang plow, carrying two shares, with sufficient ease?"—Yes...."And, altogether, would it not be a good investment for a young man just 'entering the profession' of farming?"—The Percherons would be the greater investment, and a very desirable one they would make. Two or three young Percheron mares from which you could get two colts a year would do all your plowing, and bring a large increase besides. You would have to import them. The gang plow, or double plow rather, drawn by two or three heavy horses, is just what is wanted for the prairies.

Will Fish Breeding Pay?—"Subscriber," of Lewisburg, Preble Co., O., describes his water privileges, and asks advice, which, as we are not practical pisciculturists, we shrink from giving; and were we to answer the questions simply, it would require pages. Write to Wm. Clift, Mystic Bridge, Ct.; Dr. Slack, Bloomsburg, N. J.; or S. H. Ainsworth, West Bloomfield, N. Y., for advice. If good fish are so abundant in your vicinity as you state, it would hardly pay; but in most parts of the country they are not, and it would pay to raise them.

Where to Locate.—A gentleman in St. Louis, who "can't stand the summers there," and who is tired of commercial life, wants "a good country home, with enough land to furnish butter and milk, fruit, vegetables, etc., for the small family, and food for the animals on the place. Does not want to farm for profit, but for health for himself and his family."—He wants us to tell him where he had better locate. Of course, we do not propose to tell him. He must decide for himself. There are thousands of just such places as he wants. If he doubts it, let him advertise in the *Agriculturist*. And then let him visit all the places offered him. He will thus find abundant occupation for a year or two, and the travel and change of air will do him good. But seriously, and in point of fact, such a place as he wants is hard to find. A small farm in good condition, with a comfortable house and well-arranged barns, ice-house, garden, fruit and ornamental trees, with a well-made lawn and good roads and walks, is a rare thing to find, and, when found, the owner does not want to sell it. For a bracing atmosphere and charming scenery we should look among the hills and valleys of New England—say Berkshire County, Mass. With money enough, some charming places might be found on the Hudson. If good land is desired, in addition to charming scenery, it may be found among the Lakes in Western New York—say New Aurora, Geneva, or Canandaigua.

Boiled Corn for Hogs.—W. H. Barnes, Anderson Co., Kansas, asks: "Why is it that my pigs will not eat boiled or soaked corn?" He says: "They will run about and squeal and fret with their trough full of boiled corn, and if boiled corn and raw corn are scattered together in the pen, they will sort out the raw corn and leave the soft boiled corn. Nothing but hunger will drive them to boiled corn."—We presume they ate it greedily at first, but they want variety. Potatoes would help the matter.

Locality for Market and Fruit Gardening.—Book-Farmer asks if a place on Long Island, 25 miles from New York City, would be a suitable locality for him to raise fruit and vegetables for the New York market, and what kinds he shall raise.—We think 25 miles rather too far out to profitably raise fruit or vegetables for New York; the distance should not exceed 10 or 15 miles from Washington or Union markets, New York, for the reason that, for the business to be profitable, particularly for vegetables, the less handling the better; and if you are within the distance named, they can be carried in and sold out of the wagon without removal. For the kinds of vegetables best adapted for market, we refer you to Henderson's "Gardening for Profit;" of fruits, to Fuller's "Small Fruit Culturist," both of which are sold at this office.

Swamp-mud Ashes.—"A. J. M." If they can be readily gathered, they are well worth drawing and spreading on upland.

Interested Recommendations.—C. Thurston asks: "Is it not a fact that nearly every thing connected with farming is only or mostly recommended by those who have the articles for sale?"—As far as the Agricultural Press is concerned, we can say decidedly no. There may be exceptions to this, but as far as our observation extends we think that the leading agricultural papers throughout the country praise or condemn implements, seeds, breeds of stock, and other matters, without the least interest whatever in the articles under consideration. A few papers published in connection with stores and manufactories are of course mere advertising mediums, and it is well understood that they are such. We often request a person to give us an account of an article that he is engaged in raising, when this is the only way in which we can get the information required.

Large Eggs.—A. Clark, Passaic, N. J., brings in four hen's eggs, which weigh 15½ oz. The largest one weighs 4 oz., and measures 8½ inches in its largest circumference. Who can beat it?

Smut in Wheat.—H. Boand, St. Paul, Minn. The "black" upon wheat is called smut, and the use of blue vitriol that you have seen in Switzerland is common here as a preventive.

Gas-lime.—"S. R. H.," Hadlyme, Conn. It has frequently been stated in these columns that gas-lime that has been exposed to the air for some time may be used wherever other lime would be beneficial.

Importation of Poultry.—Mr. G. H. Leavitt, who makes a specialty of Cochins, has recently imported four hens and a cock each, of White and Partridge Cochins; birds which have taken prizes at recent shows in England.

Timothy in Pa.—Warren Brink, Pike Co., Pa., thinks that his region is especially favorable to the growth of timothy. We are disposed to agree with him when he states that on new land the stalks are six feet high, with heads 10 to 12 inches long.

Rye, and Abortion in Cows.—"E. R. W." fed his cow with 8 or 10 quarts of unground rye a week, for two or three months previous to the time of calving. The cow dropped her calf prematurely, and asks if this was due to the rye.—Rye is often more or less ergotized, *i.e.*, infested by a fungus. Ergot is one of the most powerful of known agents for producing abortion. It is very probable that some ergot was mixed with the rye, and that the effect is due to this rather than to the grain itself. What say others?

Kerry Cows.—Mr. Ezra Drew, of Orange Co., N. Y., wants to know where he can get Kerry cows, and whether they would be profitable on a mountain farm. The late Sanford Howard visited the native district of the Kerry cow, and spoke of them in the highest terms. Some of them have been imported, but we do not know whether they have proved any better than some of our small, hardy, native cows.

The Trophy Tomato Premium.—A premium of $100 is offered for the largest tomato that shall be grown during the coming season from Colonel Waring's Headquarters seed. Those to whom seed has been given as a premium for subscriptions to the *Agriculturist*, or *Hearth and Home*, can compete for the ize. The fruit is to be sent by express, prepaid, to the office of this paper. The award will be made by the Editors, and will be given to the largest (heaviest) fruit that is perfectly ripened, and free from irregularity of form. Hundreds of persons have announced their intention of competing for the premium; and it may not be amiss for us to give a word of advice to such of our readers as desire to enter the lists. The *secret* of raising large and smooth tomatoes (it being understood that the seed of the best-selected fruit is a *sine qua non*), lies in giving them an abundant supply of water; not so much during

the early growth of the plant, for at this time they usually get enough from rains, but especially during the ripening of the fruit, and in keeping the soil about them thoroughly stirred. We venture to predict that the prize will be awarded to the product of a plant about which the ground has been hoed every morning and watered every evening. A good amount of leaf should be left on the vine, but not in a position to shade or shelter the few specimens of fruit that are left after the severe thinning out that great size requires. While the fruit is green, its surfaces perform the office of a leaf, and it feeds itself directly from the atmosphere, and, therefore, there should be a free circulation of air about it. During its ripening it needs the fullest measure of direct sunlight. If the vine can be allowed to trail on the ground—the fruit being slightly elevated by little mats of straw—it is believed that the growth will be larger than when trained on a trellis, the whole weight of the fruit coming upon the stem. Mrs. Caroline Graves, of Dubuque, Iowa, says that she has raised the tomato from selected fruit, weighing from 1½ lbs. to 2½ lbs. She did not prune her vines at all. Her plants were raised in hot-beds, covered with muslin instead of glass.

Fodder Corn.—M. J. H. Foster, of Greeley, Colorado, in a letter to "Ogden Farm," says: "One season I grew in New Jersey as high as five acres of fodder corn for winter feed. I had no scales with which to ascertain the weight per acre produced; but I became convinced that it was fully three times what the same land would have produced in timothy hay, besides which it was much better for milch cows. The land was not rich, was strong and soddy, and the hired boys (as they will generally) sowed it too thickly. My rule was to grow ten stalks per foot of row. On this land I only wanted six per foot, but I got nearer fifteen; consequently, it did not grow over four feet high. It was supposed to have but few "nubbins" in; but when we came to feed in winter, the dung of the cows was freely interspersed with undigested grains of corn. There was evidently far more grain upon it than we thought there was. I never had cows do so well. I fed horses on it for two months or more without any grain, and they did well, and worked moderately, doing the usual winter hauling. I never had any trouble in curing. I used to cut it up, and place it in shocks of the same size as one hundred hills of corn would make. Delayed cutting until late—say ten days before we expected frost. Generally, though not always, I let it wilt for a few hours before shocking, cutting *from the time the dew was off* until about 2 P. M., then shocked up. I do not know that wilting is necessary. In pleasant weather, in December, we divided the shocks in four, tied with rye-straw, and hauled to the barn; never stowed it more than six feet deep in the mow. If the shocks are well made, it will keep nearly all winter in the shock. The leaves get matted on the outside, and turn the water nicely."—(Note.) The foregoing indicates the value of corn fodder in an unmistakable way; and we have no doubt that, when grown to the degree of ripeness described, the question of curing for winter becomes very simple. It can hardly be doubtful, however, that the fodder would be more nutritious, if cut when in blossom, rather than after the grain is ripened. The question to be decided is, whether, while the stalks are full of sap—a sap containing a good deal of sugar and other matters that ferment readily—it will be practicable, without the aid of artificial heat, to cure them so thoroughly that they will not spoil. If this can be done at all, we believe that it will be by the aid of very thorough wilting before shocking, by putting the shocks into small stacks as soon as they are dry enough, and by postponing the hauling into barn until cold weather. It is very doubtful whether fifteen plants to the foot, or even thirty, would be too many, if the land were in the condition best suited to the growth of fodder corn—that is, in good tilth and perfectly *gorged* with rich manure.

Bee Notes.—*By M. Quinby.*

When the weather is wet or cold for a few days, light colonies will need especial care to prevent starving. In favorable springs a small proportion of stocks will swarm during the blossoming of apple orchards. Many will swarm about the time these blossoms disappear, but not generally until clover comes. Bees that do not gain in honey during the season of apple-blossoms, will be quite sure to need feeding before that time. A knowledge of their natural history is quite as convenient this month as any other. The appearance of the queen-cells indicate when to expect swarms. With the movable comb-hive it is only necessary to quiet them with smoke or sugar-water, when the frames can be lifted out and seen. The box-hive must be inverted. The examination is more difficult, and the results more uncertain, but with smoke it can be done. The queen-cells are generally found on the edge of combs, from three to twenty in number. The open end being downward, the contents are easily seen. They are sealed up when about an inch long, when, if the weather is fine, the old queen leaves with the first swarm. The advantage of being tolerably sure when the swarm will appear is obvious. They will be a little in advance or behind this period, in proportion as honey is plenty or scarce. If through neglect it is uncertain whether a hive has swarmed, and none of these cells are found occupied, it is evidence that they have not. Second and third swarms, hived now, will be likely to get enough honey to winter them, unless the season is very poor. This may be done when increase of stocks is more desirable than box honey. Have all hives clean and somewhat rough inside. Swarms should be hived immediately after clustering. Get all in, if possible. Stir them gently, or sprinkle with water, if obstinate. Set them on the stand at once. Raise the front one-half inch and protect from the sun. I much prefer artificial swarming, being careful to do it only when the bees are getting honey and seem prosperous. More of this in the season, but 'tis well to think of it now.

Those that have practiced transferring from the box-hive to the movable combs, and prevented swarming altogether, have obtained so much better results that I cannot avoid giving directions for doing it, and will follow next month with others, for the transferred hives or non-swarmers. Any time before the 25th of May in this latitude, the box-hive may be treated as follows, and the best results realized: The hive, frames, and comb, being ready, proceed to raise the hive a little, and smoke just enough to keep the bees quiet. Bring into a warm room, the windows all darkened but one, so that the few bees that fly will gather to the light, ready to be brushed into the hive when that is arranged. Turn the hive bottom up on a table. With a long thin knife loosen the combs from the sides. Split each of the sides in several pieces with an ax, and remove three of them, leaving the combs standing upright. Very many of the bees, by this time, will creep to the top of the combs, and collect in little clusters, showing no disposition to sting. The outside comb is cut off at what is now the bottom, and lifted out and laid on a flat surface, and the bees brushed back; the edges trimmed until they just fit the frame. The combs are held in frames by splints, as described in "Bee-keeping Explained." When arranged, it is put in place in the new hive. The drone-comb should be nearly all rejected.

The bees on the second comb, taken out, may be brushed into the new hive, where they will gather on the first comb. All the combs containing brood must be placed in the same relative position that they occupied before, as the same number of bees can better protect them from the cold. When all is done, the scattered bees on the window are brushed down into the hive, which should be placed directly under it. All should be made to go among the combs. The hive is now to be closed and carried to the stand. The chances are that there will be room enough to hold all stores that are gathered until next month, yet if they seem crowded, give another comb or two.

An Egg Farm.

BY H. H. STODDARD.—*First Article.*

The tendency is for farming to become divided into specialties. It is only through division of labor that the precision and skill can be attained that becomes necessary as competition grows keener. Mixed farming begins already to stand at a disadvantage. Sheep farms, farms for milk, others for butter, small fruits, market vegetables, and so on, are accomplished facts. Eggs and fowls form such important articles of food, that they must in turn become a specialty, and be produced for the use of the great cities by extensive establishments conducted systematically, instead of in the old uncertain time-taking way of a few on each farm. The wholesale production of fowls for the table has already succeeded to some extent, but to raise eggs on a large scale is a much more difficult undertaking; and it is believed that the following is the first correct system ever published. Several joint-stock companies in England have attempted certain plans, possessing in some respects much merit, particularly Mr. Geyelin's, but some defect has prevented success; and the same may be said of numerous individual undertakings in this and other countries. The production of eggs must always be the key to the poultry interest, because raising pullets for layers brings so many supernumerary cocks, that these, with the fowls past their prime, always keep that side of the market better supplied than the egg department, and therefore special establishments for raising table poultry will not in the long run be demanded.

In managing animals of any kind we must follow Nature, for she will neither follow us nor be driven. The domestication of animals was only possible at the outset by proceeding on a natural ground-work. To illustrate: man domesticated dogs that, when wild, followed one of their own number for leader, by installing himself as leader instead—so naturalists state—and the cat will never be domesticated in such a way as to follow her master when he changes his abode, because originally a solitary animal. Just so the domestication of hens was effected by building upon an original foundation. In understanding the nature and needs of fowls, it will assist if we investigate the condition and habits of the wild parent stock in India, for the nature of any species remains essentially the same for long periods. The transfer from forest to farm has affected the life and most important habits surprisingly little. The tame fowls have the same cries of warning to each other, and other language, that observers have found in their native jungles; they still hide their nests in some corner, just as if they were selecting a nook in a thicket; and they are attached to the premises where they live, as they and all other gallinaceous birds are to some small district, when wild. The wild jungle fowl is by no means foreign to our subject; and in attempting to manage poultry by thousands, only a proper regard for original nature will prevent failure. According to this nature they live during the breeding season in distinct families under polygamy. Each family group has by tacit agreement a part of the forest for its beat, and the exclusion of strangers of the same species secures privacy and tranquillity. They have their *freedom*, and in that word are comprehended the needful exercise, sun, pure air, shade, and varied diet.

Some plans upon a large scale have secured small separate flocks without freedom, and others have secured freedom without separation. Small flocks at liberty on distinct farms have been kept successfully during centuries, because the owners were unconsciously imitating the natural groups of wild jungle fowl. But when it has been found that a flock of twenty gave a handsome profit, and the number has been increased to hundreds to multiply the gains, an unnatural *mob* has been formed, the hereditary instincts violated, and laying checked. The confusion has not, however, lessened the amount of feed consumed, and pecuniary results have been the wrong way. When it is attempted to divide the number, and place in separate inclosures, the results are still far from satisfactory. Small flocks kept yarded, may be multiplied on the same farm to any desired extent; but their wants can be all supplied only through an amount of labor that eats up the profits. In this land of high wages the expense of attendance determines to a great extent the success of the whole project. All persons who have tried managing a number of yards, are agreed as to the great labor involved when thorough care is taken, while without such care thrift cannot be maintained under the inclosure system.

Upon our poultry farm, then, we dispense

with yards (excepting for some special purposes), and *imitate a country town*, where is stationed at every farm-yard a flock. This method we know has succeeded for *hundreds of years*, since men became partly civilized; so it is no new experiment, and it is based on a state of things *still older*, extending beyond the period of domestication. Across a tract of 62½ acres, 100 rods square, run parallel wagon roads, 10 rods apart, with fowl-houses located quincunx style, every 10 rods. In this way each house is surrounded with six others, and is 10 rods to 11 and a fraction, from each. Now, when a flock is attached to each farm-yard in a village, and runs at liberty, the premises may be as near each other as 8, or 6 rods even, without danger of the birds straying, ordinarily, when once fairly domiciled. This is because the neighbors' premises have a different look, and the buildings, garden, orchard, shrubbery, and fences, serve as landmarks to enable them to find their way back. To make each flock upon

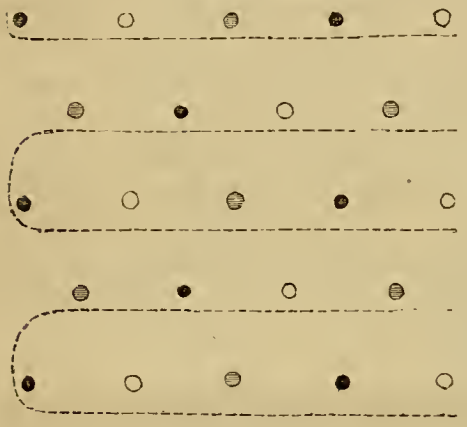


DIAGRAM OF EGG FARM.

our tract know its home, we have three styles of buildings, so unlike in color and other respects, as to be distinguished by their occupants, and these alternate in such a way as to prevent mistakes. Here the ancient instincts of the birds are our reliance, their powers of discriminating locality being very strong. It must be kept in mind that any faculty which was of use when the race was wild may be definitely counted on, unless it has since been persistently bred out. The buildings are white, black, and uncolored, in succession, so that the six immediately adjoining any one, are none of them like itself. The white and black coloring are of the cheapest sort—lime-wash and coal-tar.

In the diagram, showing a portion of the farm, the quincunx order is shown, and the position of the wagon path is indicated by the dotted line. The alternation of the colors of buildings will be understood from the white, black and tinted dots.

While pursuing the experiments which led to this system, we early perceived that while a flock thus situated would stay near home so long as no person approached, when feeding them, we were followed by birds from neighboring flocks, and there was confusion. Then, so accustomed do fowls become to associating the sight of their keeper with a boon, that they will follow him from one station to another, when on his rounds collecting eggs, or attending to other matters. True, their ability to find their way back is wonderful, but fighting follows intrusions, and thus the quiet and order so essential to laying are impaired. Besides, frequent association of this kind will, after awhile, break down all distinction between neighboring flocks. Such a trouble would be fatal to the whole plan. The solution of this difficulty is original with our system, and the key to its success. The feeding business is the cause of the trouble, and the only reason why fowls follow their keeper. The remedy is to bring about the feeding indirectly. From earliest chickenhood the birds are brought up so as to never perceive that the keeper has any thing to do with their feed. The small coops for young chickens (on a separate part of the farm) have boxes where the feed is placed, and a simple contrivance attached, that does not admit the chickens until some time afterward. This device will be described in the article on buildings. Adult fowls are given soft feed early in the morning in a feed-box in their house, so constructed that the keeper is not seen by them at all. All the hard grain for the day's allowance is deposited in a pile of straw outside, before they are let out of the building, and it is a day's work for them to scratch for it. This employment is very salutary to their health and spirits, and assists in keeping the flock together. The bright eye and keen faculty for prying and searching are employed, instead of the birds moping or standing listless. They feel as if everything was right and natural, and this influences laying to a surprising degree. The sight of the keeper is associated with no gift or boon whatever, scrupulous care being taken during the 15 to 18 months that limit the lives of most of the main laying stock, never to throw to them, directly, a morsel of food or allow them to see the drinking-vessels filled. All motions near the fowls should be slow and gentle; they should never be frightened, and should regard their keeper with neither fear nor aversion, but with total indifference. The two points, of differently appearing premises at different stations, and indirect feeding, both being attended to, we are enabled to keep separate flocks in freedom upon one farm without yards. The method of overcoming, by use of a team, the loss of time in attendance caused by the scattering of the buildings, will be described in its proper place, as well as the ways of securing throughout the greatest economy in labor and lumber. The description of soil and location, buildings, breeds, and general management, will also appear in future articles.

Ogden Farm Papers.—No. 17.

A subscriber of the *Agriculturist* writes: "Will Mr. Waring please give a balance-sheet of his farming operations at Ogden Farm annually? If he will, it would be valuable information to many of us farmers. We are willing to try similar farming, believing it will pay in time; but would like to know how much we must sink before it will pay, that we may know whether we can stand it." This reminds me, "Whosoever shall compel thee to go a mile, go with him twain." The inexorable public, at whose behest I stand, draws from me month after month a good many details of my farming affairs, and I am, of course, glad that they are interesting to so many readers; but there is a point beyond which it hardly seems necessary to go. The line must be drawn somewhere. I draw it at a balance-sheet.

It would be impossible now to offer any fair statement of the true position of an operation like that at Ogden Farm. The investment of money has hardly been made in a single instance with a view to immediate results, and the exact effect it has on the final condition of the farm and its finances cannot be justly estimated in advance. I can only say that whatever has been done has been with a view to profitable improvement, and while the mistakes that are inseparable from new undertakings have not been entirely escaped, I hope that the issue will show that my outlays, viewed as a whole, have not been injudicious.

Some years hence, when I can *show* a profit, I shall have no hesitation in making a public exhibition of my accounts, for it would do good as an encouragement to others; but until I can show a profit *in money*, there would be no good end subserved by parading my balance-sheet. No such statement can be of much value as a guide to other farmers, except in a very general way; for circumstances alter cases, and farming is a business of circumstances which are never the same in any two instances. From the farmer himself to the land he works, there is to be found in every thing some reason for doing or not doing what, under other conditions, would be most proper or most improper; and whatever be the facilities at the farmer's hands, and however much or little capital he may invest, the measure of his success is usually to be found in his ability to make the most of his opportunities, to decide on the wisest course to pursue, and, having decided on it, to stick to it through thick and thin, no matter how discouraging it may sometimes seem. When I can show a profit, my showing will induce some people to undertake to follow in my tracks, and many of them will fail, because they should have laid out new courses for themselves; others, who are wiser, will see in the example only the fact that good farming, well followed, is a good business, and they will feel secure in adopting such improvements, not as have been found best under my circumstances, but as are best suited to their own.

Were I obliged, now, to make a balance-sheet that expressed my own estimate of the state of affairs at Ogden Farm, I should make it include a long look ahead, comprising not only the value of the manure I have already accumulated, but the effect on a naturally good, but long abused soil, of the application and re-application of this manure—of the chemical action of the air, and the rain-fall, that thorough draining and thorough cultivation will allow to have its effect in developing the native fertility of the land—and of that greatest of all ameliorating influences, the decay in the soil of the roots of good crops. And the whole of this part of the estimate would have to be sustained only by faith: the faith, namely, that *good farming is sure to prosper in the end.* In this faith I work and write; and I do not shrink from the responsibility of urging all who care for improvement to accept it entirely, and to guide their actions by it.

Whatever may be said on the question of profit, we are now drawing rousing dividends; drawing them with double teams, out of the barn-cellar. I have seen a great deal of manure in my time, but I think I have never seen such "richness" as this. We use no litter, bedding our animals with beach sand. The consequence is that our manure is worth, load for load, fully three times as much as that made with profuse littering, to say nothing of some 25 or 30 tons of wheat-bran, and 800 bushels of corn, and considerable other grain that will have been consumed by the stock by the time the feeding season has ended.

Another correspondent asks: "What can a man do on 50 acres of fair land at green-soiling cows for buttermilk, and will it pay where there

is no home demand for milk (350 miles from New York). Would you recommend fixed stanchions where the cows are to be kept up most of the time, or would you have them tied? Is it best to feed the cattle in the stable or in a small lot? Perhaps you will tell us how to manage this thing most economically *for a poor man*, commencing at the *stables; soiling crops; how cut; how fed;* and how much exercise cows require to keep them healthy. We are near a creamery, and want to keep all the cows we can, and do them well." The subjects covered by this letter are of sufficiently general interest to justify the devotion of a little space to their discussion. It being assumed that although too far away to send milk to the city, there is a sufficient local demand for cream (or for milk) to make it desirable to keep as many cows as possible; that the land (50 acres) is of fair quality; and that the farmer has no means for rapid improvement; the question is: How shall he proceed to make the most of his chances?

Let us suppose that he has now 12 native cows of fair average quality. As it is too late to sow oats for soiling, and as rye should have been sowed last fall to be of any use this season, the best plan will be to sow 5 or 6 acres of the best of the land to some gourd seed-corn for green fodder (put in in drills and *heavily manured*, even if it is necessary to borrow money to buy bone-dust or Peruvian guano), and to continue in the old way until this begins to show signs of tasseling out. At this time add to the herd 6 of the best cows to be found, and if cream is the object, buy a yearling Jersey bull. The corn fodder, if manure has been abundantly applied to it, will support the herd until frost, allowing a good second cutting to be taken from the meadows early enough for a good fall growth to protect them through the winter, and saving them from the great injury that pasturing always causes them. Some of the pastures, too, may be made to yield a little hay at a late mowing. The extra hay made in this way would often be enough to feed the extra stock through the winter, but it will be the safest plan to raise a few hundred bushels of roots to make sure of having enough, and to convince the farmer that he can never afford to do without them. With their aid, the 18 cows should come out the next spring in better condition than the 12 did this spring. This is not, it is true, a very brilliant showing, but it is best to "make haste slowly," and (as we are short of capital) to avoid the necessity for buying fodder. We have devoted one year to getting ready, and the preparation has included the sowing of 4 or 5 acres of good land to rye—in September—for our first soiling crop, and of a like quantity of oats to follow it (the gap, if there is one, being filled by grass cut from the meadows). During the year we will have studied "Quincy on Soiling Cattle," and the articles on the subject in the *Agriculturist*, and shall have made out a system for soiling better suited to our purposes than any man writing without a knowledge of our circumstances could make for us; that is to say, I cannot tell any man whose farm I do not know, when, what, and how much to plant, one-half so well as he can find it out for himself if he will make a serious study of it. I can tell him one thing, however, that he may not already know, that is, that much of his success will depend on the improvement of his herd.

As an illustration of the extent to which the product of a herd can be increased by careful selection and suitable feeding, I quote from a letter recently received from Mr. C. D. Avery, of Syracuse, N. Y.: "Having just completed my Milk Report for 1870, perhaps a few items from it may be of interest to you, especially as farm statistics are not often obtainable unless guessed at. I will state that my farm of 80 acres, one mile out of town, is kept for the production of milk sold in the city, and grain and fodder, particularly for the cows. I cannot afford to raise such stock as I would prefer; hence I have only a good selection of such cows as I can find about here.

Average number of cows kept....	18
" product of milk per cow.	5,359 lbs.
" price per quart.....	$4^{99}/_{100}$ cents.
" time of cows in milk....	9 mos. 3 wks. 1 dy.
" number of cows in milk for the season.... ...	$14^{2}/_{3}$
" number of cows dry for the season	$3^{1}/_{3}$

We estimate a quart of milk to weigh 2 lbs. My gain in milk for 1870 over 1869, was 164 lbs. per cow; and in 1869, over 1868, the gain was 486 lbs. I am satisfied a better class of cows, and a better mode of feeding, will improve these results."

This is not only an example of rare precision in the keeping of farm records, but it shows a remarkable gain in money returns, still more in profit, for it is very doubtful whether it costs more for food for the better cows than for the poorer ones, while the cost of attendance was precisely the same. Taking the price of milk at 5 cents, the gain in 1870 over 1868 was $16.25 per cow, being $292.50 for the herd. This, if I understand it, is what is meant by an improvement in our agriculture—an addition to the money profit of farming, without a corresponding increase of capital invested.

Feed as we may, we cannot make good and cheap butter from a poor cow. The more we improve our stock, the more money we shall make; and improvement (for a butter dairy) must lie in the direction of a more complete extraction of the nutriment of the food and its more complete conversion into cream. We want the highest type of the Jersey—a butter breed almost exclusively—or as near an approach to it as our means will allow. A "poor man" cannot at once set up a herd of Jerseys, but no farmer who owns 50 acres of fair land is so poor that he cannot afford to buy a thorough-bred Jersey bull from which to raise grade heifers to take the place of his present stock. The first cross will be much improved, and the heifers may be allowed to breed at 2 years, so that in 4 years there will be a good sprinkling of $^{3}/_{4}$-breds. This generation may be sired by the same bull that sired their dams, thus much of in-breeding doing no harm when the sire is a thorough-bred; but after this it will be necessary to change the bull. Of course *good* "native" cows should be selected at the outset. All poor milkers should be sold off and their places supplied with the very best that can be found. Such a plan, coupled with soiling, will enable any farmer to double his net income within five years if he is farming only so much land as he can properly take care of.

As to stanchions, "I go agin 'em, that's flat." I think them an invention of the enemy—of comfort and thrift. It is true, they are convenient and effectual. A cow once locked in between stout stanchions is as fixed as a man with his head in a pillory, and I think about as comfortable. My cows are tied with 3-foot chains and broad collars around their necks, and it is evident that they are much more comfortable than they would be in stanchions. When they finish their meals they lie down and *stay* down, which stanchioned cows do not, for when a single position becomes tiresome they must get up to change it, while my animals can loll about, lick their sides, and stretch themselves out at full length without rising. I sometimes find a cow lying flat on her side, with her head on the floor and all four legs stretched out, like a dead cow, but for the flirting of her tail; and if she don't enjoy it, there is no enjoyment to be had in a cow-stall. I would like to see a cow attempt this sort of luxury in stanchions.

There is no other place where a cow can be fed so regularly, nor so economically, as from her own manger, and no place where she will eat so quietly, for she knows that the "master" cow is snugly tied in her own place, and cannot come to drive her away from her feed. If peace of mind is important to a cow, we can but pity the poor brute who is the butt of the yard, and is only able to snatch a mouthful here and one there, as she is driven from one pile of fodder to another, chewing her plunder as she runs.

Riding on Horseback.—No. 3.

Major Francis Dwyer, an English officer in the Austrian cavalry service, recently published a work on "Seats and Saddles, Bits and Bitting," which has the great advantage of being, in some respects, quite different from other books about horsemanship.

The theory advanced with regard to seats is, that at a point of the horse's back, directly over the fourteenth vertebra—that is, about half way between the withers and the coupling (or top of the hips)—there is located what he calls the center of motion and the center of strength; the central point from which the forces of the horse, when carrying weight, may be figuratively said to radiate. In other words, this is the point—the middle of the back—where weight can be most easily carried, where the least motion will be imparted to it, and where its distribution will be most equal over all four of the horse's feet; consequently, it is over this point that the rider's center of gravity should fall. As the rider should sit in the middle of his saddle in order that it may transmit his weight equally over so much of the horse's back as it touches, the middle of the saddle should be over this center of motion. As the fastening of the saddle by the girths should be directly under the rider's center of gravity, it follows that they should be under this center of motion. And, again, as it is important that when the rider's weight is transferred to the stirrups, it should not thereby be transferred to another point on the saddle, the attachment of the stirrups should also be in the center of the saddle. The reasoning on which these directions are based seem sound; but they are so different from the practice in which the writer has been trained, that he cannot fully indorse the recommendation without trial, though he is quite ready to advise that they be borne in mind, and that they be conformed to as nearly as the construction of our present saddles will admit. His own inclination would be to set the saddle a little farther forward, and to place the stirrups a little in advance of its center, adhering of course to the injunction that the rider's weight should be placed in the middle of the saddle and the girths attached directly in its middle. Major Dwyer is undoubtedly correct in objecting to what is called the chair-seat, where the rider sits far back on the saddle and sup-

ports his legs by stirrups attached near its front; and his illustration of the sort of seat that is

Fig. 1.—THE MODERN MILITARY SEAT.

best (see fig. 1), is certainly very good indeed, and may well be taken as a model of elegance, ease, and safety for the imitation of the learner.

Mr. Apperley, a celebrated English authority on fox-hunting, says: "When hounds find and go away, place yourself well down in your saddle, on your fork or twist; and do not be standing up in your stirrups (as was formerly the fashion, and the cause of many a dislocated neck), sticking out your rump as if it did not belong to you;" and he accompanies his direction with a very instructive illustration of a bad and a good seat (fig. 2). As riding is an imitative art, there is really much more to be learned from these illustrations than from any description that it is in our power to give; but the rider should always bear in mind that a well-balanced horse, in turning to the right or the left, turns on his center of gravity, or "center of motion;" and that if the rider's weight is placed to the front or rear of this position, it will not only impede the horse's free movement, but will feel much more disturbance than if in its proper position. The learner, if he really desires to become a first-rate horseman—and it is only when stimulated by this desire that one can really enjoy learning to ride—should consider well what experience has shown to be the best position (as indicated in our cuts), and continue his practice until this position becomes the most easy and natural; it surely will become so by sufficient practice, and, when a good seat is once obtained, it can no more be forgotten than the art of swimming.

The second part of Major Dwyer's book,

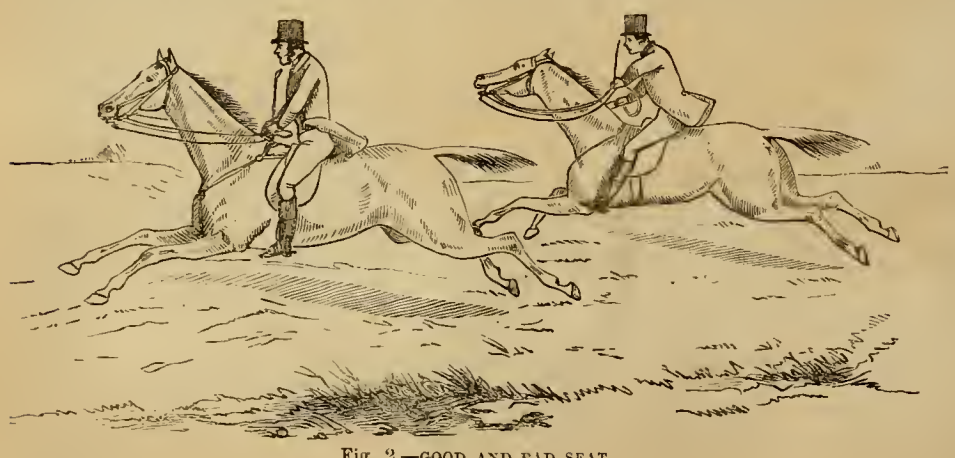


Fig. 2.—GOOD AND BAD SEAT.

which is perhaps even more valuable than the first, relates to "Bits and Bitting;" and he shows more conclusively than any writer who has preceded him, the importance of great care in the adjustment and management of the bit and bridle, giving some opinions which are quite new to the writer, and which are obviously important.

His device for the head-gear of a young horse that is to be broken for any purpose, or of any horse that is to be trained to the saddle, we show in fig. 3. This is an ordinary snaffle bridle, with a single pair of reins, with the check-pieces drawn short enough to cause the bit to touch lightly in the corners of the mouth. There is attached to it, by two straps buckled one into each check-piece, a nose-band, or strap, which passes around the nose quite below the bit, but high enough to take its bearing on the bone rather than on the cartilage of the nose. This strap is drawn tight enough to prevent the horse from opening his mouth to any considerable width. There is no way in which a colt does more to make himself insensible to the action of the bridle than by stretching open his jaw and bearing against the bit. From the position of this nose-band, it is entirely out of the way of both bridle and bit; and as the mouth is not tightly bound together by it, it can in no way interfere with proper control by the

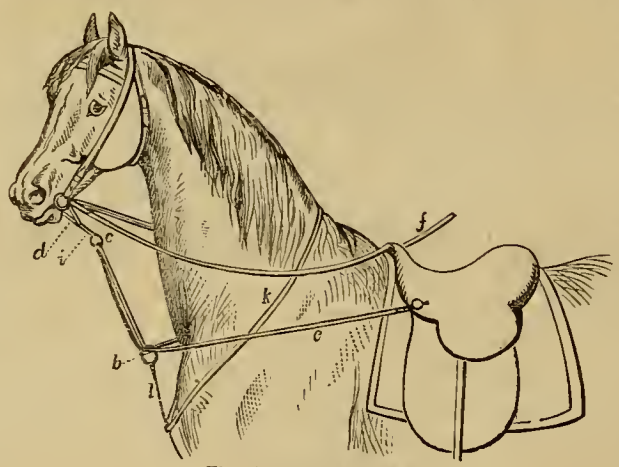


Fig. 4.—RUNNING REIN.

rider. It simply prevents the horse from resorting to a very common means of defense.

Another apparatus described must be very useful, not only in training, but in the management of all horses who have the trick of carrying their heads so high as to cause the bit, when pulled upon, to ride up into the corners of their mouths instead of bearing, as it should do, against the lower jaw. It should be equally valuable in preventing an animal from tossing his head in a fitful way, as many horses do. It is at the same time entirely free from the grave objections that hold against all forms of martingales, having nothing whatever to do

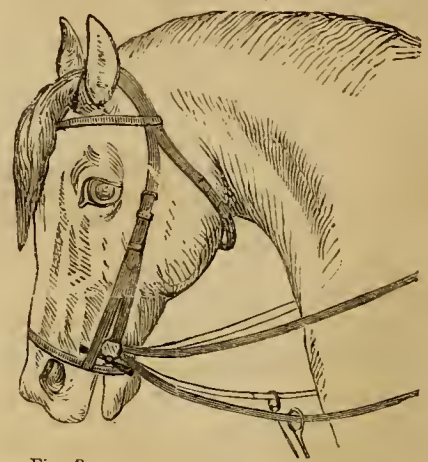


Fig. 3.—HEAD-GEAR FOR YOUNG HORSES.

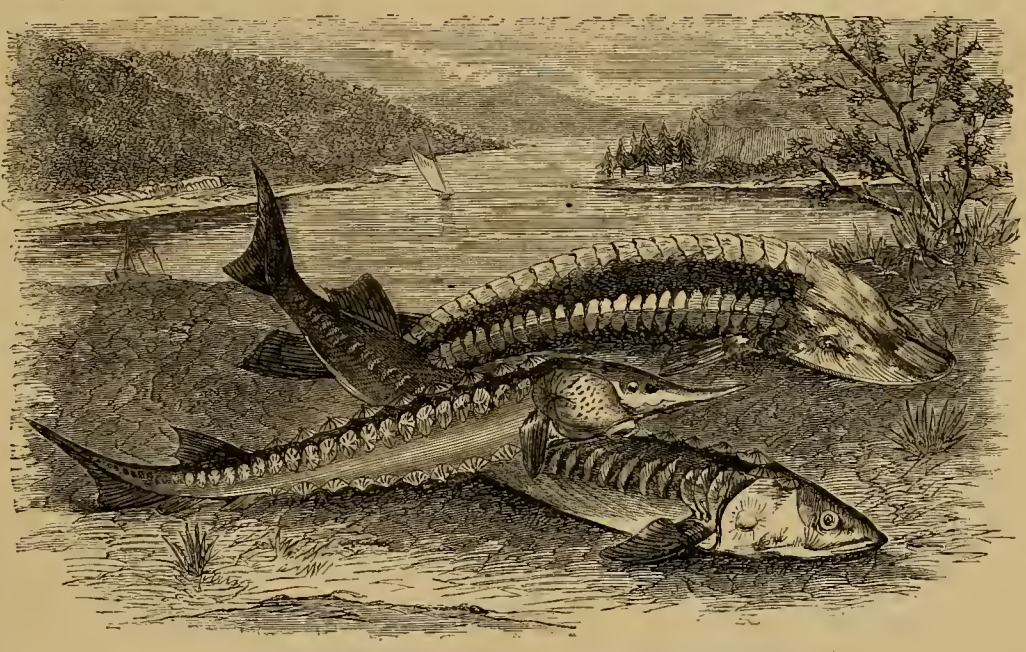
with the reins, and subjecting the horse to no constraint so long as he carries his head in the proper position. It is called a "running rein," and is shown in fig. 4. A short strap, *d*, about six inches long, with a buckle at each end, is fastened to two rings of the snaffle, and passes under the horse's chin. At the middle of this strap there is attached another, *i*, three or four inches long, at the end of which there is a stout, smooth ring, *c*, an inch or more in diameter. There is a strap, *k*, around the neck which supports an other, *l*, that passes back to the girth of the saddle, as with the ordinary martingale; but this latter strap, instead of being split into two parts, as in the martingale, extends six or eight inches beyond the neck strap, where it carries another smooth ring, *b*, somewhat larger than the one under the chin. These rings are better made of ivory; but iron, if smooth, would answer tolerably well. The "running rein" *e* to *f*, is of the width of an ordinary bridle-strap, 8½ feet long. If not made of one piece of leather, its joints should not be within 2 feet of the center. One of its ends is furnished with a buckle, and a tongue-strap 18 inches long, which is to be buckled through a staple or D ring on the left side of the saddle near the pommel. The other end of the strap is then passed through the ring, *b*, in front of the horse's breast, then through the ring, *c*, under his chin, then again through the breast-ring, *b*, and brought up to the rider's right hand, *f*. This arrangement gives him more power to draw the horse's head down to its proper position than any other device in use. So long as the animal behaves himself, the slackening of the "running rein" leaves him perfect freedom, but, when necessary, the least pull acts with double force on his head and draws it in a downward direction.

Whether a horse is to be used for riding or for driving, there is no doubt that the use of the "running rein" and the nose-band bridle would offer the best means for his proper training, and would do very much to prevent the restiveness that is so common a result of the ordinary methods, and would often prevent the trainer's loss of temper, which has more effect in spoiling the disposition of the animal than have his own inherited qualities.

Sturgeons and their Products.

The sturgeons present some striking peculiarities. The skeleton never becomes bony, but remains throughout the life of the fish in the condition of cartilage. The surface of the body is furnished with large bony plates, which are placed in five longitudinal rows. There is but one back-fin, which is situated well toward the tail. The mouth is placed under the elongated, and often pointed snout, is toothless, and in front of it hang four barbels, or thread-like appendages. The gills are concealed by gill-covers, each having an opening, which is protected by an operculum. Most of the species inhabit the sea, and ascend the rivers to spawn; but there are some peculiar to fresh-water lakes. The sturgeons belong to the genus *Acipenser*, which is the Greek name for a fish much prized by the ancients, and believed to be the sturgeon. The most important species is the sturgeon of the Black and Caspian Seas, *Acipenser Huso*. This species, which grows to the length of twenty or twenty-five feet, furnishes the most valued isinglass and caviare. The best Russian isinglass is the swimming-bladder of this species, merely washed and dried. It is nearly pure gelatine, and is almost entirely soluble in hot water. Less valued kinds of isinglass are procured from other sturgeons, and some from other kinds of fish. Caviare is the roe of the female sturgeon, prepared by salting and drying. This is highly esteemed as an article of food in Russia, Germany, and other parts of Europe, and is kept at the German restaurants in this country. About 9,000 persons are said to be engaged in the Caspian sturgeon fisheries.

The sturgeon business at various points upon the Hudson River is of considerable importance, some of the fisheries giving employment to fifty men. The sturgeon, though so large a fish, is easily caught in nets. The species caught in the Hudson is principally the sharp-nosed sturgeon, *Acipenser oxyrhyncus*. It is captured mainly for its flesh, though we believe that caviare is made at some of the establishments. Considerable quantities of the fish are pickled and smoked. Sturgeon is frequently offered in the New York markets, but by far the greatest share caught in the Hudson finds its way to Albany, and all along the river the fish is known as "Albany beef." As many as seventy-five sturgeons, weighing in the aggregate about nine tons, have been taken to Albany by one of the steamers at one trip. The flesh of the sturgeon has a light red color, and the fat is pale yellow. It is eaten fried and roasted, but seldom boiled. It is by some highly prized as an article of food. Several years ago the writer tried it, and has since had no desire to repeat the experiment. The spoon-billed sturgeon of our western rivers belongs to another genus. It has no bony plates upon its body, and its snout is expanded into a broad thin plate, sometimes nearly as long as the body.



SHARP-NOSED, BLUNT-NOSED, AND SHOVEL-NOSED STURGEONS.

MUSK-OX.

The Musk-Ox.—(*Ovibos moschatus*).

Of the Bovinæ, or Oxen, we have in this country but two native species: the well known Buffalo, *Bos Americanus*, and the very rare Musk-Ox, *Ovibos moschatus*. The genus Ovibos is distinguished by its horns, which curve outward and downward, and by its muffle, which is hairy, except a small place between the nostrils. As its name *Ovibos* implies, it partakes of the characters of both the sheep and the ox, and some naturalists classify it with the sheep and goat. The male Musk-Ox is about the size of a two-year-old cow. The horns meet on the summit of the head; they are broad and flat, and curve downward between the eyes and the ears until opposite the mouth, when the points are turned upward. The hair, which is brownish-black, is very long and thick, and hangs down below the middle of the leg. Beneath the hair is a soft ash-colored wool of an exceedingly fine quality, which affords the animal ample protection against the rigors of an arctic winter. The animal's tail is so short that it was at first described as tailless. The Musk-Ox is found from latitude 60° to as far north as land extends. It is found in small herds of twenty or thirty; when attacked, the cows run, but the bulls show fight, and prove dangerous antagonists. It is very nimble in its movements, and climbs hills and rocks with great ease. Its food is lichens and grasses. The flesh, when the animal is fat, is said to be of agreeable flavor, but when poor and lean it smells strongly of musk. The fossil remains of this ox are said to be found upon the northwest coast, and those of the same, or a closely allied species, in Siberia. Although this animal is found living only upon this continent, it has been exceedingly difficult for our naturalists to obtain specimens from which to describe it. For a long time the only specimen known was one sent to England by Hearne, a celebrated traveler. Some years ago a stuffed specimen was presented by Doctor Kane, to the collection of the Academy of Natural Sciences at Philadelphia, where it remains, so far as we are aware, the only representative of the species in the country. We do not know that any attempts have been made to domesticate the musk-ox, and it is doubtful if it would endure the climate of even the northernmost of our States. Still the exquisite fineness of its wool, said to excel that of any other animal, makes it desirable that the

experiment should be tried. If, as some naturalists claim, the animal is more of a sheep than an ox, interesting, and it may be useful, hybrids might result from crossing it with the sheep.

Walks and Talks on the Farm—No. 89.

The Managing Editor of the *Agriculturist* writes: "Your 'Walks and Talks' would be more interesting if you would tell us more about your own agricultural operations. People want to know what *you* are doing on *your* farm." A detailed account of all we are doing would make him growl when he reads the proof. But he will have no one to blame but himself—and that very fact will only make him growl the louder. So here goes:

To-day, March 21, a neighbor called early in the morning to say that the dam on the creek which floods our land and prevents us from draining, had been washed away; and I went to a lawyer to see if we could not get an injunction restraining the mill-owner from putting it up again. He told us if those interested would stand by each other (which means foot the bill), it could be done—and we are going to do it. Another thing I did was to go to our railroad station. Last night the sheds, containing several hundred cords of wood, caught fire, and this morning there was a noble pile of ashes that I wanted to get for manure. I should like to put them on my Northern Spy Orchard. This orchard has been set out about fifteen years, and last season was the first year it has borne fruit. The soil is sandy, and I think ashes would help the trees. Many farmers have urged me to graft the trees with Baldwins, but I am persuaded that, with liberal manuring and thorough pruning, the Northern Spy will prove almost equally productive and more profitable. We have just finished pruning the trees, and have drawn off the brush into a large heap to be burned. It seems a shame to burn up so much wood; and I once bought a German hook for the purpose of chopping it into lengths to burn in the steamer. It makes capital wood when dry, but ought to be chopped while green; and the trouble is to store it away. In the old country, even in sections where coal is half the price it is here, every stick would be used for fuel; but, then, labor costs less than one-third what we have to pay. I am now paying $1.25 a-day; and to one extra good man I pay $1.50. He is better worth $2.00 than some men are worth $1.00. I have said all along that there would be no marked decline in wages, and in this section such proves to be the case. We are paying full as much as we did during the war, when gold was worth more than double what it is now. The railroad is paying $1.50 per day, and farmers, whether they can afford it or not, must pay the current rates. They do not control the labor-market.

We are making some lye from wood-ashes, intending to use it for washing the trunks and limbs of the apple-trees to clean them of moss and fungus. We scraped off all we could, first, with a piece of hoop-iron. I think crude carbolic acid, which is quite cheap, would be better than the lye; but I am afraid to use it on a large scale lest it should injure the trees. I used a weak solution of it last year to kill currant-worms, but it did far less damage to the caterpillars than to the bushes.

One man is plowing in the garden, right in front of where I am now writing, and some fifty hens, more or less, are running along the furrows picking up worms. We get about 40 eggs a-day; and the ducks have commenced to lay. Last year we had capital luck with the turkeys, owing, I suppose, to the dry weather. On the whole, poultry is the most profitable live-stock on the farm, except the pigs. But the money does not come into *my* pocket; and if things go on as they are, we shall soon have as many hens as Warren Leland.

The soil is dry, and turns up beautifully this spring. Last fall I manured the garden and plowed it under. That which was applied early has nearly all disappeared, while that turned under, just before winter set in, is comparatively unaltered. The former soil is in capital condition for onions, parsnips, and other small seeds, while the latter should be reserved for corn, cabbage, beets, and other coarser vegetables. We sowed peas ten days ago, and planted potatoes yesterday, and purpose sowing onions to-morrow. It is the earliest spring I can recollect; but I can hardly believe that spring has really come, and expect to wake up one of these mornings and find two feet of snow on the ground.

We are still cooking food for pigs. It is a good deal of work, and it is doubtful whether the *saving of food* would pay for the expense. But I cook to *save digestion* rather than to save food. I want to enable the pigs to eat and digest more food. And if cooking will do this, it will pay. Cooking does not increase the amount of nutriment in the food. It may make it more palatable and more easily digested—that is all. I am inclined to think that the assimilating powers of a well-bred pig are greater than his digestive capacity. If they are not, there is little to be gained by cooking the food.

We are still feeding our cows cooked corn-meal—say three quarts of meal per day to each cow. I am satisfied that it pays. We have made just as nice yellow butter all winter as I wish to eat—*better* butter than we make during the hot summer weather. I am inclined to think that the best time to have cows come in, where nothing but butter is made, would be in September, and let them go dry during the hot weather of July and August. We should then have plenty of skim-milk, just when we most want it, for young pigs. And the cows would run in the pasture, and require no milking during the busy season of harvest.

An English farmer who is staying with me, and who formerly kept some 300 breeding long-wooled ewes, was at first quite disposed to laugh at my Merinoes. But he is now quite converted. It is really amusing to hear him talk so enthusiastically about the motherly qualities and milk-producing capacity of these little Merino ewes. So far, we have had 34 lambs from 26 ewes, and have saved every lamb, except one whose mother had no milk. The lambs are from a thorough-bred Cotswold buck. The ewes are common Michigan Merinoes, that cost about $2.50 each. They have been well wintered, and the lambs come strong and healthy, and the ewes give very rich milk. But both ewes and lambs should be well fed. Butchers ought to pay a good price for such lambs in May. Some farmers have thought that the cross between a Leicester or Cotswold ram and a Merino ewe was too violent, but such is evidently not the case. I do not desire better luck than we have had with these ewes and lambs; and the ewes have had no roots.

We are plowing up our oat-stubble, where the clover and grass-seed failed last year, and, on the recommendation of my English friend, design sowing it with cole-seed and white mustard, to be fed off by sheep next fall. He wants me to plow it three times, while I argue that twice plowing and twice cultivating and harrowing would be cheaper, and do the land more good. There are 12 acres in the piece, and we have figured out the expense of the two methods as follows, reckoning a horse at $1.00 per day, and a man $1.50, and that a two-horse team will plow one and a half acres per day:

March 20.—Plowing 12 acres	$28.08
May 1.— Do. do.	28.08
June 18.— Do. do.	28.08
" "—Harrowing 12 acres	5.50
Total	$89.74

The method I propose would cost—

March 20.—Plowing 12 acres	$28.08
April 14.—Harrowing do.	5.50
May 1.—Cultivating do.	5.50
May 14.—Harrowing do.	5.50
June 1.—Cultivating do.	5.50
June 18.—Plowing do.	28.08
" "—Harrowing do.	5.50
Total	$83.66

I contend that this would do the most good, as the land is stirred seven times instead of four. A greater number of weed-seeds would be likely to germinate and be destroyed, and more fresh soil would be exposed to the decomposing influence of the atmosphere.

If we had a double plow, the second and third plowings might be done with three horses, getting over two and a half to three acres a day, and this would be cheaper and better than cultivating. Now that our fields are getting free from stones and stumps, there is no reason why we cannot use these double plows; and it is surprising to me that our manufacturers do not turn their attention to the subject.

The cultivating I purpose to do with a four-horse cultivator, which would go nearly as deep as the land was plowed, and get over the twelve acres in a day. I have a cultivator made on purpose for this work. The horses are attached four abreast, the pole going between the two teams. The harrowing should be also done with four horses, using two sets of harrows, and going round the field, so as to avoid sharp turnings.

Whichever plan is adopted, the whole success will depend on getting the land clean and mellow. It is necessary to plow up fresh moist soil immediately before sowing the mustard or cole-seed; and the land is to be seeded down with clover and grass-seed at the time of sowing the mustard and cole-seed. This is the plan; and though I have some doubt in regard to its success, I propose to try it. My English friend assures me that he has done it frequently, and that it is the best of all methods of seeding down land to grass.

Another thing we are doing is turning over the manure in the barn-yard. In the center of the yard we scooped out a basin about five feet deep, and, say, fifteen feet wide and thirty feet long. The long way, the sides slope so gradually that there is no difficulty in drawing out the manure. Into this basin all the manure is thrown, or wheeled, or carted, as fast as it is made.

We are now turning over the manure in this basin, to the infinite disgust of my English friend. He thinks "all the ammonia will escape;" and he is going to the city to-morrow to get some litmus paper to prove it. We are cleaning out the sheep-yards and carting the manure to the heap, mixing it as we draw it with that in the heap. We ought to have at

least 200 tons of manure, containing 15 lbs. of nitrogen to the ton. The heap, therefore, should contain 3,643 lbs. of "potential" ammonia; and if treated as I propose to treat it, I do not believe a single pound will escape. You must recollect that a pound of ammonia would make a powerful smell. Litmus paper will detect ammonia in an atmosphere containing only one seventy-five-thousandth part of it; and Prof. Johnson, in an article written for *Hearth and Home*, on "Mixing Lime with Manure," says:

"It is certain that a healthy nose is not far inferior in delicacy" to litmus paper. And so, even if the litmus paper should show—what I do not believe—that ammonia is escaping, the loss can only be so small that it is not worth while troubling about it. "But what do you gain by turning the heap?" asks my English friend. In the first place, we can reduce the bulk of the manure more than one-half, and thus save much labor in carting and spreading it; and then, manure thoroughly decomposed, will act much quicker on the plants; and this, for corn or roots, is a very important gain. We have a tin boat-pump for pumping up the liquid that drains from the heap back again on to the manure after it is turned over. Without this, the manure at the bottom of the basin is so wet that it will not ferment, and that at the top so dry that it might firefang. But pump up the water and keep the whole moderately moist, and fermentation will proceed rapidly without loss of ammonia.

These are some of the things we are doing just now on the farm. But perhaps my friend the Editor meant to ask what *I*, myself, personally, was doing on my farm. To-day I got out some stones where the men are plowing. I have a little steel bar for my own use, which I have an idea the men derisively speak of as my walking-stick. Still it has got out many a stone. But my favorite tool is a heavy spade, with straps the whole length of the handle. It is almost as strong as a crow-bar, and it has the advantage of furnishing its own "bate" or fulcrum. When a plow strikes a stone, get this heavy spade on the side or under the bottom of it, and let the horses pull steadily, prying on the spade at the same time, and in three cases out of four out comes the stone. To-day I worked a couple of hours cleaning out a ditch.

One of my underdrains discharges into a ditch on the Deacon's farm. At the outlet, the underdrain is not more than fifteen or eighteen inches deep; but as the land rises the drain is deeper, and some of the branch drains are three and a half feet deep. The Deacon's notions of draining are somewhat antiquated; and the open ditch through his land is about a foot wide and fifteen inches deep, running along the fence by the side of his garden. The cattle tread in this ditch every summer, and the Deacon is kind enough to allow me to clean it out. I do the work myself, so as not to injure the Deacon by cutting the ditch any deeper or wider than just enough to allow the water from my underdrain to pass off. If I should set one of my men, who is used to ditching, to clean out this ditch, he would probably cut it two or three feet deep, and make the land dry and double the crops, and the Deacon would thus be put to additional expense in harvesting them. And so for the sake of good neighborhood I do the work myself; and I do not think I have injured the Deacon to any greater extent than removing the surface water, and rendering two or three acres of his land dry enough to plow a week or two earlier than would otherwise be the case.

Another thing I do occasionally—and, in fact, I have done it to-day—is to take a flexible gutta percha curry-comb and card the cows and pigs. I think this pays as well as any work I do on the farm, and I enjoy it full as much as I do digging a ditch on the Deacon's land, but not as much as getting out stones. But, at any rate, the cows and pigs enjoy it. My English friend says he never knew a farmer that was so fond of animals as I am, or who gave them so much personal attention.

To be frank, I do not "*work*" a great deal on my farm. I do not think it would pay me to go into the woods and chop all day, or go to plowing. I think I have men who could beat me at a steady day's work; and John Johnston once told me that as soon as he got so old that he could not do *more* work than any man on his farm, he worked no more with his men. He planned the work and saw that it was done properly, but he did not take hold himself.

Thus I spend my days, except that I have to write some hours for the *Agriculturist*. I get no credit for this from my neighbors. "*That* is not work," they say. And yet I would at any time rather dig a rod of ditch than write for ten minutes.

The evenings are, with me, the pleasantest part of the day. The Deacon drops in, and we talk farming. Or we read the agricultural papers, and comment on the articles. Last night I read the remarks of a speaker at a Farmer's Club, as follows: "Buying cattle to feed is not legitimate farming; it may be in England, where it is better adapted to the circumstances of farmers, but it cannot be done to advantage here. It is uncertain business; it is doubtful whether stock can be bought, fed and sold, so as to make the operation pay. It takes capital; farmers do not always have it to use; they must practice economy. If all adopt this system, where will they get stock to feed? Some must raise the stock to sell. Buying to feed and sell makes a farmer a commercial man, and is a perfectly hap-hazard business. Legitimate farming is raising stock and crops on the farm." My English friend thought I was reading an article of Mark Twain's, and laughed heartily; but I assured him the man was in earnest. "Why," he said, "you have a much better chance to make money by fattening stock than we have, because you can buy lean stock in the fall for much less per lb. than it is worth per lb. when fat. In England we cannot do this." The Deacon said nothing, but I know he thinks it rather a speculating kind of business, that farmers had better let alone. In England, farming *is* much more of a commercial business than it is here. The farmers have frequently no more capital than we have, but ours is locked up in the farm, while there they lease the farm and use their capital to carry on their operations. They buy and sell more than we do—buy manure, buy stock, and buy oil-cake and grain to fatten it with. They *risk* more than we do, and generally make larger profits. But, of course, they sometimes lose heavily. My English friend says he once lost $3,000 on his sheep in a season. "I tried to keep too many," he said, "and after a while I saw they were not doing well, and I commenced feeding oil-cake and grain rather freely, and got the fever into them. I lost 150 hoggets in a month or six weeks, and those that survived had to be sold at a sacrifice."

It is certain that a farmer who has not had much experience should not go largely into buying stock to fatten. And in fact, a farmer without experience should not go largely into any thing. But why a farmer who has acquired experience should not use it, I cannot understand. Such men as John Johnston and Jurian Winne, who have made themselves and their farms rich by buying sheep in the fall and fattening them, are in no sense speculators. They run no more risk in paying four dollars a head for a lot of sheep to fatten than the farmer who raised them would, if he, instead of selling them in the fall at this price, concluded to fatten them himself. The truth is, it would be much better for us all if there was more of a commercial element in American farming.

"I do not see how you get along without Fairs or Market-Days," remarked our English visitor. "With us they are absolutely essential to our system of farming. We always know where to buy such stock as we want, and can depend on selling it for what it is worth at any market-day." He is right. As things now are, the farmer who fats fifty or seventy-five sheep is at the mercy of some local butcher. He cannot send them to New York with advantage, because he has not a car-load of them. But if we had a Fair once a month, we could sell small lots to dealers who were buying to ship, and there would be competition enough to secure us fair prices. Now, if a farmer has more feed than he wants, he does not know where to look for stock to eat it. He must spend days traveling about the country, picking up a few head here and there; and it is just as bad if he finds himself overstocked. He must sell to some one who knows how he is situated, and who will try to get them at a bargain.

The Deacon is still inclined to show fight on the corn-planting question. He thinks hills preferable to drills, both for corn and potatoes. They certainly give one a better chance to cultivate the land, and save much labor in hoeing, and also in cutting up or digging. We agree on one point, that corn is seldom cultivated half as thoroughly as it should be. Working the soil to kill weeds has been the only means I have had to depend on for enriching my land. And I am greatly encouraged, especially when we come to plow up a clover sod that four years ago was in corn, and received such an extra amount of cultivating. The texture and color of the soil has completely changed—and vastly for the better. In fact, it does not look like the same land. The men get quite enthusiastic over it, and can hardly believe that such a simple thing as cultivating a corn crop, nine or ten times in a season, can be the cause of the improvement. But this is all there is to it.

A Poultry-house and Grapery Combined.

In the fall of 1869, Mr. John Warren, of Flushing, L. I., put up a structure which was intended to serve both as a poultry-house and a grapery. It has thus far proved a success, as far as the fowls are concerned, and as the vines will come in bearing this year, for the first time, the profitableness of the entire establishment will be decided this autumn.

Figure 1 gives a view of a portion of the main building, which fronts to the south; is 140 feet long, 18 feet wide, and is constructed like any ordinary grapery. The great surface of glass makes it a warm, dry and pleasant day run for the fowls. The interior of the grapery is divided into fourteen separate compartments, 10 × 18, which accommodate twenty fowls each.

The roosting and laying rooms are immediately in the rear of the grapery. In figure 2, we give a ground plan of a portion of the structure, the rest being merely a repetition of the parts here

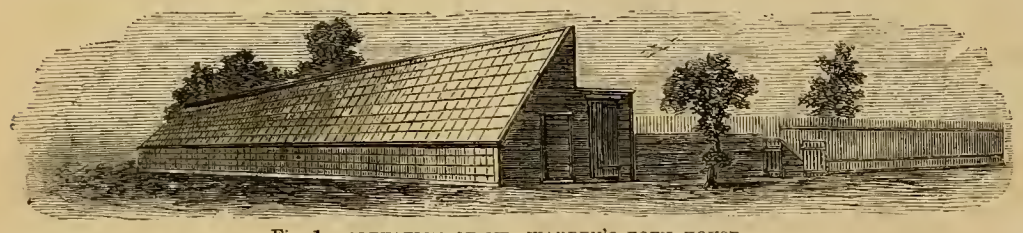


Fig. 1.—ELEVATION OF MR. WARREN'S FOWL-HOUSE.

represented. In the plan, *A*, *A*, *A*, are apartments in the grapery; *B*, *B*, *B*, are the roosting and laying rooms, which are in an addition at the rear of the grapery, the end of which is seen in figure 1. These roosting rooms are 8×10. Between these and the apartments in the grapery are the self-feeding bins, filled with the different kinds of grain, and so arranged that each bird may have a bin to itself. When the fowls are let into the glass run in the morning, the bins are opened, and remain so until their appetites are satisfied; they are then closed until toward night, when food is again offered. Figure 3 shows a single feeding bin, and in figure 4, which represents the interior of the apartments in the grapery, the bins are seen in place. The roosting rooms have board floors; those in the grapery are earth. Figure 5 shows the interior of the roosting and laying apartments, looking towards the grapery. The roosts are 18 inches from the floor, and are 4 inches wide. The nest-boxes are just over the feed-bins, three feet from the floor, and are reached by steps. The roosting apartments are ventilated by openings above the nests; these connect with the grapery, which has a row of ventilators extending its whole length. The building is so arranged that a wheel-barrow can be run its entire length for the purpose of cleaning. At the north of the building are yards, *D*, *D*, *D*, figure 2, where the birds run during summer. These yards are 10×26 feet, and each provided with a covered dust-shed, figure 4. About the middle of March the fowls are shut out of the grapery, the partitions removed, and the vines made ready for the season. Beyond the small yards are large grass runs, *E*, fig. 2, where the fowls are allowed to forage for a few hours each day. The stock consists wholly of Light and Dark Brahmas and Buff Cochins. Mr. Warren's experience is that these are the most profitable varieties, and has spared no expense in procuring the best blood to be found. In laying qualities, quiet disposition, and hardiness, they are unequaled. He had no success with the French breeds, and experience has taught him that for market and fancy poultry, his present breeds are decidedly favorites. His birds are kept perfectly pure, and from August to the middle of October the hens are kept entirely separate from the cocks.

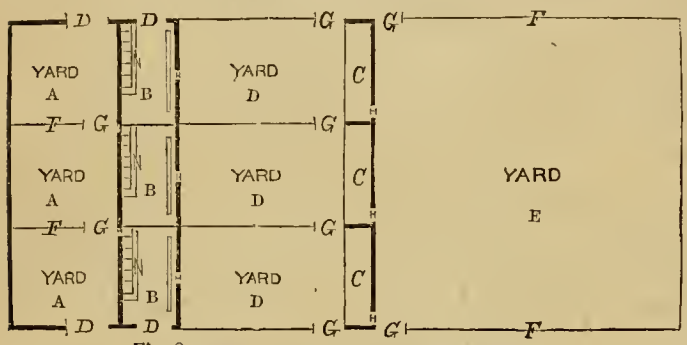


Fig. 2.—SECTION OF PORTION OF FOWL-HOUSE.

The setting-house occupies the cellar under the barn, and is capable of setting 150 hens; to the north of the barn, are large runs, well shaded with numerous storm-houses, where the pullets and cockerels are raised, the two sexes being separated as soon as they can be selected; they are allowed a large field range, and commodious roosting-places. Last fall he had some 650 birds, and up to the last of September was still hatching. His birds were all free from disease, and fine, vigorous chickens.

Mr. Warren is now experimenting with a new incubator, and has succeeded in hatching chickens, and before another season he will improve on his present plan. Experience has shown him that it is practicable to rear chickens artificially. Connected with this extensive establishment are two sheds, which open to the south, 60×13 each, where hens and chickens are protected from storms, etc., and are kept until old enough to put with their several classes.

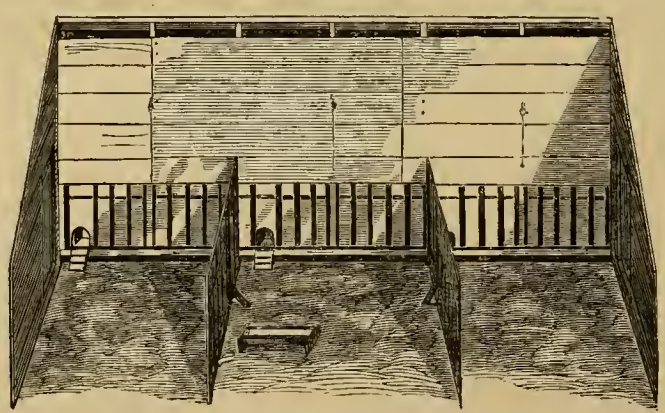


Fig. 4.—INTERIOR OF APARTMENTS IN GRAPERY.

The whole management and arrangements of this establishment are most complete, and it is probably the largest and best paying poultry-yard in this country. From the very start, the establishment has given a liberal return.

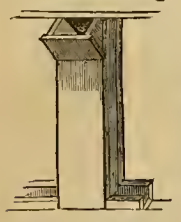


Fig. 3.—FEED-BIN.

High Prices for Thorough-bred Animals.

To a man, who deals in scrub cattle, worth fifty dollars a head, it seems an enormous price to pay two hundred dollars for a herd-book animal, and six hundred is deemed a clear case of extortion. But there is nothing in the breeding of choice animals to disturb the usual law of demand and supply. Like any other article in the market, they are worth just what they will bring. The scrub cow is good for beef and milk, and it does not add a cent to her value that she can reproduce her kind, for thousands of her kind are every year deaconed, and the flesh is fed to swine or thrown away. If she is a good milker she is worth sixty dollars as a new milch cow, if that is the market price of the article. If she will make five hundred pounds of beef, she is worth eight cents a pound live weight, if that is the market price. You can get as many as you like at that price. But the thorough-bred is prized for different qualities altogether. If known to be a barren animal, she is worth no more than a scrub of the same weight. If she can reproduce her kind, every good quality in her is enhanced in value. We are ready to pay for her pedigree,

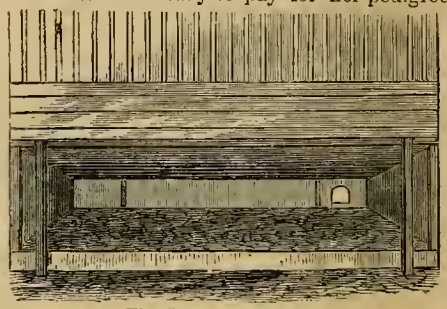


Fig. 6.—DUSTING-BIN.

her beauty of form, her capacity to make beef economically, to produce a large flow of milk, or to make rich butter and cheese. These extra qualities are the result of care in breeding; they represent capital lavishly spent, and skill in the breeder, acquired by long years of experience. He has in the carcass of his thorough-bred animal a machine for the production of certain economical results, which has cost him large sums of money. If he can show that he can produce these results with a fair share of uniformity, he is entitled to an extra price for his thorough-bred animal. There is no doubt that the skillful breeder can do this. A shorthorn bull at his price is cheaper for a farmer who wants to raise beef in the blue-grass region, than a scrub bull at any price. It is the confidence which farmers have that thorough-breds will transmit their good qualities that leads to the steady demand for them. A breeds them, it may be, to sell to B at a fancy price. But B would not want them, unless he could sell to C, who is engaged in raising beef cattle, and has found out that grade shorthorns will save a

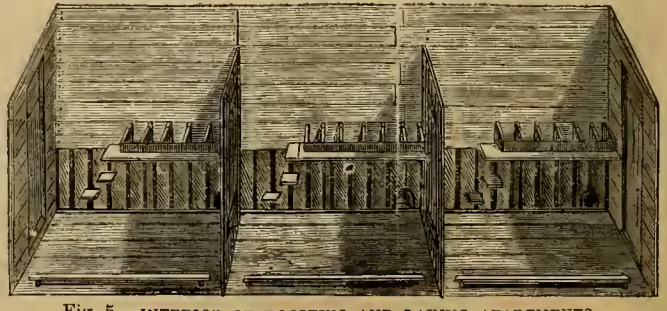


Fig. 5.—INTERIOR OF ROOSTING AND LAYING APARTMENTS.

whole year of feeding, and one year's interest on the large capital he has invested in stock. He wants only a thorough-bred bull, and thinks he can afford to pay any price which is necessary to get him. The high prices for these animals will only continue as long as farmers find it for their interest to buy them. The several breeds of cattle meet real wants among farmers who desire them for ordinary purposes. The demand will probably continue as long as beef, milk, butter, and cheese are eaten; as long as oxen are used upon the farm. It is the most thrifty and skillful farmers that invest in thorough-bred animals. It is altogether probable that they understand their own interests.

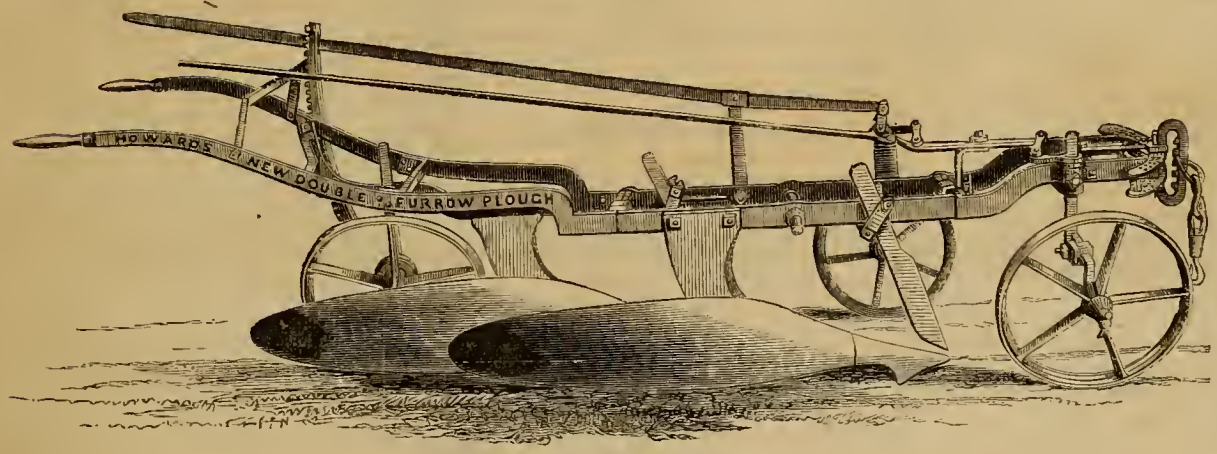


Fig. 1.—ENGLISH DOUBLE-FURROW PLOW.

The English Double-furrow Plow.

Plows to cut two furrows at once—or two plows attached to one frame—are not a novelty; but their construction has recently been so much improved in England, as to create quite a general sensation among the farmers of that country, and to promise such advantages as to make it well worth our while to investigate the matter in earnest. It is claimed—and the claim is based on practical use—that with one of these double-furrow plows, one man and three horses will do the work of two men and four horses under the single-furrow system—effecting a saving of one-half the wages and one-fourth the horse keep—enough to turn the scale between profit and loss on many an acre.

The engraving, figure 1, shows the construction of the implement so clearly that explanation is hardly needed. The beams are "expanding," to regulate the width of the cut of the rear plow. The wheels stand *obliquely* (a novelty), so as to counteract the tendency of the plow to run to land—allowing the draft to be more direct than in the ordinary plow. The depth of the cut is regulated by the left-hand lever, which is held in place by a ratchet. The direction of the movement is regulated by the furrow-wheel (the foremost one), which is made to turn to the right or to the left by the movement of the long lever over the middle of the plow, so that the furrow may be made more or less deep, or the direction changed by the plowman.

By taking off the plow from the right-hand beam, and substituting a subsoil plow for it, we turn a single furrow, and subsoil the furrow of the last bout—with the great advantage that the subsoil track is never trodden by the team; it is immediately covered by the furrow from the left-hand plow. Fig. 2 shows such an arrangement.

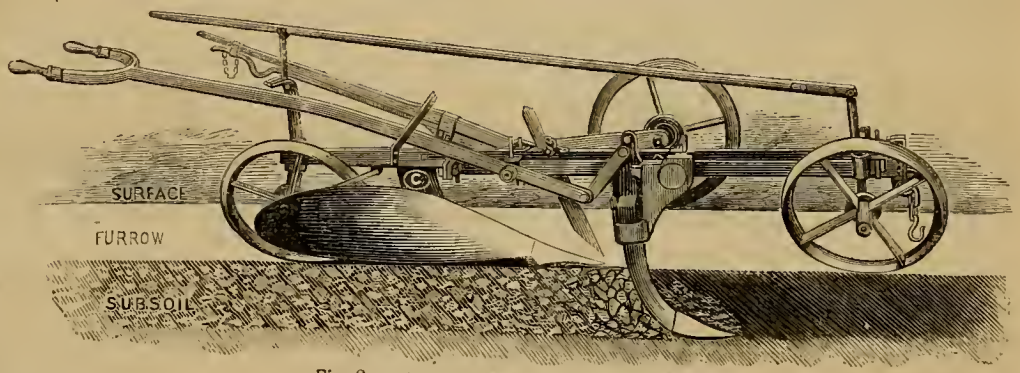


Fig. 2.—DOUBLE-FURROW PLOW AS SUBSOILER.

A Home-made Harrow.

M. W. L. Duraud, Derby, Conn., sends us a model of a harrow which he has made for his own use, and which he thinks will be found convenient by those who still use the old-fashioned A harrow. The timber used by Mr. D. is $3^1|_4 \times 4$-inch white oak, but the size of both timber and teeth can be varied according to the work to be done. The engraving will show the structure, the only peculiarity about which is, that it allows the implement to be taken apart. Mr. D. finds this a convenience in loading the harrow into a cart, and it also allows it to be hung up out of the way when not in use. The cross-piece has a tenon at each end, which fits into a mortise upon the side-pieces. The side-piece has an iron eye at one end, which catches upon a hook at the end of the center-piece. A one-half-inch iron bolt, attached to a chain, passed through the tenon, holds the parts together securely.

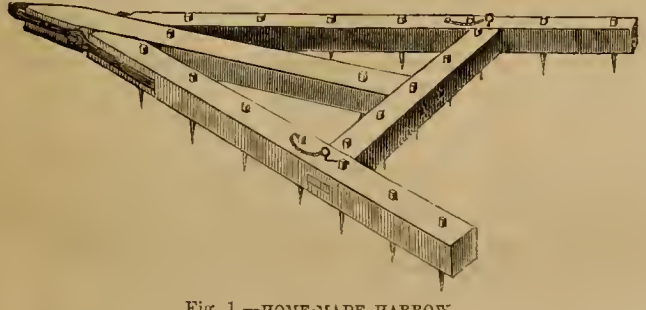


Fig. 1.—HOME-MADE HARROW.

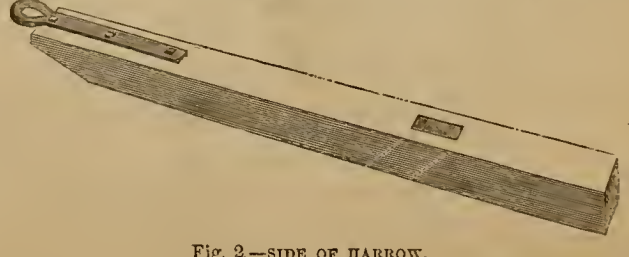


Fig. 2.—SIDE OF HARROW.

Berkshire vs. Chester White Pigs.

A breeder of Chester White swine in Iowa takes exceptions to the remark of a "Western Farmer," as given in "Walks and Talks on the Farm," in the *Agriculturist* for December. Speaking of the grand show of pigs at the Illinois State Fair, this prominent Western Farmer said: "The Berkshires were decidedly the best animals. The Magee and Chesters were out in large force, but they were too coarse, and, moreover, lacked uniformity." From this, and the remarks of "Walks and Talks," our correspondent concludes that both these gentlemen are breeders of Berkshires. *Such is not the case.* Neither of these gentlemen breed Berkshires for sale, and could have no other than disinterested motives for speaking of them as they did.

The readers of the *American Agriculturist* need not be told that we have done no little toward introducing the Chester County pigs throughout the United States. We think very highly of them. They are a strong, healthy, vigorous race of hogs, growing rapidly, and attaining great size at maturity. They have done much toward improving our stock of common hogs. But it does not follow from this, that we have attained perfection in pig-breeding. It is an undoubted fact that, as compared with the Essex, the so-called Suffolk, the Berkshire, the Yorkshire, or the Jefferson County breed, the Chester White, as usually exhibited, even by the best breeders, lacks *refinement.* As compared with these breeds, and more especially with the Essex, the Chester White is a large-boned, heavy-eared, coarse, thick-skinned hog. No one who sees the two breeds together would dispute this for a moment. Now, what "Walks and Talks" advocated was crossing grade Chester White sows, or large common sows, with one of these highly-refined thorough-bred

boars. We believe this opinion is indorsed by all who have tried the cross. A letter just received from Mr. Richard Richards, of Wisconsin, an experienced breeder of Chester White and Berkshire pigs says: "I agree with you fully in regard to crossing a fine-boned boar on large sows. When I first got a Berkshire boar there was none of my neighbors that wanted to use him. They would bring as many as a hundred sows, some seasons, to my Chester White boar. My Berkshire boar, the first season, was small, and as many of them had small sows they were obliged, much against their will, to use the black pig. And the consequence was it opened their eyes, and now these farmers will use nothing else than the black breed. And I think they are right. A fine-boned boar on large sows gives the produce plenty of size and fine form, and such as will fat readily at almost any age. I agree with you, too, in thinking that the better bred the boar the better the cross will be."

Our Iowa correspondent says: "If your prominent 'Western Farmer' is a sporting man, I will wager forty pigs, that I can take my Chester Whites or Magees and beat his Berkshires, both in weight and form, at any time, and all the time, from two weeks to two years old." "Western Farmer" is *not* a sporting man—he is a gentleman—and this species of argument will have no more weight with him than it has with us. It is a poor cause that needs a wager to sustain it. "Western Farmer" is not a Berkshire breeder, but we hazard little in saying that he is as good a judge of the relative merits of the different breeds of pigs as any man in the country; and furthermore, he has made more accurate, more thorough, and more conclusive experiments in regard to the fattening of pigs of different breeds than any other man in the United States. His opinion on a question of this nature is entitled, at any rate, to respectful consideration. He thinks the Chester Whites and Magees too coarse, and it is no answer to say, "They will weigh more at two weeks or at two years" than the smaller breeds. This is not denied. But will they at six months or a year old give as much *pork*, and of as good quality, in proportion to the food consumed, as the more refined, small breeds? Will the grades, from common sows, be as good and as profitable in these respects? These are the questions at issue, and they should be met with candor and courtesy, with arguments and with facts, and not by assertions or wagers.

MESS PORK.—Several ask what part of the hog is manufactured into "mess pork," and how it is made. Cut off the head, the shoulders, and the hams; and the sides that remain make mess pork. Sometimes the shoulders and the cheeks are also included. The tenderloin and spareribs are usually taken out and eaten fresh, but the ribs are not unfrequently cured with the sides without being taken out. The method of curing is very simple. Cut the sides in the direction of the ribs into slices about six inches wide, and pack them round the barrel, commencing at the outside, and working towards the middle. Make the layer as close and tight as possible. Cover the layer with an inch of salt, put on another layer of pork, another layer of salt, and so on until the barrel is full. Then cover the top layer with salt—and always keep it covered. Make a brine with boiling water, (cold will answer if not convenient to boil it,) putting in as much salt as it will dissolve, and pour it into the barrel until all the pork is covered. The great point afterwards is to be sure and keep the brine at the top of the barrel saturated with salt. If the barrel is headed up, it is a good plan to turn it over, or upside down occasionally, as the salt is apt to settle at the bottom while the brine at the top may be too weak.

A Cheap Two-rail Fence.

The fence question, though more easily solved where stone and timber are more plenty than upon the prairies, is still a troublesome matter. A six-rail fence will do where timber is very plenty, and you wish to get rid of it as a nuisance. But where railroad ties are worth 60 cents a piece, chestnut is too valuable to be put into rails. We have tried for two years a cheap two-rail fence, which turns cattle quite as well as the ordinary six-rail fence; and it has this advantage, that it can be made perfectly straight, so as to make the full length of every rail available. It is made by driving stout crotches about three inches in diameter on the line of the fence, just far enough apart for the rails to span. The crotches should raise the bottom rail about two and a half feet from the ground. Stakes are driven at the crotches, crossing each other in the usual style of the Virginia worm-fence. A rider is then put upon the stakes, and we have a substantial fence, about four feet high, which answers a good purpose for orderly cattle. If for any reason a higher fence is desirable, the crotches must be made higher. This fence, of course, will not answer for sheep or swine, but for fencing out cattle from wood lots, or for dividing pastures, it serves a very good purpose. When the wood is at hand, and the cost of timber is not reckoned, this fence can be built for about 20 cents a rod, if the labor is not over $1.50 a day.

BREACHY CATTLE.—"E. V." writes with reference to a cow that throws down rail fences: "I have seen cows with a board across their horns and another board extending to the end of the nose with nails in it (the nose did not have nails in it, but the board); I want to know how to fasten the board to her horns, or if there is any other way to keep her from letting down the fence?"—Bore a hole through each end of the board, where they will exactly fit the horns without stretching or pressing. Let the holes be small enough not to go too far down on the horns. Leave about an inch of the horn sticking through the board; drill a small hole through it, large enough to admit a horse-nail as a key. The board, reaching from this cross-piece to the nose, may be screwed fast to it (not to the nose, but the cross-piece); there will be play enough on the horns to give the necessary swing. If nails are used, they should be very smoothly blunted. We have never seen them used; the board itself over the nose having proved effective.—W. E. Harbaugh asks for a contrivance to keep a breachy bull from throwing down fences with his horns. A cross-piece may be fastened to the horns, as described above, or tied to the base of the horns, with a board or stake running down a few inches beyond the nose. From the lower end of this another stake, about a foot long, may be fastened at a right angle, so that when the animal stands in a natural position it will project toward the front. When he lowers his head to hook the fence, this projection will interfere with his design. A board in front of the eyes will sometimes effect the same purpose.

Swedish Dairy Farming.

Near the University town of Lourd, in the county of Skane (Sweden), there is a farm, leased by the Baron Von Toll, which contains 1,500 Prussian acres under the plow, and 200 acres of grazing land. It is a fine example of rational farming in the fertile region of South Sweden, being worked under a 10-year rotation, comprising 3 years' pasture. The other crops are wheat, oats, and barley. The land is naturally fertile, and has a gentle slope toward the Baltic Sea. It is carefully cultivated, is thoroughly drained, and well manured.

The well-fed English Shorthorn cattle—125 cows and 50 oxen—are pastured during the summer. They are confined by long ropes, or "lariats," to stakes driven into the ground; and it is a strange sight to see the long, straight lines of cattle feeding. The clover pasture, being of excellent quality, is eaten off close; and each cow describes a perfect circle in eating, causing the field to look as if it had been mowed with a mammoth scythe.

Most of the milk is sold in the city. That which is retained for the butter and cheese is treated as follows: The churn is an upright one, with a vertical beater, which is worked by power. The butter is worked in an English machine, which consists of a heavy tin cylinder, 2 feet high and 6 to 7 inches in diameter. In the bottom are a number of small holes (about one-twelfth of an inch diameter), and after the butter has been well worked in the churn, it is forced through the small holes in the butter-worker by means of a close-fitting piston, which is slowly moved down by a screw. The small size of the holes, and the severe pressure, cause the buttermilk and other foreign matter to be entirely separated from the butter. This butter-worker is made in England, and is in extensive use there.

Another farm, of which we have an account, is "Hofgarden," on Lake Wetter, which is managed by Mr. G. Swartz. He is the great authority throughout Sweden and Denmark in all dairy matters, having made the manufacture of butter the study of a lifetime. An entirely new system of treating milk has been the result of his researches.

He has 1,800 Prussian acres under the plow, and 160 acres permanent meadow and pasture. The rotation of crops is nearly the same as that followed by Von Toll, and comprises 4 years' pasture on land laid down to timothy, yellow clover (hop-trefoil), and white clover. There are 160 to 170 cows, 20 oxen, and 32 working horses. During the summer the cows are pastured, but they are stabled at night.

Four Prussian acres are assigned daily to 132 head of cattle; the herdsmen marking with a scythe the bounds within which the animals may roam.

It is strange to see how they remain on the ground set apart for them; a few sometimes straying off to the section on which they had been the day before, they being allowed to do so. On coming to the stable at evening, they receive a very strange ration, consisting of *horse-manure* and crushed peas.

Mr. Swartz had once read of the good effects of this sort of feeding in an old Swedish book, but had paid no attention to it until he observed a shorthorn bull, who was roaming loose in his barn-yard, eating the manure from the horse stable, although he had just eaten all he wanted of his usual food in the stable.

The result of his experiments was, that he

feeds 8 lbs. horse-manure daily per head, and he finds that it acts favorably on the milk in increasing the butter therein. The peas increase the caseine in the milk.

The cows, though they have just come in from the pasture, enjoy their curious desert thoroughly. Though Mr. S. loses the horse-manure, he makes it up by being able to keep 20 to 30 cows more under this system. His rule is to give his cattle all they can eat, winter and summer.

The cows are milked by women in the stable, and the milk is at once poured into copper kettles (2 to 3 feet high, and equally wide), which stand in a trough filled with ice-water. Mr. S. acts on the principle to let the cream rise with the milk at the lowest possible temperature.

His dairy is a small building, in the center of which is a water-tank. The milk-cans, which are 20 inches high and 20 inches wide, are set into this tank, after the milk has been measured and poured into them. The cans have covers with an inch hole in them, and are not allowed to touch the bottom of the tank, but are hung up so that the cold water may circulate under them. During the summer, ice is used to keep the water in the tank at 39° to 41° Fahrenheit (45° at most), and in winter the water is naturally at about 33° Fahrenheit.

The *ice-house* at Hofgarden is curious and simple. It consists of a ditch over which a wooden grating is placed to allow the water to run off. In winter the cakes of ice are piled on this, all spaces between the cakes are filled in, and in cold weather water is thrown on the ice-heap, so that it freezes into a solid mass. It is then covered with a heavy layer of sawdust, and with a straw roof. To avoid uncovering the ice daily, several days' supply is taken out, placed near the dairy, and covered well with sawdust. Even when they have days with the temperature at 77° to 86°, which is not rare in Sweden, the loss of ice is very slight, provided plenty of sawdust be used.

The cream is churned at a temperature of 50°, and in summer it is cooled down to this point by ice. Owing to the hight of the milk-pans, the cream attains a thickness of 1 to 2 inches, and can be skimmed without much of the milk being mixed with it. The cream is entirely sweet when it is churned.

Mr. S. has made many experiments in his system of allowing the cream to rise at a low temperature. He has discovered that 144 lbs. milk produce in the first 12 hours 5.30 lbs. cream; in the second 12 hours, 0.17 lbs. cream; in the third twelve hours, 0.06 lbs. cream. According to this, it is not worth the trouble to let the process last longer than 12 hours, particularly as the few remaining particles of butter in the skimmed milk add to the value of the "lean cheese" that is made of it.

The system that has made Mr. Swartz's name so well known in Sweden and Denmark is, therefore, founded on what almost all farmers oppose—namely, low temperature during the rising of the cream, and high milk-pans. Mr. S.'s aim is to cool the milk as soon as it is taken from the udder (the cooling apparatus being in the stable), and to expedite the rising of the cream by keeping the milk at a low temperature, 33° to 43°. The advantages claimed are:

1st. The cream is separated from the milk in 12 hours; and, 2d, The milk is sweet.

The 2-feet-high milk-pans, or cans, are contrary to all the views on the subject, that the particles of butter rise quickest in flat milk-pans.

Mr. S. proves that, at a low temperature, the cream rises very rapidly. The surface of the vessels being small, the cream lies thick on the top, and is easily skimmed off.

The foregoing is, to say the least of it, a very curious statement; and it may be worth while for American farmers to try the effect of the deep setting of the milk at low temperature.

The ration of horse-manure we do not care to recommend.

Petroleum—The Early Days of the Business.

BY H. E. COLTON.

There is a principle of Nature's economy that when a demand is created, a supply is ready. For thousands of years a queer, pitchy, bad-smelling oil had oozed from the earth in different parts of the world, and had in various ways served the use of man. With it the Egyptian embalmed his dead, and the leprous Assyrian bathed his sores. In our own land the virtues and value of Seneca oil had been transmitted down from the red man, and it was bottled and sent throughout our land to be used by the rheumatic, whose pains compelled an endurance of its smell, to give its healing virtue to the dumb beasts of our farms or stables.

But a change has come over the land of the Senecas; and the creek, on whose banks they once sat and dipped the queer oil with their horn cups, is now the center of a rushing, thriving industry. The wealth, which for so many years had lain dormant, was roused to life just at a time when the needs of this great country and the world demanded it.

Young, of Glasgow, had published to the world his wonderful discovery of extracting oil from coal, bringing to view the pent-up sunlight of ages; but this wonderful discovery only created an intense thirst for the product he could not supply in sufficient quantities. In the meantime, a corps of adventurous spirits were exploring and boring in the wild, bleak hills of Pennsylvania. To Messrs. Eveleth and Bissell is due the credit of having opened the Drake well. Drake was a conductor on the New Haven Railroad, and employed by them to open the well. Prof. Silliman, of Yale College, was the first President of an oil company. On the 28th day of August, 1859, the first vein of oil was struck. The well, at a depth of about 60 feet, yielded 400 gallons per day. From this beginning slowly came up the great business, until it reached the wild whirl of excitement and speculation in 1863-64. Fortunes were made and lost in a day; thousands of gallons of oil ran to waste, and hundreds of thousands were sold for less than the cost of production. The mystical Johnny Steele flourished around New York hotels and bar-rooms with his income of thousands per day; companies were gotten up with par shares from 50 cents to $5; servant girls invested their all, hoping soon to be able to ride in their carriages and live in brown stone mansions. Never since the days of Law's great Mississippi bubble had the world seen anything equal to it. Unfortunately, this wild mania is too recently and painfully prominent with many of our readers. Many—hard-working men—invested their all in an engine and a lease, to work for days and weeks only to find nothing, and sit down penniless and despondent, fully and completely "busted."

The mode of getting petroleum is: A point selected, a derrick is erected, and augers gotten ready. The utensils consist of auger stem, reamer, bit, swivel, sinker-bar, sand-pump, etc. The auger stem is in sections, and as it goes down others are screwed on. Until the rock is reached, the sand-pump has frequently to be used. When the hole is finally bored and oil reached, the tubing is put down to the hard rock and the seed-bag put in. This is a leather bag filled with flaxseed, which fits around the pipe. It is put in the hole just at the sand rock, and as the seed soon swells, effectually prevents the oil coming up outside the pipe or the surface-water getting down. It was certainly a valuable discovery in oil-pumping. In the early days of petroleum, in many of the wells when the oil was struck, it burst forth with great force, sending the pump-rods and derrick-frame high in the air, mingling oil, gas, and salt-water. One of the most noted instances of this was the Burning Well, on the Buchanan Farm, at which the gas took fire and 38 persons were burned, of whom 18 died; among them the owner of the farm. It is generally conceded that those wells are most permanent which have no gas; as people who make the most fuss in the world are not always those who accomplish the greatest good for themselves or others.

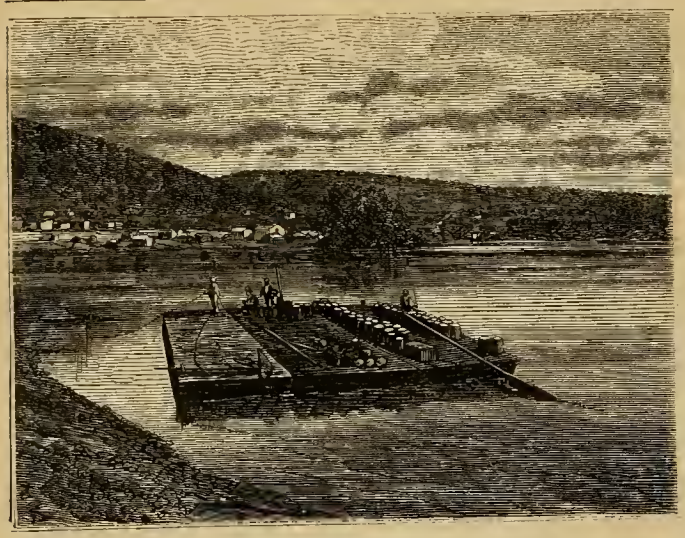
The number of the wells is legion, and the most condensed history of them would fill a large volume. On January 1st, 1869, there were 1,186 producing wells in Pennsylvania, and their average product was 11⅔ bbls. per day. Then there are many in Canada, Ohio, and West Va. There is some attention being turned to the deposits in South America. The whole daily product of crude petroleum cannot be far from 18,000 bbls., of 40 gallons each. Some of the wells have produced enormously, even over 4,000 bbls. per day. The oil has sold as low as 20 cents per barrel, and as high as $10. It is said to pay handsomely at $4. Millions of gallons are now sent to market without being barreled, except figuratively. It is transported to the railroad in pipes laid under ground, and put into gauged tanks: 40 gallons is a barrel.

In the early days it was floated down Oil Creek and its tributaries in flat-boats. The custom was to pond up the water, and, when all the boats were ready, cut away the dams, thus floating them on the freshet to the mouth of Oil Creek. As may be imagined, there was frequent accidents and the wildest excitement. As much as 50,000 bbls. of petroleum have been known to be thrown out on the waters of the creek and rivers from the bursting barrels, and crushed-up flats, in a "jam."

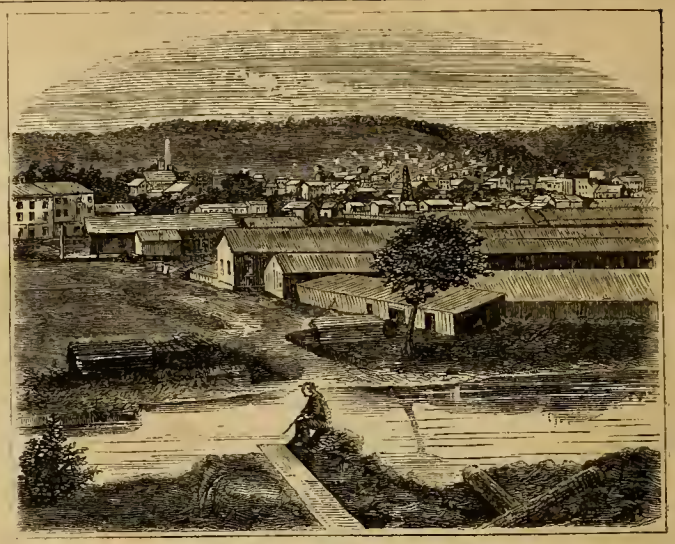
Fires of the most devastating character have frequently occurred. The city of a day has been in a few hours a mass of ashes. Now, the old lumber huts have given place to substantial brick buildings. The same may be said of the whole petroleum business; its evanescent speculative character has passed away, and it is now one of the most substantial kinds of business in the land, the value of its export amounting to more than any other article except cotton.

The question whether these wells will continue to yield, or whence comes this oil, is one we shall not discuss. It would take more space than we have, and our readers would not then actually *know* more than they now do. Many wells that were flowing have become pumping—and these, too, have decreased in yield. Measures to resuscitate have been adopted, as exploding nitro-glycerine, etc., in them. This has temporarily restored them. One manager filled his well with benzine, let it stay two weeks, pumped it out, and his well continued to pump longer than from the nitro-glycerine explosion. His idea is, that the air which gets down into the wells causes the oil to gum and fill up the sand-rock through which it oozes.

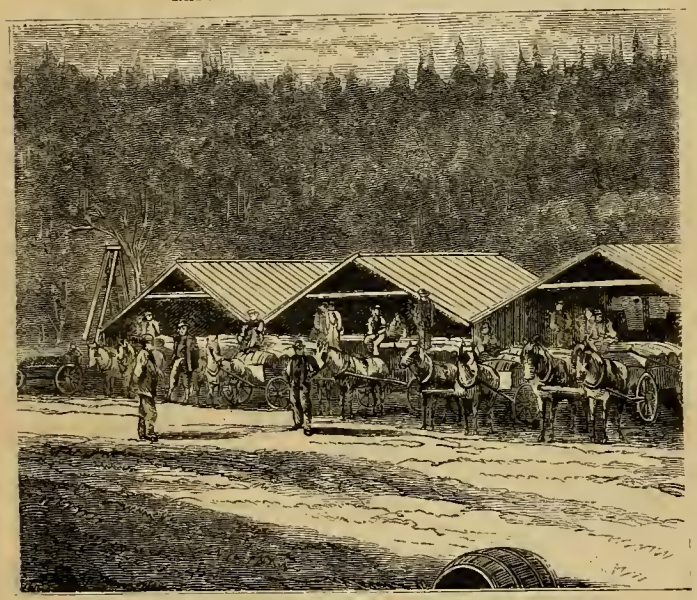
The oil regions of Pennsylvania present a



RAFTING PETROLEUM DOWN OIL CREEK.



VIEW OF THE CITY OF TITUSVILLE.



RAM-CAT WELL.—OLD MODE OF TRANSPORTATION.

PLEASANTVILLE.—VIEW OF THE DERRICKS.

THE DRAKE WELL.—THE FIRST OIL WELL.

"BUSTED."—HE FAILED TO "STRIKE ILE."

busy spectacle, as at Pleasantville, of which we present a picture, there being more than a hundred derricks in the space of a few acres. This oil-field is claimed to have been discovered by the agency of the spirits. Unfortunately, however, the good spirit which showed the way to the first well did not lead his devotee to the best one by a great many barrels per day. Titusville, of which we present a sketch, is the principal city of the oil region, and numbers about 12,000 inhabitants. In the old days of teamsters and the Ram-Cat Well, of which we present an engraving, it was a mass of mud, slush, and oil, lumber shanties, and wild excitement. Now there are three railroads, well-paved streets, and good hotels. We are indebted to Messrs. Day & Co., New York, for facilities in obtaining the above illustrations.

The Dwarf Cornel, or Bunch-berry.

Among the nine species of Cornel or Dogwood that are indigenous to the Northern States, there are two which have the flowers surrounded by a broad involucre, which, as it is white and petal-like, is taken by most persons for the flower itself. One of these species is the Flowering Dogwood —*Cornus florida*—which this month is so conspicuous in our woods, with its snow-white inflorescence; and the other is a very humble plant, which only reaches the hight of four or six inches, and would hardly be supposed to belong to the same genus with the tree-like Dogwoods. This is the *Cornus Canadensis*, the Bunch-berry, or Dwarf Cornel. It is found in damp woods, and is quite common northward. The herbaceous stems, which are thrown up from a subterranean trunk, have scale-like leaves below, and larger ones above, which are crowded so as to appear like a whorl of four to six leaves. The small flowers are in a terminal head, and surrounded by a white four-leaved involucre. The plant is more conspicuous in autumn than in spring, as then the flowers are replaced by a close cluster of bright red globular berries. The berries, which have not much taste, are eaten by children, and are sometimes made into puddings. Birds are very fond of them. The plant is successfully cultivated in English gardens.

DWARF CORNEL, OR BUNCH-BERRY.

May-flower, or Trailing Arbutus.

There is, perhaps, no wild flower about which so much has been written in prose and poetry as the May-flower, or Trailing Arbutus. Its simple beauty, its very early flowering, and its rich fragrance—so rare among our wild flowers—all combine to make it a popular plant. It is found from the British Possessions to Carolina and Georgia, though it cannot be called a very common plant. Its favorite place of growth is along the edges of woods, where it will be covered with leaves, and yet be open to the influence of the first warm days of early spring. The illustration shows the prostrate habit of the plant, its trailing stem running just at the surface of the ground, and throwing up from among the dead leaves its leaf-bearing shoots, crowned by clusters of pearly white or rose-colored flowers. The flowers arise from scaly bracts, have a long tube, which is very hairy within, and which expands into five rounded lobes. The flower-buds are formed in August, and are so well developed that it needs but a few days of mild weather to induce them to open. It is not rare to find them open in February, and it usually happens that the flowers are all gone before May. The name May-flower, by which the plant is most commonly known in New England, is not in reference to its time of blooming, but because it is supposed to have announced to the crew of the May Flower that their first long dreary winter at Plymouth was nearly over. The botanical name is *Epigæa repens;* the generic name is from the Greek, meaning upon the earth; the specific one, *repens*, means creeping. Like many of the Heath Family, to which the plant belongs, it has fine fibrous roots, and is difficult to transplant. In England, where most plants of this kind do well, it is found to succeed only when grown in a frame. A lady has recently written us that she succeeds in growing it in a hanging basket, by keeping the stems close to the soil, and giving it frequent sprinklings. It is so charming a plant that its shyness is to be regretted. Those who have suitable situations by the edge of a wood can probably succeed by taking large clumps with considerable earth. This can be best done just as the plant is about making its new growth.

MAY-FLOWER, OR TRAILING ARBUTUS.

Roses for Winter Flowering.

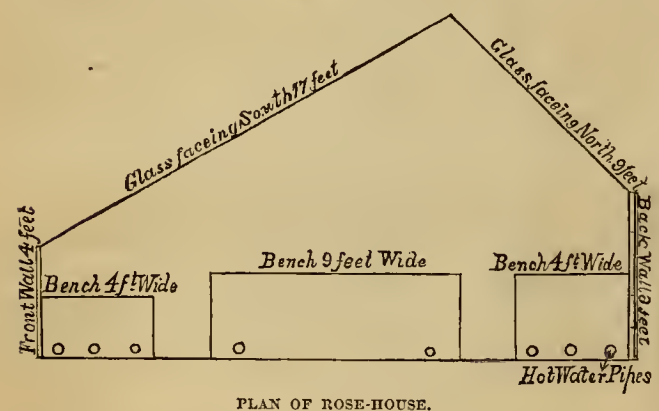
BY PETER HENDERSON.

Your correspondent, "N. G.," has asked questions upon the winter-flowering of roses, the reply to which would be too much for a private letter; and as the matter is of general interest in all large towns throughout the country, I have made it the subject of an article. Last season we built a greenhouse for these roses, 300 feet long, and 21 feet in width, of which the subjoined is an end section: It differs from that figured in "Practical Horticulture," in being one foot wider, and having the back and middle bench on the same level, which we find to be of convenience in working, besides giving the roses a better chance to grow higher. The question of the walls for such a structure as this is a very important one. We find that if brick is to be used for the north or back wall, it must be made hollow, as a solid wall of even one foot in thickness will not stand the extremes of temperature between the outside and inside; but as a hollow wall is an expensive matter, I would recommend to those with whom economy is an object to construct the walls thus: Get strong locust, chestnut, or cedar posts, of length sufficient to allow them to set 3 feet in the ground; place these 6 feet apart; outside of these nail hemlock or other rough boards; against this tack a layer of asphalt or tarred paper, and then against the paper nail the weather-boarding, finishing at the top with a hollowed-out timber, 6 or 8 inches wide, for a gutter. A greenhouse of this kind, heating apparatus, and all complete, will cost at present prices from $20 to $25 per running foot; with hollow brick walls, it would cost about $30 per running foot. The use of tarred paper for greenhouse walls is only a recent one; formerly we used to fill in with brick, or use double boarding, leaving a space of two or three inches, which was filled in with charcoal, sawdust, or some other non-conducting material; but the tarred paper is by far the cheaper, and better. Your correspondent also asks the best method of growing roses for forcing—whether that of planting out or growing the plants in pots or tubs. By all the experience of ourselves and our neighbors,

we have come to the conclusion that growing them, in the portable condition, in pots or tubs, is the best, every thing considered. No doubt it is successfully done both ways; but one advantage of having them in pots is, that if any change is necessary in the greenhouse, the plants, if grown in pots, are available for sale, which they would not be if permanently planted out. The rose-house we erected last year contains about 5,000 plants, grown in 10 and 12-inch pots, occupying about a square foot of space for each plant. No plants could possibly be in better health and vigor; and the amount of rose-buds, gathered from October to May, 30 weeks, averaged about 2,000 buds per week. At New York rates, which are very low—say $6 per 100—this would give about $3,600 for the crop. The varieties grown I will name in the order of their value here: *Safrano* (orange yellow), *Isabella Sprunt* (canary yellow), *Bon Silene* (carmine purple), and *La Pactole* (yellowish white). These are all tea-roses, and the varieties most valued for forcing; *Bon Silene* is the favorite, and is largely grown about Boston. One florist there sent last New Year's Day to the bouquet-makers of New York 1,200, for which he received $300, or $25 per 100. This variety, from its delicious odor and rare and bright shade of color, is generally of twice the value of any other; but against this advantage is the fact, that it is less prolific of bloom, scarcely giving half the number of flowers in a given space as any of the others named. "N. G." inquires also our method of summer preparation for forcing. We secure good healthy young plants that have been propagated in March or April; these, when first taken from the cutting-bench, are placed in 2 or 3-inch pots; if rooted in March, they will have filled the small pots with roots by the middle of April; if in April, by middle of May. In either case they should be shifted into larger pots as soon as the ball of soil has been filled with white roots; if left too long unshifted, the roots become brown in color, and of a hard, woody nature; if in this condition they become checked in growth, they never afterward make so fine plants. Of course, until the middle of May, these shiftings of the young plants must be done under glass, but after that time they should be placed in beds of convenient width—say 4 or 5 feet, in some free and airy situation. When first shifted from a smaller to a larger pot, the plants should be placed close together, the rims of the pots touching; but as they begin to grow freely, the pots should be drawn apart, so that the rims stand an inch or so clear of each other. This is very important, in order to admit free circulation of air around the sides of the pots, and develop strong and healthy roots. Until the middle of June we stand the pots on the surface of the ground; but about that time it is necessary to plunge the pots to the rim in sand, coal-ashes, waste tan-bark, or some such dry and light material. If this is not done, they can hardly be kept damp enough; and the intense heat of the sun beating down on the sides of the pots, dries up the young rootlets. It is necessary that the beds wherein the roses are plunged should be so arranged that no water will lodge at the roots, as that would be quickly fatal. Last fall we found it necessary, after a heavy rain-storm, to lift the pots out of the sand in which they had been plunged, to allow them to dry. Forty-eight hours of heavy rain would have killed the young roots. It is also essential to watch that the roots do not get through the bottom of the pot; to prevent this, they should be turned around at least every ten days, to break off any roots that may have run through. It will be understood that continued shiftings into larger pots are necessary during intervals of four or five weeks during the summer, until September, by which time, if well grown, they will be of sufficient size to require pots of 10 or 12 inches in diameter. We never shift them after middle of September, as the roots they have then made are sufficient to carry them through the winter and spring, stimulated, however, by water drained from the manure heap, which we use twice a week, from January on to May, diluted to the color of strong tea. The expenses attendant on the cultivation, and the interest on the investment of this rose-house the past season, were about as follows:

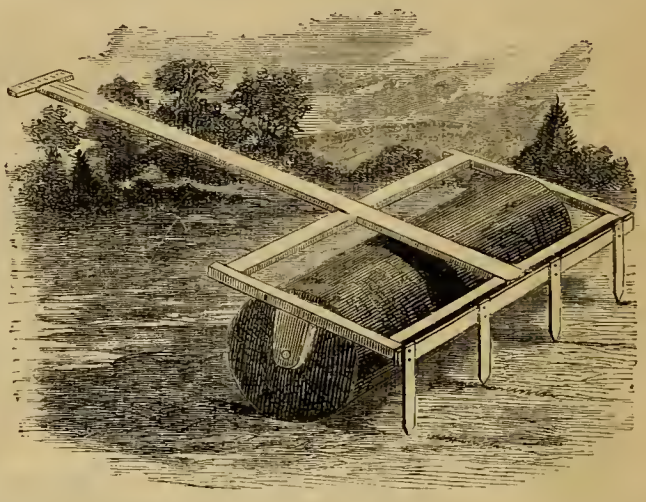
First cost of stock, if it had to be bought, 5,000 roses, at 10 cts	$500
Interest on $6,000, at 12 per cent	720
Labor of one man for the year	500
80 tons coal, at $6.00	480
	$2,200
Receipts for the year	3,600
Profit	$1,400

The second year, of course, the expense of buying stock would not come in, as the plants would be in better order the second and even the third year than the first; besides, if young plants are wanted for sale, they might be propagated in any quantity from the flowering plants. Another question asked by "N. G." I had nearly forgotten: he wishes to know if one or more greenhouses of this construction may be joined together in front of each other. This is exactly what we did last year. We had previously built one house 300 feet in length by 20 feet in width, and conceived the idea of using the front wall of this for the back wall of the other, and so built with the best possible results. The house placed in front must of necessity be from 1½ to 2 feet lower than the one behind.



PLAN OF ROSE-HOUSE.

Peas and Potatoes.—Being short of ground for our gardening operations, we have this year adopted the plan of planting our peas and potatoes together in the same rows, planting the potatoes first, and then planting the peas as we would if they were to occupy the land alone, except that they are not planted quite so thick. This system is much in vogue among market-gardeners, and answers a very good purpose. The pea-vines are not brushed, but fall into the rows between the potatoes. It may be adopted with early or late potatoes equally well.



ROLLER AND MARKER.

Combined Roller and Marker.

Mr. Chas. T. Starr, Avondale, Pa., sends us a drawing of a combined roller and marker, which he has invented, and finds it in the truck-garden, and for root-crops, etc., superior to any thing he has tried. He thus describes it:

"It is in the shape of a wooden hand-roller, 12 inches in diameter, and 3 feet 6 inches in length; the frame is made of 2 × 2-inch white oak, with a tongue 6 feet in length. On the back part of the frame is hinged a piece of stuff 1½ × 2½ inches, to which markers, 2 inches wide, are attached, by two bolts in a slot, so they may be raised or lowered as required; this piece, with the markers attached, is fastened down by one hook, attached to the frame, which may be raised and hooked up, when the beds are planted and the whole is wished to be rolled to finish. The advantages, I think, are obvious: 1st, it crushes all small clods before marking, and levels the ground; 2d, the rows are all of a uniform width, and it will not vary from side to side in the least; 3d, the rows can be made straighter with this than any other marker; and 4th, it is two machines combined in one."

Sweet Corn and Celery on the same Ground.

BY PETER HENDERSON.

About a dozen years ago I came into possession, about the 1st of May, of a four-acre plot that had lain for many years in sod. It was then too late to be able to break it up so as to plant with any of the finer kinds of vegetables; so I decided to plant it with sweet corn. Accordingly, I had the sod plowed over flat in such a manner as would best rot it. I was careful to have the furrows straight, and at every 5 feet, where they lapped together, I dropped sweet corn at 4 or 5 inches apart, so that when it started to grow it stood in regular lines 5 feet distant. The corn was planted about 20th of May, and hoed around the line as it grew, the

space between being run over by the harrow cultivator. By the middle of June, by the action of the cultivator, the space between the rows of corn was in fine friable condition, and celery was planted in double rows (10 inches apart). The shade given by the corn was of no injury to the celery at this early stage of growth, and as the corn crop was sold, so that the stalks were cleared off by the middle of August, the growth of the celery was not in the slightest impaired. The whole transaction was quite satisfactory; the corn crop sold (green) for about $600, or $150 per acre. The celery, at about $400 per acre, which was exceedingly low, not much more than one cent per root for every root planted. Last year the price would have more than doubled that for the same quantity. I had forgotten this incident in our market-gardening experience, until in reply to one of your readers asking what he could best do with a piece of meadow so situated, I told him of this, and, thinking it might be of interest to many so situated, I briefly describe it here. The variety of sweet corn used was the "Early Darling;" the celery, the "Incomparable Dwarf." No fertilizer was used, except a slight sprinkling of bone-dust for the celery.

Self-sown Verbenas.

L. B. Case, Richmond, Ind., writes: Every year, after our verbenas have done blooming, we cover the beds with straw or chip dirt; and in the early spring, after digging and working the beds, the self-sown verbenas come up in great quantities, and none from the greenhouse can excel them in size, beauty, or brilliancy of color. We have all the intermediate shades of color, from pure white to a very dark purple or plum color; indeed, almost black, and often some of the finest striped varieties. These self-sown seedlings of course are not as early as those raised otherwise, but they grow among other plants without much care; and if they prove worthless, or in the way, they can be easily pulled up, while, if fine, they well repay one for their waiting. We have several times had "*sports*" that were admired by many.

One of the self-sown seedlings last summer had a bunch of flowers on the central stalk, pure white, and all the branches starting from the base also had white flowers, except one branch, which had a red stripe in the center of each petal of all the flowers, and continued to bloom so all summer.

In the summer of 1869, one seedling had the flowers of the central stock half white and half of a dark, rich purple; the line of separation being so exact as to cut some of the petals of the single flower into halves across the center of the bunch, leaving one-half of the bunch pure white, and the other half a pure purple. The branches starting from the base of the plant had either all white or all purple flowers.

Notes from the Pines.

It is not in the best taste to obtrude one's personal matters, but I would like to say to the many friends whose letters remain unanswered, and to those who have sent seeds and plants as yet unacknowledged, that I was "heeled in" about Thanksgiving, and remained there until the days of bluebirds and crocuses. For further particulars ask Doctor K.

Bulbs.—The mention of crocuses reminds me to say a word about my bulb-bed. In the fall of 1869 I had a large variety of bulbs, and to try how much abuse they would stand, I put them out and let them remain all winter without any cover. Hyacinths, Tulips, Crocuses, Scillas, and a few others, made a good bloom the following spring; but all the more delicate, Narcissuses, Anemones, and the like, were never heard of. Last fall similar things were planted, and a light covering of salt hay thrown over, and the difference this spring is remarkable. My experiment the year before was made with the hope of being able to say to those people who wish to get along without trouble: "You need not cover your bulb-bed; the plants will do very well without it." But it wouldn't work.

Bulbocodium.—I have before said a good word for *Bulbocodium vernum*, and now wish to repeat that it is the best, earliest, and altogether the most satisfactory spring bulb. It is up and away before the slower Crocuses and Snowdrops have become conscious that winter is over.

Anemones and Ranunculuses.—A Ranunculus root looks like a many-pronged tooth, and that of the Anemone like something that had been trodden upon and flattened past recovery. It requires some faith to plant these with a view to returns. They both do very well with me on sandy soil, with a good covering through the winter. There are few things more brilliant than these flowers.

The Cabbage-worm.—Last year the devastation caused by the caterpillar of the *Pieris rapæ* was disastrous; the insects did not injure the early crops much, but they came in legions for the late ones. This year the early crops will doubtless be attacked, as I saw butterflies the last week in March. Their chrysalides are found in all sorts of sheltered spots. I found some upon the under side of the branches of a pear-tree. The insect, in all its stages, was figured in November last. There are several broods in the course of the season, and every butterfly killed now is a great gain. While the weather is comparatively cool, the insects are less active than in the hot summer months, and may be more easily caught. Probably persistent hunting with sweep-nets is the most promising means of destroying the destroyer.

Cordon Apples.—I have a row of apple-trees in horizontal cordon along a garden road. The trees were allowed to grow upright last year, and are now to be brought down to a horizontal wire stretched a foot from the ground. One of the neighbors seeing me at work at these trees, had his curiosity so much excited that he had to come over for a nearer view. The matter was explained by a lecture on cordon trees in general, and the *cordon horizontale* in particular. The thing met with reluctant approval; but there was an objection—the fruit would be down too low, and *it would be a trouble to stoop for it!* It was an odd view to take of the matter, but it reminded me that I had not thought of fruit at all. I was just growing the trees for the fun of the thing, and was getting my full reward in making them take the shape I fancied. There is a sort of satisfaction in bullying a Baldwin or Northern Spy, and making it understand that a foot is the highest it shall ever get. I am glad to see that Mr. Waring, of Tyrone, Pa., is publishing articles on the cordon training of peach-trees, in *Hearth and Home*. One can get no end of pleasurable occupation out of a few peach-trees thus trained, besides a certainty of fruit not to be had in most localities, with trees grown in the ordinary manner.

Sowing Weeds.—In my collection of herbaceous perennials there are numerous Sedums, or Stone-crops. To my great regret I find this spring hundreds of self-sown Sedums, some of which are at a considerable distance from the mother-plants. These must be taken up and burned, or otherwise cared for, or they may become established weeds. The Live-forever is a Sedum (*S. Telephium*), and was first introduced as a garden plant. It is now an annoying weed in many localities. Indeed it has a foot-hold upon the adjoining place. I do not wish to have the credit of naturalizing any others of the genus.

Labels are a tribulation with me. The Northampton pencil makes a lasting mark, but the label must be smooth, and the rascally machine-made things are as apt to be rough as smooth. The solid ink pencil makes too little show. I have come back to white-lead and a common pencil. This will last much longer than will the miserable labels which the factories turn out. Who makes a decent label?

Soaking Seeds.

There are some seeds, such as the Canna, which it is necessary not only to soak, but to almost cook before they will germinate; and those of the Cypress-vine and Globe Amaranth can only be successfully started by soaking in warm water. These seeds are sown where they can be attended to, if they are likely to suffer from dryness, and in these and other cases the soaking is necessary. We see it often recommended to soak the seeds of beets, carrots, and other garden seeds before sowing, and we have practiced soaking such seeds with good results. Still we find that our market-gardeners, who yearly sow large quantities of seeds, seldom or never do it. If the ground into which soaked and often sprouted seeds are placed is in good condition, and should the weather remain favorable, all will go well, and some days be gained; but should a dry spell come on after the soaked seeds are sown, the germination which has started will be checked, and the whole sowing be lost. No subsequent moistening will resuscitate seeds that have had their germination arrested. This objection does not hold in small gardens where watering can be done without much trouble; and we would caution those who soak their seeds in order to hurry them up, to be careful to water them should the condition of the soil require it.

Early Cucumbers.

Those who have cold-frames or hot-beds from which the plants have been removed, can make them still further useful in growing cucumbers. A hill can be planted under each sash, and being protected at night, they will come on rapidly. Cucumbers grown in this manner will need care in watering, airing, and covering at night; but they will be safe from the attacks of insects, and will be enough earlier than those grown outside, to pay for the trouble. The sashes may be kept off altogether after the middle of June. Those who have no glass, can forward the plants upon inverted sods. Good sod cut into squares of three inches are placed grass-side down in boxes, and several seeds sown in the earth of each piece. These must be cared for just as if they were house-plants, watered, aired by setting out of a warm day, and protected from cold at night and during stormy days. When the weather is settled, the squares of sod are to be set out in well-prepared hills.

The Checkerberry, or Wintergreen.

Such a little plant as our Checkerberry is well provided with names, as in various parts of the country it is known as Wintergreen, Boxberry, Teaberry, Ivory Plum, Mountain Tea, and Partridge-berry. Most of these names are also applied to other plants, and it sometimes leads to confusion. The botanical name is *Gaultheria procumbens*, and when this is used there can be no doubt as to the plant intended. The name was given in honor of a Doctor Gaulthier, or Gaultier, of Quebec. The engraving, which is of the natural size of the plant, renders a description of its appearance unnecessary. It is frequently found in the cool shade of other evergreens, growing so abundantly as to form a carpet with its dark-polished leaves. It flowers in May and at the end of summer. The bright red berries are well known, and are much sought after by children. They are frequently found in our city markets, where their brilliant appearance causes them to meet a ready sale. They are, however, rather dry and insipid. The berry is an interesting one, from the fact that the eatable portion is not the fruit proper, or the ripened pistil, but it is the calyx which has, after flowering, grown so large as to quite hide the seed-vessel, and has become fleshy and eatable. This structure may be seen by splitting the fruit lengthwise. The leaves have a spicy flavor, due to a volatile oil. This oil, when extracted, forms an article of commerce, and is used to flavor confectionary, etc. Like many other aromatics, the plant is considerably used in domestic medicine. The *Gaultheria Shallon*, the Sal-lal berry of the Northwest coast, is a much larger species than ours, growing to the hight of two or three feet. This is largely cultivated in England, but, like most other broad-leaved evergreens it is difficult for it to stand our hot summers, and we very seldom see it in cultivation.

CHECKERBERRY, OR WINTERGREEN.

Partridge-berry.

The little Partridge-berry (*Mitchella repens*) is very common in woods, creeping close to the ground, often forming a carpet close to the trees, and bearing considerable resemblance to the Money-wort. Though so delicate in appearance, it is an evergreen, and during winter its neat foliage and bright berries present a cheerful appearance. The roundish leaves are dark green, and frequently variegated with a lighter spot. The flowers appear in pairs, their ovaries (the lower part of the pistils) being united; they are white, or tinged with purple, and very hairy within; they appear in June and July, and have a pleasing fragrance. The fruit, which remains on all winter, is about the size of a huckleberry; it is made up of two fruits joined together, and bears at its top the remains of the calices of two flowers. From this peculiar character of the fruit it is frequently called Twin-berry. The berry is dry and nearly tasteless, but is highly relished by partridges and other birds. The name *Mitchella* was given by Linnæus in honor of his correspondent, Dr. John Mitchell, of Virginia.

THE PARTRIDGE-BERRY.—(*Mitchella repens.*)

TRANSPLANTING PARSNIPS, CARROTS, ETC.—"J. L. H." gives the following as his method of transplanting parsnips and carrots: "Provide a stick for a dibble about a foot long, as large as one's finger and sharpened at one end, a pail of water, and a cup. Pull up the plants to be transplanted; pinch off the tops to within an inch or an inch and a half of the crown; shorten the points of the roots if they are too long, and drop them into the pail of water. The roots should be about the size of a small goose-quill. When a sufficient number of plants are ready, proceed with the transplanting. Make a hole with the dibble deep enough to allow the crown of the plant to be about half an inch below the surface. Insert the plant, and thrust the stick down by the side of it, so as to press the earth toward the root. Fill this second hole with water. The ground, at the time the transplanting is done, should be so moist that the soil will not fall in and fill up the hole. It is best to do it after a rain or upon a rainy day. If dry weather comes on it will be necessary to keep the plants well watered for a few days; and with the carrot, which is more difficult to transplant than the parsnip, it is well to make a hole with the dibble by the side of the root, and fill it with water."

Annual Climbers.

For ornamenting verandas, covering screens and other permanent work, the woody climbers are much to be preferred. Still, there are places where for immediate effect it is desirable to have annual vines, as a large space may be covered in a short time, while it usually takes a year for a woody climber to become established and ready to make a show. Some of the climbing annuals are in themselves so showy or interesting, that we grow them for their beauty alone, and provide supports for them. An enumeration of some of the most useful annuals of this kind will aid in making a choice. In most places the seeds may be sown where the plants are to grow, but where cold nights yet prevail, it will be better to start the seeds in-doors, in pots or boxes. The Canary-Bird Flower is one of the prettiest climbers. It grows rapidly, a single plant soon covering a space several yards square, with its small and pleasing foliage. The flowers are of a lively canary-color, and are so curiously formed as to appear somewhat like minute birds. As a vine to grow where spectators will not be tempted to handle it, the Brick-red Loasa will be found to spread very rapidly. It produces an abundance of foliage and brick-red or orange-colored flowers. Unfortunately, the leaves sting as badly as a nettle, and those who handle it without gloves will repent it. The well-known Cypress-vine should not be forgotten. The seeds need scalding or soaking some hours in warm weather. The showy Nasturtiums and the well-known Morning-glories are desirable for their rapid growth. The Maurandias, Cobæa Scandens, and Lophospermum may be raised from seed, but they will be rather late.

THE HOUSEHOLD.

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

About Baskets.

In one of the streets that take us to the ferry which enables us to reach our country home, is a basket-store. It tempts us sometimes to linger for a few minutes to notice the great variety of styles and their appropriateness to the uses for which they are intended. There are ladies' work-baskets of the finest material, and through every grade, to the coarse, heavy hamper on wheels used as a sort of go-cart in our city stores. We have of late noticed a new style of chip-basket, figure 1, which is very neat and serviceable. It is made of neatly interwoven wooden splits, with strongly-framed flat covers, which shut down closely, and are fastened by catches. The corners are neatly rounded, as the corners of a basket to be used in crowded cities always should be. If one wishes to know how much one's comfort depends upon a trifling matter, let him go through the crowded passages of Washington market. His sides will be sufficiently bruised by sharp corners to make him ready to petition to Congress for an act to make all baskets with rounded ones. A basket for soiled clothes is a convenience that we do not often see outside of cities. These baskets are made tall, so as to occupy a corner without taking up much room. Soiled clothes, especially in summer, should never be put in a tight receptacle. A basket allows the needed ventilation. We figure on this page two forms of these clothes-baskets, a square and a round one.

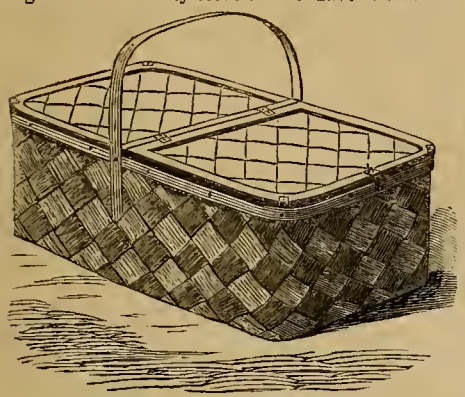


Fig. 1.—CHIP MARKET-BASKET.

Home Topics.

BY FAITH ROCHESTER.

GRAHAM GEMS.—I am glad to see that Miss Catherine Beecher recommends Graham gems as among the most wholesome articles of diet. She says (and she has good authority for saying) that the wheat-kernel has all the elements contained in the human body. By the process of bolting, the flour is deprived of its woody fiber, which facilitates digestion; the lime needed for the bones; the silica for the hair, nails, and teeth; the iron for the blood; and most of the nitrogen and phosphorus needed for muscles, brain, and nerves.

And yet, as Graham flour is usually furnished at our call, the bran is coarse and offensive to many, especially to children. I confess I feel obliged to sift such Graham flour as I get before using it—through a *coarse* sieve, to be sure—but if the flour had been properly ground I should not remove any part of it. There are very few millers who grind "Graham" properly. The stones should be so sharp as to *cut* the grain evenly and finely, so that no coarse bran would appear. This is sometimes called "wheat-meal," and it is sweeter and more satisfactory in every way than the ordinary Graham flour which we buy—which is simply a mixture of fine flour, canaille, and bran, or those parts of the wheat left unseparated after grinding.

Miss Beecher, in her recipe for gems, directs the use of a "spoonful of molasses and a pinch of salt" to a quart of the flour. I cannot think that this would be any real improvement upon the old rule that has found so many hearty friends—simply *flour and water*, well beaten together into a batter a little thicker than for griddle-cakes, dipped into gem-pans, and baked quickly in a *hot* oven.

These gems, made of good wheat properly ground, are fit to set before any king whatever—more than that, they are such nourishment as American citizens (far higher in true rank than kings) deserve and should have, to make them strong, and wise, and good; fit rulers of a self-ruling nation. Let patriotic women who would fain do the State some service take into consideration, among other things, the subject of healthful cookery. They are doing this, and will do so more and more.

A BABY'S FIRST FOOD.—There came to me, early last winter, *via* the office of the *Agriculturist*, a very pleasant letter from a lady in Virginia, asking for my opinion about the most suitable food for a baby during the first few days of its life. I supposed the inquirer expected her answer through the *Agriculturist*, but when I received her letter I had just sent off one month's talk; so I waited for the next month, and then did not write at all. When I decided to write directly to the lady inquiring, I was unable to find her letter; but I hope she still reads the *Agriculturist*, and will accept my apology for this seeming neglect.

In a former paper I said that the new-born infant needed no doses of a purgative nature, as old nurses used to suppose—that the maternal secretion (which at first is not milk, such as comes in two or three days after the birth) was exactly adapted to the emergency in all ordinary cases. This seems to have led my friend to suppose that other *food* must be provided for baby. I have not found it so in my own experience, and other mothers (of the intelligent kind—I have consulted no others) tell me that their little ones who have been put at once to the breast have prospered better than those that were fed at first. Such medical books as I have consulted advise the same course.

In cases where the mother is utterly unable to nurse her babe, it will be necessary to give the little thing some other nourishment, of course. The milk of a good *new* milch cow is best, diluted with one-half, or more than half (at first), its own bulk of warm water. We all know that the first milk drawn from a cow, after calving, is quite unlike her milk several days later; and at first it is entirely unfit for human food. Yet it is perfectly adapted to the little calf's needs, and continues to change as the calf grows older. The same change takes place with human milk.

My friend says that she has heard "sugar and lard in a rag" recommended for a babe's first food! I should say never give either to a baby, and the less of lard at any age, the better. Both are too concentrated in their form. To give such food to a very young child when it needs nourishment in its most diluted form, is to my mind simply horrible!

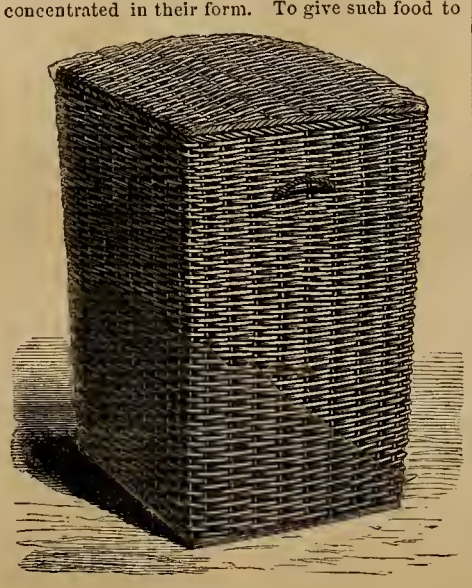


Fig. 2.—SQUARE CLOTHES-BASKET.

SUN-BONNETS.—It must be an unnatural child, I think, that can enjoy having a close, heavy sun-bonnet tied on its head whenever it runs out to play. Children always prefer light straw-hats, and these are more sensible head-coverings for summer than close sun-bonnets. For very small children bonnets are most convenient sometimes, but let them be light and comfortable in shape. The bonnets stiffened by pasteboard slats or whale-bones running from back to front away out beyond the nose, so that one cannot see right nor left without turning the head, are heavy and worrisome to the children who wear them. There is the same objection to the stiff "shaker." A good sun-bonnet is deeper over the top than at the sides, serving as a shade, but not as "blinders." White sun-bonnets are trying to the eyes, and if used should have a piece of green silk basted in for lining. A corded gingham sun-bonnet, stiffened with thin starch, or one made on a few ratans running over from side to side—deep over the top, but short around the cape; is easy to make and comfortable to wear.

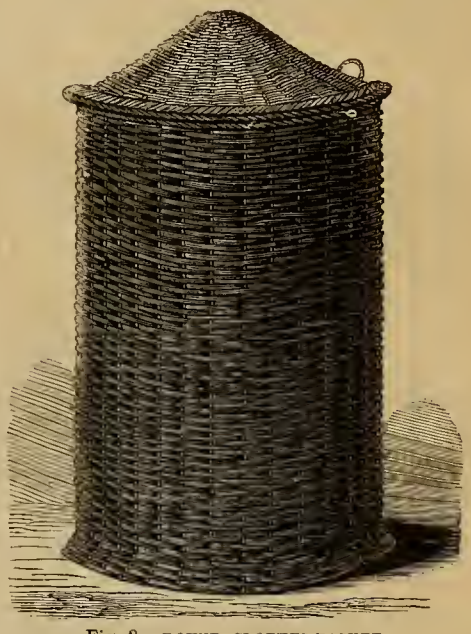


Fig. 3.—ROUND CLOTHES-BASKET.

PROTECTION FOR WET WEATHER.—High rubber boots are very nice for children in weather that is bright over head but wet under foot. I find that one pair serves my little boy through three wet seasons—two springs and one fall—and it is a great pleasure and some profit to him to wade out into the vin-lakes, vin-oceans, and vin-rivers made by rain or melted snow. "Vin" in his "Tench" language, means "dry-away-soon," I am informed.

Rubber boots are indispensable for women who are obliged to be out in all weathers and who wish to preserve good health. I often wonder why we who love the woods and fields do not provide ourselves with costumes suitable for rambling about comfortably. I remember that Mr. Beecher (in one of the first series of "Star Papers," I believe) recommended the bloomer for such occasions. So did Grace Greenwood in her early Greenwood Leaves. But that comfortable costume has fallen into such disrepute among persons who fancy that they already know and apply the laws of beauty in regard to woman's dress, that it requires great courage for a sensitive woman to "face a frowning world," even on a stormy day, in a dress that protects her person without wearying her in both body and mind by the constant care she is obliged to give it. I could n't advise her to try it, unless she has strength of nerve to spare.

THE KINDERGARTEN. — I have been studying Froebel's Kindergarten system lately, and I believe it is all that has been claimed for it. I see now how we can get good workers in every department of life—in a few generations more, at least. Once get free Kindergartens established in this country, and the "good time coming" will come rushing right along! The Kindergarten will be slow at first, be-

cause the need of it is now realized by only a very small portion of society. Most people suppose that our present modes of primary education are good enough. The Kindergarten (a German word that means child-garden) is for children between three and five years of age, and affords them employment in the form of plays, beautifully adapted to train the little fingers to careful work, and to cultivate the observing faculties, while affording at the same time the best kind of amusement.

Froebel devised a series of twenty "gifts" for infants under five or seven years of age. The exercises to be conducted with these gifts he called "plays"—so well did he realize that education may and should be a *happy* process.

I shall be glad to tell something more about the Kindergarten in future papers, for I do not see how Kindergartens can become common until there is a demand for them; nor how there is likely to be a demand until people are informed upon the subject.

Teach Your Daughters.

BY MRS. I. W. T.

I have observed that the daughters of excellent housekeepers are often at a loss how to perform the most ordinary domestic operations. This ignorance on their part, is sometimes a cause of a great deal of trouble and vexation to them. A young lady told me of a mortifying occurrence which once happened to her. Soon after she was married, they went to live with her husband's mother. Desirous of making herself as useful as possible, she offered to help her mother-in-law get the dinner. "Well, my dear," said her new mother, "you may, if you please, stand by the stove and turn the fish while I set the table." "Would you believe it?" said my friend, "I turned that fish, and turned it, and turned it, until it was nothing but a mass of flesh and bones, and looked much more like a stir-pudding than the fine white-fish it had been at first."

I know of another lady who actually stuffed a quantity of bull-heads, or cat-fish, with their skins on, using a forcemeat and cooking them according to the directions given in the cook-book for baked pickerel. Both ladies were good-naturedly laughed at, but they themselves were extremely mortified.

Many mothers say: "I dislike to have my daughters in the kitchen. They are no help—but a good deal of a hinderance. I would much rather have them stay in the parlor and play the piano." Such mothers make a great mistake. Duty and Love should lead them to inquire: "What is best for my daughter? How can I best teach her to become a useful member of society? Will she not some time, in all probability, have a house of her own? If so, will it not be a great help to her to know how to manage it properly, and to be able to bake and roast meat, to get up a dinner, and to make wholesome and good bread? Who is better adapted than I, her own mother, to teach her these things?"

Such questions as these, faithfully answered, will be followed by an invitation to the daughter to assist in the duties of the kitchen until she has attained to a thorough knowledge of the way ordinary food, at least, is cooked.

Ironing Made Easy.

BY MRS. W.

Good ironing of clothes is a fine art, and is acquired by patient practice, and the habit of doing *all* work conscientiously. In families where there are young girls, there is often much nice ironing to do; and it should never fall to the mother's charge, but should be done by those who require it, except in cases where servants are kept for that purpose; and it is always well for young ladies to know how to iron in the best manner. Nothing so greatly facilitates the habit of ironing as to have each one who irons possess her own ironing tools, such as holders, etc. In otherwise orderly families I have seen young ladies catch up almost any thing that was conveniently near, to hold irons with; often scorching valuable articles not suitable for the purpose. Each ironer should have a bag, fifteen or eighteen inches square, to be suitably furnished, and used only by herself. It should contain an ironing-holder, of a size and thickness to suit herself; a few layers of newspaper in the middle make it lighter, and the hand will be less heated than if it is wholly made of cloth. Ironing-holders made of sawdust are the least heating to the hand. The sawdust should be nicely and thinly quilted into the holder; and to be just right, there should be two quite thin quilted holders tacked together, and then the cover put over both. Wood being a non-conductor in a great degree, the hand is not so injuriously affected by heat as from the old-fashioned metal-handle and a common holder. I wish some woman would invent a movable wooden handle for flat-irons, which would be easily adjusted on taking an iron from the fire. Some woman, whose husband is a blacksmith, and would make her models, perhaps might succeed. Each ironing-holder should have one or two covers of white cloth or light calico made to fit nicely, and should be fastened on with buttons or strings; then, when one cover becomes soiled it can be changed, and is far preferable to having several holders.

In the ironing-bags, there should always be kept a thin, soft-leaved pamphlet, for rubbing the irons upon, when first removed from the fire; do not use the covers. Keep in the bag also a nice soft cloth of a light color, to finish off the iron with, also a light tin ring for resting irons upon. A muffin-ring is just the thing. Another smaller bag within the other should contain a small white cloth for rubbing specks from starched clothes, and a soft, fine cloth for covering bosoms and collars if desired. It saves also much time and vexation to keep a wet towel near, to wipe the hands when starching, instead of rushing across a room to wash them while doing starched clothes.

One should have a small ironing-board for collars, cuffs, etc., a little larger than a handkerchief, and it should be covered with cloth and flannel.

To the upper corners of the board a strong string should be nailed to hang it up by, and a calico cloth should be attached to the top like the cover of a pamphlet, large enough to fall over both sides when hanging, to keep it from dust, and should be confined closely around the board by strings. With two such boards two can iron at the same table without interfering with each other, or could be carried to any part of the house, and saves all the time usually lost by folding and putting away ironing things of large size, as blankets and covers, which are often put away in a hurried and disorderly way, to the vexation of the next one who goes to the ironing-drawer or basket. These items seem small and insignificant, but attention to them would save much time and trouble, and render an otherwise tedious process pleasant and improving to the ironers of the family, by cultivating habits of order and regularity, and a just regard for the comfort of others.

Unprincipled Neatness.

"Cleanliness is akin to godliness," a good man says; but let us never forget that godliness is the first thing to be sought, and after that cleanliness to any extent. If any body supposes that I mean that you are to "get converted" in the ordinary sense of that phrase, and then go on scrubbing and scouring with all your might without any application of christianity to these wash-board and dish-pan affairs, that person has not made my acquaintance. The "fruit of the spirit is love, joy, peace, etc.," and beyond all price; neatness is only a secondary matter.

We are putting cleanliness above godliness if we brush and scour until our nerves are so wearied that good temper becomes almost a physical impossibility; or if we keep our friends in constant dread of making a speck of dirt upon our premises; or if we allow ourselves to be greatly put out by any disasters that happen to our carpets or table-cloths. It is hard to bear these things, if we have not abundant means and plenty of assistance; and I don't know of anything but a true philosophy, believed in by the heart as well as by the intellect, that will help us through. Do we really desire to lead true lives, and to do our duty by our families? Then we must settle in our minds what are the *essentials* to this end, and resolutely make other matters subordinate.

It is neatness without principle that insists upon clean aprons and polished faces for the children more than upon gentle words and patient sympathy with their plans and pleasures, which concerns itself more about flies and dust than about the family health and happiness. Bright windows and spotless paint and well-scoured floors are excellent things in their way; but if you can only secure them by a loss of all time and relish for reading and out-of-door recreation, have the nobleness to bear with some dirt and rags, rather than sacrifice the life for meat or the body for raiment. For the sake of all about you, as well as for your own sake, save your nerves from over-strain and your intellectual life from starvation. But never sacrifice cleanliness to display. Those children are fortunate who are kept supplied with whole and clean clothing; but none of these things can begin to compare in value with a wise mother's love and care in respect to the formation of character and the development of a sound mind in a sound body. A husband has something to say "thank you" for, whose buttons are never missing and whose dinner is always in good time and good order; but he deserves to miss the best gifts of this life who values these things above a wife's companionship and inspiration in all things most lovely and of good report.

F. E. R.

Lunches.

Many persons find that the lunches they catch at railroad stations, or which they carry with them in their bags or baskets, give them headaches and serve as very poor substitutes for warm dinners at home. It is probably because they are made up so largely of cake or pastry. The food is too concentrated, has not enough waste matter and fluid about it, and so produces constipation, which is a sure cause of a dull head and general bodily discomfort. The vegetables and soups we eat with our dinners at home, are valuable for their waste matter as well as for their nutriment. With our lunches we miss these, but fruit is still better for those whose stomachs are healthy enough to eat it uncooked, and fruit we can almost always have with us.

For a substantial lunch to take from home, especially for one who is taking active exercise, cold chicken is good, or cold meat cut in slices. These, laid between buttered slices of bread, make very nice sandwiches. Thin biscuit is usually more acceptable than bread, and if cut open, spread with currant jelly, and put together again, is very nice. The less of cake, and the plainer that little, the better for the traveler's comfort. Fresh soda crackers and fresh apples make an excellent light lunch; but the fine flour crackers are so concentrated, that it is best for all who can do so to eat the accompanying apples without peeling them. A simple lunch of this kind, which you can buy as you hasten through the streets to the depot, is far better than the little sweet cakes and pastry abominations sold at stands near the depot. I doubt if women, who know how such things are made, are often caught buying them. Figs or raisins go well with crackers or gems; but fresh, juicy fruit is preferable when you can get it.

Sweet Pudding.—By T. S. Wright.—One cup of raisins chopped fine; one cup of suet, also chopped; one cup of sour milk, three eggs beaten, one teaspoonful of soda and a little salt, and flour enough for a stiff batter; steam two hours and serve with sauce.

Rice Pudding.—By T. S. Wright.—Two-thirds of a cup of rice, one cup of raisins, one quart of rich milk. Steam for two hours; then add one cup of sugar, two eggs, one quart of milk, a small piece of butter, and a little salt; mix with care so as not to break the rice, and bake until done. Serve warm or cold in slices, with sauce.

BOYS & GIRLS' COLUMNS.

Among the Bees.

BY "CARLETON."

Very amusing are some of the recollections of my early childhood and of later years, especially of my experiences among bumble and honey-bees. I remember of climbing up into an old pear-tree, and running my arm into a hole to see if the bluebirds had built a nest there. I did not find any eggs, but there was a tremendous buzzing, and my arm came out a great deal quicker than it went in, and I slid down the trunk of the tree in a twinkling and took to my heels with two big bumble-bees after me, and a lot more swarming out of the hole to see who it was that had knocked at their door so unceremoniously. I did not get stung that time, but the hired man who was at work in the garden laughed so loud to see me run that the people who lived on the other side of the meadow, a half mile away, heard his loud haw-haw-haw, and wondered what he was laughing at. What fun we boys used to have in taking bumble-bees' nests! Sometimes we found them in rock-heaps, sometimes under old stumps, and in old mouse-nests, where the mowers were cutting the hay. I remember how William and John, two of my mates, joined me once in a grand bumble-bee hunt. We sallied out with shingles and bunches of oak-twigs for weapons. We took off the stones from a rock-heap, one by one, very gently, until we reached the nest, and then gave it a poke. There was a fine biz-biz-biz, and then, as we poked it again, a louder booz-booz-booz, and in a moment a bouncing fellow in buff and black made his appearance. We knocked him on the head, but there was another fellow creeping out; a third—a fourth—a fifth—a dozen. Spat-spat-spat went our shingles, but the bizzing and boozing became louder each moment, and before we were aware of it a dozen bees were about our ears. They had crept out at the backdoor of the nest, and had taken us in flank. While fighting those in the air, those in front of us rose from the nest and we had the entire swarm about us. The bumble-bee is no coward. O, No! He drives straight at the enemy, be it a man or an ox, and sticks his sharp dagger in wherever he can get a chance. One crept up William's trowsers, and we laughed to see him dance about, like a Dandy Jim, slapping his thighs. They buzzed around John's head, and he off with his cap and swept them away.

He put his cap upon his head again, but took it off a good deal quicker than he put it on, for his hair was full of bees. How he made the hay fly! for it was in a mowing-field, and the mowers laughed until the tears ran down their cheeks to see us run, and cried. "Go it!" "Scratch gravel!" "Put in, or they will tack it into you!" We dived under the hay-cocks with the bees after us, and did n't take the nest.

I remember of conceiving the idea of collecting all the bumble-bees I could find, and putting them into a hive, and having a tame swarm. I went into the garden and caught those in the hollyhock flowers, and those in the squash blossoms, and put them into an old hive; but when I let them out to gather honey, they never came back again—the ungrateful creatures! The attempt to colonize them was an ignominious failure.

It was pleasant to watch the honey-bees at work, coming and going all day long, making the air musical with their humming. It was delightful to creep up to the hives after sunset on a summer evening and hear the low murmuring of the bees inside. I remember wondering if they were singing a hymn, and saying their prayers before going to bed!

Honey-bees are teachable insects. If you treat them kindly, you can do almost any thing with them; but if you abuse them, they will take terrible revenge. I once knew a man who had a swarm of bees so educated that he could call them from the hive and they would alight upon his hands, or hang in a great bunch upon his beard and creep all over him; and then, when he gave a low hiss, they would rise in a cloud and go back into the hive. He traveled over the country exhibiting his educated bees.

But one of the most laughable scenes I ever saw was down in Virginia, during the war. It was early one morning in midsummer. The sun was just appearing, and the soldiers, who had had a hard march the day before, were rising from their bivouac in the fields near an old farm-house. The men were stretching out their arms and shaking their legs, and yawning and wishing that reveille had not come so early. Some were washing their faces in the little brook that trickled through the meadow. Camp-fires were lighted, coffee-pots were steaming, and all hands were getting ready for breakfast.

The soldiers suddenly discovered a half dozen or more bee-hives in the garden. A squad rushed toward them, each soldier bent on having honey with his hard-tack for breakfast. One soldier seized a hive and gave it a shake. The bees fell upon the ground, but the hive was heavy and dropped from his hands, falling upon some of the bees and crushing them into the earth. The air was filled in an instant with the remainder of the swarm. The other hives were seized by other soldiers, who suddenly found themselves enveloped in a cloud of bees. They swung their hats, struck wildly into the air with their hands, flapped their coats, and danced about like madmen. "He-he-he, ha-ha-ha, haw-haw-haw!" shouted the soldiers in camp. You could have heard it a mile. Louder grew the humming as the bees began to widen their circle. Now they swept over the fence and attacked the soldiers around the camp-fires, but the laughter took a sudden turn as the angry insects settled upon colonels, majors, captains, lieutenants, and soldiers alike—pricking their cheeks, dabbing into their eyes, creeping up their nostrils, and buzzing in their hair, and working their way under their shirts and creeping up their trowsers. All over the field men were swinging their arms like wind-mills, rubbing their heads, slapping their thighs, throwing themselves upon the ground, and curling up in heaps and covering themselves with their blankets, or running as fast as they could to escape the fury of their tormentors. There was a sudden rearing and plunging among the mules and horses, a breaking of halters and pulling up of tether posts, and then a grand stampede of the entire camp. Away went donkeys and horses with their tails in the air, kicking, and rearing, and leaping over the fences. Suddenly there was a dab in my face, and a buzzing around my ears, as if the fellow was saying, "How do you like that?" I did not like it at all. And then another one came, another, and another, all asking the same question; and, without stopping to answer them, I took to my heels and ran with the soldiers, captains, and colonels, horses and donkeys, and left the bees masters of the field.

The bees resented such wholesale robbery and murder as the soldiers had engaged in, and I did n't blame them.

Aunt Sue's Puzzle-Box.

Well, the folks seem to have enjoyed themselves over the March puzzles, and I have enjoyed their kind letters on the subject. Many sent answers to the entire list, but were incorrect in their solutions of the sixth anagram, the first Latin name, and HACTBOY'S Rebus.

W. H. OTIS (*Sherwood, Cayuga Co., N. Y.*) has correctly answered all the March puzzles, and wins the prize offered.

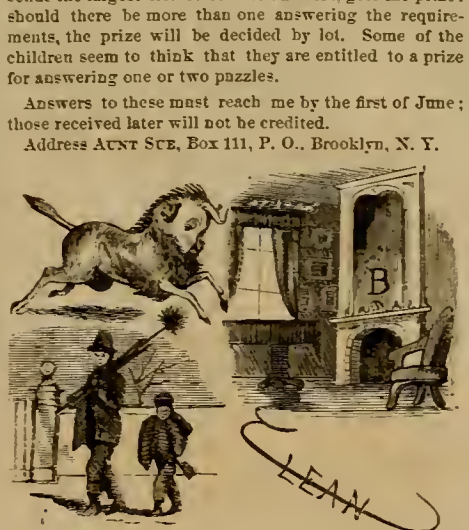
THE ANAGRAM PRIZE

has been drawn by E. Goff, Sewickley, Alleghany Co., Pa., Box 86.

I offer the same prizes again this month, and I want the little ones to distinctly understand that the one who sends the largest list of correct answers, gets the prize: should there be more than one answering the requirements, the prize will be decided by lot. Some of the children seem to think that they are entitled to a prize for answering one or two puzzles.

Answers to these must reach me by the first of June; those received later will not be credited.

Address AUNT SUE, Box 111, P. O., Brooklyn, N. Y.



408. *Illustrated Rebus.*—A common proverb, drawn from household experience.

SUBSTITUTIONS.—(Change one letter.)

1. Change a mineral into herbage.
2. Change what young ladies like to do into the lad that likes to hear.
3. Change a young lady into what she often is.
4. Change a country into a backbone.
5. Change condemnation to recommendation.
6. Change gluttony to truth.

CROSS-WORD ENIGMA.

7. My first is in pudding but 'tis not in pie,
   My next in horizon but not in the sky,
   My third is in actor but not in the play,
   My fourth is in battle but not in the fray.
   My fifth is in kitten but not in the cat,
   My sixth is in bonnet but not in a hat,
   My seventh is in lion but not in fox,
   My eighth is in hamper but not in a box.
   My ninth is in platter but not in the dish,
   My tenth is in oyster but not in a fish:
   And now what I tell you may greatly astound,
   But my whole is a place where contentment is found.

SQUARE.

8. Square the word "POWER."

DOUBLE ACROSTIC.

9. The initials and finals form two French cities.
   1. A range of mountains in Europe.
   2. A city of Australia.
   3. A river in Texas.
   4. A lake in Minnesota.
   5. A country of Africa.

ADOLPH M. NAGEL.

409. *Illustrated Rebus.*—A saying which has been attributed to Washington.

CROSS-PUZZLE.

10. 1. Something heard in thunder. 2. In animal. 3. The capital of Henderson Co., Ill. 4. A river in North America. 5. A city in Michigan. 6. One of the patriarchs. 7. Something seen in chalk. The outside letters (commencing with item No. 1, and reading downward on the right, then upward on the left, and adding the final letter of the second item,) will name something that should be in every house. BELLE.

PI.

11. Hereit daniss a seltac yb bet ase,
    Hitw na canteni peke dan stnterr ether,
    Dan ni ti swelld a dyla rear,
    Chir dan volley thiw nogled riha,
    Yb het dwil vesaw shapglin raweily.

TRANSPOSITIONS NO. 2.

(Fill the following blanks with the same words transposed.)

12. They fired a —— into the —— village.
13. The —— was closely followed by the ——
14. His —— told him to wash in the ——.
15. The —— will —— an impression.
16. The —— began to —— with the rain.
17. —— and —— are both cities.

SPECIAL NOTICE TO PUZZLERS.

I have been asked by several of my nieces and nephews to explain a "square word." I comply with pleasure.

Suppose I tell you to square the word "Clan;" you get your slate or paper and write the letters across and downward, thus:

CLAN
L
A
N

Now you must find three words to fit the rest of the square. We want first a word of four letters beginning with L: shall we try "Jean?" No, because that would bring two N's together and we could not find a word beginning with double N. Let us try "LORE."

CLAN
LORE
AR
NE

Now you can finish the square with "Arts" "Nest," or "Area," and "Near," or "Neat."

Some of the little ones do not understand *concealed* names: let them look at the questions and the answers to them *together*, and if they don't understand then, it will be useless for me to attempt to explain.

I am much obliged for complimentary enigmas, but modesty forbids my using such, so please don't make any more on my name or on the title of the paper. Many thanks for kind interest and affectionate greetings, to E. A., Johnnie C. Watson, E. W. W., Ben, and D. F. T.

ANSWERS TO PUZZLES IN THE MARCH NUMBER.

ANAGRAMS.—1. Preventive. 2. Geographical. 3. Mosquito. 4. Caterpillars. 5. Collapse. 6. Enthusiasm. 7.

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THE WOODS IN MAY.—*Drawn by Granville Perkins, and Engraved for the American Agriculturist.*

Osteologist. 8. Disarrange. 9. Competence. 10. Outbrazen.

ALPHABETICAL ARITHMETIC. 581)658420(1133. Key, "Old Enigmas."

CONCEALED GREEK AND LATIN PROPER NAMES.—1. Midias. 2. Sirius. 3. Verticordia and Vertico. 4. Zens. 5. Quietus. 6. Veneli. (All these may be found at the end of Webster's unabridged.)

CHARADE. Current.

NUMERICAL ENIGMA. Do not be conceited.

PUZZLE. DLIM transposed to MILD.

SQUARE WORD. Bear, Ella, Alas, Rasp.

REBUSES. 404. Be wise to-day 'tis madness to defer. 405. The wise for cure on exercise depend.

J. H. BIRD, Ainslee Brothers, Lillie Streeper, and Willis H. Ropes, each answered 21: Star and Crescent, and Blue Bird 20: Correct answers, more or less, have been received from Addie F. B., W. F. C., W. E., Chas. G. T., W. H. W., B. Foster, G. H. F., H. Elsworth, Martha W. L., Harrie F. G., J. A. Smith, Nellie, H. M., J. C. W., L. F. Tapp, W. O. B., Mrs. C. D. F., Ruby, W. T. Cooke, S. G. Kerr, E. A. Knapp, Mary M. L., Mt. Vernon, E. Goff, W. Thacher, Ettie Holder, Robbie Eddowes, and Tillie M.

Thanks for puzzles, etc., to A. Knowl, Reen Ross, J. H. Bird, F. Brooks, Mattie. Howard Moore, V. E. Souder, Nealie C., Star and Crescent, C. L. S., and F. G. T.

Several correct answers to the February puzzles were received too late for credit.

Will the recipients of prizes be kind enough to acknowledge the receipt?

The Woods in May.

What a pity it is that May-day cannot be celebrated with any satisfaction by the majority of our boys and girls. Those who live in the milder Southern States can keep up the English custom of "Going-a-Maying," but for the most of us May-day is quite as apt to bring blue noses and cold fingers, as it is Violets and Wind-flowers. The attempts we have seen at making the first of May a gala-day, have not been successful. The flowers are not abundant enough, the weather is apt to be unpropitious, and we think a floral festival can be much better enjoyed on the last day of May than on the first. Still, if May-day itself must be given up, the woods can be enjoyed during the month. The artist has given a picture which will recall to the young reader—and the old one too, perhaps—many a happy hour. How delightful it is to see every thing waking up from the long sleep. The new leaves, what a tender green they have! and the flowers, how much more delicate they are than those of a later season! You will find upon other pages of this paper engravings of some of the flowers which will be found in the woods this month. There will also be a plenty of Violets, Spring-beauties, Saxifrages, Mouse-ears, Dog-tooth Violets, Wind-flowers, and many more, with which to make bouquets and garlands. Then, for all that we know, the Queen of May can be crowned just as well on one day as another; and after all, we can have a merry and happy May-day, even if it does not fall on exactly the first of the month.

New & Choice Vegetables, Rare & Beautiful Flowers,

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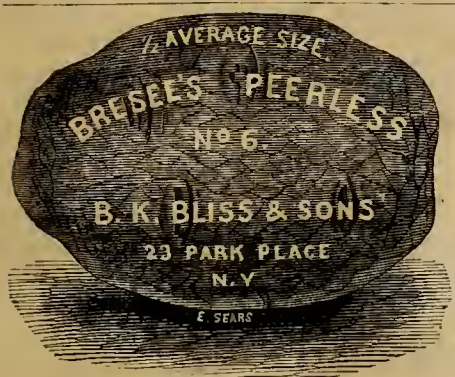
ONE-HALF THE AVERAGE SIZE.

GENUINE SEED.—The experience of the past two seasons fully confirms all that was claimed for this variety when first offered, 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. Our stock is all from the original Bed, and we guarantee its genuineness. *Seeds* in half-ounce packets, 50 cents per packet, $10 per pound.

B. K. BLISS & SONS, 23 Park Place, New York.



Peerless in Beauty.
Peerless in quality and Size.
Peerless in Productiveness.

A trial the past summer confirms all that was claimed for it when it was first offered by us in the spring of 1870, and it now stands without a rival for a general crop. J. W. Beach, of South Orange, N. J., raised from a single potato, weighing 21 ounces, cut into single eyes, 278 lbs. Several others report having grown from 600 to 800 bushels to the acre, with ordinary field culture.

4 lbs. by mail, upon receipt of $1.00. By express, $1.50 per peck; $5.00 per bushel $10.00 per bbl.

The Earliest Potato in Cultivation.—Bresee's King of the Earlies (or No. 4). Known also as the Fifty-Dollar Potato. Ready for marketing from seven to ten days in advance of the Early Rose. By mail, 4 lbs., $1; by Express, $1.50 per peck; $5 per bushel; $10 per bbl.

B. K. BLISS & SONS,
Nos. 23 Park Place and 20 Murray St., New York.

JUDSON'S NEW BRANCHING FIELD CORN.

Early Golden Drop.—This valuable variety originated on the farm of E. O. Judson, and is the result of careful selections for several years. It is now offered to the public as the most valuable variety for field culture, especially in the Northern and Eastern States. Ears average ten inches in length, which are produced at the end of the shoots, branching from the axles of the leaves, each stalk averaging from three to five well-formed ears; some stalks have been exhibited bearing eight full-grown ears. It is ready for harvesting in ninety days after planting. Its earliness, extraordinary productiveness, and beautiful appearance, strongly recommend it for general cultivation.

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Judson's Prolific.—A new and most desirable variety of Sweet or Sugar-corn, which has been improved from the Early Sweet corn in the same manner as the preceding variety. It is a second early variety, tender, sweet, and delicious. Its extraordinary productiveness and good quality recommend it to market-gardeners as well as for private gardens. 50 cents per packet; five packets for $2.00.

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SECOND TIME DECEMBER, 1870.

Silver cup for Dark Brahmas, Silver cup for Buff Cochins, Silver medal for Black-red Game, Silver medal for Geese, also seven Bronze medals, five Diplomas and one Honorable mention on Dorkings, Spanish, Brown-red Game, Crevecœur, La Fleche, Sultans, Rouen and Aylesbury Ducks.—winning at the same time in Dublin and Cork Exhibitions, in nearly all these varieties, and notably, both 1st Prizes with Houdans.

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Cooper Hill, Limerick, Ireland.

Can supply good birds. Price, according to requirement.

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Partridge Cochin, Dark Brahma, Plymouth Rock, and 27 other varieties of Fowls and Eggs, for sale by E. K. PERKINS Office, 238 Essex-street, Salem, Mass. Inclose stamp for Circular.

14 DIFFERENT VARIETIES OF FOWLS—"G. H. WARNER'S strain." Send for Price-List of Eggs. Address D. D. F. COON, Marcellus, N. Y.

New Early Sweet Potato—Southern Queen.

This variety, originally from South America, was introduced by us in this vicinity in the Spring of 1869, and has been extensively tested in various parts of the country for the past two years, with the most satisfactory results. It was grown the past summer by several cultivators of the "Nansemond," who pronounced it ten days earlier, more productive, a better keeper and of better quality than that favorite variety, making it THE *Sweet Potato of the North*, as well as a valuable addition to those cultivated at the South. Its keeping qualities are remarkable. If fully dried, and *carefully handled* to avoid bruising when harvesting, and placed in a warm, dry cellar, they need no more care than the common potato.

Price of the tubers, 4lb. by mail, post-paid, $1; by express, freight paid by purchaser, $2 per peck; $3 per half bushel; $5 per bushel.

Slips of this variety will be for sale in May, by mail, prepaid, $1 for fifty; $1.50 per hundred; $12 per thousand, by express. Address

B. K. BLISS & SONS, No. 23 Park-place, New York.

Bliss's 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., 15 cts.; 4 oz., 50 cts.; 1 pound, $1.50, by mail, post-paid.

B. K. BLISS & SONS, P. O. Box 5,712, New York.

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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
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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, Truffant's French Asters, Double Hollyhocks.. 1.00

Any one remitting $3.00 will receive the four assortments postage free. Address

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Originated by Capt. J. B. MOORE, of Concord, Mass. The earliest, largest, sweetest, and best-flavored variety in cultivation, superior to any other for the market and family use. Ears average 12 to 16, and sometimes 20 rows. It was exhibited by the Mass. Hort'l Society every Saturday, from July 23d to Sept. 23d, in fine condition, and attracted the attention of all. A Silver Medal was awarded to this variety by the Vegetable Committee. Price, 50 cts. per packet. Selected ears, $1 each. Address

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Hackensack, N. J.

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LA FLECHE, HOUDANS, LIGHT BRAHMAS, Silver-spangled Hamburgs, and Black African Bantams. Eggs for sale from splendid birds of above breeds. Imported and prize stock. JOHN D. SHELTON, Jamaica, N. Y.

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WARMINSTER

Will stand for Mares during this season at the Farm of JOSIAH H. MACY, TOWN OF RYE, WESTCHESTER CO., N. Y. Warminster is a rich, dark brown; stands 15 1-2 hands, with long, level, powerful quarters, and is perfectly sound. His pedigree is a peculiarly rich one in the favorite strains of Eclipse, Herod, and Matchem, of which he combines no less than thirty-five strains. He has remarkable trotting action for a thorough-bred horse, and his colts from trotting mares show indications of great speed. He is a stout, game race-horse, having beaten Lotterer, Prince Imperial, and others, two miles upon the English Turf at Warwick, Eng., carrying 125 lbs. when three years old (see English Turf Register); he was foaled in 1859, and was bred by Mr. Capel, England. Was imported by R. W. Cameron, Esq., N. Y. City.—*Pedigree:* Warminster was got by Newminster, dam Black Bess, by Ratcatcher; 2d dam Polydora, by Prince; 3d dam Maato, by Tiresias (dam of Cassandra); 4th dam, by Walton; 5th dam, by Diomed; 6th dam Noivette, by Squirrel; 7th dam Carina, by Marske; 8th dam, by Blank; 9th dam, Dizzy, by Driver; 10th dam, by Smiling Tom; 11th dam, Miss Hip, by Oysterfoot; 12th dam, by Merlin; 13th dam, by Commoner; 14th dam, Duke of Somerset's Coppia Mare.—*Terms:* For thorough-bred mares, $100; trotting mares, $75; to be paid at time of service. If they do not prove with foal, may be returned next season.—*Pasturage:* For mares from a distance, $15 per month, at owner's risk.

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The only breed of Cattle that has escaped the Rinderpest in England. ROBERTSON & CO. (sole exporters), The Exchange, Southwark-st., London, and Eaton Farm, Cobham, Surrey, England, supply the above beautiful and profitable little Cows, and warrant them perfect, healthy, and good milkers. *Alderney & Guernsey Cows & Heifers* of the purest breeds supplied to description as to age, color, and time of calving.

JERSEY CATTLE, from my 1st premium herd. For sale by **G. W. FARLEE,** Cresskill, N. J. One hour from New York.

COTSWOLD AND SOUTHDOWN SHEEP.—Lambs, 3 months old, $15; Chester White Pigs, at 6 weeks old, $10. Alderney, Durham, Devon and Ayrshire Cattle and Calves, American Deer, Live Eagle, Tame Raccoon, all kinds of Fancy Poultry and Eggs, low for cash. For sale by N. GUILBERT,
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Importers of Berkshire, Lancashire, and Thorough-bred Chester Pigs. Our fine Chester **Pigs** are bred to our imported Lancashire Boars, which are acknowledged to be the finest Pigs in existence, entirely white, square built, lengthy, fine hair, small ears and head. All Stock warranted to be thorough in their Breeding.

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Thorough-bred *Devon Cattle, Chester White* and *Berkshire Pigs, Cashmere Goats*, and a great variety of Farm and fancy *Fowls*, Eggs for hatching, etc. For description and price, address J. A. EARLY, Box 312, Youngstown, Ohio.

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THOS. WOOD, Doe Run, Chester Co., Pa.

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W. E. STITT,
Columbus, Wis.

PURE BRED CHESTER WHITE PIGS, Bred and for Sale by C. C. FULLER, Nelson, Portage Co., Ohio. Send for Circular and Price-List.

PURE-BRED CHESTER WHITE PIGS & POULTRY,

Bred by J. W. & M. IRWIN, Penningtonville, Chester Co., Pa. Eggs a specialty. Send stamp for Circular.

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sand and Five Hundred and Seventeen (1,517) *Ohio Improved* CHESTER SWINE were shipped into the various States, Territories, and Canada, for breeders, in 1870, by

L. B. SILVER, Salem, Ohio.

Send for description and price of this famous breed, and other Thorough-bred Animals and Fowls.

EGGS FOR HATCHING.—Houdan, Dark Brahma, Buff Cochin, Lemon Cochin, $4 doz.; Light Brahma, Gray Dorking, Silver, Silver-spangled Hamburg, Golden Sebright Bantam, White Leghorn, $2 doz.; Canacker Duck, $5 doz. Canacker is the handsomest duck known, large, pure white, with black on head. Most kinds of our fowls were imported from Cooper. Four years teaches us Houdans and Light Brahmas are best layers known. We are breeding from a Light Brahma Cock, weighing 13½ lbs. 4 doz. Houdan eggs, $10; 4 doz. Light Brahma, $5. Send for Descriptive Catalogue. **W. S. CARPENTER & SON,**
Rye, Westchester Co., N. Y.

EGGS for hatching. — Partridge,

White, Buff, and Black Cochins, Light and Dark Brahmas, and ten other varieties. A few FOWLS for sale.

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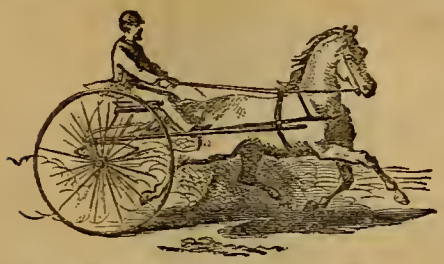

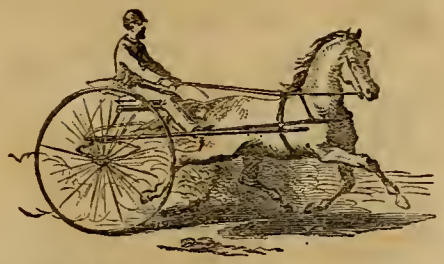

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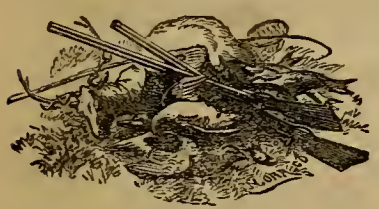

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No work ever before published in this country was practically valuable to those in want of direct information (upon this subject). WM. SAUNDERS,
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Just the work for the young Florist or Amateur, as it tells him clearly there is no such thing as failure, if its simple teachings are followed.
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What is wonderful, the most of our Professional Florists here frankly admit their indebtedness to the work for information and suggestions. I am only an amateur in flowers, but feel gratefully indebted to its author for the pleasure its perusal has given.
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A Picture for the Home Circle.

"DANDELION TIME."

By MRS. LILLY M. SPENCER.

The Publishers of the American Agriculturist have purchased of the artist this beautiful painting, and have issued it as a Chromo, designing thus to enable very many to secure it as an ornament and source of pleasure in their homes. Mrs. Lilly M. Spencer has already won an honorable name in art. 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. Her works of this class have been reproduced in colored lithographs and other forms, and through these her name has become a familiar one throughout the country. Finding that pictures of a domestic character with something of the humorous in them were more popular than those to which her natural tastes inclined her, Mrs. S. for some years painted such subjects almost exclusively. Her "Shake Hands," "Jolly Washerwoman," "The Gossips," and others, are known to all lovers of pictures. They are full of life and meaning, and at the same time finished with an accuracy and detail that few artists attempt. Among her latest productions are "War Times at Home," "The Home of the Red, White, and Blue," "The Starry Flag," "Beauty to the Brave," etc. In the beautiful picture now offered, called

"DANDELION TIME,"

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. This Chromo is done in the best style, by Hermann Bencke, whose work equals any thing of the kind done in this country. 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 13×18 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.

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In a neat Black-Walnut Frame, gilt band	.....	$ 9.00.
" " "	" wider gilt band	.. 10.00.
" carved edged	" "	.. 11.00.
" beautiful gilt	" best quality	..... 15.00.

If taken with a frame at the store, 245 Broadway, the charge for boxing, which is 75 cents, will be deducted from these prices. In all cases where sent by express, the purchaser will pay express charges.

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VOLUME XXX.—No. 6. NEW YORK, JUNE, 1871. NEW SERIES—No. 293.

HEAD OF JERSEY BULL "WACHUSETT."—DRAWN FROM LIFE BY EDWIN FORBES.—*Engraved for the American Agriculturist.*

This picture is a portrait of a very fine Jersey bull; in fact, one at least of the finest ever bred in this country. His color is French gray and black, shaded on the back into reddish brown, with all the black points so much sought after and admired by high-fanciers of this breed of cattle. Wachusett was bred by J. P. Swain, Esq., of Bronxville, N. Y., one of the oldest and most careful and observant breeders in the country. He has imported a large number of very fine animals from the Channel Islands, both Jersey and Guernsey, and has a thorough understanding of their characteristics and good qualities; and in his opinion Wachusett will compare favorably with any Jersey bull that can be shown here or elsewhere. At two years old he was a terror not only to evil-doers, but to all strangers, but now at four years old he is much more quiet, and his keeper fondles him like a kitten. The good qualities of the Jerseys and Guernseys consist of richness of milk, which in the proportion of cream excels that of all other breeds, averaging in a small herd, which we have tested with the lactometer 22 per cent. Wachusett was purchased for an *American Agriculturist* premium in 1867, and is now owned by L. A. Chase

Contents for June, 1871.

INDEX TO "BASKET," OR SHORTEN ARTICLES.

A Triangular Harrow.—A correspondent sends us a drawing and description of a triangular harrow which he has constructed. It does not differ essentially from the well-known Geddes harrow. For a heavy harrow, and for working among stumps, the triangular form has manifest advantages.

Calendar for June.

Day of Month.	Day of Week.	Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon.			N. Y. City, Ct. Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois.			Washington, Maryland, Virginia, Kentucky, Missouri, and California.		
		Sun rises.	Sun sets.	Mo'n sets.	Sun rises.	Sun sets.	Mo'n sets.	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	T	4 25	7 30	3 25	4 31	7 24	3 28	4 36	7 19	3 30
2	F	4 25	7 30	rises	4 30	7 25	rises	4 36	7 19	rises
3	S	4 25	7 31	8 17	4 30	7 26	8 12	4 36	7 20	8 7
4	S	4 24	7 32	9 25	4 30	7 26	9 20	4 35	7 21	9 15
5	M	4 24	7 32	10 26	4 29	7 27	10 20	4 35	7 21	10 15
6	T	4 24	7 33	11 15	4 29	7 28	11 10	4 35	7 22	11 5
7	W	4 23	7 33	11 52	4 29	7 28	11 49	4 34	7 23	11 44
8	T	4 23	7 34	morn	4 29	7 29	morn	4 34	7 23	morn
9	F	4 23	7 35	0 25	4 28	7 30	0 23	4 34	7 24	0 20
10	S	4 23	7 36	0 52	4 28	7 30	0 50	4 34	7 24	0 48
11	S	4 22	7 36	1 17	4 28	7 31	1 17	4 34	7 25	1 16
12	M	4 22	7 37	1 41	4 28	7 31	1 41	4 34	7 25	1 42
13	T	4 22	7 37	2 4	4 28	7 32	2 5	4 34	7 26	2 7
14	W	4 22	7 38	2 28	4 28	7 32	2 31	4 34	7 26	2 33
15	T	4 22	7 38	2 57	4 28	7 32	3 0	4 34	7 26	3 4
16	F	4 22	7 38	sets	4 28	7 33	sets	4 34	7 27	sets
17	S	4 22	7 39	7 25	4 28	7 33	7 20	4 34	7 27	7 14
18	S	4 23	7 39	8 19	4 28	7 33	8 13	4 34	7 28	8 7
19	M	4 22	7 39	9 9	4 28	7 34	9 3	4 34	7 28	8 57
20	T	4 23	7 40	9 57	4 29	7 34	9 47	4 34	7 28	9 43
21	W	4 23	7 40	10 31	4 29	7 34	10 36	4 34	7 28	10 22
22	T	4 23	7 40	11 5	4 29	7 34	11 1	4 35	7 28	10 58
23	F	4 23	7 40	11 35	4 29	7 34	11 32	4 35	7 29	11 30
24	S	4 23	7 40	morn	4 29	7 35	morn	4 35	7 29	11 59
25	S	4 24	7 41	0 2	4 30	7 35	0 1	4 35	7 29	morn
26	M	4 24	7 41	0 29	4 30	7 35	0 28	4 36	7 29	0 28
27	T	4 24	7 41	0 55	4 30	7 35	0 56	4 36	7 29	0 57
28	W	4 25	7 40	1 23	4 29	7 35	1 25	4 37	7 29	1 27
29	T	4 25	7 40	1 56	4 29	7 35	1 59	4 37	7 29	2 3
30	F	4 26	7 40	2 34	4 29	7 35	2 39	4 37	7 29	2 43

PHASES OF THE MOON.

MOON.	BOSTON.	N. YORK.	WASH'N.	CHA'STON	CHICAGO.
	D. H. M.	H. M.	H. M.	H. M.	H. M.
Full.....	3 1 43 m.	1 31 m.	1 19 m	1 7 m.	0 37 m.
3d Quart..	9 7 53 ev.	7 41 ev.	7 29 ev.	7 17 ev.	6 47 ev.
New Moon	17 9 45 ev.	9 33 ev.	9 21 ev.	9 9 ev.	8 39 ev.
1st Quart.	25 6 0 ev.	5 48 ev.	5 36 ev.	5 24 ev.	4 54 ev.

AMERICAN AGRICULTURIST.

NEW YORK, JUNE, 1871.

We have had a remarkably favorable and early spring for getting in wheat, barley, oats, and peas, and it is probable that an unusually large breadth of wheat and oats have been sown. For a year or two past oats have proved a more profitable crop than barley, and many farmers who usually sow barley have this year sown oats instead. In the great spring wheat sections of Wisconsin, Illinois, and Minnesota, the crop was sown unusually early and in good condition, and the prospects, so far, are highly favorable for a large yield. As a rule, also, winter wheat looks well.

The early spring has given farmers an unusually long season for plowing; and the presumption is that they have availed themselves of it, and that a large area has been, or will be, planted to corn and potatoes. It is true that high wages have induced a good many farmers to leave their operations. But on the whole we can hardly doubt that a large breadth has been planted, and that the cultivation and harvesting will require as much labor as hitherto, and consequently high wages must still be paid. The country will prosper, though those who work for farmers will do better than the farmers themselves. And there is no remedy for this unsatisfactory condition of affairs except in better farming—that is, in raising as much grain on half a million acres as we now do on a million.

Hints about Work.

Corn.—Small early varieties may still be planted. Soak the seed in soft water for 24 hours, and if the ground is warm, moist, and mellow, the plants will be up in a few days. The great business of the corn-grower this month is to cultivate, cultivate, cultivate. Something may still be done by applying plaster, or plaster, ashes, and hen-dung, mixed, on the young plants in the hill; but the main reliance now is on the cultivator. There was much sod land plowed early this spring for corn, and not a little of it was planted while the soil was cold and sodden underneath. In such cases a good crop can only be expected by deep and thorough cultivation. And the implement should be of the best kind—one that will not slip over the hard spots. Many are not sufficiently careful on this latter point. The loose soil that needs the least cultivation gets the most, while the clay spots that need the most get the least. It cannot be too often repeated that there is an immense advantage in starting the cultivator the moment the rows can be distinguished. If necessary, set the cultivator very narrow, and go only once in a row, and as deep as it can be run without tearing up the sod too much. In a few days run closer to the plants; and if the rows are not absolutely straight, it may be necessary, in order to get closer to the plants, to go twice in a row. Less hoeing and more cultivating should be the motto of the corn-grower. Clean and thorough cultivation will often add one-third to the yield of the corn, and the land will be in far better condition for the following crops of grain and grass.

Potatoes.—We believe in early planting, especially for Peachblows and other late-growing varieties. But we have had good crops of Flukes and other early kinds planted as late as the first week in June. Where potatoes were planted early and deep, a harrow run over the land just as the potatoes are breaking the crust, will destroy millions of small weeds without pulling up one potato in a thousand. The cultivator should be used as early, as deep, and as frequently as possible, and continued until there is danger of disturbing the roots or tubers.

Plaster or *Gypsum* may still be sown with advantage on clover, corn, peas, etc. Where the sowing costs more than the plaster, put on two or three bushels per acre; but when plaster is dear, we should not sow more than a bushel per acre.

Beans.—Drill in the beans on good, clean land, or on clover sod, 2½ feet apart, and 10 inches apart in the rows, and say 4 beans in a hill; or drill in the beans 2 or 3 inches apart in the rows. The latter plan sometimes gives the largest yield, but it is more work to hoe and pull the crop. Beans may be sown as late as the middle of the month, but the earlier in the month the better.

Root Crops.—If not already sown, beets, mangels, parsnips, and carrots should be put in at once. It is a waste of labor and expense to sow any of these crops, except the land is rich, clean, and mellow. Mangels will produce an immense quantity of valuable food per acre, but they require the richest of land. A good plan is to mark off the rows 27 inches apart (or the width of the wagon wheels), and ridge up the land, and then put 25 or 30 loads of well-rotted manure per acre in the rows, spreading it evenly and breaking up the lumps; then split the rows and cover up the manure; then roll down the ridges and drill in the seed, at the rate of 5 lbs. per acre. As soon as the plants can be seen, run the cultivator between the rows, and thin out the plants a foot apart. Many of the English growers prefer to dibble in the seed 15 inches apart, putting two or three seeds in each hill. This is done to save labor in hoeing. And it has another advantage—you can soak the seed for 24 or 36 hours before planting, thus gaining several days the start of the weeds.

Ruta-bagas need not be sown before the middle or end of the month. Same preparation as for mangels. Never sow them broadcast. Let the land be clean, mellow, and rich, and drill in the seed at the rate of 2 lbs. per acre, on the fresh-stirred, moist soil. Thin out to 10 inches or a foot apart. There is no remedy for the fly. Thick seeding, and pushing the plants rapidly forward by the use of superphosphate, will greatly lessen the chances of injury. On a small scale, something may be done by dusting slaked lime or plaster on and under the plants when the dew is on. Plaster is good for the crop, and lime will not hurt it.

Corn for soiling.—Select land near the barn-yard, and make it as rich as possible. It cannot be too rich. Never sow this crop broadcast. Prepare the land, and mark it one way as for other corn; then drill in the seed, at the rate of 4 bushels per acre; or if you have no drill, plow out a shallow furrow, and sow the seed in the furrow—say a pint to fifteen or twenty yards. Keep the land clean and mellow by the frequent use of the cultivator.

Peas.—In sections where the "bug" affects the peas, it is sometimes customary to sow this crop the first or second week in June. The bug seldom attacks crops sown so late. But the yield is usually small.

Summer-fallows for Wheat.—On clover sod, not over three years old, a summer-fallow on clay ground is the best of all preparations for wheat. Break up the soil early in June. Harrow thoroughly, and continue to harrow or cultivate sufficiently to kill weeds; then cross-plow in July, and harrow, cultivate, and roll. Plow again the last of August, and drill in the wheat. Some farmers break up the land in June, and do not plow again, depending on the frequent use of the cultivator and harrows to keep down the weeds. On light, loamy soil, such treatment does very well; but heavy soil should be plowed twice or three times. An old, tough sod, broken up in June, does not make a good fallow for wheat. Better fallow it for oats, or break it up early in the fall, and plant corn in the spring.

Weeds.—If not already done, pull out red-root from winter wheat. Spud the thistles; pull docks after a soaking rain, while the ground is loose. Attend to the weeds in the fence corners and along the ditches, and around stone heaps, and suffer none to go to seed. The oftener thistles and other weeds can be mown in pastures, the better. The weeds generally rob us of half our profits, and often take the whole. Declare a war of extermination. Give up the silly notion that weeds cannot be killed and go at the business with energy and promptness, and success will attend him who perseveres. Recollect that it is the last blow that kills. If you stop short of this, your labor is thrown away.

Horses.—Feed liberally and regularly, and groom thoroughly. Do not work them too many hours. From 7 A. M. until 11:30 A. M., and from 1:30 P. M. to 6 P. M., if kept steadily at work, is long enough. Let them rest in the stable and not in the field. Give cut feed and allow them plenty of time to digest it. Nearly all our horse complaints come from indigestion—and this arises very frequently from working too hard and too soon after eating.

Working Oxen differ essentially from horses in their digestive organs. The horse has but one stomach and that a very small one, while the ox has four, and one of these is capable of carrying a large quantity of food that the ox can bring up and eat at his leisure. Oxen may be worked for this reason far more hours than a horse without injury; neither do they require such rich food. If they are allowed too much grain or meal, much of it is voided undigested. Feed them all they will digest, but it is a waste to give more. It is well to work them earlier and later than horses, and let them rest in the shade during the extreme heat of the day. They should be well cleaned every day with currycomb and brush.

The Dairy.—Let everything about the dairy be done with unvarying regularity and with scrupulous cleanliness. Tolerate no noise, harsh words or rough treatment. Never hurry or run the cows, or excite them in any way. Milk with a steady, unceasing flow, and leave not a drop in the udder. Next to liberal feed, pure water and clean milking, we place in importance, *petting the cows.* A dairy farmer must be a *gentleman.* And the *cows* like to see a kind-hearted, sensible woman in the yard or stable at milking time! Let every dairy utensil be *scalded* every day. Mere washing in warm water will not answer. The water must be *boiling hot.* Nearly all the trouble of the butter not coming, bad flavor, etc., arises from ignorance of or inattention to the necessity of having the water boiling hot. A dirty vessel dipped in boiling hot water for a minute or two is far better than one that has been washed perfectly clean in merely warm water, but not scalded. The hot water penetrates into every pore or crack, and destroys the germs of the fungus that produces the mischief.

Sheep.—Tag all that need it, and wash the sheep as soon as the water is warm, but not earlier. Attend to the washing yourself and recollect that it will be better (at least for the sheep) to allow the washers more warm coffee than whiskey. A little grain for a week or ten days before and after washing, will do much to prevent the sheep from taking cold—and it will start the oil sooner after washing, and they can be sheared earlier. If a shearer is rough with the sheep, kick him out of the barn—figuratively, of course. Fat, long-wooled sheep should be fasted a few hours before shearing. Look out for foot-rot. On the first symptom of lameness, separate the lame sheep, and dress the feet of the *whole flock* with a strong solution of carbolic acid. There is nothing better than carbolic acid to cure the foot-rot, and nothing so good as a preventive. Lambs troubled with ticks should be dipped in a weak solution of carbolic acid—say a gallon of the crude acid to twenty gallons of water.

Swine.—Spring pigs intended for the butcher next winter should be favored in the distribution of the milk, and should have nearly as much corn or corn-meal as they will eat, with a few hours' run every day, if possible, in a good clover pasture. If intended to be kept until eighteen months old, it will not be necessary to give so much grain. If of a good breed they will thrive well on clover, and a pint of corn each, per day, increasing the quantity as they get older. Fall pigs should have the same treatment, with the exception of being allowed more corn. In our experience there is no way of making cheaper or better pork than allowing well-bred, *early* fall pigs that have been well wintered, to have the run of a good clover pasture and a liberal allowance of corn during the summer and autumn. See that all the pigs have abundance of fresh water. If any are taken sick separate them from the rest of the herd. Some farmers say if they feed corn to pigs in summer they eat but little clover. This is because the corn is not fed regularly, and the pigs are constantly expecting the corn. Feed regularly night and morning, and none at any other time, and you will have no trouble.

Haying.—Clover will be ready to cut towards the last of the month. See that everything is ready.

Implements and Machines.—We probably shall not need sleighs before next winter! And it would be well to stow them away under cover for the summer. And so with all other tools and machines that will not be needed until winter. Wagons, cultivators, harrows, plows, and other implements in constant use, should be kept housed as much as possible—or failing in this, wash or paint them with crude petroleum. Never use an implement or machine without first seeing that all the bolts are tight. Do not run a wagon with a loose tire.

A Grindstone with a treadle, or better still, one which can be run by horse-power, is indispensable to good farm management. A dull scythe, a blunt spade, and above all, a dull, rusty hoe, absorb many hours of hard labor. Better grind a hoe all away in a season than use it dull for two days.

Work in the Horticultural Departments.

The abundant work which the month of June brings is amply rewarded by the many beautiful flowers which the warm days bring forth, and the harvest is also a great attraction, the beginning of which will appear in the shape of the strawberries, soon followed by the other small fruits. Seeds, if sown now in the well warmed soil, will germinate very rapidly, and a good crop of most varieties of vegetables may still be obtained this season.

Orchard and Nursery.

Trees set this spring will need constant care in rubbing off all buds that start from the trunk, and are not wanted for limbs: if trees become bent by strong winds they must be tied up to stakes or else reset. Young trees may be successfully transplanted a short distance, even when in full leaf, if the roots are not dried by the sun.

Pruning.—This month is preferred by many for pruning bearing orchards. Cover the wounds with shellac varnish.

Thinning, though seldom practised on large trees is of great benefit, as the tree will continue in bearing longer, and the fruit is much finer.

Cultivation.—All young orchards do better if the ground is kept cultivated, and if any crop is raised between the rows, supply a plenty of manure.

Seed-beds of evergreens and other forest trees will need attention; they ought to be kept free from weeds and furnished with a shading of laths to protect them from the sun.

Insects.—Look out for insects of all kinds. When the tent caterpillars appear, destroy their nests.

Curculio.—The best remedy for the curculio is to place a sheet under the trees and shake the insects into it, when they can be collected and destroyed.

Slugs, upon pear and other trees, may be killed by dusting the leaves with lime, ashes or dry earth.

Fruit Garden.

Strawberries ought to be mulched now, if not already done, to prevent the growth of weeds as well as to keep the fruit free from dirt. If the hay or straw used in mulching can be run through a hay cutter, it forms a better material than when uncut. Plants set this spring ought not to be allowed to bear until the next season.

Grape-vines set this season should be allowed to grow but one shoot. Rub off all other buds and keep the single shoot tied up to a stake. Young bearing vines should not ripen more than two bunches to a shoot, as the quality of the fruit will then be much better. Wherever mildew makes its appearance use sulphur, applied by a bellows.

Currants ought to be heavily mulched, as it saves a time in hoeing during the busy season.

Raspberries.—Allow only three or four canes to grow to each stool, unless it is desired to propagate the variety.

Blackberries.—Canes must not be allowed to grow more than four or five feet; the pinching induces the growth of side shoots, and these should be stopped when eighteen inches in length.

Kitchen Garden.

Weeds will require the constant use of the hoe and rake, and if attended small it requires much less time to destroy them than when they are older. Where the rows are wide enough to admit the cultivator, the horse can be used with good effect.

Seeds.—Many seeds require to be sown this month for a succession, as well as for late planting.

Asparagus may be cut until green peas are ready for the table; stop cutting, and spade in a dressing of manure between the rows.

Beans.—Bush varieties may still be planted for late crops, and the Limas started in the hot-bed may be set out. Put poles to all running varieties.

Beets must be thinned out as soon as they are two or three inches high; the thinnings may be used for greens; many prefer them to Spinach.

Cabbages from cold-frame plants will be ready for market this month. Set out plants from the seed-beds. Seed of late varieties for winter use may be sown. The Savoy or Curled varieties are much superior to the other sorts for home use.

Carrots need great care in weeding, and those sown early need to be thinned out. Seed may still be sown early this month and make a good crop.

Cauliflowers.—Set out plants in fine, rich soil, and keep well hoed.

Celery may be planted on ground from which early cabbages were taken. The plants in the seed beds ought not to become drawn, but set out when two or three inches high in another bed, or where they are to grow.

Corn.—Plant early varieties for use late in the fall, and keep that already up free from weeds. Plant a few rows of the pop-corn.

Cucumbers.—Set out plants started in the hot-bed, and keep free from insects by the use of ashes or dust sprinkled upon the plants when covered with dew.

Egg-Plants need a rich, warm soil; they amply

repay a liberal supply of manure, and a watering of liquid manure once a week is of great advantage.

Lettuce.—Transplant from the seed-beds; seed may be sown in a cool and partially shady spot.

Melons need the same care as cucumbers.

Onions need a great deal of attention in weeding. A push-hoe is a very useful implement to loosen the soil and destroy the weeds. Give the bed a dressing of salt or ashes.

Parsnips must be kept clear of weeds until the tops cover the ground. Seeds planted early this month will give a fair crop in most localities.

Peas may yet be planted for late use, though they are usually affected by mildew. Ground from which the early sorts have been removed can be planted with cabbages or celery.

Radishes can be sown now for late use, though they are usually tough and stringy put in so late.

Rhubarb should not be cut severely after the small fruits begin to ripen, but allowed to rest; give a supply of manure; keep all flower-stalks cut.

Ruta-bagas.—Sow this month, and when the plants are well up, dust with ashes to keep off insects.

Salsify, if sown now, will produce fair roots, but not so large as that sown earlier; the treatment is the same as for carrots.

Spinach.—Spade up the ground where the early crop has been taken off, and if the soil is not too dry, sow a bed for late use; the later sown crop is very liable to run to seed. New Zealand spinach is the best for late.

Sweet Potatoes should be planted on ridges as recommended last month. Keep the ground clear of weeds.

Tomatoes.—Set out plants and keep them well cultivated and clear of worms.

Flower-Garden and Lawn.

The cultivator is supplied with plenty of flowers from the garden, but weeds also make their appearance in great numbers, requiring constant care to keep them down. The lawn needs to be cut at least once a week, and if weeds make their appearance, destroy as soon as seen.

Bulbs which have finished flowering ought to be taken up and put away in a dry place, and the ground occupied by bedding plants or annuals.

Annuals.—Those sown in the seed-beds must be transplanted into fine, rich soil.

Herbaceous Perennials may be set out early this month, if not already done; divide and reset those that have done blooming.

Tie up all plants which need support, and supply neat labels to all requiring them.

Greenhouse and Window Plants.

Plants which are to remain in the greenhouse during the summer require shading, and this is best furnished by whitewashing the glass.

Azaleas and Camellias ought to be put out in a shady place, and if they can be plunged in the soil, it will save a great deal of time in watering during hot weather.

Insects must be destroyed whenever they attack plants in the greenhouse.

Soil.—Now is the time to prepare a stock of soil for use next winter and spring. Pile up sods, and if possible, empty house slops upon the heap turning it over once in two or three weeks.

Commercial Matters—Market Prices.

Gold has been quoted firmer, since our last, on a more active inquiry, chiefly for Custom House and export purposes. The quotation, May 15, was 111⅜....The Breadstuff movement has been up to a fair average, though checked by the break in the Erie Canal, near Rochester, which delayed the arrival of fresh supplies from the Lakes. The receipts by rail have been quite liberal of Wheat and Corn, though moderate of other articles. The home trade demand has been good, though mostly in a jobbing way. The export call has been mainly for Wheat, Corn, and low grades of Flour. Prices have been variable, but close steadily, as a rule. The advance in ocean freights has been against the export movement. ....Cotton has been more active, closing strong and buoyant in price....There has been a moderate business reported in Provisions, generally at lower rates....Wool has been offered sparingly and has been in fair request at firmer prices..... Hay has been in better supply and quoted cheaper, on a moderate trade. Straw has been scarce and in demand at an advance....Hops and Seeds have been quiet....Tobacco has been rather more sought after at our quoted rates.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, show at a glance the transactions for the month ending May 15, 1871, 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.	225,000	875,000	664,000	26,000	129,000	147,000
26 days *last* m'th.	261,000	473,000	827,000	13,000	121,000	293,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days *this* m'th.	254,000	1,517,000	1,281,000	31,000	216,000	908,000
26 days *last* m'th.	283,000	1,413,000	1,336,000	25,000	297,000	795,000

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

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days 1871	225,000	875,000	664,000	26,000	129,000	147,000
25 days 1870	231,000	986,000	243,500	12,500	139,000	230,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days 1871	254,000	1,517,000	1,281,000	31,000	216,000	908,000
25 days 1870	243,000	2,414,000	1,170,000	26,000	151,000	1,206,000

3. *Exports from New York, Jan. 1 to May 15:*

	Flour.	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
1871	670,233	3,641,509	1,748,021	17,358	77,902	12,541
1870	633,515	4,003,651	119,022	6,709	——	1,087
1869	337,389	2,643,869	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.*

1871.	*Wheat,* bush.	*Corn,* bush.	*Rye,* bush.	*Barley,* bush.	*Oats,* bush.	*Malt,* bush.
May 9	283,700	259,215	160,734	50,725	376,226	171,933
April 10	811,871	180,947	150,961	164,393	709,393	171,897
March 13	1,533,785	204,388	150,514	329,349	1,133,897	218,231
Feb. 13	2,203,677	311,471	148,193	481,863	1,409,995	215,124
Jan. 16	3,685,116	272,618	157,730	554,491	1,736,936	216,394
1870.						
Dec. 15	3,060,762	208,319	148,069	593,397	2,085,137	231,129
Nov. 9	2,092,930	390,000	116,800	400,400	2,125,000	——
Oct. 10	1,809,921	476,544	53,391	184,803	1,579,658	237,453
Sept. 12	1,387,487	761,894	50,860	107,474	1,053,079	130,881
Aug. 8	1,138,876	589,973	25,437	106,101	691,766	119,046
July 11	1,241,913	483,540	28,816	98,600	655,063	109,478
June 7	706,478	69,845	21,891	94,630	488,143	108,775
May 10	1,158,652	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

CURRENT WHOLESALE PRICES.

	April 15.	May 15.
PRICE OF GOLD	110¼	111⅜
FLOUR—Super to Extra State	$6 15 @ 7 25	5 40 @ 7 00
Super to Extra Southern	6 00 @11 00	5 65 @ 9 75
Extra Western	6 50 @10 00	6 00 @ 9 75
Extra Genesee	7 25 @ 9 00	7 00 @ 8 75
Superfine Western	6 15 @ 6 55	5 40 @ 5 90
RYE FLOUR	4 25 @ 6 15	4 20 @ 6 10
CORN-MEAL	3 50 @ 4 45	3 25 @ 4 20
WHEAT—All kinds of White	1 65 @ 2 00	1 60 @ 1 90
All kinds of Red and Amber	1 45 @ 1 70	1 32½@ 1 62
CORN—Yellow	78 @ 80	81 @ 83
Mixed	75 @ 78	79 @ 82
OATS—Western	66 @ 71	65 @ 70
State	67½@ 70	67½@ 69
RYE	95 @ 1 18	1 65 @ 1 21
BARLEY	85 @ 1 18	75 @ 1 20
HAY—Bale ₩ 100 lbs	1 15 @ 1 50	1 00 @ 1 45
STRAW, ₩ 100 lbs	75 @ 1 35	80 @ 1 65
COTTON—Middlings, ₩ lb	14¼@ 15½	15¼@ 16¾
HOPS—Crop of 1870. ₩ lb	6 @ 12	6 @ 12
FEATHERS—Live Geese, ₩ lb	65 @ 75	65 @ 75
SEED—Clover, ₩ lb	10 @ 10¾	9½@ 9¾
Timothy, ₩ bushel	6 25 @ 6 50	3 50 @ 4 00
Flax, ₩ bushel	2 15 @ 2 25	2 12½@ 2 20
SUGAR—Brown, ₩ lb	7¾@ 10¼	8¾@ 10¾
MOLASSES, Cuba, ₩ gal	20 @ 45	20 @ 45
COFFEE—Rio, (Gold, in bond)	10 @ 13¼	10 @ 13½
TOBACCO, Kentucky, &c., ₩ lb	6 @ 11	5¼@ 11
Seed Leaf, ₩ lb	13 @ 70	13 @ 70
WOOL—Domestic Fleece, ₩ lb	45 @ 57	47 @ 57
Domestic, pulled, ₩ lb	25 @ 43	28 @ 52
California, unwashed,	26 @ 33	20 @ 38
TALLOW, ₩ lb	8¾@ 9	8½@ 9
OIL-CAKE—₩ ton	39 50 @42 50	39 50 @42 50
PORK—Mess, ₩ barrel	19 50 @19 75	17 00 @17 25
Prime, ₩ barrel	16 75 @17 25	14 00 @15 00
BEEF—Plain mess	10 00 @15 00	10 00 @15 00
LARD, in tres. & barrels, ₩ lb	10½@ 11⅞	10¼@ 11½
BUTTER—State, ₩ lb	15 @ 43	12 @ 35
Western, ₩ lb	12 @ 33	10 @ 28
CHEESE	5 @ 16	8 @ 15
BEANS—₩ bushel	75 @ 8 20	75 @ 3 10
PEAS—Canada, free, ₩ bu	1 50 @ 1 55	1 40 @ 1 45
EGGS—Fresh, ₩ dozen	14 @ 17	15 @ 17
POULTRY—Dressed Fowls	15 @ 18	16 @ 17
Turkeys, dressed, ₩ lb	15 @ 18	16 @ 17
Geese, ₩ lb	12 @ 16	13 @ 16
Ducks, ₩ pair	1 00 @ 1 25	1 00 @ 1 25
POTATOES, ₩ bbl	3 00 @ 6 50	3 00 @ 5 50
SWEET POTATOES, ₩ bbl	4 00 @ 5 00	4 00 @ 5 00
TURNIPS—₩ bbl	1 00 @ 1 25	75 @ 1 25
CABBAGES—₩ 100	6 00 @15 00	5 00 @13 00
ONIONS—₩ bbl	3 00 @ —	— @ —
CRANBERRIES—₩ bbl	5 00 @ 9 00	3 00 @ 6 00
BROOM-CORN—₩ lb	4 @ 8	4 @ 8
APPLES—₩ barrel	1 50 @ 6 00	1 25 @ 4 75

New-York Live-Stock Markets.

WEEK ENDING.	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	*Tot'l.*
April 17th	5,326	65	8,543	15,055	9,415	33,304
April 24th	7,687	51	8,648	13,644	13,610	83,640
May 1st	7,514	74	8,968	17,050	18,405	47,011
May 8th	6,644	83	5,263	19,664	15,515	47,169
May 15th	7,886	88	4,876	18,273	20,296	51,418
Total in 5 Weeks	34,957	361	21,298	83,686	77,241	217,542
do *for prev. 4 Weeks*	21,993	346	7,059	77,962	51,908	162,278
Average per Week	6,991	72	4,259	16,737	15,448	
do. do. *last Month*	6,249	86	1,765	19,490	12,977	
do. do. *prev's Month*	5,843	69	915	20,070	12,256	
Average per Week, 1870.	6,847	97	2,240	28,151	17,109	
Average per Week, 1869.	6,275	92	1,752	28,836	15,348	
do. do. do. 1868	5,733	105	1,583	27,182	18,809	
do. do. do. 1867.	5,544	64	1,320	22,154	26,605	
do. do. do. 1866.	5,748	91	1,200	20,000	13,000	
do. do. do. 1865.	5,255	118	1,500	16,091	11,023	
Total in 1869	326,380	4,837	91,933	1,499,500	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	270,271	6,161	71,991	836,733	573,190	
Total in 1864	267,609	7,603	75,621	782,462	660,277	

Beef Cattle.—With an average of 742 more cattle per week than were received the previous month, and 881 above the average for the corresponding period of 1870, the market rules weak, and prices have a downward tendency. The fine corn crop of last year at the West, now shows itself upon the stock coming forward. There are abundance of ripe cattle without waiting for the grass to fatten them. In fact, it is a common remark among butchers that cattle never did so well at this season of the year. There is one great drawback to the butcher, however, and that is the low price of rough fat, so that the more a bullock has, the more are the other portions reduced in value. High prices are not looked for this spring. Taken as a whole, the market does not differ materially from what it was five weeks ago, only we are not getting so poor cattle as were then sent in. Even the Texans are fat, and the scallawag, State, dry cows, old oxen and stags, are kept at home, as it does not pay to send them here.

Below we give the range of prices, average price, and figures at which large lots were sold:

Apr. 17th, ranged	11 @15½c.	Large sales	12½@14 c. Av. 13½
do. 24th, do.	10½@15½c.	do. do.	13 @14 c. do. 13½
May 1st, do.	11 @15 c.	do. do.	12½@13¾c. do. 13¼
do. 8th, do.	11½@15 c.	do. do.	13 @14 c. do. 13½
do. 15th, do.	11 @15 c.	do. do.	13 @13¾c. do. 13¼

Milch Cows.—The offerings of fresh cows and springers have been light, the demand not calling for them. Trade has ruled very dull until within the past week, when it has picked up a little. If only good cows were sent here, they would sell, but the stock runs very poor. The presumption is that good cows are wanted at home for the opening of the butter and cheese season, while nearly worthless stock is sent here for sale. Common cows are quoted at $50@$60 each; medium to good, $70@$80, with a few prime at $90@$1.00.....**Calves.**—Here we have a great increase in numbers, the present being the season of their greatest abundance. The arrivals would be still larger but for the low rates which induce farmers to hold them back. Those known as "buttermilk calves" will only sell at 4@6c. per lb., live weight, while fair to good calves from Central N. Y., bring 7@8c., and those from near the city, 8@9c. A pen of 92 State calves, 127 lbs., just sold at 7¼c....**Sheep and Lambs.**—Spring lambs are now coming forward in considerable quantities; and have declined from 18 to 20c. per lb., to 12@15c., some poor ones selling still lower. There is not much difference in the price of sheep, from what they were quoted last month. Nearly all the stock is now shorn. Wool skins help materially to sell a lot of sheep, the pelts being in good demand. Ordinary to fair sheared sheep sell at 5@6¼c. per lb., live weight, good to prime at 6½@7c., with a few extras at 7¼c. Lambs are quoted at 11@15c.—the latter price for 55@60 lb. Jersey stock....**Swine.**—Receipts have been unusually large for the spring months, and trade has dragged heavily at constantly declining rates. Most of the hogs are first killed and then sold, but live hogs are worth 5⅜@5¾c., with city slaughtered at 7@7¾c., being a falling off of 1c. per lb. during the month.

AMERICAN AGRICULTURIST.

ANNUAL SUBSCRIPTION TERMS (always in advance): $1.50 each for less than four copies: Four to nine copies, $1.25 each: Ten to nineteen copies, $1.20 each: Twenty copies and upward, $1 each. Papers are addressed to each name.

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ORANGE JUDD & Co., Publishers, 245 Broadway, N. Y. City.

LAST CALL.

Close Up the Ranks.

* * * * * * * * * * * * *

26 26 TWENTY-SIX DAYS. 26 26

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N. B.—The General Premium List will be withdrawn at the end of June, which leaves *twenty-six* more working days to fill up Premium Clubs under way, and to open and complete *new* lists.

N. B.—A few days grace will be allowed for those living at a distance, so as to place all canvassers on a par.

N. B.—In hundreds of cases a few more names will fill out a list partly made up already, and secure a valuable premium. **This month** is the time to do it.

N. B.—We are anxious to have all who have worked for Premiums, receive some reward—and though we can not vary from our general offers, we hope all who have uncompleted lists will fill them this month, even though it be a loss for us to have them do so.

N. B.—Our Premium Secretary has a record of every name sent by any person for a premium list, and can tell at a glance just how each canvasser's list stands.

N. B.—N. B.—Last June many *new* premium clubs were formed, and the premiums secured. It can be **readily done this year.** In several cases, such large premiums as the Cyclopedia, etc., have been obtained in four to six days of canvassing.

N. B.—N. B.—N. B.—*About one subscriber a day* (or evening) for June, will secure any one of several large, valuable premiums. See numbers 1—2—16—18—19—35—43—48—51—53—58—72—73—81—83, and 89....A few more names will secure Nos. 33—42—54—76—84—85—90.

N. B.—N. B.—N. B.—*About half a subscriber a day* (or evening), that is one once in two days, for June, will secure Nos. 5—15—17—22—23—24—26—27—28—31—57—68, or 69.....A few extra names will secure Nos. **14**—18—19—**36**—47—50—**55**—56—**62**—65—70—71, etc.

N. B.—N. B.—N. B.—*About two subscribers a week* will secure Nos. 6—7—10—20—21—49—59 and **102**....*About one subscriber a week* will secure one of several good articles, such as Nos. 8—9—11—29—63—64 and **101.**

N. B.—IMPORTANT.—About half the above number of subscribers for **Hearth and Home,** will secure the same result—or part for one paper and part for the other.

N. B.—CONCLUSION.—Read last few paragraphs, and try your hand at it this month. The premiums are first-rate—they are ready for you—and you can get them with a little effort, this month!....**TRY 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 all of this month (June), 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.

☞ **Full Descriptions of the Premiums sent free to ALL Applicants.**

[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	at $1.	Or Hearth and Home. Number of Subscribers required at $3.00	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	$3 00	8	30	4	15
8	Pocket Knife (Smith & Clark)	$1 50	4	....	2	....
9	Pocket Knife (do. do.)	$3 00	5	22	3	11
10	Pocket Knife (do. do.)	$3 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 Tablespoons (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)	$65 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 (Lest—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	300	520
40	Silver Watch (American Watch Co.)	$40 00	80	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	20	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 (Post Unbound, paid.)	$1 75	....	20	....	10
67	Any Two Back Volumes do.	$3 50	....	29	....	15
68	Any Three do. do. do.	$5 25	13	37	7	19
69	Any Four do. do. do.	$7 00	15	47	8	24
70	Any Five do. do. do.	$8 75	17	54	9	27
71	Any Six do. do. do.	$10 50	19	61	10	32
72	Any Seven do. do. do.	$12 25	21	68	11	34
73	Any Eight do. do. do.	$14 00	23	74	12	37
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89	A $15 Library do.	$15 00	24	85	12	43
90	A $20 Library do.	$20 00	31	100	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.		....	....	....	....
101	A Steam-Engine that will GO		3	24	2	6
102	Pocket Knife (Multum in Parvo)	$3 50	8	28	4	14

☞ *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. (Steam-Engine mailed for 36 cents extra.)*

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.*

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Bone Mills.—"D. P. M." Bones require a great deal of power to grind them. We know of no satisfactory horse-power mill.

Bone Spavin.—A. M. Smith, Washington, Conn. If your horse is not lame with the spavin, leave him alone. If lame, apply a good blister and turn him out for about a month. If this fail, the actual cautery is to be applied.

Warts on Horses.—E. H. Hallis, Newton Co., Ind., has a young horse which has upon his breast what he takes to be a wart, as large as a silver dollar. If the trouble described is really a wart, the application of nitric acid repeated for two or three days, will remove it. But if it is not a wart, he had better call a Veterinary Surgeon, as otherwise that application may produce much trouble.

Which Breed of Cattle is Best?—We are asked which of the four breeds of cattle is the best,—Jersey, Devon, Ayrshire, or Shorthorn,—which combines the most good qualities for a common farmer? This depends entirely on what kind of a common farmer it is. If a butter-maker, the Jersey is the best, by all odds; if a breeder of working cattle, the Devon; if a producer of milk for sale, the Ayrshire; and if a beef-maker, the Shorthorn. Each is best for its particular use. If a combinative cow is wanted, one whose male calves will make fair oxen or beef, and whose milk will be abundant, yet good for butter, the Ayrshire will generally be the best, but more money will be made if that breed is selected which is best adapted to one particular industry,—and that industry well followed.

Milk Fever.—A Wisconsin correspondent writes of a cow belonging to a neighbor that was attacked with milk-fever one day after calving. She was found just at night unable to rise—tongue protruding, eyes glassy, and it was not thought that she could live until morning. They gave her a dose of physic consisting of one-half pint of soft soap, and one-half pint of vinegar,—mixed at the mouth, well shaken, and poured down. To their great astonishment they found the cow up and eating the next morning. They call this "the nearest a miracle they have ever seen." It is certainly a remarkable cure, and we know by experience that even a violent dose of physic is usually ineffectual in milk-fever. An ounce of prevention is worth a pound of soap and vinegar.

Corn Fodder.—Mr. F. T. Baldwin, of Patterson, N. Y. (referring to the remarks about *curing* corn fodder in Ogden Farm Papers, No. 16), says: "I have raised some every year for about 20 years, and have never had any trouble in curing. I sow from May 10th to June 10th, and commence feeding the last days of August. I find at that time the stalks have their full growth. After I have fed as much green as I wish, I go into the field and with both arms reach around and bind tight at the top, letting the commencement of the stout stand fast upon the hills or drills—then cut and stout around until I have as much as I can bind at the top. I have never lost a stalk by being moldy or damaged in any way. The stalks on the inside will remain green, and retain all the sweetness as when first cut. My theory in regard to putting up in this way is this: the stalks that are bound without cutting keep the balance of the stout spread out, and the air has free circulation upward through the stout which prevents mold or damage. On moving the stalks to the barn, unbind the stout and tie up in sheaves. We usually make three sheaves from one stout."—This is a very intelligible description, and we (O. F.) shall give the recommendation a fair trial. We infer that it will not do to commence making the stouts (stocks) before the middle of October, when the stalks will have become somewhat dry, and this will entail some loss in quality. Still, if it will secure good keeping, the loss will be more than made up.

SUNDRY HUMBUGS.—We are right glad to find the *new* contributors to this department less numerous than at any time before, for a long time. Only twenty new schemes, or names, require special notice this month. Very many who have written us, or sent contributions of circulars within the past four weeks, will find them already referred to in our previous numbers.

.....A Scranton (Pa.) subscriber sends a circular of a $5 Sewing Machine from Nassau-st., N. Y., and says a neighbor sent the money and received one weighing 1½ lbs., in a box 8 inches square, and 5 inches deep; that it will sew a little, but on trial it does not prove to be worth 50 cents (he might have said not worth 5 cents!) .....We have circulars offering 52,000 tickets at $5.00 each, in a "Grand Gift Concert and Distribution, for the benefit of the Foundling Asylum of the Sisters of Charity, in the City of New York, *and* the Soldiers and Sailors' Orphans' Home, of Washington, D.C., to be held in Washington City, June 7th, 1871." While *all* such affairs, even when genuine and as fairly conducted as can be, are wrong in principle, and bad in their influence upon all concerned, this one has several special objections. To make up the pretended $260,000 of prizes offered, the large block of Erie R. R. stock put in must be reckoned at par, while it is selling in open market at about *one-fourth* of this sum! As a "vacant lot" is usually 25x100 feet, we should not like to take shares in the $17,500 of *vacant* lots in Govanstown, Md., at $2,500 each; nor in the $80,000 to $100,000 of other "real estate" of probably similar valuation. We should like to know what part of the proceeds go to the Washington "Home," and what part to the N. Y. Asylum. Further, would *we* have any chance, if the whole number of 51,999 other foolish people should not be found to take tickets at $5 each. Five dollar bills must somewhere be plenty—fools ditto—to afford any chance for *such* an enterprize!..... The N. Y. "Agent" of the above advertises himself also as "Agent" of the "Cosmopolitan Benevolent Society of California," which proclaims 100,000 theatre tickets at $2.50 each, each ticket having one chance in fifty at some gold prizes. This differs no whit from the old lotteries suppressed by law, except in giving less chance for success to the ticket buyers.....The "$765,000 in Cash Gifts" of C. B. Taylor & Co., 78 Broadway, can not need any attention from us, among our readers. If distant Editors publish the "direct advertisement," we notify them not to ask us to help collect their bills—nor will Geo. P. Rowell & Co. help, as they give Taylor & Co. no permission to refer to them. N. S. (nuff said)..... Golloday's "Drawings" at Danville, Ky., is another of the schemes to blind and catch greenhorns.....Edgerton & Co., 703 Second ave., N. Y., is writing letters about "Havana Lotteries," and as a blind, offers to go in on shares in the purchase of tickets. His share will of course be *all* the money that comes to him from his dupes.....A so-called "American Engraving Company," at a small town in Connecticut, has the impudence to send an advertisement to our weekly journal, HEARTH AND HOME——offering engravings at $1, and with each a ticket giving a chance at **$200,000** of gifts to be distributed in July. We refer said "Company" to our humbug columns in this and previous numbers. We charge nothing for advertising *such* enterprises. How could we have the heart to do it, when they are of such inestimable benefit to the dear people!....

The "Foot of the Rocky Mountains" must be a wonderful place, if anybody can find it. At least, so thinks a New York "medicine man" who, now under one name, then under another, and then another, professes to have been a Missionary there, and to have discovered a wonderful plant whose juices cure almost every disease that flesh (especially lung-flesh) is heir to. An old woman with a wonderful his-*story*, and a changing face and name, graces the frontispiece of this doctor's wonderful—wonder-telling-pamphlets. We can but feel sad to know that there are poor dupes enough to send money sufficient to keep this man at his swindling trade....."Married" or "Unmarried," we advise you to burn all circulars coming from John H. Stevenson, of Nassau-street, N. Y. Neither he nor any other man living can do what he proposes. So keep your $10 for some good purpose.....Put no faith in any "Potato Bug Destroyer," advertised in Michigan or elsewhere. If any man *believes* he has a sure thing of this kind, let him go into the culture of the tuber and make the money himself. We can't afford a "stamp" for any such tract, though earnestly invited to do so by a lot of circulars on hand.....

Post-masters and others should be careful about furnishing any lists of names to parties in N. Y., and elsewhere—no matter what the pretense, or what the compensation *offered* (though never paid). These names are almost invariably used for improper or humbug purposes. We have a dozen or more of different circulars of this kind sent out through the country, every one of which is a swindling dodge....The "Arabian Secret to restore Verility!" We suppose the ignorant swindler who advertises this from Philadelphia, at $5, means "Virility." He better take a dose himself, and then go to Arabia and sell his medicines. Our people don't want any such verility or virility as abounds in that country.....

The pretended counterfeit money operators are at work—but not so briskly. Some of them have taken to sending written instead of lithographed letters. The most annoying rascal in this line is one who pretends to be Day & Wallace, 143 Fulton-st., N. Y. He, by theft, or by reprinting, or by other means, has secured a lot of letter envelopes of Orange Judd & Co., and sends them to distant parts of the country enclosing his swindling circulars. We could expect nothing else. Those who will lie and cheat will not stop at theft. "Milton & Brother," new No. 307 Bleecker-st., N. Y., is one of those chaps who plead with young men to take more of the stuff, or "come and get it at the Factory, No. 10 Fake street, where you will see over the door, Harris & Brother, Fancy Goods. You ring three times, and when you come in, introduce yourself. You need not be afraid, for I pay the Police to inform me of all coming trouble."—As there is no Fake-st., of course this is all a ruse to get you to *send* money. Among the new names in this line, we find Chas. A. Roberts and Jos. G. Perry, both at 688 Broadway; J. B. Page & Bro., 200 Broadway; John Baker, 5 Catherine-st., etc.

Sage's Vinegar Recipe.—Vinegar is ordinarily produced by allowing cider, alcoholic fruit juices, as wine, sugar containing fluids, as molasses, sweet-wood saps, and the like, to stand for a long time exposed to the air. The process is greatly hastened by various methods securing greater exposure, the more common one being to allow the liquids to trickle down through barrels filled with shavings, to which free access of air is given. Sometime since F. I. Sage proposed arranging a series of gently inclined shelves, to have the fluids drip from one to another, spreading over the surface of each, so as to give large exposure. With a great number of these shelves, the same end would be secured as in the use of the shavings. The plan was submitted to Prof. Johnston, of the Wesleyan University, and Prof. Silliman, of Yale College, and they gave their approval of the idea without specially examining any apparatus, as we understand. Whereupon, Mr. Sage advertised his process largely by newspaper and circular, offering the secret for $5, first taking a pledge of secrecy from the purchasers. His circulars gave such wonderful claims for the great value of the process, the immense profits to be made, etc., that multitudes of persons were led to invest $5 each. They probably did so, largely on their faith in the recommendation of the worthy Professors. We have yet to hear of the first one of all these purchasers who has put the process to practical, profitable use—though a few may have done so. One great objection to Mr. Sage's circulars is the claims he puts forth as to the profits to be surely derived, and the simple, cheap, and easy adoption of the process by any and every person. Last October, we stated in a P.S., that we had received (too late for insertion then) a withdrawal of the recommendation of the above-named college Professors, and that they had so notified Mr. Sage—adding, that "of course he would not send out any further circulars with their names as endorsers," and we supposed that that would end the matter. But it would seem that this is not the case, as we learn that the Professors are still greatly annoyed by letters concerning Mr. Sage, and we are requested to publish the following, which speaks for itself:

A CARD.

"The undersigned hereby give notice, that their certificate to Mr. F. I. Sage, of Cromwell, Ct., concerning his *vinegar process*, was withdrawn many months ago, and he forbidden longer to use our names, because of his very objectionable practices connected with it that came to our knowledge. We are driven to this course, as we learn that he is still distributing his circulars through the mails with our names attached. Beware of them.'

JOHN JOHNSTON, Prof. Nat. Science, Middletown, Ct.
B. SILLIMAN, Prof. Chemistry, etc., New Haven, Ct.
May 3d, 1871.

Messrs. B. Fox & Co.—Our remarks concerning this firm last month were based upon the information then obtained, and justified by it. A member of the firm has called upon us with several references, given us their actual place of business (369 Canal-st.), says they intend to do a straightforward business, and challenges proof that any dollar intrusted to their firm has not been appropriated to the purposes directed by the sender. He disclaims any intention or willingness to deal in the articles to which we objected, says he was not aware of their being in the catalogue, and he promises that they shall be stricken out and not supplied. We have no desire to interfere with any legitimate business, and will not; and so long as Messrs. B. Fox and Co., (which is the real name of the firm) or any other firm or individual, do, as they assure us they will do, we shall find no fault. But we shall always stand ready to expose and call to account any one sending, or offering to send, the "French" or other appliance that professes to diminish population, or to render the practice of immorality safe, or any books, cards, or pictures that the chaste should not purchase, or marked playing and fancy cards, and the like.

Watering Tomatoes.—An amateur, who proposes to compete for Col. Waring's hundred dollar premium for the largest tomato grown this year from his seed, asks if it is advisable to water the plants with manure water during fruiting. If any manure is used at this time, it should be exceedingly dilute, and we would prefer to use it only during the early growth; but the most abundant watering should be continued throughout the whole period of fruiting. Nothing does so much to make the fruit large and smooth as plenty of water—applied after the sun goes off in the evening.

That Mexican Saddle.—We have received many letters complaining because the Mexican and McClellan Saddles, pictured in our April number, have iron instead of wood and leather stirrups. Our Horseback Editor replies that in directing our artist to go for his models to the best wholesale saddlers in New York, he did not apprehend that such a mistake would be made. But evidently people who sell saddles in New York are different from the people who ride in them on the plains. One correspondent, writing from Nevada, objects to our preference for the English saddle, saying, "I profess to be a first-class rider, but I could not be hired to get on a bad horse with an English saddle." The writer of our article—by no means professing to be a first-class rider, has had some twenty-five years' experience in the saddle, including nearly four years of steady cavalry service in the Southwest, and he has been obliged at times to become accustomed to all sorts of saddles. He has not yet seen a horse he would not willingly mount, and could not stay mounted on, with a good English saddle. He would not willingly mount a back-leaper or a runaway with any other. Possibly if our correspondent had had twenty years' practice in English pig-skin, he would change his opinion.

Bloody Milk.—Mr. Job Osborne, of Farmers' Institute, Indiana, has a cow, a large milker, that gives bloody milk out of the two front teats. He asks for a remedy.—We have had no personal experience with this difficulty. Allen says, in his *American Cattle*, "Bloody milk generally comes from an injury to the udder or teat by inflammation, a bruise, or wound, and sometimes from disorder in the interior part of the udder. * * * The effected teat and udder should be bathed with some soft emollient, as in garget or puerperal fever. An ounce or two of saltpetre, dissolved in water, may be given as a dose. * * * Such difficulties, however, seldom occur, and are usually overcome without difficulty in a few days by careful usage. Should the udder persist in yielding such disordered milk for any considerable length of time, and through a majority of the teats, it must be a question of profit to the dairyman whether to dry her off for the shambles or still retain her in the dairy, or for breeding in hopes of a better prospect in another year."

Double Head of Rye.—J. H. Shook, Long, Ill., sends a double head of rye. We have seen similar specimens several times before. We shall be glad to know if the seed from it produces any double heads.

High Priced Seeds.—"A Subscriber" at Three Rivers, Canada, complains that he paid 50 cents for a packet of choice Pansy seeds, and received a parcel containing very few seeds, and he looks upon the transaction in the light of a humbug. Those who purchase novelties must expect to pay high for them. Many foreign seeds sent out by our seedsmen are in the original little packets put up abroad. The dealers generally charge in proportion to the cost. Some seeds cost many times more than their weight in gold.

Hoop Poles.—F. W. Hall, New Haven, Conn., says: The kinds principally used are walnut, all kinds of oak, and occasionally a few white birch. Trim them out *close*, and cut them off twelve and fourteen feet long, then split them, and hew or shave them down smooth, and put twenty-five in each bunch. Bind them with rope-yarn, and they are ready for market.

Large Eggs.—Referring to a notice of some large hen's eggs, given in the May Basket, F. T. Simpson, Wilkes Co., Ga., writes: "More than two months ago Mrs. S. took from a hen's nest an egg weighing 6 oz., and about three weeks after found another that weighed 5 oz., and since then has brought in four or five, which were not weighed, but much larger than the average size of hen's eggs. The first two were boiled until hard. The larger, upon opening, had two coatings of white or albumen, one enveloping the other, and two distinct yolks, joined together by a ligament ¾ of an inch long by ¼ of an inch wide. Had this egg been hatched, the product would have been twin chickens, joined together after the manner of the Siamese twins. The smaller had two whites and two yolks, which were not united, but entirely surrounded by the whites."—We have found all the very large eggs that we have examined to be either double yolked, or, as sometimes happens, a completely developed egg, with its shell, within another shell, and surrounded by albumen.

Fattening Cattle and Hogs in Illinois.—A correspondent writes: "As there is considerable talk in regard to prepared food for cattle and hogs, I will give my plan for getting the most out of a bushel of corn. In the first place I feed the corn to cattle, and have hogs to follow, and the feed they get is second only to cooked corn; then, after the cattle go on grass, I put the hogs on clover with corn, and the green food appears to help digest the corn, so that the hogs get the same amount of nourishment out of it that they would if steamed."—The plan of giving hogs a good clover pasture is excellent; and the reason assigned is the true one, "The green food appears to help digest the corn." And would it not be well to give the cattle some corn with their grass for the same reason?

Colorado Agricultural Society.—The Denver Tribune of April 22, gives the following as a list of officers: *President*—H. B. Bearce; *Secretary*—Fred. A. Clifton; *Treasurer*—Frank Palmer. The next Annual Fair is fixed for the 12th September, extending to the 16th, inclusive, but the place of holding it is not mentioned.

Chicken Cholera.—M. M. Sheets, Holden, Mo., finds this disease taking off his laying hens and young chickens. It is malady respecting which little is known, though as usual in such cases all sorts of nostrums are prescribed, the array being formidable in proportion to the ignorance of the would-be doctors. We have gathered all the information respecting this disorder we could procure, since it prevailed a few years since at the West. There is a very malignant type that is almost always fatal. A milder form appears in some districts that does not destroy more than half or one-third of the birds attacked. Alum water made pretty strong, given for drink and mixed with their soft feed, has seemed to be the best medicine in many cases that has been reported.

Potato Bug.—M. D. Settler, Dayton, O. The insect sent is the Colorado Potato Beetle. The best known remedy is the virulent poison, Paris green. Mix with eight or ten times its bulk of flour, and dust the vines. Use carefully to avoid accidents.

Spurious Eggs for Hatching.—A correspondent asks if eggs bought for dark Brahmas, of a dealer who advertised in the *Agriculturist*, were genuine. He says they produced chicks of various colors, and some had no feathers on their legs.—If the color is not a dark brown at first, with two stripes on the back running from neck to tail, and with legs and first and second toes well feathered, then the eggs were not dark Brahmas. At four or five weeks old the color should incline a little toward grayish, and the stripes become chocolate. It is charitable to suppose that the advertiser meant to act fairly. You should write to him to correct a mistake if he has made one. If he is a cheat, we shall upon evidence exclude his advertisement. The *Agriculturist* always fights humbugs of whatever sort, and endeavors to insert only trustworthy advertisements.

Double-furrow Plow.—Z. Acher, Chester Co., Pa. We know of no plows of this kind in this country. The article was given to call attention to an implement now popular in England.

Corn Husking Machines.—M. C. Carr, of N. H., wants to know more about the corn husking machines alluded to in our report of the Trial of Implements at the last N. Y. State Fair. We gave all the essential facts. We do not regard them as a complete success at present. All that can be said is that they "promise well." We hope and believe that they will be improved, and that in a few years we shall no more think of husking corn by hand than of thrashing wheat with a flail. We will keep our readers informed of all improvements that may be made in the huskers.

Diseased Fowls.—E. W. Irish, Amherst (State not given), has lost half his grown fowls by a disease with the following symptoms: the legs become weak, then the head drops to one side, and comb turns pale.—Put the fowls in a *dry* place. Feed potatoes, boiled, mashed and mixed with an equal quantity of scalded meal, adding a pinch of cayenne to each fowl. Put scraps of rusty iron in their drinking water. If too sick to eat or drink, give them soft hay to rest on, and let them alone.

Dark Brahma Fowls.—J. M. Williamson, Butler Co., Pa., asks: "Are the dark Brahma fowls a good breed to raise for market, and good layers?"—They are large, easily fattened, and good winter layers, but will not produce so many eggs in a year as some of the non-sitting breeds. For the table they are rather coarse-fleshed, but still of passable flavor. They have the merit of being very hardy when chickens, and easy to rear in great numbers.

Peas on Sod Land.—"G. N. L." Instead of plowing under the peas, we should prefer to sow them on the furrows as left by the plow, and harrow in. The variety we usually sow is the common Canada Creeper. Should be glad to know if there is a better variety.

Will Clover, Peas, and Beans, produce milk containing more cheese than grass and corn? Such is said to be the case, from the fact that the former contain about double the quantity of nitrogenous or "cheese-forming" material than the latter; but we know of no satisfactory proof, and we should, for reasons we have not now time to give, expect more *cream* from cows fed on the peas, etc., than from those fed on corn, etc.

Will Bells on Sheep Frighten away the Dogs?—R. H. Martin writes: "Our sheep have a range of 50 acres, one-half of it pine timber. They never stay at the house nights, but go to the pines. They have a bell on them, and though several sheep have been killed in the neighborhood by dogs, my sheep have not yet been disturbed. Is a bell a reliable safeguard?" It is unquestionably a great help, but cannot always be depended on. Put a bell on the sheep and some lead in the dogs, and use all your influence to get a law enacted taxing the dogs, and see that it is enforced.

Feeding Horses according to their Work.—Mr. Smith, of Wisconsin, asks us how he shall feed his horses, and remarks: "I feed them according to their work, and they are in splendid condition. I am a great hand to pet horses, and like to have them in good condition for their work."—That is right. Nothing is more aggravating in a busy time than an inefficient team. It is economical to have good horses (or cattle), and take good care of them. Feed regularly, groom thoroughly, and work steadily; these are the only rules we can give. "Feeding according to their work" must not be carried to extremes. When a horse is overworked, overfeeding will not help him; and it is almost certain to bring on indigestion, and this leads to colic, and, if persisted in, will probably end in death. Many a good horse is lost in this way. We know farmers who do not give their horses any grain on Sunday because they are not doing any thing; whereas the horses should, if any thing, have more grain, because they have time and strength to digest it.

Tree-Planting in Illinois.—A bill is before the Illinois Legislature offering a bounty for plantations of forest-trees. As the bill has not yet become a law, we do not give the conditions it proposes. It is believed that this bill, or some acceptable substitute for it, will be passed.

Purity of Plaster.—"D. P.," of N. H., asks, "Is there any way for farmers to test the purity of gypsum that is not expensive?"—We know of none that does not require considerable chemical knowledge and skill. The manufacturers should have it analyzed by a good chemist. It is their interest to satisfy farmers that the article is good.

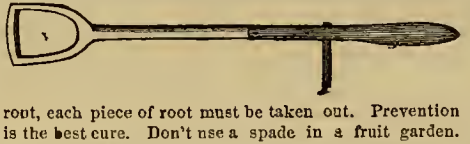
Half-a-Year, Now!—This number closes the first half of Volume 30. When desired, subscribers will be taken for the remaining half of the year at half the regular rates, single or clubs. In Premium lists, two half-year subscribers may, during this month, count the same as one full subscriber. ☞ Our friends may now invite in their friends for a half year's trial.

Does Farming Pay?—We often hear it said, there is no longer any money in farming. In the course of our experience we have heard similar statements concerning other occupations. A printer, adhering in these days to the old-fashioned hand-press, might make the same complaint, and with as much justice as the present farmer, who carries on operations in the old style, or a carpenter who makes his moldings by hand and planes boards. The improvements in machinery of all kinds have so quickened the demand for labor in every branch of industry, that the farmer as well as the mechanic must abandon hand labor and use machinery, or his profits must be eaten up in expenses. Hay may be made and put in the barn by machinery now at the rate of one dollar per acre. By hand the cost would be four dollars. The old style of crop is half a ton per acre; now three times that is a fair crop. The difference is just that between eight dollars per ton and sixty-six cents. The wide-awake farmer has this difference for his profit, eight dollars being about the market price for hay in many places. The same is true of most other crops, grain and roots especially. In feeding stock and making and using manure, equally large differences result. So of breeding stock; the old style rooter, and the modern Berkshire, are not more unlike than are their several values when made into pork. The same of the ill-fed, rough-coated native heifer or steer, and the sleek, well-fed grade Jersey or Ayrshire. The same is true of many farming communities in respect to roads, fences, and schools. All these must be fitted up with *modern improvements*, or farming as a business must suffer. We *know* whereof we speak, when we emphatically deny that farming is an unprofitable business. The capital invested will, if rightly used, return in this branch of industry as good an interest as in any other, besides having the invaluable merit of indestructibility. A workshop or factory may burn up, but land remains not only intact, but from uncontrollable circumstances is ever advancing in value. So the labor of the farmer is sure of some remuneration if properly directed. Poor farms and poor farmers are the ones whose crops fail through drouth or excessive wet. On a properly conducted farm these may damage the crop, but will never destroy it. The divine promise of seed-time and harvest is for the especial benefit of the farmer; but it rests with himself in a great measure whether the fulfilment comes to him individually, or whether his more enterprising neighbor secures it.

Exhibition at Jersey.—Not New Jersey, but one of the Channel Islands, so celebrated as the home of the Jersey cattle. We have received a prospectus of a show to open on the 28th of the present month, which offers liberal prizes for bulls, heifers, and cows of both Jersey and Guernsey cattle, as well as for butter from both of these breeds. Prizes are also offered for horses, pigs, poultry, and dogs, for cage-birds, for plants and cut flowers, agricultural and horticultural machinery and implements, and for various works of art and industry.

Improved Stock.—The present high price of thorough-bred stock, while it limits the business of breeding to men of capital, does not necessarily prevent the ordinary farmer from procuring male animals wherewith to improve his native stock. A stock of grade cows for the dairy may be gradually gathered up by the expenditure of from fifty to two hundred dollars. Many breeders of Jersey cattle will dispose of a young bull calf for a very small sum, because its color does not suit their taste, while in respect to its pedigree or other *useful* qualities, it may be faultless. Such an animal purchased young and well cared for, will become useful for raising calves, at a year old. A yearling heifer of his get will, by the use of another such animal, become profitable at two years old, and its calf will be three-quarters bred, and it is quite likely to become as valuable for the dairy as a pure bred animal that could not be purchased for less than $300 or $400. The produce of this cow would be seven-eighths bred, and if care is taken in selecting the parents, would show little difference from entirely pure animals. Co-operation among a few neighbors who would each procure and keep a young bull whose services they might exchange with each other to prevent close breeding, would soon change the appearance as well as the productive qualities of the stock of quite a large district. The main point to be guarded against is not to breed from any but pure stock. All male grade animals should be emasculated or go to the butcher, while young. The use of a grade bull ought not to be permitted. Here is where many a mistake is made. In the course of four or five years, quite a herd of three-quarter or seven-eighth-bred animals would accumulate, and the profit would begin to come in. Ayrshire and Jersey cattle should be the breeds aimed at, as these are excellently fitted for the dairy, and are profitably fed for the butcher on ordinary farms. They are exceedingly tractable, quiet and orderly, are large milkers, and yield much butter of good color and flavor. The Devon and Durham are better fitted for the grazier, and would be more suitable where beef is the object aimed at. But whatever the breed chosen, care should be taken to avoid neglect, or loss will inevitably ensue. We have known cases where money has been invested in thorough-bred stock which has been treated as though its blood alone would be sufficient to protect it from neglect, exposure, and starvation. The natural consequence of such a mistake was made a ground of complaint against the breeder, and led to dissatisfaction and disgust. The old adage, "blood will tell," true as it may be, is no talisman against such an error. The refined nature of an animal carefully bred through many generations, will often enable it to sustain much ill treatment, but it will not thrive under it. When possessed of a specimen of such stock, give it fair treatment—pampering is unnecessary, as it is unwise—but care and proper feed and attention will make the investment a greatly profitable one.

Fruit Trees in Gardens are often seriously damaged by cutting their roots with the spade. The roots thus severed throw up sprouts which are difficult to get rid of. We know of but one cure, which is, to remove the earth around the sprouts carefully, and cut them off with a sharp knife, leaving the cut with clean edges. If the sprouts are from the detached parts of the



root, each piece of root must be taken out. Prevention is the best cure. Don't use a spade in a fruit garden. Make use of a digging fork or a tool shaped as above. The work will be slower, but with such a tool the roots cannot be injured. The handle can be made and fitted at home; a blacksmith will forge the iron out of old tire.

Brushing Peas.—To prevent the wind blowing down the peas, drive stout stakes about six feet apart in the row to support the brush.

The Currant Worm may be kept in check by vigorously destroying the young larvæ. In the early morning they may be discovered just coming into active life on the under side of the leaf. They are then about a quarter of an inch in length. By removing the leaf with the worms adhering, they may be killed in large numbers. By close attention for a short time daily, the bushes may be saved; no surface application can prevent their appearance. Unceasing warfare is the price we must pay for our currants and gooseberries.

Buckwheat should be sown as early as possible in July. If the ground is not perfectly mellow, give one more plowing; this crop will suffer on imperfectly prepared ground. It may be true that a comparatively fair yield may be gained under poor culture, but the aim should be to grasp all that Nature will yield. A farmer is a good business man, only when he gets the largest return from his land by means of his labor of hand and head. These are his capital, and he can only succeed by a wise use of them. Buckwheat is generally hurried into the ground as a catch crop, but it can be made sufficiently profitable to pay well for all the care and attention that may be given to it. *The first requisite is mellow ground.* Plow and harrow until the lumps are reduced. Plow once more, and sow and harrow in. A bushel of seed is sufficient for an acre. We have succeeded better with this liberal seeding than with two or three pecks. Grass seed and clover will often take well with this crop, especially if the soil is in fair condition. The dense shade afforded will shield it until the vigorous heats of summer are past, when the fall rains will push it ahead sufficiently to withstand the frosts of winter. Great caution must be observed in harvesting this crop. The quality of the flour depends mainly in getting the grain in perfectly dry. Never on any account stack it or put it into the barn. Cut when the dew is off, and put up in small shocks without tying; watch the weather closely, and as soon as a dry, breezy day occurs, haul in and thrash out. Clean up *immediately* after thrashing, and spread the grain on the barn floor, turning over a few times, and allowing the drying winds free access to it. The yield of flour will be greatly increased by such treatment. Twenty-five pounds of fine flour may be taken from a bushel of grain after the miller's toll is deducted, and new flour brings a high price. The middlings should be separated from the bran, which will be found an excellent addition to the hot-bed in the spring, and is worth preserving for that purpose. The middlings are excellent food for young stock-pigs, horses, or poultry, but we would not advise them to be fed to cows. The butter resulting from such feed will be white and tasteless. Treated thus, Buckwheat is safe to yield at the rate of a dollar, or even considerably more, for each bushel of grain, besides the feed yielded by the middlings. But let it be borne in mind that the early market must be secured, or the profit will be considerably reduced.

"Hybrid" between a Rabbit and Cat.—A story comes to us by the way of Sank Co., Wis., about some hybrids between the cat and rabbit born in Connecticut. These remarkable animals feed on clover and catch mice! It is not stated whether they give midnight serenades or not. Our correspondent wishes we would say something about the matter; so we say—we don't believe it.

Management of Colts.—Colts are very apt to be left to shift for themselves after weaning. This is wrong. A year's gain in the usefulness of a horse may easily be made by care and attention during the first few months of its life. The mare, while nursing its foal, should not be overworked, and good pasture or green feed in the stable will keep her in fair condition, and furnish sufficient nourishment for the foal. When weaned, and pasture becomes short, neglect is hurtful; then care should be exercised to keep it growing. During the fall months some of the best early cut hay should be given to it; and when the horses are stabled, let it have a loose box, or stall adjoining them, where it can see and become used to the discipline of the stable. Everything around it should be well secured, lest in rubbing itself it might get something loose. A habit of breaking things and getting loose is easily and invariably formed at this time, and should be guarded against. During winter, feed your colts as you feed your horses. Give them a share of what is served out, oats, corn, or ground feed as it may. They cannot grow or fare well otherwise. "Stinginess" don't pay in rearing young animals. An addition of twenty-five or forty dollars to its value may result in the winter's feeding and care of one colt. Generosity here (of course exercised with judgment) is only wise foresight, and will pay good interest on the investment. Colts are better kept up than allowed to run around. They will become more docile and tractable, and will learn fewer tricks. Take them out only for exercise, except when at pasture, and then be sure to have a secure fence, or they will inevitably learn to rub it down or jump over it. Train your colt to walk, and keep it walking. Farmers don't want fast-trotting horses—as yet—we have need so far of fast-walking horses, great need, we may say, for they are far too scarce. Therefore, train colts to walk at the rate of four miles an hour at least. The time will come when a horse that can walk his mile in twelve minutes will take a prize at an agricultural fair, equal in value to the best trotter. A team of such horses could plow an acre of ground, with a furrow six inches wide, in five hours, allowing time for turnings round. This is above the quantity plowed on the average now, in a day of ten hours. Horses of such capacity would be worth a large price, and it should be our endeavor to produce them. We have a breed that can transmit trotting capacity to its descendants, why could we not raise up a breed of walking horses? Some one might make a name and fortune in this.

Bark-louse.—"A. B.," West Brom. The specimen of apple-tree is infested with Harris' Bark-louse (*Aspidiotus Harrisii*). Scrubbing the limbs with lye or very strong soft soap will help. If but one tree is infested, cut and burn the limbs upon which they are.

Composts.—"L. W. G.," Lancaster Co., Pa. Sod obtained from the banks of streams is valuable, if composted with lime, when the soil is deficient in organic matter, though it would be better to mix it with animal manures. Sheep-manure should never be mixed with ashes. Apply the ashes separately, and mix the sheep-manure with soil.

Feeding Milch Cows.—Last month we published a translated article upon "Swedish Dairy Farming," in which the singular practice of feeding horse manure to milch cows was described, but not commended. "Tommy," Ripley Co., Ind., writes: "My cows that I have at home are allowed to run in the yard, into which the horse manure is thrown, and can eat all they choose (which they are sure to do). They have been eating the manure for about three months, with no good

result. The cows became poor, though they were given all of the very best of hay they would eat, with plenty of corn fodder, and two buckets of slop each day; while others that I have on another farm, one-half mile distant, and do not get any horse manure, and were fed nothing but hay, all the time were in twice as good condition. The milk has a very offensive smell, and some of it is hardly fit for use. In straining it you may strain through the finest cloth, and after it has stood twenty-four hours, there will be found to every gallon milk from one to two table spoonfuls, a black sediment. The butter is worse than the milk, for it smells stronger, tastes bitter, and frequently is of no use for the table. I think that horse manure fed to cows has a worse effect on the milk than onions, and I am sure that it is bad enough. I would recommend all the farmers who keep cows never to feed horse manure, as it makes the cow poor, the butter not fit for use, and the milk taste very strong."

Strawberry Show at Elizabeth, N. J.—The N. J. State Agricultural Society will hold an exhibition of strawberries at Arcade Hall, Elizabeth, N. J., on June 14th and 15th. If the efforts of the committee are properly responded to by the New Jersey fruit-growers, the exhibition will be a fair one.

The Milk Escutcheon in Cows.—Puchnewala, Ridgeway, Iowa, asks: "1. What is meant by the milk escutcheon in cows? 2. Is it to be relied on as a mark of a good future milker?"—The milk escutcheon is that part of the hind-quarters of the cow on and about the udder, on which the hair grows upward. Its boundaries are defined by a quirl, where the up-growing hair meets the down-growing. Sometimes it occupies only a little more than the udder itself, while in other cases it reaches well out on to the thighs, and runs up several inches wide, quite to the setting-on of the tail. Sometimes it lies only on one side of the vulva, and again on both sides. Occasionally it is cut square across half way up, and again is rounded at the top. Its form can usually be seen at a glance. Its future extent and shape can generally be clearly determined on close examination in even very young calves. The escutcheon is quite generally regarded as a valuable indication of the quantity of the milk and of the duration of the flow; while the softness of the up-growing hair, the yellowness of the skin, and the amount of dandruff produced are taken as indications of the richness of the milk. Guenon, a French herdsman, who first called attention to the escutcheon, made a study of it, and established a system almost as intricate as that of the phrenologist; and there is ample evidence that he read with remarkable accuracy the characters of large numbers of cattle submitted to his examination, by the committee appointed to investigate his system. Most modern dairy-men attach much importance to the escutcheon as a general indication; and although the minute details of Guenon's system are little regarded, its general principles are quite commonly accepted as valuable. See "Guenon on Milch Cows," sent post-paid by Orange Judd & Co. on receipt of 75 cts.

Root Crops for Western Dairies.—A correspondent in Illinois asks: "What is the best root crop for dairy cows in winter, and when is the right time to sow the seed, and how much to the acre? We at the West feed corn, corn, corn, but I know from experience that roots are cheaper and better if we knew how to grow them. About thirty years ago I raised a fine crop of ruta-bagas, but have failed several times since from poor seed, or bugs, or dry weather. If I try it again, I shall have to procure seed from the East, for they have not grown here for many years. I should like to hear from some one who has been more successful."—The best crops hereabouts are ruta-baga and mangel wurzel. We presume they would both do well in Illinois, especially the mangel. The seed of either crop may be sown early in June. The effect of drouth is much mitigated by planting not less than one inch deep and rolling the ground firmly. The seed should not be soaked, unless you can be sure of moist land. The amount of seed required for an acre, if planted in drills thirty inches apart, is one pound of ruta-baga, or five pounds of mangel. This is necessary to safety, but will produce fifty times as many plants as are to remain, as, with either crop, they should be thinned to from twelve to fifteen inches apart in the rows. We like the transplanting system better than the direct growing from seeds. If the seed is planted in the rows in the field, and thinned to single plants an inch apart at the first hoeing, they can be left until as large as a hickory nut, and then finally thinned, the rejected plants being set out in other rows. The best way to protect the ruta-baga from the skipping beetle, is to dust the leaves with sulphur, or lime, or soot; or in default of these, with any dust applied while the plants are wet with dew. It is a good precaution to plant a double allowance of seed, giving enough plants for the bug and the crop too. If the plants are growing thickly in a small seed-bed, it will be much easier to dust them than if scattered over a broad field. The method of transplanting is described in the Ogden Farm papers for this month.

Early Cabbages, Cauliflowers, and Lettuce.

BY PETER HENDERSON.

I have received letters from many sections of the country complaining that the cabbages and cauliflowers sown last September, and wintered over in cold-frames, are now (May 5th) doing badly. Many of the cabbages are running to seed, and the cauliflowers "buttoning," or showing abortive "flowers." The reason of this will be found in my article, under the head of "Don't Sow too Early," on page 222; but the remedy is the great point. A safe plan—one that need not fail—and one that can be better done by any one having greenhouses than by the cold-frame method, is the following: sow the seeds for early cauliflowers, cabbages, or lettuce, about February 1st, in well-prepared soil—say one-third each of leaf-mold, sand, and loam; spread three or four inches deep on the benches of the greenhouse, or in boxes of about that depth. Keep a temperature of from 55° to 60°, and in three weeks they will be ready to replant—this time in boxes—at about 3½ inches apart each way for the cabbages, and 1½ inches for the lettuce. By the middle of March they will, if the temperature has averaged 55°, be strong plants, superior in every respect to those wintered over in cold-frames. By this date (the middle of March) the weather is such that they may be set out in cold-frames, and covered at night either with wooden shutters or sashes for five or six days, when they will be sufficiently hardened off to be planted in the open field. We have treated a few in this manner for the past few seasons, and believe they can be so raised cheaper than in the cold-frames, and without doubt much better, without the danger of one plant in a thousand running to seed. The conversion of sash that has been used on cold-frames into greenhouses is a very simple matter: two sashes, of 6 feet in length, give, when placed at the proper angle, a width to the greenhouse of 11 feet; 2 feet of this space is used as a walk, the remainder, 9 feet, for bench room, on which to grow the plants. The outer walls may be formed of wood, in the manner described, in my article on "Roses for Winter Flowering," in April last. If heated by a fine, the length of the house should not exceed 50 feet, and, if more than one is wanted, they should be formed in threes, the ends running north and south, on the ridge and furrow plan, as detailed in "Gardening for Profit." As written directions to a novice are always more or less obscure, any of your readers interested in this matter, when in New York, may reach us in less than an hour from the office of the *Agriculturist;* and to all such we will be happy to show our buildings, and give such information as is in our power.

Cultivate the Corn.

Constant cultivation cannot be too strongly urged for the corn crop. As soon as the blade appears above ground, pass through the rows with a harrow made for the purpose, or with the cultivator. Constant stirring of the soil will destroy the young weeds and push the corn ahead. A week thus gained may save the crop from an injurious frost when near ripening. An excellent implement for this purpose is Shares' horse-hoe; with it a careful hand may cut out the weeds to within an inch of the growing corn. By going twice in a row the crop may be effectually hoed, and much hand-weeding saved. The soil does not need stirring deeply; one inch is sufficient; deeper would injure the corn roots, which love to spread near the surface. For this reason all deep cultivation should be avoided. The surface should be kept level; the crop will thrive better than by burying the roots under a ridge of soil; therefore, keep the plow out of the cornfield. This crop requires heat and moisture, and a level, mellow, porous surface will secure these. A soil packed with rain and baked by the hot sun, cannot be endured; therefore, if a heavy rain should occur, followed by dry weather, turn in at once to the exclusion of all else, and break up this crust. This may be done safely even after the corn is in tassel. With level and shallow cultivation no check will be given, and good results will follow. The roots will be uninjured. It is the disturbance of the roots, when the plant is in blossom, that checks the growth and injures the corn. Corn need not be laid by until the rows become so close that the horse can no longer pass through without breaking down the stalks. Permit only three stalks to a hill. If planted three feet apart each way, with one fair ear to each stalk, seventy bushels of shelled corn per acre may be counted on. Better cultivate five acres well, than to work and grow weary over twenty acres, and get but fifteen bushels per acre for your pay.

An Egg Farm.

BY H. H. STODDARD.—*Second Article.*

A location near a city secures the best advantages. An article produced daily the year through, and which is prized for being fresh, should be raised as close to a market as possible. Thus the highest rates may be obtained, the special aim being to supply the demand for better eggs than any can be that are packed and sent great distances. Under the system which now supplies to a great extent eastern cities, there is the time spent in collecting eggs from various sources, to which must be added the time for transportation, and the time they are in the dealer's hands after arrival. Then the jarring is more or less injurious, and after it, eggs will keep but a little while. They pass through so many hands, that no one in particular is responsible for the character of the article. Under our plan eggs are delivered directly to consumers, families being visited regularly once a week. The egg-route has this advantage over a milk-route, that it need not be traversed so often, only a sixth of the whole being traveled daily; thus the expense of delivery is not great. As a team must be sent to town every day to collect waste bits from the meat markets, eggs can be sent, when only a day or two laid, with no extra trouble. If disposed of at stores, an arrangement should be made with the dealer whereby they may be kept in a separate lot, and sold under the name of the producer. Consumers readily appreciate eggs, butter, or other produce that comes from a regular responsible source. When a lot is mixed with lots from other farms, its individuality is lost; if good, it may only be helping to sell the poor article of somebody else, and the producer does not reap the benefits of his pains in increased custom. No produce can be supplied to city dwellers to better mutual advantage to seller and buyer, than new-laid eggs delivered direct, the dubious ones now in the market causing much loss and vexation. Poultry farms may be established at the West, and have the benefits of cheap land and grain; or at the South, where the season is earlier, and water transportation available. But the value of manure at the East is so great, that it is more economical to bring grain here from the West than eggs; the latter being so trouble-

some to send by rail. Butcher's waste, procured fresh, being almost absolutely necessary, is an important consideration in favor of proximity to a city. When it is seen that high prices for eggs depends on their being produced near by and delivered fresh, and that the *labor* is no greater to raise them close by the market, than at a distance at lower rates, with an additional deduction for transportation and breakage, we believe it must be admitted that the best place is, on the whole, near an eastern city. The site should not be far from a railroad freight depot or wharf. The amount of Western grain needed is large. Hauling this many miles by team is too costly. Enriching ground at the east by feeding out grain from the prairies, is an indirect way of importing their rich mold. Therefore, we take care that this importation is judiciously contrived. A mill near, for grinding, is desirable. A tract of arable land may be found (though rarely), surrounded on all sides by either woods, swamps, or rocky pastures, so that there need be no danger of the fowls straying into tilled fields of adjoining proprietors. In case such a farm could be procured, the great expense of a fowl-proof fence all around it would be saved. If the tract is unfortunately bounded by cultivated lands, then it must be so large and of such cheap quality, that a border, 20 or 30 rods wide, may be afforded to be kept in permanent pasture. The land should be upon a slope, for there must be a quick surface drainage after heavy rains; but the pitch should not be so steep as to prevent easy wagoning. A southward inclination gives a proper sunny exposure; and if there is a belt of woods on the north to break the winds, so much the better. If near swamps, sea-marshes, or damp river valleys, the site should be so elevated as to be out of the reach of the worst raw chilling fogs. We have enumerated all the above qualifications as necessary to a site for an egg farm. Their combination with certain essentials of soil which we are about to state, make the matter of selection one of considerable difficulty. Many more important points are to be attended to than in choosing a place for ordinary farming or gardening.

The soil should be adapted to cultivation. Those who advocate a waste tract make a great mistake, in our opinion. Every rood should be capable of cultivation, and rocky or bushy land avoided. Shade to be artificially provided at a small cost in a manner to be hereafter described. It is necessary to raise crops in order to get the full advantage of the manure. It exceeds in value that made by any other domestic animal, because from rich food more thoroughly digested than is the case with quadrupeds. The scrapings from the roosts might be carried to another farm, it is true, but the nearer they are applied the less labor; and the droppings where fowls range, and at every coop of small chickens, etc., are too valuable to be lost, and cannot be gathered up save by the roots of plants on the spot. In order to distract attention from the main business as little as possible, crops of the simplest management should be mostly grown, and only those that can be consumed by the establishment; grass, cabbages, lettuce, onions, potatoes, beets, and other roots, large quantities of oat or rye straw, and the balance, grains of various sorts, corn especially being always in order. The principle of division of labor, carried out to full extent, would forbid our raising crops at all, were we able to gather all the manure and sell it for what it is really worth. But, as we have seen, much would be wasted unless there is tillage, and there is no price established for such manure; and if there were, it is under our system all immediately mixed with earth, so that the amount could only be guessed at. The quality of the soil may be poor, or worn out at the start, thus securing cheapness; but it should be of a sort that it would pay to apply valuable manure to. For the sake of the health of the birds, choose a warm, dry soil. Land, quickly dry after rains, is the kind; and another test is, whether it is ready for the plow early in spring. If it will produce peas or watermelons earlier than common, we are not far wrong. It should not be clayey or gravelly, but a sandy loam. Gravel for a subsoil, low enough down to never be reached by the plow, would be excellent, making a natural underdrainage; but gravel at the surface troubles the fowls in their rolling and dusting. A supply of white gravel for the use of the birds should be screened to a proper size at some other place, and hauled to the spot, and put in boxes for the use of the birds. The soil should answer for dry earth for the roosts and for dust-baths, the loam being of a sort easily reduced to an impalpable powder. This is important, because we depend upon pulverized dry earth all through the business, to secure the cleanliness and health of the birds with the *least possible labor*. A great deal is said in poultry books and papers about the importance of cleaning the roosts frequently. We do not clean ours oftener than once in three or four months. The labor of going the rounds daily in a large establishment, thoroughly scraping floors, and removing manure, would be enormous. We set all our fowl-houses on a ridge of earth thrown up, by plowing several times toward the center, and surround with a shallow ditch for surface drainage after heavy rains. Thus we secure dryness, *wet* being the foe that must be kept from the fowls at every stage. Then in winter a bed of dry earth, six inches deep, is put inside the houses instead of a floor, and a couple of inches added monthly if needed. The birds may be depended upon to cover their own droppings, not only daily but hourly, when not at roost, a thick cloud of dust being raised every little while. The houses will always be freer from taint than if floors were used without dry earth, and scrubbed with soap and sand three times a day.

As it is impossible to raise any crop on vines, stalks, or trees above ground or below it, that hens will not damage, crops are put on one-half of the ground each year, and the fowls on the other half. Movable fowl-houses are used exclusively, with the exception of some large ones for hatching-rooms. By building small, light, and low, with strong sills made on purpose for runners, the houses may be moved every spring by an ordinary team, to the section tilled the previous summer. The distance traveled in transferring 100 fowl-houses, from one 60-acre lot to another, is one-third of a mile for each building, and back with no load. The amount of labor is much less than would be involved in hauling the manure, mixed with dry earth, from the buildings. The moving is accomplished systematically; the fowls belonging to a building being all moved in one flock in a large box made on purpose, in which they are quietly entrapped when attempting to leave their house in the morning by placing it adjoining, after which the box is darkened and drawn upon runners, on which it stands, to the new station. On arriving they are immediately allowed to escape into a spare house, shaped and colored like the one they left, placed beforehand, when they are ready to commence their day as usual, the whole operation of removal occupying only a few minutes. Besides this yearly moving each building is moved every few days during spring, summer, and fall, its length only. Thus a fresh spot is secured, and to prevent all taint and uncleanliness, as well as to keep the manure safe for next year's crops, an implement like a harrow, with teeth like a horse-hoe, is drawn over the spot where it stood. The buildings are all moved in regular order in the same direction, so as to keep the same distances apart; then back again over another strip of ground, so as to fertilize the whole lot in the course of the season. The frequent turning of the soil not only keeps it sweet, but provides what fowls are so fond of—a place to scratch for insects, and roll and dust themselves in dry weather. The crop of weeds that will constantly appear in summer must be as constantly turned under; and whatever advantage there may be in green crops for manure will be secured; thus the enriching and pulverizing of the ground will fit it for large crops. It need not lie altogether fallow either, for a few small spots may be sown thickly with lettuce, cabbages, or other plants that fowls will eat, and protected until partly grown, by movable lath-fences or wire-netting, after which they may be allowed to help themselves. Oats may be sown in strips also; and whether the fowls scratch up and eat the seed in spring, or forage upon the ripened grain, no matter. It is only necessary to compare the amount of labor spent in spading the ground in yards, to keep it fresh, with this way of using team and plow, to see the superiority of the latter method.

Ogden Farm Papers.—No. 18.

Up to this time (April 25th), we have had such weather as I have never known before; the winter ended, virtually, on the 22nd of February; the frost was all out of the ground on the 15th of March; and from that time to this there has been little interruption to out-door work. My small grain and grass are all in (20 acres), potatoes are planted, and the land is plowed for root crops and for corn. In fact, the work has gone on so smoothly, that I fairly forgot the reason for it, until a few days ago, as I walked across a neighbor's field (a part of the same slope). Then the "squash" of the sod brought back the old times when we first took hold, and before the land was drained, and when it was sure to be the middle of June before we could depend with any certainty on getting the land in fit condition for corn planting. Half a day's rain would soak us full, and it would take four or five days of drying weather to make the ground fit for teams. By that time probably another rain would set us back again. This year we commenced plowing the first week in April, and could have commenced the last week in March; and although we have had several heavy rains since then, which set the drains flowing to their full capacity, the land would get in good condition within twenty-four hours after the rain stopped, and I am satisfied that we have been able to work four times as many hours as we could have done were the land not drained. The value of being able to work twenty days in April instead of five days, no farmer who knows the importance of taking his "stitch in time," need be told. We shall feel the benefit of the early start throughout the whole season. With ordinary weather from now until the end of June, we shall get at

least twice as much work out of our men and teams, as our predecessor could have done, to say nothing of the great advantage to crops of the absence of superabundant moisture.

We have this spring seeded down one section of the farm (9½ acres) as permanent mowing land, partly because it will always be well to have the grass, and partly because that section is the most conspicuous one; and we believe in having our best foot forward with the boot well polished. Three acres are seeded with a mixture of vetches, peas, and oats, and six with oats alone for soiling, to be followed with late fodder corn sowed in drills. About thirteen acres more will be used for the main crop of fodder corn put in early, and four acres are well advanced with winter rye, which will be fit for the scythe by the 10th of May, and again early in June, when fodder corn will probably be sown on that as well.

We are now preparing about five acres for carrots and mangels. The land is that which was plowed so deeply year before last, that we practically lost the crop of two seasons; but it is now turning up in beautiful condition, the ugly blue clay having been oxidized to a yellow cast, and the whole being as mellow as an ash heap. If, as I believe, a good top-dressing of manure will hasten the germination of the seed and strengthen the early growth, the roots will get down to the top soil—that was buried a foot deep two years ago—and will carry us safely through any drouth we are likely to have, proving that brother Greeley is right in his theory of deep plowing, if we only give him time; perhaps though it will be safer to wait until the crop is made, before forming a final opinion.

In growing my carrots and mangels, I shall pursue a course different from that generally adopted, but one which ample experience has shown to be best. The land is now plowed, and will soon be harrowed. It had a good coating of stable manure last year, and will receive more this year. As soon as weeds begin to show, it will be harrowed again; and as often as they appear, the operation will be repeated until planting time. The carrots (these do not bear transplanting well) will not be planted until the first week in June, when, under the influence of the warm weather, they will come up in a few days, instead of lying from two weeks to a month as they do when planted early in May, and they will have a fair chance in competition with the few weeds that will remain after the repeated harrowing. Immediately before the sowing of the seed, a heavy dressing of some artificial fertilizer will be harrowed in. The subsequent cultivation of this crop will be according to the usual custom.

The mangel seeds will be sown in a seed-bed early in May, and will be transplanted somewhere about the 20th of June; the field being kept clean by repeated harrowing to the very last, and artificial manure being applied at the last harrowing. As I have before stated, this is not only the best, but it is much the cheapest way to grow this crop; and these directions are not untimely, for the seed may be sown early in June, and the transplanting postponed until the middle of July, and a good crop still be taken, if the land is rich and the season not unusually dry. The idea of transplanting several acres of beets is a formidable one only to those who know nothing about it. It is a comparatively easy job to hand-weed the plants in a small seed-bed; they will need no thinning; and it is not half the work to set out a row of mangels at intervals of fifteen inches, that it would be to go over the same length of row, and weed and thin it by hand, if the seed were planted in place. Then, again, the seed must be planted at a time when weeds grow profusely, and there must be a good month's fight with them before the mangels gain the mastery. Under the transplanting system, the harrow does all the early work of weeding; and the plants that are set out, being already from half an inch to an inch in diameter, grow vigorously from the start, and before weeds can grow a quarter of an inch in hight, they will bear horse-hoeing or hand-hoeing as well as corn or potatoes. The ease of transplanting depends very much on how you set about it.

If a man takes a lot of plants in a basket, digs a hole with a trowel, sets down his basket and picks out a plant at every step, he will soon get sick of his undertaking. Our method is the following: all hands pull plants from the seed-bed until enough are taken for the day's work. As they pull them, they cut off the tap roots and shorten the leaves to about four inches, laying them in small heaps with the tops all in one direction. These heaps are gathered by the double handful, packed in regular order in larger heaps, and covered with a horse-blanket. A puddle of cow manure, superphosphate or bone-dust, clay and water, is prepared in a tub near the heap. When plants enough are made ready, a force of three men and two boys is divided as follows: one man dips the roots in the puddle and puts the plants into baskets, which he carries to convenient parts of the field. The two boys station themselves near the center of the field, and the two men, one at each end of it, with a long line stretched between them. Each has a marking-stick, 27 inches long, to mark the distance of the rows. The line is stretched at one side of the field in the position of the first row, and is made fast to stakes. The boys then start from the middle of the line and the men from the ends, and walk *on the line* until they meet (each making one-fourth of the whole distance): they then run (not walk) back to their starting points. The men now measure off 27 inches, and stretch the line for the next row; and so on. The line, of course, is perfectly straight, and the impression is sufficient to be easily seen. When five or six lines are marked, the planting is commenced. Each boy takes a basket of plants and walks backward ahead of his man, and drops the plants with the tops toward the planter's left hand at regular intervals of about 15 inches. The man has in his right hand a "dibber" (shown in the engraving, fig. 1); with this he makes a hole where the plant is to stand; then taking the plant in his left hand, he sets it in its place and gives a sidelong thrust with the dibber, so as to press the earth firmly about the *lower part* of the plant (not the crown): strikes his dibber into the next spot, and so on. When the five or six rows are planted, and the backs are a little tired with stooping, it is a relief to stop and mark off a few more rows; but the regular order of the operations is kept up without stopping, except for dinner, until the day's work on the field is finished. Of course the rapidity with which the planting is done depends on the experience and dexterity of the planter. It takes from 13,000 to 15,000 plants for an acre; and I have one man who, with a good boy to drop, can easily set an acre in two days. The same man and boy, however skilful they might be, would not thoroughly finger-weed, and thin out an acre of mangels, grown in the ordinary way, in twice the time. In pulling the plants, enough are left in the seed-bed to grow for a crop; but it is noticeable that these never grow nearly so large (although the land is usually richer) as do those that are transplanted.

As some of our land is now in sufficiently good condition for the trial, I am going to make the effort to raise a few acres of potatoes and cabbages for sale, using the money to buy cheaper cattle food. This is a safe thing to do, for we always have an anchor to windward, inasmuch as potatoes and cabbages can always be fed out if there is no market, while now and then, a good profit could be taken. For instance, if I had raised 10 acres of cabbages last year—a fair average crop—I could have sold them for enough to pay the original cost of the land, and the cost of draining and other improvements that have been put upon it. So long as cabbages can be raised at a cost that *their feeding value* will warrant, I propose always to be in a position to take advantage of such a market as that of last winter—and I think others may safely do the same. To a certain extent the same thing is true with regard to turnips and other roots. *They pay to raise*, as cattle feed alone, and at times they may be sold for five times their feeding value; then let them go and turn the money (or a part of it) into bran and meal.

Riding on Horseback.—No. 4.

Even more important than the Saddle—so far as the management of the horse is concerned—is the apparatus by which his movements are to be regulated and restrained: that is, the "Bit." The various forms of bit sold by saddlers, even in the largest cities, are almost invariably faulty. They are made without much consideration of the use to which they are to be put, and often fail to produce much effect, except as a means of torturing the horse into a kind of sullen obedience. It is one of the offices of the bit to produce pain; but only when the horse resists its action, and then only so much as may be necessary to secure submission to the rider's will. As he will instinctively yield to a pressure that would cause pain if he did not yield, and as, if the pain is produced from both directions, he will try so to move as to escape from that which is the more intense; it is of the greatest importance that the bit be constructed in such a manner, and so placed in the mouth, as to impel his head in the right direction—that is, toward the rider's hand.

The bit rests against the "bars" of the lower jaw (those parts of the jaw where there are no teeth). It has two levers, one at each side; one end of each of these levers projects upward, carrying the chain that passes under the chin, and the other ends project downward to receive the reins, by which the force is to be applied. The object is to have the *chin* serve as a fulcrum, so that when a strain is applied to the lower ends of the levers, the pressure on the bars will be sufficiently suggestive of pain to cause the horse to draw in his head. If, from bad construction or improper adjustment, the chain becomes more painful than the bit, the horse will withstand the lesser pain in his mouth to escape the greater pain behind it, and will thrust out his head in obedience to the real impulsion. In this case the *bit* is virtually the

fulcrum, and the stronger impression is produced by the chain. It is in the principle herein suggested that we are to seek the solution of the greatest difficulties connected with proper bitting; and its close observance is necessary to complete success. In nine cases out of ten the arrangement of the bit is so faulty, that it is impossible for it to act as it should, and instead of inducing obedience, we arouse opposition. The reason for the prejudice against curb-bits—among those who consider them instruments of torture—is, that as they are generally used, they *are* instruments of torture. It is impossible to ride really well on an average horse without a curb-bit; but it is impossible to ride well on any horse, unless the curb-bit is properly made and properly adjusted. Its importance is sufficient to justify a careful explanation, for which purpose the following illustration, figure 1, is taken from Major Dwyer's book.

The point, *d*, shows the position of the bit in the mouth; *e*, is what is known as the "chin-groove," which is easily seen on any horse. The head-stall should in all cases be of such a length as to allow the bit, *d*, to lie exactly opposite the chin-groove. This is the only place where it will not do more harm than good, unless the horse is remarkably well broken; *f*, is the point where the rein is attached, at the end of the lower arm of the lever; *a*, *b*, *c*, represent the ends of the upper arms of the lever, showing what would be their action if they were of different lengths. These are the points where the curb chain is attached to the bit. The rule which has been established by experience is, that this upper arm of the lever should be exactly as long as the perpendicular distance from *d* to *e*. This allows the chain, *b*, *e*, to lie easily and naturally in the chin-groove without

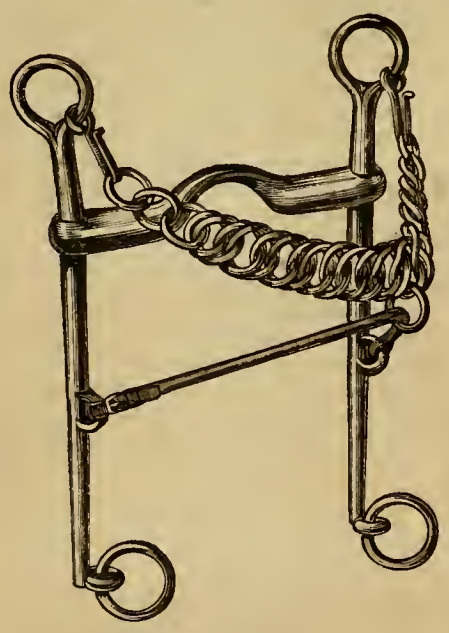


Fig. 2.—"BAUCHER" BIT.

pinching, when the rein is held lightly, yet to exercise a strong leverage when the reins are drawn. For instance, when the point, *f*, is drawn back to the point, *h*, it will not be able to move much farther, and a strong pressure will be brought to bear on the mouth. If the upper arm of the lever were twice as long as the distance from *d* to *e* (reaching to *a*), the chain, *a e*, if hanging in the chin-groove, would have very little effect, except to pinch and torture the horse, producing the most pain upon the jawbone, just above the chin-groove, causing the horse to throw up his head to escape it. If, on the other hand, the upper arm of the lever were made only half as long as the distance from *d* to *e* (reaching to *c*), the chain would have very little effect, unless it were drawn so tight as to be uncomfortable even with a loose rein—so tight, indeed, that it would soon chafe the chin-groove and make that so painful, that

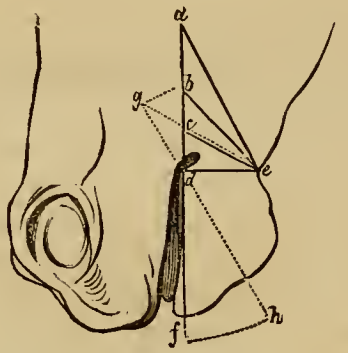


Fig. 1.—CURB BITTING.

at the least touch of the rein the principal effect would be produced there rather than in the mouth, and the horse would again be caused to throw up his head.

If the upper arm of the lever is of the proper length, reaching to *b*, when the lower end of the lever is drawn back to *h*, the upper end will be advanced to *g*, and the chain will draw on the line *g* to *e*, drawing, almost exactly, at right angles to the jawbone at the chin-groove, bringing the chain flat against it, creating the least possible amount of pain there, and affording a firm fulcrum, from which force may be directly applied to the bars at the mouth.

The length of the lower levers need not be made so exactly according to rule. The longer they are, the more effect will be produced with a given amount of force applied to the reins. Perhaps a safe rule would be to make them twice as long as the upper arms of the levers. This is enough for the control of the worst cases, and more than this (as is usual), increases the difficulty of light handling. The construction of that part of the bit which lies in the horse's mouth, connecting the two side levers, is important. Its length should be just such as to allow the levers (which should be turned out a little at the top to make room for the leathers) to play freely over the sides of the face without chafing. The bit should not be too long, nor should the upper ends of the levers be too much turned out lest the chain be straightened out, and caused to rest only against the bones of the jaw; whereas it ought to follow closely around, touching the skin for at least three inches of its course. Curb-chains are made flat, so that when twisted into shape, they lie almost as smooth as a band of leather against the chin. The larger they are, and the larger the wire of which they are made, the easier and better they will be. They are attached by spring hooks to the eyes of the upper ends of the levers. The mouth-piece of the bit should also be of generous size in those parts that lie against the bars, being much less painful than if small. That part of the bit lying between the bars should be made of thinner iron and a little elevated, forming what is called the port or tongue-groove, preventing the horse from taking the pressure on his tongue (as he might do if the bit were straight), and thus becoming heavy or dull in the hand.

The lower ends of the levers or "branches" may be either straight or curved. If straight, they should have eyes a little above the points where the reins are attached, to carry what is called the lip-strap—a small leather that passes through a loose ring in the curb-chain, and is buckled to the lever on each side. The object of this strap is to prevent the horse from taking the branch of the bit in his teeth and destroying the effect of the curb—a trick that most horses soon learn, and which they know how to take advantage of. Fig. 2 represents what is called the "Baucher" bit, and is copied from one that the writer has had in use for many years.

To avoid the complication and cost of the lip-strap, the curbed branch (or lower lever) is adopted for army use; and there is no reason why it is not equally suitable for the use of civilians. It brings the iron in such a position that the horse cannot possibly get hold of it. This bit is shown in fig. 3, the "McClellan" bit.

The foregoing details will seem to those who are not familiar with the niceties of riding, to be needlessly minute and particular. Many a man will say that any bit is good enough for him—just give him a good strong pair of reins to hang on by (!) The proper reply to this is, that this article is not written so much for him (though he needs its information more than any one else, if he only knew it), but for those who really care to become good horsemen. No one can ride with pleasure on a horse that has a bee incessantly trying to sting him under the chin. His fear of the bee introduces a disturbing element that counteracts all our efforts to make him attend steadily to his duty; and an ill-fitting, badly placed bit causes hardly less disturbance.

There are many points to be attended to in the proper equipment of a saddle horse—nearly all of them points of minor detail—yet they are important details, too; for unless the rider's

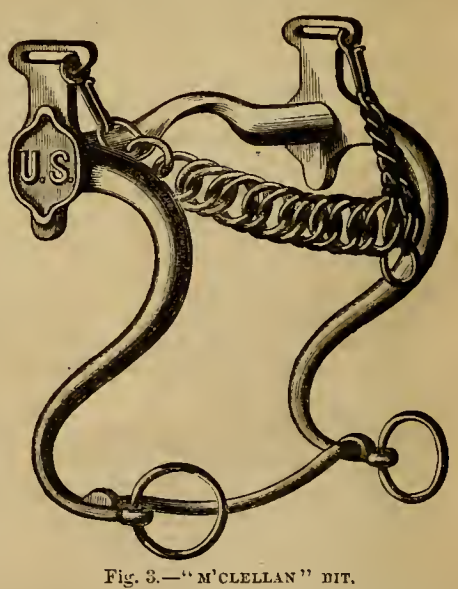


Fig. 3.—"M'CLELLAN" BIT.

weight is properly placed, and unless he has the proper means for controlling and guiding his horse, there can be no comfort, or gracefulness, or pleasure for the man. There must also be a loss of endurance and smoothness of working for the animal; and as it costs no more, save in attention, to have things right than to have them wrong, there need be no excuse for failure in essential points.

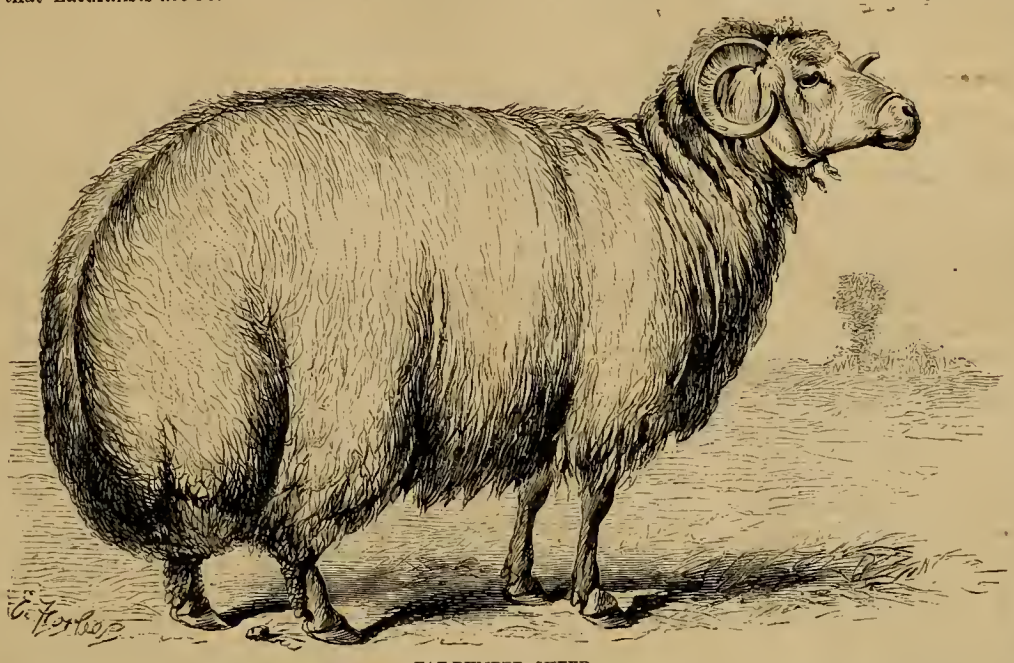
Note.—Our illustrations of the "McClellan" and the Mexican saddles in the April number were taken from articles in the saddler shops in New York. This must account for iron stirrups having been substituted for the wooden ones covered with leather that belong to those saddles.

Fat-tailed and Fat-rumped Sheep.

Sheep are so readily modified by breeding, as well as by the peculiarities of climate or the nature of their food, that naturalists are much puzzled as to the number of natural species. Sheep removed from a cool climate to a hot one lose their wool, and becoming covered with coarse hair, appear more like goats than like sheep. Some varieties with remarkable local deposits of fat are found in different countries. An Angola variety has curious masses of fat on the back of the head and beneath the jaws, which give the animal the appearance of wearing a large collar or ruff. Several countries possess breeds of sheep which have the tail enormously enlarged by a deposit of fat. One of these, an Asiatic one, has a tail containing twenty vertebræ, and so loaded with fat, that in order to preserve it from injury, it being considered a great delicacy, it is sometimes supported by a truck, which is dragged about by the animal.

The broad-tailed sheep of different and widely separated countries have generally pendulous ears, which are considered by Darwin to be a mark of long domestication. Some of them have four and even six horns, while others are hornless. The wool on these sheep is generally coarse and long, and hanging in thick patches. The Astrachan sheep belongs to this broad-tailed group. The coat of the young animal, killed before birth, is fine and frizzled, and is used as an ornamental fur.

In some countries there are breeds in which there is a great deposit of fat upon the hind-quarters near the tail, but the tail is most usually undeveloped, and in some of the fat-rumped varieties is entirely wanting. There are some breeds of this kind in Africa, where they are valued not only as furnishing a much-prized article of food, but for supplying tallow for domestic purposes. One of these African fat-rumped sheep is in the collection at Central Park, and we give an engraving of it from life. The fat-tailed sheep of Tartary and the Crimea, when taken to Russia, are said to lose their peculiar fatty development in a few generations. Were there a number of these fat-rumped sheep at the Park, it would be interesting to see if they retained their distinctive character in a climate, and with food so different from that to which the breed has been accustomed.



FAT-RUMPED SHEEP.

Meat-flies and Fly-blows.

A number of flies belonging to different genera pass their larva state as maggots in meat. Many times their presence is annoying and a cause of loss; but the damage they do us is probably offset by their rapid and beneficial work as scavengers, as they hasten the removal of animal matters, which might in their slow decay prove noxious. Some of these flesh-flies produce their young alive—an unusual thing with insects—and the maggots are ready to go to work at once without waiting the few hours required for the hatching of the eggs of some other species. Our viviparous flesh-flies belong to the genus *Sarcophaga*—flesh-eaters. It is stated upon the authority of Reaumur that a single female of the European Flesh-fly will produce as many as twenty thousand maggots. Our largest Flesh-fly is the *Sarcophaga Georgina*, it being about half an inch long. It is distinguished by its silvery white face and copper-colored eyes, between which there is an oblong square black spot. Its thorax or chest is gray, with seven black stripes. The Blue-bottle fly, *Musca Cæsar*, and the Meat-fly, *Musca vomitoria*, are better known; the one being of a blue-black, and the other of a brilliant blue-green color. These do not produce their young alive, but lay eggs, which are deposited upon meat and decaying animal substances, and are well-known as fly-blows. The eggs hatch in three or four hours, and the resulting maggots feed most ravenously, and grow with great rapidity. They attain their growth in three or four days, when they hide themselves in some crevice, or burrow in the earth and pass into the pupa state, from which they come out in a few days as perfect flies, and go on with the work of reproduction. The engraving illustrates the metamorphoses of flies of this kind, giving the maggot, the pupa, and the perfect insect. The meat-flies deposit their eggs not only in dead animal substances, but in the wounds of the living ones. During the late war the soldiers were subject to great suffering on this account, as it was frequently the case, that those who were left for some time before they could receive surgical attention, were found with their wounds filled with the devouring larvæ of the Meat-fly. Under the name of "gentles," the maggots of meat-flies are used as bait by fishermen, and the breeders of trout find them a most valuable food for the young fry. The maggots are obtained from the bone-boilers in large quantities; and we know of one fish-breeder who orders several barrels at a time for the purpose of

METAMORPHOSES OF THE FLESH-FLY.

feeding young trout. The salt and smoke of hams and bacon do not seem to be distasteful to the maggots of the meat-flies, and such articles should be kept where flies cannot enter, or be so thoroughly enwrapped in paper that there will be no chance for them to deposit their eggs.

Walks and Talks on the Farm—No. 90.

Our venerable friend, John Johnston, writes: "I will tell you how to eradicate docks, and no humbug, and charge nothing. Cut them off close to the ground when the tops are fully out, but the seed not fully formed, and they are done for. The stalk dies in the ground; but you must cut them so close to the ground that you leave no leaves on the stalk, else they will not die. About the end of June I found generally the best time to cut them; but it depends on the season. In pasture-fields, they are soon cut with a scythe. In wheat and meadows they have to be cut with a knife. Never mind trampling down a little wheat or timothy. You will save it all in getting rid of dock. I kill burdock by cutting off when the burs are formed, and putting a handful of salt on the top of the stalk." Mr. J. adds: "I found out how to kill docks by cutting clover early." This is encouraging, and is an additional reason for endeavoring to grow large crops of clover that *must* be cut early. Docks do not seed till the second year. If cut off the first year, the root will throw up several seed-stalks the next season, and the process seems to do more harm than good; but if the cutting is delayed till the second year, when the seed is partially formed and the plant nearly exhausted, I have no doubt Mr. J. is right in saying that it will die. We may assume that the only way to kill docks the first year is to pull them up by the roots, or else cut them below the crown; but the second year, cutting them after the seed is partially formed, is better than pulling.; for if pulled, there is so much vegetable matter stored up in the root, that the seed will ripen after the plant is pulled up. It is a capital thing for a farmer to get the idea fully established in his head that weeds *can be killed*. Many people seem to suppose that weeds spring spontaneously from the soil. And yet the soil can no more create a weed than it can create a man or a monkey. Kill all the roots in a soil and cause all the seeds to grow, and then kill the young plants, and you have land free from weeds. I do not suppose that this can be absolutely attained in practice, but a thorough conviction of its truth will stimulate our efforts. Our seasons are exceedingly favorable for the destruction of weeds, and yet one of the most marked characteristics of our agriculture is its weediness. The weeds carry off half our profits.

A gentleman in Tennessee, who has been engaged in other business, but who now wishes to turn farmer, writes me that he can get 5 acres of poor sandy land at a moderate rent for 10 years. With a little stable manure in the hill, he thinks the land would produce 75 or 100 bushels of peachblow potatoes per acre. But he has no manure, and he wants to know what is the cheapest fertilizer for him to buy: superphosphate at $60 per ton, Chicago blood at $55, bone-dust at $45, plaster at $20, cotton-seed at $15, or lime at 12 cents per bushel. He proposes to sow winter oats, and, when harvested, plant the land to potatoes, and thus grow two crops in a season. I am always sorry for such men. They are so enthusiastic and hopeful that it is far from pleasant to say any thing discouraging. "In all *labor* there is profit," but, strictly speaking, there is no profit in the mere possession of *land*. It gives one an opportunity to work. And the profit will be in proportion to the amount, skill, judgment, and efficiency of the labor, and not in proportion to the land. Now, a man cannot spend labor enough on five acres of ordinary oats to enable him to earn a living. He must raise something that requires more labor. The land is near a city where there is probably a demand for vegetables, small fruits, etc. There must be stable manure to be sold in the city, and this at anything less than $1.50 per ton, would be far cheaper than any of the fertilizers named. Cotton-seed would be the next cheapest. I would mix 20 tons of manure and 1 ton of cotton-seed together in a heap, keep it moist, cover it with soil or sods, and let it rot, turning it occasionally, to accelerate fermentation and to make it fine. Put this amount on an acre, and then plant something that requires rich land and much labor and attention, and as much money can be made from five acres as from fifty.

"Deacon," I said, last night, "listen to this letter from a farmer in New Jersey: 'I have a farm on which there are thousands of cords of muck (not peat); I wish to know how to use it to the best advantage; when and how to get it out; and what chemicals have proved the best to remove the sourness and make it good manure? I have Dana's "Muck Manual," but want the latest information; and I inclose the small sum of ten dollars, which you can use, if you please, to accomplish this end.'"

"There, now, Deacon, is a man who appreciates an agricultural editor. If a short article is worth $10 to one reader of the *Agriculturist*, what is the information contained in a whole volume worth to its half million readers? The ten dollars have been returned; but I for one feel grateful for this appreciation of the labors of an agricultural editor. We get double the abuse, and not half the credit we deserve."

"Don't know about that," said the Deacon, dryly, "but what are you going to tell him? I 've been thinking of getting out some muck; but somehow I can never find time to do it."

"It is just so with me. I have thousands of loads of splendid muck in the swamp, and have hitherto excused myself for not using it because the land was so wet. But as soon as we get the ditch through it, I mean to go at the work in earnest. An average sample of air-dried peat contains more than twice as much nitrogen as stable manure; and there can be no doubt of its value. The trouble is, that the plant-food it contains is in a comparatively insoluble condition. It is 'sour,' but merely neutralizing the acids is not enough. The aim should be to decompose it by fermentation. Any thing that will accomplish this will render the plant-food available. The first thing is to get rid of the water. Throw up the muck in June or July, and turn it during the hot weather, in July or August. I would then put about a bushel of lime to 20 or 25 bushels of muck; and, in turning it over to mix the lime with it, would aim to make the heap as compact as possible; and before the fall rains set in, I would cover it with something to throw off the water. In the winter, draw this prepared muck to the yard, and mix it with the manure—say one load of muck to one load of manure. In my case, I should use some of the earliest-made manure and muck for root crops in May or June; and to get it in good condition, the heap should be turned, if possible, during the winter, and again in the spring; and if bone-dust, or blood, or woollen waste, or any thing that would favor rapid decomposition, could be obtained, I would mix it with the heap a month or six weeks before using—the earlier the better."

"But," remarks the Deacon, "I thought lime would set free the ammonia. I know lime and ashes are good to mix with the muck when about to apply it directly to the land, but I never heard of mixing lime with muck, that was to be afterwards mixed with stable-manure."

Exactly. That is precisely where my plan differs from that generally recommended. I have no fear of the ammonia escaping from the heap. The more ammonia we can set free in the heap the better, provided it does not escape; and if muck enough is used, there is no sort of danger.

In my case, the bulk of the manure would be kept in the heap during the summer, and be drawn out on to the grass-land in the fall, to be plowed under for corn or potatoes the next spring. A much larger proportion of muck could be used with the manure in this case. It is true that I have had comparatively little experience in the use of muck; and I wish some of the readers of the *Agriculturist* would give the Deacon and me some hints as to the most economical manner of handling and using it.

The Deacon never gets excited about any thing; at any rate, he never shows it. But he is quite enthusiastic in his praise of my grade Cotswold lambs. "I always told you," he says, "that cross-bred animals are more profitable than thorough-breds." The truth is, *I* told the Deacon so; and it is so far complimentary to find that he has adopted my views, in part, even though he claims them for his own. I say "in part," because he does not clearly understand the point I insist upon in crossing. I want a thorough-bred ram to cross with common, hardy, vigorous ewes; whereas the Deacon can hardly get rid of the idea that a cross-bred ram, provided he is as large and well-formed as the thorough-bred is just as good, whereas I *know* that such is not the case. We have got, up to this time, 67 lambs from 60 common Merino ewes from a thorough-bred Cotswold. They are the healthiest and hardiest lambs I ever saw. We have had not the slightest trouble in any way, and have lost but one lamb in the whole lot. One of them weighed, when dropped, 12½ lbs., and we had many nearly, or quite, as large, and the shepherd says some that were larger. This afternoon, April 22d, we weighed five of these grade lambs that are from eight to nine weeks old. They weighed respectively 50, 46½, 52½, 47½, and 46½ lbs., or an average of 49 lbs. each. Is not that pretty good for ewes that at 4 years old only weighed 80 lbs., and that I bought for 3 cents per lb. The ewes have had nothing but dry feed, and as soon as they get some grass, I expect the lambs to do even better still. We allow the lambs all the corn, meal, and bran they will eat, in small troughs separate from the ewes; but they do not eat half as much as I wish they would—not to exceed 10 lbs. a day among the whole lot. This is the only fault I have to find with them. I think lambs from Canada ewes would eat more meal, and consequently fat better; but some of my neighbors who have Canada ewes, have no better lambs than these of mine from Merino ewes. Liberal feeding, and a thorough-bred ram, is the secret in raising good lambs for the butcher.

I think that picture of Shropshire-Down sheep in the April number of the *Agriculturist* is the best I ever saw; and I am glad these magnificent sheep are to be in Central Park. I suppose the design is to keep specimens of all the leading breeds of sheep. Until 1857, the Shropshire-Downs were comparatively unknown. The Royal Agricultural Society that year offered a special price for the best short-wooled sheep, not South-Down. This brought out the Shropshire-Down sheep, and the late George Adney, of Harley, was the most successful exhibitor, winning the first prize, if I mistake not, with "Old Patentee," one of the ancestors of the Central Park sheep. I once spent several days on Mr. Adney's farm. He was a good specimen, though rather a rough one, of the plain, practical English farmer. He had then a splendid flock of sheep, but I question if the thought ever occurred to him that he and his sheep would ever become celebrated. He worked for years on his quiet farm, improving his flock, without dreaming of fame or fortune. The success of the Shropshire sheep at the "Royal" took England by surprise, but I question if any one was more surprised than Adney himself. Previous to the fair, these sheep could have been bought for the price of mutton; afterwards they were worth whatever the breeders chose to ask. "George," as he was familiarly called, was a "character," and many stories are told of him. He would not sell his ewes to any of his neighbors. Lord Wenlock had an estate in the neighborhood, but was personally unknown to Mr. Adney. One day a gentleman called to look at Mr. Adney's sheep, and said he would like to buy some. Not knowing him, "George" thought he was a stranger, and told him he would sell him some; "but," said he, "I shall want the money down." The stranger, who proved to be a capital judge, selected out a lot of good ewes, and the price was agreed upon, and he stepped into the house to pay for them. He wrote out a check, signed "Wenlock," and handed it to Mr. Adney. "You don't call this money," said George. "Wenlock is the name of a town; anybody can sign a check Wenlock." "But that is my name," replied the stranger. "I am Lord Wenlock." "You ben, ben you?" said George; "then you can't have none of my sheep." At one of the fairs where Mr. Adney exhibited his sheep, the late Prince Albert visited the show grounds before the general public was admitted. Coming with a number of other distinguished persons to Mr. Adney's pen, he stopped to examine the sheep, and called particular attention to their peculiar merits. George was greatly excited, and as the Prince dwelt first on the importance of this "point," and then on that, he could hardly control himself. At length the Prince alluded in high praise to one of the best features of the sheep, when George could hold in no longer, but gave the Prince a hearty slap on the back, exclaiming, "You ben a judge of sheep, you ben."

The Shropshire-Downs are of a mixed origin, and it is doubtful whether they are entitled to be regarded as a thoroughly established breed. They have many excellent points—will fat more easily than the South-Downs, and their mutton is of better quality than the Leicesters, though not equal in this respect to the South-Downs, while their wool is now not as valuable as that of the Leicesters, Lincolns and Cotswolds. There have been several importations of Shropshire-Downs into the United States and Canada during the last dozen years, but I do not know how they have succeeded.

The Deacon has always condemned my steel plows; and I do not know of anything that surprised or pleased me more than to find that this spring the Deacon was plowing with a steel plow. He still contends that for plowing hard, dry land, the cast-iron plow is the best; "but," said he, "I must say I never had a handier plow for putting in spring crops." I shall next expect to see the Deacon bringing home a load of two-inch pipe tiles, and commence ditching. He has very decided opinions of his own, but, like other sensible men, the Deacon will adopt a new thing when he is convinced of its value.

My English friend is satisfied that no ammonia is escaping from the manure heap, and yet it is not covered with soil or any other absorbent. We pump up the water that soaks into the tank back on to the heap, and I never saw manure ferment better. There can be no loss either from leaching or evaporation, and it will be in capital condition for root crops or for top-dressing meadow land after hay harvest.

The high wages and low price of produce are having their legitimate effect. Farmers are employing much less labor than formerly, and putting in fewer crops. And I never knew so many farms being let out to "work on shares." In the present condition of affairs, this is perhaps the better plan, but rented farms invariably deteriorate. As long as labor is so high, we must lessen the quantity of plowed land, and especially of hoed crops, and increase the area in grass and clover. This will make the land richer, and in the end we shall grow as much grain on far less land, and consequently with far less labor. I think this will be the solution of the difficulty.

Manure in Illinois.

A correspondent of the *American Agriculturist* at Decatur, Ill., writes: "I presume you do not often have Illinois farmers write you concerning manure. I have for three years hauled all the manure I make upon my meadows, and find that the amount of grass is nearly doubled; and not only this, but during our dry, hot time in summer, the grass on land manured looks greener, and the ground seems to retain moisture better. From this experience I am led to think that our land, which in grass (clover and timothy), usually requires three acres to the bullock, can be improved so that two acres will carry a bullock, and do it finely; and I would ask you if, in the event I continued manuring my apparently rich, black prairie soil, there is a likelihood of one acre carrying a steer? On corn ground the manure appears to show its effect more the second year than the first, and, as we corn our land constantly, is there not a great chance for all of it to need manure? How much some of your Eastern farmers would like to be situated as we are. A number of men here buy and feed many thousand bushels corn, and feed it on their farm with what they raise, and the manure from all could be applied to the grass and corn ground; but few make any use of it."

Remarks.—We should be glad to hear from our Western readers in answer to these questions. Top dressing is unquestionably a grand means of enriching grass land; and the advantage is not merely the absolutely greater quantity produced during the season, but in the improved quality of the grass, and in giving a more steady growth throughout the season. We have observed the same effects as our correspondent. Top-dressed grass will keep green, and afford a fair bite during periods of drouth, when the grass on ordinary pastures is dried up. We do not think that the grass on the rich, black prairie soils is likely to be as fattening as that grown on the rich, clay, permanent pastures, known as "bullock land." But where corn is as cheap as it usually is in Illinois, this defect may be advantageously obviated by feeding the steers a little corn every day while grazing. We believe the time is coming if not already come, when the farmers of the West will find it highly justifiable to save and apply all the manure they can make.—ED.

Large Turkeys and Turkey Breeding.

A passion for extra size is one of the weaknesses of the American mind. Fat men's clubs show the national drift. In what other nation would it be possible to associate men simply on their avoirdupois merit? Where else should a man be most highly considered, because he could show the most adipose matter laid upon his bones? In the decisions given at our fairs, weight is not only an important item, but the one thing needful. In a scale of one hundred points, weight would be the equivalent of fifty, in the minds of most judges. It is the big swine, the big pumpkin, and the largest fat ox that takes the premium. Economy of fattening, or the process of production, is seldom inquired after. The same bad taste is likely to affect the decisions in our poultry shows, unless the managers insist upon a more wholesome standard. A large, well-developed bird, of maximum size, is desirable. A monster is not, for any conceivable purpose, except to excite wonder and draw the crowd. We raise poultry chiefly for the table. What the producer wants in his stock is good quality of flesh, early maturity, and capacity to make the most flesh out of a given amount of food. A turkey, weighing fifteen pounds, is just as good for the table as one weighing thirty; and most housekeepers would prefer them under twelve pounds. In most markets the lighter weights would bring the higher price. It is only in the region of large hotels and boarding-houses that the very large birds bring an extra price. For what object, then, do we want large breeding birds, and how large do we want them? It takes about three years for a turkey to attain his largest weight. If at twelve months a gobbler reach thirty pounds live weight, at two years he would reach thirty-five, and at three years forty, or a little more. But it is rare to get a male bird above forty pounds, and then it is generally by some process of stuffing that destroys his stamina and oftentimes his life. This weight is exceeded sometimes; but about the time one thinks he is almost sure of a forty-five pounder, the prodigy sickens and dies. It may be assumed, then, that forty pounds is about the limit to which a vigorous turkey-cock may be safely carried, and from half to two-thirds of that weight is the last safe limit for the hens. With breeders of this size, and a little under, we will get large, strong chicks, that will economize food, and mature earlier than the offspring of common-sized birds. No bird yields more quickly to treatment than the turkey. The influence of a large-sized gobbler in a flock is immediately visible in the increased size of the chicks. The introduction of wild blood increases the hardiness of the young. A larger proportion of the eggs will hatch, and a much larger number of young will be likely to grow

up. With a little painstaking it is quite easy to breed to any desired shade of plumage.

Mr. Crozier's Pig-pens.

Mr. Wm. Crozier, of Beacou Stock-Farm, Northport, L. I., has a range of pig-pens seventy

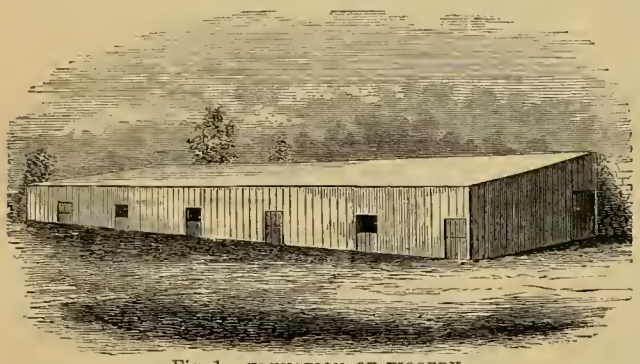


Fig. 1.—ELEVATION OF PIGGERY.

feet long, and he is so well pleased with the plan that he proposes to enlarge it to two hundred feet. The elevation (fig. 1), the ground plan (fig. 2), and a view of the interior of the building (fig. 3), show the simple arrangement. The building is placed against a bank, which has a brick retaining wall that answers as the rear wall of the building, and is 9 feet high. The

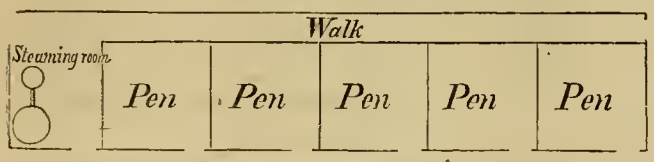


Fig. 2.—PLAN OF PIGGERY.

building is 16 feet wide, with the front side 6½ feet high. The pens (see fig. 2) are 12 × 10 feet, and 3 feet high, with a 4-foot walk at the rear of them. The doors, of which each pen has one opening into the yard, are in halves. The upper half may be left open to admit light and air, while the lower one is kept closed, if it be desired, to prevent egress. At one end of the

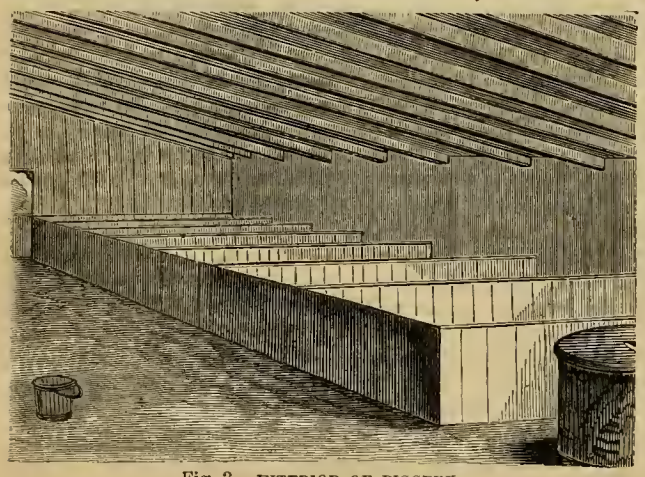


Fig. 3.—INTERIOR OF PIGGERY.

building is a room furnished with apparatus for steaming food. The feeding is done from the walk, the food being placed in small portable troughs, which can be readily cleaned.

Blue-grass.—(*Poa pratensis*).

I have been so often asked about this grass, that I say a word about its history and propagation. In the latitude of Virginia, say from thirty-five to thirty-eight degrees north, the *Poa Pratensis*, English "Green-sward," or Kentucky "Blue-grass," assumes so dark a hue, that it has been named Blue-grass. The soil of Kentucky is so well adapted to its culture, that it has been supposed to be a species peculiar to that State, where I have seen it from two to three feet high in the seed-stalks, with long parallel, sided blades two-thirds as tall. I sent a specimen to a competent botanist, but he pronounced it the same as that bearing all the above names. It is very widely diffused over the northern parts of the world. I have seen it at St. Paul, in Minnesota, in Cleveland, Ohio, in England, all Northern Europe, and as far as St. Petersburg, Russia, sixty degrees north latitude. In Tennessee and Arkansas, and further south, it grows poorly, and is soon killed out by grasses better suited to the soil and climate.

It is highly nutritious and adapted to grazing and ornament; but it is hard to cut, and difficult to cure as hay. It is said to pass uninjured in its seeds through the stomachs of cattle; and thus it has gone, it is said, west with civilization. In Virginia, Kentucky, and parts of Missouri, upon limestone, clay, and loam, it is self-propagating, and masters all other plants and grasses. I have in Kentucky frequently wintered stock upon it without other feed. But where it is designed for winter use, it should be allowed to grow undisturbed from midsummer until cold weather. As its culture is not so well known further north, I will give some hints about it.

Seed.—The seeds are very small, and securely covered with husks; but when rubbed hard between the palms of the hands, appear of a long oval shape, wax color, and hard. The seeds are easily injured by heating in bulk; and it is surest to buy those in the cut-up seed-stalks, which are thus better aired. Good seed, when thrown upon live coals, makes a sharp, crackling noise.

Sowing.—In woodlands, after the fallen leaves are burned or removed, the seed may be sown broadcast upon the snow any time after February, or sooner; the freezing of the ground and its thawing in early spring will sufficiently imbed the seed. The brush-wood and weeds should be kept down until the seed is ripe, in the second year, when the lands may be safely grazed.

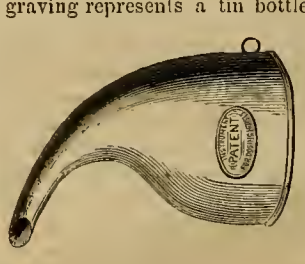
Lawns.—In making lawns, the ground, if clayey, should be well underdrained, deeply plowed, or spaded, all large stones, stumps, etc., removed, and the surface made level and clear of clods by the harrow or other means. The Blue-grass seed, mixed with timothy, clover, or other grasses, in small quantities to shade the tender shoots, should then be sowed broadcast with the hand; and then the ground should be smoothed with a heavy roller. In the Middle States the fall is the best time to sow, on account of the hot spring-time; but in New York, and further north, perhaps, early spring is better. I say nothing about the quantity of seed, as it is marketed in a clean state, in the chaff, beaten from dew-rotted stalks, and cut-up stalks and all, in a feed-box, and also stripped by machinery or the hand from the standing grass. Other things equal, the more seed the better; but as this grass spreads readily from the roots, it will soon fill the whole surface of the ground.

Culture.—In sandy soils, there should be a heavy top-dressing of lime, clay, and vegetable manure, before plowing; stable and other hot manures should not be put on until the grass is well sodded; and then only in the late fall, winter, or early spring. The grasses sowed with the Blue, should be cut off with the scythe; but the lawn should not be grazed until after the Blue-grass seed are ripe, the second year, when it may be cut or grazed. After this, the sward may be kept down smoothly with a scythe or mowing machine; but I would recommend the suspension of that operation during a drouth and the late fall, so that the blades may better protect the roots during the summer heat, and give the sod an earlier start in the spring. White clover being a low plant and of similar habits with this grass, may be sown with it—but to me no green-sward is so beautiful as the unmixed Blue-grass. C. M. C.

APPARATUS FOR COOLING CREAM.—Much of the ease of butter-making depends upon having the cream at the proper temperature. If the cream is shown by the thermometer to be warmer than 62° or 63°, it should be cooled to that point. The cooling is usually accomplished by setting the vessel containing the cream in cold spring-water or ice-water. A very rapid and effective method of cooling a large quantity of cream, is to use a vessel like that shown in the engraving. It is a tin can, about 3½ inches in diameter and 20 inches long. This, being filled with broken ice, is moved about in the cream until the temperature is sufficiently reduced. As the cooling medium is moved through the cream, not only does the cooling take place rapidly, but the agitation causes the cream to be of a uniform temperature throughout the whole. It is not a slight advantage that this cooler is merely a plain cylinder, and as its exterior surface only requires cleaning, it is likely to be kept sweet. In cold weather, when it is necessary to warm the cream, the same implement is used, but in this case, hot water takes the place of ice.

CROZIER'S MILK-COOLER.

A BOTTLE FOR DOSING ANIMALS.—The engraving represents a tin bottle with a curved neck, made for the purpose of administering a dose of medicine to a horse. A glass bottle is commonly employed for this purpose; but one made of tin is altogether safer, being not liable to be broken, and more convenient, and, being kept for this purpose alone, it is always at hand, when required for use.



DOSING BOTTLE.

A Hay-rack for a Farm-wagon.

In a recent visit to Beacon Stock-Farm, at Northport, L. I., to inspect Mr. Crozier's pigs and piggeries, we saw several farm appliances which may be new to many of our readers. We

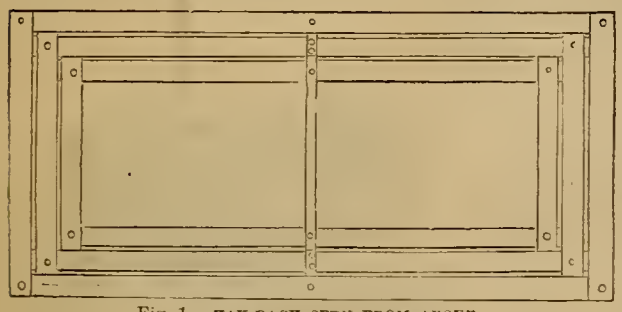


Fig. 1.—HAY-RACK SEEN FROM ABOVE.

present illustrations of a hay-rack, a tin bottle for administering medicine to animals, and a simple contrivance for regulating the temperature of cream. The hay-rack is intended to be used with a common farm-wagon. Figure 1

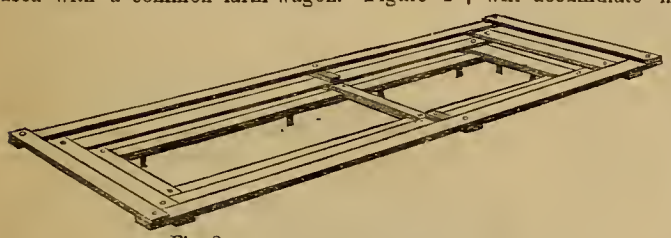


Fig. 2.—HAY-RACK IN PERSPECTIVE.

is a perspective view, and figure 2 shows the same thing looked upon from above. Four joists, to correspond with the length and width of the wagon-box, are taken as the foundation. The shorter or end-pieces are laid upon the longer or side-pieces, and firmly pinned to them. The end-pieces project far enough beyond the side-pieces to receive two boards, which run parallel with the side-pieces; these boards are long enough to allow two end-boards to be secured to them, and these end boards in turn support two more long boards, and the whole is finished by the addition of two boards for end-pieces. It will be seen by the figures that there are three tiers, one of joist and two of boards, laid up cob-house fashion, each tier being larger than the one beneath it by the width of a board. A piece across the joists in the middle, and two short pieces at the center of the planks, give the requisite stiffness. The rack is held in its place upon the wagon-box by means of wooden pins, driven into the joists at such distances as the size of the box requires.

The Art of Making Good Butter.

BY MRS. GEO. WOOD, OF WILLIAMSPORT, O.

Milk.—First, you must have good, healthy young cows. They require good food and uniform feeding. They should be salted twice a week, and have fresh running water daily. Second, the cow must be milked as thoroughly and as rapidly as strength will permit; then, after standing 5 to 10 minutes, she must be stripped, so that she will be left dry; for a pint of strippings will make far more butter than a gallon of the first drawn milk. The milk should be strained immediately. My experience is, that a large two-gallon stone crock is best for setting, and should remain standing for 48 hours in moderate temperature (about 60°) before skimming.

Cream.—Churn every other morning in cool weather, but, when warm, churning should be done every morning, and the cream kept in as cool a place as possible; also, put a large lump of ice in the cream over night, which will have no effect on the butter; but if the ice were put in the butter, it would spoil it. The milk should be skimmed every 24 or 36 hours. I place the crock of milk in water from 8 to 10 inches deep, when the cream rises in the above-stated time (24 to 36 hours), and the milk seldom gets sour.

Washing and Cleansing the Utensils.—The only method I know of, that will thoroughly cleanse milking-vessels, is, to add to 10 gallons of water a half gallon of clean, strong wood-ashes, and let it come to a boil; wash the stone crocks in warm water, then run them around in the boiling lye, and wash in warm water. This process will do for the buckets, ladles, the churn, etc. No other mode will purify the rancidness that will accumulate in a dairy. After washing and rinsing the crocks, expose them to the air and sun; they will be as sweet as when first brought from the store. Once a month will be sufficient for this cleansing. All good dairy-women know that the utensils should be washed in boiling water after using.

Churning.—My plan is to never let the cream stand over 48 hours after it is skimmed, and I find no difficulty in churning. In midwinter, proceed as follows: Stand the cream near the fire, where it will become quite warm; then let it cool rapidly; add more cream the next skimming, and so on until the fourth skimming. Let it stand all night, and in the morning scald out the churn before using. In case the cream is too cold, add a little boiling water. When the churning is finished, the butter should be drained and well worked; and on no account should the butter be washed, for this reason: if you wash butter, it will get strong in half the time it would by extracting the milk without washing; it must be worked out, or the butter will soon become rancid.

Salting. — To 12 pounds of butter use a pound and a half of salt, well worked in, and put in a cool place until the next morning; then work again, working out the brine which will accumulate, which is almost equivalent to the amount of salt put in. If the butter is made for packing purposes, work it the third morning, and make into rolls of convenient size.

Keeping.—The best mode I ever discovered is to make each roll separate, wrapping a clean thick cloth around it tightly, then place in a tub as tight and close together as you can; cover with a brine, which is made as follows: To 5 gallons of spring-water, add 5 lbs. of coarse salt, 2 oz. of saltpetre, 8 to 10 oz. of the best loaf-sugar, all well dissolved. This should cover 100 lbs. of butter, and preserve the same for six months or more.

Coloring.—I have never found it necessary to use anything to color butter, but by observing the preceding rules, in summer and winter, have always had good golden butter. This is the experience of the past 18 years of farm life.

Butter for market should be made into rolls of convenient size—say 2½ lbs. in a roll, and confined in a thin muslin cloth, rinsed in salt-water, then placed in a tub, around which should be a woolen matting.

When the above process is used, you can send butter one hundred miles in midsummer, and it will keep better than if packed in ice. I would say, for the benefit of the farmers, that they cannot take 12 or 15 head of cattle (and give them all the feed they can possibly eat), and make half the money off the feed that they could with that number of cows. Then, butter-making is the most healthy exercise a person can take while the warm air that arises from a bucket of fresh milk is worth more than all the beverages ever produced. It would be well for young ladies to profit by this.

A Scraper, or Ground Leveler.

BY SAMUEL T. VARIAN, PLAINFIELD, N. J.

A beautiful lawn or meadow is one of the most attractive features of the country.

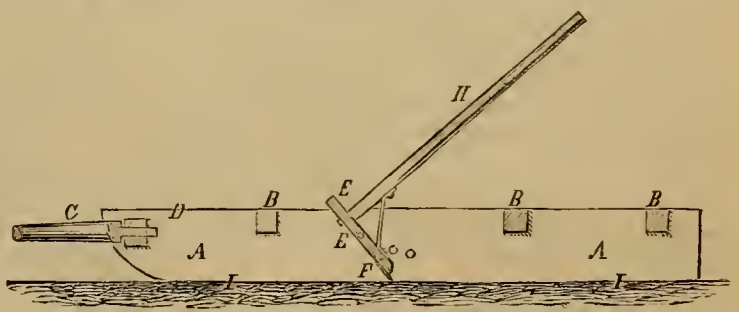


Fig. 1.—SIDE VIEW OF SCRAPER.

A, *A*, Runners, two-inch plank, twelve feet long, twelve inches wide; *B*, *B*, Braces between runners; *C*, Pole for horses; *E*, Scraper, two-inch plank, fifteen inches wide, with tenon on each end to enter augur-holes, in runners forming axis, upon which the scraper works; *F*, Iron or steel plate let in flush with scraper; *G*, Iron plates or battens to prevent splitting; *H*, Handles to operate scraper; *I*, Iron shoes; *K*, Platforms on which driver and operator stand.

The expensiveness of a nicely graded surface, produced by ordinary means, prevents many persons from doing what would afford to themselves and others a vast amount of pleasure.

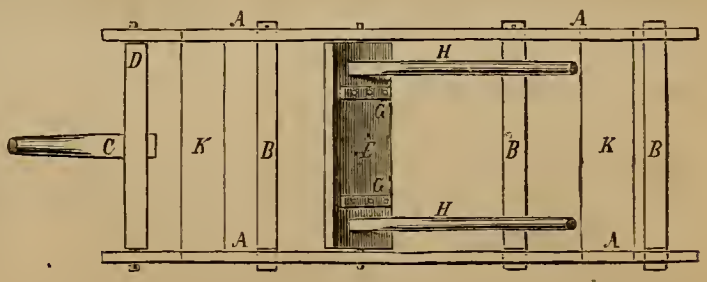


Fig. 2.—PLAN OF SCRAPER.—THE LETTERING THE SAME AS ON FIG. 1.

Farmers would be amply repaid for a little extra work in smoothing off their land, when in

a friable condition, by the increased facility of gathering crops from an even surface.

The lack of knowledge as to how this object can be easily and cheaply accomplished, prompts me to offer a simple and very effective device for this purpose. I have used it several years, and with such satisfactory results, that I deem it an almost indispensable implement.

For lawns, meadows, ball-grounds, or race-courses, when carefully managed, it has no superior: the only requirements being mellow ground, free from stones or other obstructions. A sod, well turned under, does not interfere with its operation. The advantage of the adjustment of the scraper between two runners, or straight edges must be obvious. The removal of scrape: leaves a good sled for the winter use. For rural improvements it is no less valable than is the jack-plane to the carpenter.

Butter from Devonshire Cream.

There is a custom of scalding cream prevailing in Devonshire, England, which is worthy of a wider extension. The product, "clouted" cream, also called "Devonshire" cream, is exceedingly rich, thick, and palatable, and is accounted a luxury wherever obtainable. The process is the following: the milk is allowed to stand in the dairy, which must be too cool to allow it to sour, from twelve to twenty-four hours—that is, the milk of one day is attended to on the following morning. It is set in tin pans about seven inches deep; these have a good handle at each side as a help to careful moving. Most of the cream will have risen at the time of the preparation, which consists in scalding simply, care being taken not to allow the milk to reach the boiling point. The best way would be to set the pan in gently boiling water. The heat must be kept up until the milk becomes very hot, and the cream thoroughly "crinkled" or clotted; the pan should then be removed carefully to a cool place, and allowed to stand undisturbed for twenty-four hours. The cream may then be removed, and, either fresh or salted, it is an excellent substitute for, many think a great improvement upon, butter. It is especially important that there should be no smoke in the apartment where the scalding is done.

This is Devonshire cream, a delicious article for home consumption, but one for which there exists no market demand in this country. The chief value of the process, for American farmers, lies in the fact that it is an excellent preparatory step in the making of butter. It secures all the cream, gives it such a consistency, that skimming is much easier and much cleaner—that is, there is less milk taken, which enables it to give up its butter with remarkable ease. Indeed, it is only necessary to rub the cream with the hand for a few minutes in a smooth wooden bowl to separate the butter entirely, ready for washing. For each pound of butter there remains not to exceed a half-pint of buttermilk. This does away, almost entirely, with the labor of churning, and with the handling of an immense bulk of buttermilk, and its difficult removal from the butter by washing or otherwise. When properly made, the quality of the butter is excellent; and there is the advantage, that the skimmed milk remains sweet and fit for use, or for the manufacture of "lean" cheese.

We do not pretend that the foregoing is a complete description of this mode of making butter; and we warn all readers not to blame us if they fail to get good results from their first experiments. We have merely sketched out a process that is in successful use in many parts of England and Scotland, and that promises advantages for us, and we must leave the details of manipulation to be learned by experience. It is an exceedingly simple system, but it needs practice to teach the exact point to which the milk should be scalded, and to settle the question of temperature, frequency of churning, etc.

Since the above was written, we have had a talk with an English lady who has had experience in the matter. She says the two great things to be guarded against are (1), agitation of the milk in handling the pans; and (2), too rapid heating, or heating for too long a time. The pan should be set over a slow fire, or over, or in, boiling water, and watched until the cream begins to contract so as to leave the sides of the pan; then the center of the cream should be punctured by a sharpened stick (wood is better than metal for this purpose); if the hole made becomes larger, showing a contraction of the cream in the center as well as at the sides, then it is time to remove the pan from the fire. She also says the knack of the thing is easily learned by a careful person, but that it should not be left to ordinary hired help.

Mineral Fertilizers — Why they are Needed—Analysis of Wheat.

BY W. S. WARD.

So much has been written in defense of a regular and judicious system of fertilizing, that it is not the intention of the writer to attempt any further support of claims, which are doubtless recognized as sound and just by all intelligent farmers; and yet careful personal observations have but strengthened the conviction, that the recognition of these claims would be more general and hearty did there exist a better understanding between the agricultural chemist and the practical farmer. It is with a view to promote this mutual respect and confidence that we ask you to join us in our laboratory—the chemist's workshop—that we may pursue together a few of the investigations on the results of which the chemist founds his theory of mineral fertilizers, while we on our part stand ready to accept any suggestions which your experience as practical farmers may render worthy of consideration.

We have, for instance, propounded to us the question, "What mineral substances are most needed to increase the yield of wheat on any given soil?" Were a farmer to be shown a well-fattened and finely-developed steer, his first inquiry might naturally be respecting the kind of food upon which the animal had been fed. Let us, then, take in hand a few full and well-rounded wheat-grains.

And since he upon whose lands they were grown can give little information beyond that which relates to the season in which the seed was planted, the general character of the soil, etc., we must therefore propound any questions respecting the quality and quantity of the food they consume to the grains themselves, and how clear and satisfactory will be the reply, let the chemist's crucible and balance determine.

Since it is not our intention to discuss in full the nature or authority for the present system of chemical analysis, our readers must take for granted that certain results are sure to follow when we comply with all the conditions named.

As the head of wheat is formed at the top of a long, slender stalk, each kernel inclosed in a leafy shield, which afterward becomes the chaff, and as previous investigations have taught us that the leaves of plants, like the lungs of animals, have the power of drawing from the air

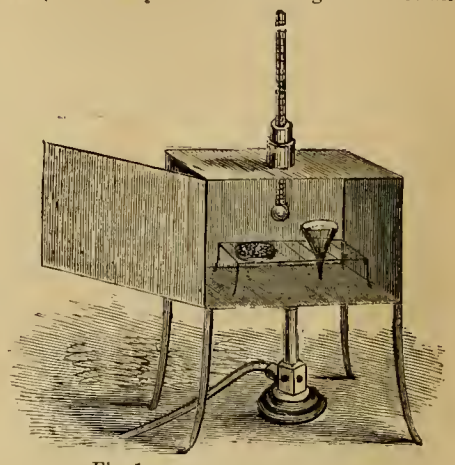


Fig. 1.—DRYING APPARATUS.

such food as their growth requires, when that food exists in a gaseous state, it is therefore proper that we first determine what proportion of the grain is capable of assuming this gaseous form, which is done by burning it in a low, open platinum dish, called a capsule. Having, therefore, weighed our dish carefully on a balance so delicate that it will easily weigh the finest hair, we will fill it with the well-cleaned grains and weigh again; the difference will represent the weight of the grains to be analyzed.

In order to remove the moisture from any animal or vegetable substance, it is only needful to heat it for some time at a temperature of 212° Fahrenheit, since at that point water, as we know, becomes steam, and passes off. This heating is done in a sheet-iron box, and lest we burn the grains before the time, a thermometer is inserted into the top; the lamp used is that known as a Bunsen burner, in which common air is combined with gas in such a way as to

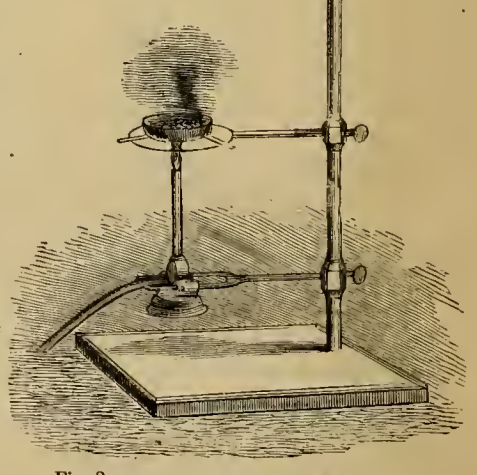


Fig. 2.—BURNING IN PLATINUM CAPSULE.

produce intense heat. The form of this "drying apparatus" is shown by fig. 1.

After heating for about six hours, we remove the capsule and weigh again; the loss in weight will not vary far from 12 per cent of the whole. Let us now place the capsule on a platinum triangle, supported upon a movable ring, as shown in fig. 2, and heat by means of the same lamp, applying the heat slowly at first.

To enumerate all the changes which take place when animal or vegetable matter is burned, would introduce us into the department

of organic chemistry, in which the methods of analysis, though certain and beautiful, are too complex to be clearly demonstrated here; it is enough to say, that during the first stages of the combustion, and while the heat is comparatively low, the nitrogen is driven off; nitric acid and ammonia being formed, both of which remain suspended in the moisture of the atmosphere, from whence it is returned to growing plants through the roots or leafy lungs. Before increasing the heat, let us examine our grains. They have become black, and resemble small lumps of charcoal, which is one of the forms of pure carbon, and as carbon is the principal constituent of all animal or vegetable substances so far examined, we have a right to believe that it is also present in the wheat-grains; but there must be no guessing in so important an investigation; hence we will settle the question by actual experiment. It has been previously determined that when pure charcoal is heated in the open air, it will slowly disappear; the carbon uniting with the oxygen of the air, forming carbonic acid gas, which plays the same part in the vegetable economy that oxygen does in the animal. Now there are certain tests by which the chemist can determine whether a gas be carbonic acid or not; we apply one of these tests to some of the gas collected from above the burning grains, and it answers the reaction, as it is termed; hence we know that the substance which remained after the first burning was chiefly carbon. We say *chiefly*, because we will discover, after burning all the carbon off, that there remains behind a grayish white powder, which is not reduced in quantity or changed in color by continued heating. After removing the lamp and allowing the capsule to cool, we weigh it again; the amount not consumed will be found to be about 3 per cent of the whole, and we call it inorganic or mineral matter.

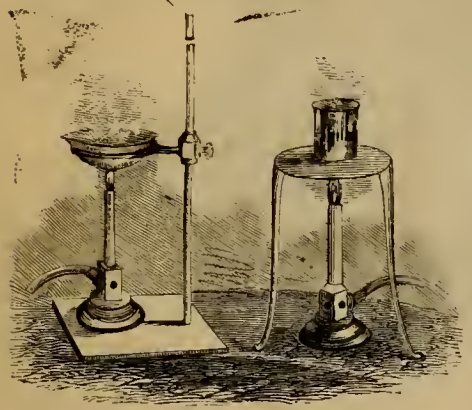


Fig. 3.—BEAKER. Fig. 4.—EVAPORATING DISH.

Since the question which engages our attention relates particularly to those *mineral* substances most needed in a general fertilizer, we will proceed at once to analyze this grayish powder, which contains all the involatile constituents of the wheat-grain. It is evident that in order to conduct an analysis of this character, it is desirable that the substance under examination be reduced to a fluid state—that is, that it be dissolved in some suitable solvent. Now, as it is probable that this powder contains some substances which it may be difficult to dissolve directly in pure water, we will remove it from the capsule to a glass vessel, called a beaker, and having poured over it some strong muriatic acid, place it upon a thin iron plate containing sand, over the flame, and supported upon a stand, as shown in fig. 3.

When the last traces have disappeared, which may require several hours of continued heating, we will transfer the acid liquid, which contains the powder in solution, to a saucer-shaped porcelain evaporating dish (fig. 4). The reason for this second operation will be apparent when we state, that among the most frequently present of all mineral substances is silica, which appears in its pure state in the quartz crystal, forming also the chief constituent of sand, and therefore existing to a greater or less extent in all soils. It is this which gives to wheat-straw its gritty feeling, while the surface of those peculiar reeds, once used for scouring, is, as it were, paved with it. Since of so general occurrence in the soil, and as it is also found in the animal system, it is natural that we apply a test to answer if any has found its way into the wheat-grain, and, if so, we will remove and weigh it. In order to determine this, it is necessary to evaporate our solution to dryness in the manner indicated in figure 4. When all the free acid has been driven off, the solid substances, including the silica, will remain in the dish as a white powder; we now add more of the acid and water, when, if there be silica present, it will not dissolve a second time, but remain so mixed with the liquid as to require another process for its removal. This is effected by pouring the liquor upon a filter of unsized paper, carefully fitted into a glass funnel. To effect this transfer

Fig. 5.—FILTERS AND FILTERING.

safely, a glass rod is used in the manner shown in fig. 5, which also shows the form of the paper filter, and manner of folding.

When the liquor has all passed through the filter into the beaker beneath, pure water is added by means of a chemist's wash-bottle, in order to wash out from the paper any of the remaining fluid, and leave the silica on the filter pure and clean. The funnel is then carefully covered, and placed in the drying-box (fig. 1), and when the filter is dry, the silica is carefully removed by means of a feather to an ordinary watch crystal, and weighed, when it will be found to represent about 3 per cent of the whole weight of the ash. We now return to the liquor contained in the beaker, and add to it enough liquid ammonia to neutralize the acid, and then a small amount of oxalic acid in the form of oxalate of ammonia. After boiling and allowing to stand over night, a white powder will be discovered at the bottom, which is oxalate of lime. We remove this by means of the filter, as we did the silica; its weight will indicate about 3 per cent of lime. By the same general method we might remove the phosphoric acid, potash, magnesia, etc., and our final report would be very similar to the following analysis of the ash from the white wheat:

Potash	29.97	Sulphuric acid.	0.33
Soda	3.90	Silica	3.35
Magnesia	12.20	Oxide of iron...	0.79
Lime	3.44		
Phosph. acid..	46.02	Total.....	100.00

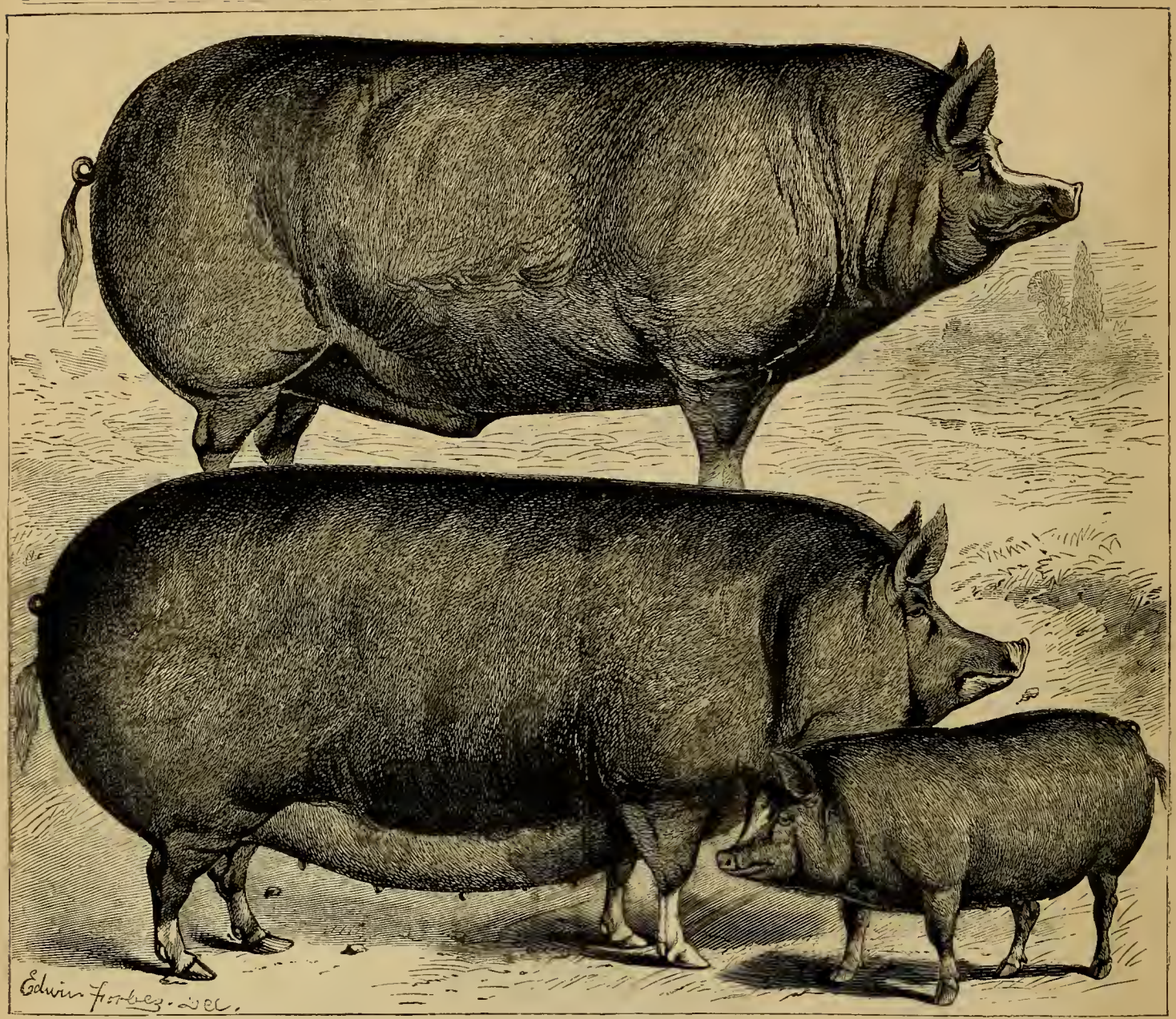
Having once decided the question as to what mineral substances are represented in the wheat-grain, and knowing the relation they bear to those which are found in the body, the conclusion naturally follows that what the body gets from the grain, the grain must obtain from the soil; and as frequently this soil contains but a limited amount of the desired substances, it is evident that in order to secure a healthy and vigorous growth, due attention must be paid to this demand. It is with these facts in mind that the intelligent farmer resorts to the application of "mineral fertilizers."

The Management of Clover Hay.

Clover should be mowed as soon as it is well in blossom. There is no necessity to wait for a brown head; there will be plenty to be seen before the crop is well down. Cut when the dew is off, and allow to dry until afternoon, when it should be shaken up and turned before the dew falls. If a tedder is employed, its constant use will fit the clover to be put in cocks the same day. If turned by hand, it may lie until the noon of next day, when it may be put in cocks, made as high and narrow as possible; they will shed rain better in this shape, and, if caps are used, a yard square will be sufficiently large to cover them. Caps are to be strongly recommended, and the above size is sufficient, as the top only needs protection. Put up, and, thus protected, the hay may stay in the field until it is all made, when it may be hauled together. If any cock should be damp inside, spread for a few minutes; it will dry rapidly. Clover cured in the cock is much more valuable than that dried in the sun, and wastes less in handling. Put away the *first cut hay* by itself, in a place convenient for use in the spring. Cows coming in early in the spring will thrive on this hay; the milk will be largely increased in quantity, and be richer in quality, while the butter will come easily, be free from white curdy specks, and in color will not be far behind that from June grass.

Sowing and Curing Corn Fodder.

Corn, planted after the first week in June, is likely to be caught by an early frost and injured. Rather than plant later than this period, it would be much better to sow it for fodder. One acre sown with three bushels of corn, in drills three feet apart, and kept well cultivated, will yield as much feed on land of equal quality as three acres of clover or grass. We have heard of nine tons of cured fodder being taken from a single acre. Of course this must have been on exceedingly rich land; but why could not any farmer make one or two acres rich enough to do this for himself? We have cut at the rate of four tons per acre, and the crop did not look well enough to satisfy us. If the seed is dropped at the rate of twelve grains to the foot, and twelve cured stalks weigh a pound, which they should do if five or six feet high, and as thick as one's little finger, the crop would yield nearly seven tons per acre. A little care, and plenty of manure, would secure this result. As soon as the blossom appears,



BERKSHIRE PIGS, BELONGING TO WM. CROZIER, ESQ., BEACON STOCK FARM, NORTHPORT, L. I.—*Drawn and Engraved for the American Agriculturist.*

the stalks should be cut up or cradled, and permitted to lie for a couple of days to wilt; they may then be gathered into small bundles, tied up, and shocked, well spread, and opened at the buts for the admission of the air. This is an important point. Corn-stalks, thus grown, will contain much sugar, and need to be perfectly well cured, or fermentation will set in and sourness and mold occur. When sufficiently cured, the stalks may be stacked or put away in the barn. They will need a ventilator in the shape of three rails, with short pieces of boards a foot long nailed to them, to keep them apart and make a sort of pipe. This must be set up in the center of the stack, and the stalks placed round it, buts outward. If they should be put away in a mow, two such ventilators must be provided. The top must be kept open, or only lightly covered, as much damp air will escape. Such fodder will be found equal to ordinary hay; in fact, better than most hay. Cut up with a stalk-cutter, wetted, and sprinkled with a handful of meal—or corn and oats ground together—for each head of cows and calves, and a bushel basket of the mixture given at each feed, it will carry such stock through the winter in excellent condition. Milking cows will improve by changing to such feed. Working horses may be kept in good condition on three quarts of meal and a bushel of fodder at a feed, equally well as on hay and grain. A still greater economy might be secured by steaming; but with a small stock, and on average farms, this process is impracticable.

Berkshire Pigs.

The Berkshire and the Essex are both black breeds, each of which has its advocates and admirers, who claim that the Berkshire or the Essex, as the case may be, is superior to any other breed. The chief use of these thoroughbred animals is to cross with and improve our common stock; and for this purpose, if the boars be thorough-bred, it makes but little practical difference which breed is chosen. In England, where the breeds originated, the Berkshire is preferred for furnishing hams and bacon, while the Essex is considered the best for fresh pork. Crosses of either breed, with good common sows, produce pigs much "refined" in form, and able to fatten rapidly, while at slaughtering they yield a minimum amount of offal. We present an engraving of two of Mr. Crozier's imported Berkshires, with a small pig born in this country from imported parents. The Berkshires are covered with long, silky hair, and in the best examples, have four white feet, a white spot upon the forehead, and white on the end of the tail: all the rest being black, save a very small amount of white behind each shoulder. The Berkshires—and the same may be said of other pure breeds—have only within a comparatively few years been appreciated in this country. They were introduced here some thirty or forty years ago, at which time there was a great excitement over the breed, and specimens sold at enormous prices. Our farmers had not learned, that these animals had reached their then state of perfection, through the greatest care in breeding and keeping; and when these high-bred animals were subjected to the treatment given ordinary swine, they disappointed their owners, and the breed fell into disrepute. Doubtless, since the first introduction of Berkshires, the English breeders have much improved the breed; and the specimens now in the hands of our own stock fanciers, are much superior to those about which so much was said thirty years ago.

Field Culture of Lima Beans.

The cultivation of the Lima, the most delicious of all beans, is principally confined to the home and market garden. The price always ranges high, from eight to fifteen dollars a bushel wholesale, according to the character of the season. It is a little uncertain of ripening its seed, north of 42°, though it will mature fine pods for succotash much further north. The green beans, dried at any time before the frost strikes them, are even better for table use than those fully matured. The demand for Limas from the market-gardener is so brisk, that he usually sells his whole crop green in the pod, not always reserving enough for his own seed. The good housekeeper welcomes the first show of Limas upon her poles, and the pods are plucked as fast as they are old enough for succotash, and she is greatly astonished that there is not a brown pod for seed when the frost closes the season. Between the improvidence of cultivators in the region where the crop will fully ripen, and the inability of others in the narrow belt where nothing but green Limas can be grown, there is always a lively demand for good sound seed in the spring. In cool seasons the seed is scarce, and rules very high. In hot, dry seasons, like the last, more of it is matured, and the price is lower, but still about three times that of the best kidney beans. This peculiarity of the crop that we have noticed makes it a desirable one for farmers remote from market towns. If they are within the belt where the seed will ripen from one-half to the whole crop, they are perfectly safe in devoting a large breadth to Limas. The mature part of the beans will bring a large price for seed; and the immature, if properly dried, will bring nearly as much for table use in winter. The family grocers in our large cities always find it difficult to meet the demand for this vegetable. We devoted a quarter of an acre to this crop last season by way of experiment. The land selected was a gravelly loam, in nothing more than fair condition; probably capable of growing thirty five bushels of shelled corn to the acre. It was manured with about two cords of barn-yard manure and compost, planted the last of May, and treated very much as the corn crop through the season. The beans grew well, and gave four bushels and six quarts of seed, besides some sent green to market. The market wholesale price for the article this spring was eight dollars a bushel, or $134.00 per acre for the crop. This is about three times what the corn crop would have been worth upon the same land with the same manure. The cost of poling the beans, and of harvesting them, was judged to be an expense of ten dollars an acre above that of a corn crop. CONNECTICUT.

VARIEGATED CROWN IMPERIAL.

Variegated Crown Imperials.

The Crown Imperial is the monarch of spring bulbs. It lifts its stately head far above the Tulips, Narcissuses, and other humbler plants, and wears its floral crown with a royal air. Kings are but mortals, and Crown Imperials are not all perfect. The large bulb which we plant in autumn is about as repulsive in odor as a Skunk-cabbage with the cabbage omitted. The bulbs of the Crown Imperial should not be left too long out of the ground, as they dry up and become weakened, and probably this strong odor is a hint that they should be promptly earthed. In spring this bulb throws up a robust stem, clothed part of the way with luxuriant leaves; then a bare space of stem, above this a large whorl or crown of pendent tulip-like red or yellow flowers; and, above all, a tuft of smaller leaves. These flowers do not show all their beauty until we examine them closely. Turn one of them up, and there, at the base, are six pearls—at least they look like pearls; but they are only drops of honey-like liquid, in a round cavity at the base of each petal. We have been much pleased this spring with the variegated Crown Imperials—the Golden and Silver-striped, as they are called. The variegation is well marked, and appears very lively in contrast with the dark-green foliage of the ordinary form. The plants with variegated foliage do not flower so freely as the others, sometimes failing to bloom altogether, and often producing flowers much reduced in size. Yet their foliage is so bright that they are worth growing, even if they do not flower at all. The engraving represents the markings as well as can be done upon such a reduced scale.

THE RHODORA.

The Rhodora.

In the latter part of April, or early in May, the wet meadows of many parts of New England show fine patches of color, which are due to the flowers of a low shrub—the *Rhodora Canadensis*. The plant grows from one to three feet high, has very erect branches, each of which produces a cluster of showy rose-purple flowers. The leaves at flowering time are just appearing from their scaly buds; when fully developed they are narrow, oblong, pale-green above and whitish and downy upon the underside. The Rhodora usually occurs in clumps, with the stems growing at about the same hight, and thus in the mass makes a fine show. Viewed separately, the flowers remind one of the Azalea, to which the plant is nearly related. Though growing naturally in very swampy places, the Rhodora does well in the garden. The specimen from which the engraving is taken has been for some years in the poorest

and sandiest part of our grounds, yet it flourishes finely. It is usually recommended to grow this in "Rhododendron soil," which means soil with a considerable amount of peat mixed with it. It would probably grow better in such a soil, but we hope that the lack of it, will not deter any one from trying the Rhodora in any good garden soil. The name Rhodora is from the Greek word for *rose*, on account of the color of the flowers. Plants may be obtained from the native localities, and they are kept by some of the nurserymen.

Training and Pruning the Tomato.

The French method of pruning the tomato to a single stem, and keeping this tied to a stake five or six feet long, though not to be commended for general culture, has its particular uses. In localities where the season is too short to allow the fruit to ripen without extra care, this manner of training may be profitably adopted. In gardens in more favored climates, a few plants grown in this way will give fruit earlier than the general crop, and the specimens, as a general thing, will be finer. The

PRUNING THE TOMATO VINE.

objections to the method are, that it takes too much time, and the plant does not yield all the fruit it would if not so restricted; while with large varieties the clusters are apt to break away by their own weight, unless great care is taken to support them. To those who have leisure, the training will afford abundant employment, and the sight of a well-managed plant, loaded with clusters from the bottom to the top, is worth working for. As the tomato differs in its manner of growth from most plants, we give a diagram showing the manner of pruning. The majority of plants produce flowers either upon the end of the stem, or from the axils of the leaves. In the tomato, the flower clusters appear, not in the axils of the leaves, but considerably above them—about midway between two leaves. In pruning for this style of training, as soon as the first cluster of flowers *a*, or rather of flower-buds, shows itself, the vine is cut off above the next leaf, as shown by the line *b* in the diagram. The bud in the axil of this leaf below will soon push out a shoot *c*, which is cut off in the same manner, as soon as it is sufficiently developed to show the cluster, and in this way the cutting is continued until the desired hight is reached. Shoots will start from the axil of every leaf, but these must be kept cut off, which will be found no little task, and the stem must be kept carefully tied to the stake with ties that will not cut it. The tomato is such a rampant grower that it will need daily care, if this method of training is strictly followed; and unless it is carried out, it had better not be undertaken.

Don't Sow too Early.

BY PETER HENDERSON.

A decision was rendered recently in one of the Philadelphia courts against the claim for damages made by Jacob Kessler, a market-gardener, who brought suit against Mr. Dreer, the well-known seedsman of Philadelphia, for having sold him Early York cabbage seed that "run to seed." The seedsmen of the whole country are indebted to Mr. Dreer, and no doubt will tender him their hearty thanks, for the grit he showed in standing a suit rather than to compromise, as the chances were more than even against him, the sympathies of the jury being most likely to be with the complainant in such a case. The ventilation of such a matter is exceedingly instructive to those engaged in gardening operations, as was shown by the facts elicited on the trial, the gist of which was, that Mr. Kessler had sown the cabbage seed on the 5th of September instead of the 15th, and that error, combined with an unusually mild and growing fall, practically lengthened the season, so that the cabbage plants became "annuals"—running to seed within the year of sowing—rather than *forming heads* and acting as "biennials," as was expected of them. Now, just here an excellent lesson comes in with another vegetable. Most of our so-called scientific gardeners are English, Scotch, Irish, or Germans; they come here, most of them, with a thorough contempt for our rougher style of doing things (a practical style born of our necessities in the higher cost of labor); and it is next to impossible to convince one in a dozen of them, that there is anything in horticultural matters here, that he needs to be informed of. Accordingly, if he wishes to raise celery, he starts his seed in a hot-bed in February, just as he would have done in England, and is astonished to find in July that, instead of forming a thick and solid stalk, as it would have done there, it spindles and runs to seed. If his knowledge of the art had been based on common sense, instead of the blind routine practice attained in a colder climate, he would have known our season—from April 1st to July 1st—would sum up nearly the same mean of temperature here as it would there, from February 1st to July 1st; and hence it was not only unnecessary here, but dangerous to the welfare of the crop, to sow such biennial plants as celery in any other place but in the open ground, and that not before April. It was just such an error that the market-gardener made who sued Mr. Dreer. He had been following likely in the English or German method, and paid the penalty not only of losing his crop, but losing his lawsuit, by not adapting his practice to our conditions of temperature. As the matter of sowing the seeds of cabbage, cauliflower, and lettuce to make plants to winter over in cold-frames, is one in which there is a widespread interest, I may here state that the time of sowing in fall, in a country having such an area and difference of latitude as ours, is somewhat difficult to gauge; but taking the latitude of New York as a basis, the safest time we have found to sow is from the 10th to the 15th of September. Of late years we have inclined rather more to the latter date, and have even sown as late as the 30th September, with excellent success, in warm, well-sheltered positions, in a rich, well-prepared soil. In connection with this subject, I would refer to the evils arising from the too common practice of many of our agricultural and horticultural journals, of selecting from English papers articles that often seriously mislead. For example, a Boston magazine not long ago copied a long article from the English *Journal of Horticulture*, telling us, in a very patronizing way, how to propagate the golden tricolor-leaved geraniums. The writer laid great stress on having a sharp knife, and cutting the slip in a particular manner, then to insert it in silver sand, and a lot of other nonsense, that any boy of six months' practice here would have known was absurd; but, above all, the operation was to be performed in *July!* He might have got the sharpest knife that was ever made, and the purest silver sand that ever lay on the seashore, but he would have utterly failed in our climate, if he attempted the work in July. This is only one of scores of such absurd selections as we see yearly in some of our horticultural journals. If the conductors of such have not original matter to fill up with, better far that they leave their pages blank than to show their utter ignorance of what is suitable to our climate.

Gardening in Iowa.

BY A WESTERN MAN.

I was quite interested in an article on gardening by the author of "Walks and Talks," but we farmers in the West will but few of us take the trouble to prepare the ground as there directed. I will give you my plan, and, as it is not patented, any one may follow it who wishes: first, have two gardens, or a fence dividing the garden into two compartments, and have them well fenced. Now, to start with I have a few rules which, if they are not mathematical axioms, yet are important—1st, whatever is worth doing, is worth doing well; 2d, in order to have a good garden, the ground must be prepared the year beforehand; 3d, that in Western gardening, as in Western farming (or for that matter wherever land is cheap), the object is to raise as much as possible from a given amount of *work* instead of a given quantity of *land*. Now, for the preparation; we premise that every farmer keeps stock, and, as labor is scarce and high, we wish to bring it to our assistance, and have it help us to make our garden. We used sheep, as they are the best. As soon in the spring as the ground is dry, plow the land, and harrow down smooth, then yard the sheep; and if the yard can be adjoining the pasture, induce the sheep to take their "nooning" in the garden that is to be. No danger of its getting too rich, even on our black prairie soil. After it has lain about a month, plow and ridge up the ground, as is commonly done for sweet-potatoes, plowing as deep as possible with two horses; plow again, and make the ridges where the furrows were. It is better to plow thus as often as once a month, but it is quite important that it should be plowed in ridges as high as possible, just before it freezes up. Keep the sheep on even through the winter, provided

they are not fed on the ground with hay or fodder, that will make long unrotted manure. Do not allow stock to tramp the ground after it thaws in the spring. You now have the ground in a condition to make a splendid garden. The other garden or compartment is to be prepared in a like manner for the next year's use, thus using one of the gardens each alternate year. Of course perennials of all kinds will have to be allotted a separate place. I will not try to tell you of the crops that we raised on our sheep-yard, for we neither measured nor weighed but one of the crops, but ourselves and all that saw, were astonished. The one we did measure was "set onions," as we call them; or, as they are called by some, "top onions." This was a bed 8 feet wide and 30 feet long. From this we gathered 13 gallons of the top onions; 11 gallons we sold at 80 cents per gallon, and 3 bushels of the root onions, which were put away to raise another crop. I have not written this for publication, but that you might urge upon Western farmers a better preparation of their garden ground.

The Cabbage Pest.—(*Pieris rapæ.*)

BY W. V. ANDREWS.

The butterfly *Pieris rapæ*, has become so common in certain localities, and is such a pest to farmers and gardeners, that it becomes a duty to offer a few words of warning to those not yet visited by it. Much may be done by persistent work at the caterpillars. From a patch of cabbage plants, about four yards square, I picked off over two hundred caterpillars, but, being unable to attend to the work continuously, left enough behind to devour the whole of the cabbage plants. But had everybody done as much as I did, what a difference in the number of *P. rapæ* would there now have been, so far as this locality is concerned! But, as I said before, the work must be persistently continued. It is one of the earliest of our butterflies, and brood after brood appears, up to September. And be it remembered that, although it prefers a nice little cabbage to almost anything, it does not consider itself bound to confine its ravages to that plant. Early radishes receive its attention, and in default of other food it does not refuse a little mignonette, of which fact our flower-beds bear ample evidence.

For those who have not seen it, I will give a brief description of the caterpillar. Full-grown, it is about one inch and a half in length, of a fine dark green. Sometimes a brassy line is visible down the back, and on the sides. Those on the sides, however, are generally broken up into spots, and none of them are ordinarily visible without close inspection. The pupa is green, with the usual protuberances, and is generally fastened to a fence, or other convenient place, by a silk thread thrown over the back. It remains about fourteen days in the pupa state, and then emerges to carry on its appointed task of reproducing its species.

In the butterfly state, as well as in the caterpillar state, it is one of the most assiduous of insects. By 7 o'clock in the morning it is well on the wing, and it continues its flight from flower to flower until late in the afternoon. It is useless to indulge in the hope that it may, in its butterfly state, be starved to death for want of food; for nothing comes amiss to it—it lives on Catnip, Boneset, everything in fact. But a patch of thistles is its paradise; and here, in Jersey, our farmers deal gently with the thistles. I have seen a patch of thistles, in flower, so thickly covered by *P. rapæ*, that, at a distance, the flowers looked to be strongly variegated with white. A near approach does not frighten them in the least; so if the farmer should choose to try his skill in the art of throwing a butterfly net, I know of no opportunity that will afford him a better chance of capturing his game.

And it should be remembered, that this is after all the most effectual way of going to work; for capturing one female butterfly is equivalent to the destruction of a great many caterpillars. It may be well to look out for the first appearance of this butterfly in localities not yet visited by it. It is a small white butterfly, about an inch and a half, or two inches, in the spread of the wing. The male has one black spot on the upper surface of the secondaries; the female has two. This is the most obvious difference. Both sexes have the top of the primaries of a brownish-black on the upper side, and a corresponding yellow spot on the under side. The under part of the secondaries is of a greenish-yellow. This description is sufficient for any ordinary observer; but it may not be unnecessary to say that there are varieties in which the whole of the ordinarily white portion is of a cream color.

It is almost useless to look for the egg of this insect, as it is difficult to detect, except by a great expenditure of time, but in the caterpillar, the pupa, and perfect state, it is easy to capture; and farmers and gardeners should assiduously endeavour to extirpate it, whenever and wherever found. It should be sought for in the caterpillar state when quite young, especially the second brood, which hatches out about the time the early cabbage is forming the heart; and it takes but a short time to enable the little sapper and miner to bury itself therein, and the plant is then unfit for market.

[In addition to the description of Mr. Andrews, we would refer the reader to the engravings of the insect in all its stages, given in the *Agriculturist* in Nov. 1870, page 422.—ED.]

The Robin—What to do with Him.

The robin is here with his mate, and a whole nest full of hungry young ones, just ready to fly. You heard his notes all through April and May, saluting the earliest dawn, bidding farewell to the twilight. True, it was not much of a song, but it was the best he had, and always at your service. You saw his house-building in the old apple-tree, or in the corner of the fence, most industriously carried on from the day that he wedded his mate. There was nothing very charming in the architecture, not much evidence in it of progress toward a higher type of bird life, as we compare it with the robin nests of two hundred and fifty years ago, but it was good, honest work, the best he knew, and it sheltered his young. Each one of those fledglings in the nest has eaten many times his weight of insects in the few brief weeks of his growth. If you have watched the operations of that household, you have seen the unwearied industry of the parent birds in procuring food for their young. It is nearly all animal food that they have consumed, taken from your blossoming fruit-trees and vines, just at a time when they were being most injured. They have had their fill of worms and bugs, and when they get out of the nest they will change their diet a little, and help themselves to your currants, cherries, raspberries, and grapes. All the small fruits will suffer, and some of the vegetables. And as the robin is a connoiseur, he will take the best of your fruits. You cannot blame him for the refinement and delicacy of his taste. It will do no good to cultivate foxgrapes for him: he will not touch one of them until the best grapes are all gone. If you get any fruit in perfect order, you must put netting over it, or in some way make it a physical impossibility for the robin to touch it. We have tried the theory of raising fruit enough for yourself and the robins too. It is all theory and moonshine. There is no one to divide the spoil, and the birds, by virtue of their early rising, are always masters of the situation. It is very nice and humane to spare the birds for the sake of the insects they devour, and the possibilities of fruit they promise you. But what is the use of raising fruit if the birds take it all? So far as the reward of our labor is concerned, we are not profited at all by the slaughter of the insects. We have been studying Mr. Bergh, and think there is about as much cruelty to brutes in killing insects, as in killing birds. Only think of the hopes crushed in worm households by cockrobin and his mate in catering for their young Will there not be a sort of poetic justice when he and his brood are thrust into a pot-pie, for the benefit of the lord of creation? We want to keep Nature in healthful balance. We err when we spare all the birds, and pay for our fault in the loss of all our fruit. We may safely kill so many birds as beasts and birds of prey would take, if they were not sheltered by our care.

MULCHING.—After the spring rains are over and the hot days have come, the newly-planted fruit and ornamental trees, as well as flowering shrubs and small fruits, feel the effects of heat and drouth. Though they may have made a good start in the spring, the growth flags in these hot June days, and while the well-established plants do not mind it so much, those set this season are evidently suffering. Only those who have tried it know the benefits of mulching. After cultivating or otherwise stirring the soil, put around the trees or shrubs a good covering of straw, bog, or salt hay, or any similar material. Not a handful, but a good generous covering, to extend as far or farther than the roots of the tree or shrub are likely to spread. This will prevent evaporation, keep the soil mellow, and smother the weeds. Currants and gooseberries are, in particular, benefited by this treatment, and there is scarcely any plant that will not flourish all the better for it.

Sweet-Potatoes.

The first week in June is quite early enough to set out sweet-potatoes in northern localities. Where but few are grown, it is much cheaper and easier to buy the plants than it is to start them. They carry readily by express. In preparing the soil, put upon the level surface a strip of fine manure a foot wide, and turn two furrows over it to form a ridge. Dress up the ridge with the spade, and set the plants about 15 inches apart. Unless the soil is moist, water the holes before setting the plants, which should be set well down, so that the stalk of the first leaf is covered. Press the soil firmly around the plants: much of the success will depend upon this. Should the tops wilt and dry up, a new shoot will spring up if the plant has been set deep enough. The sides of the ridges should be kept free of weeds by the proper use of the rake. The vines will soon get so large as to smother most of the weeds.

Essential Implements.

There are two implements that we regard as essential to the successful and satisfactory cultivation of the family garden, whether it contain vegetables or flowers. These are a sharp steel-rake, and a lance-headed, or bayonet-hoe. If the rake be used in time, and sufficiently often, other weed-killing implements will seldom be called into use. The most serious and obstinate of weeds, even the Canada thistle, if taken in its infancy, can be killed as easily as any other plant. Let a few days pass, and it must be hoed up, and at the end of a few weeks it can with difficulty be up-rooted by the spade. Use the rake frequently. The lance-head, or bayonet-hoe, are much alike in shape, but we prefer the first-named, which is a triangular plate of steel attached to a suitable shank and handle. For weeding, loosening the soil around plants, opening drills to sow seed, and many other purposes, it is an implement that we find to be in constant requisition.

CANADA SNAKEROOT, OR WILD GINGER.—(*Asarum Canadense.*)

Canada Snakeroot, or Wild Ginger.

(*Asarum Canadense.*)

In the rich woods of the northern hill-sides there will often be seen, in spring, patches of broad, kidney-shaped leaves, which are soft with down, and have a pleasing tender green. The careless observer would not notice that the plant had a flower, so completely is it concealed by its position close to the earth and the protecting leaves. If we pull up the plant, it is found to have a creeping root-stock or underground stem, which bears the leaves in pairs, and between each pair of leaves, upon a short stalk, a flower of such odd appearance that one is at first in doubt whether it is a flower or not. The flower has no petals, but the bell-shaped calyx has three spreading, pointed lobes, which, on the inside, are of a peculiar purplish-brown color. The engraving represents the plant of about the size it is at the time of flowering, but later in the season, the leaves increase much in size and become more robust. The root-stock, or root, is very aromatic and pungent to the taste, and is sometimes, as one of its common names indicates, used as a substitute for ginger. It is somewhat employed medicinally, having the general properties of aromatic stimulants. The species here noticed is *Asarum Canadense;* there are two others, found in Virginia and southward, which differ in the shape of the leaves and some other characters, but possess the same aromatic properties. Asarum is an ancient name for a similar plant. The Asarum belongs to the Birthwort Family (*Aristolochiaceæ*), the flowers of which are generally of a striking appearance. The Dutchman's Pipe—*Aristolochia Sipho*, is a common example of this family, and some exotic species of Aristolochia are among the curiosities, if not the ornaments, of choice green-house collections. Not only are the flowers of some of these grotesque in form and odd in their coloring, but some of them are among the largest known flowers. Humboldt mentions one which he met with in South America, the blossoms of which measured four feet in circumference, and which "the Indian children drew sportively upon their heads as caps." The term Snake-root is applied to several plants of this family, they having a reputation as cures for snake bites.

The Clustered Leucothoë.

A number of our native shrubs, which we used to know under the generic name of Andromeda, have for good botanical reasons been placed in other genera, and bear other names. The pretty shrub, which in our early botanizing days was Andromeda racemosa, is now *Leucothoë racemosa*. Leucothoë is a good enough name for a mythological female, but we must admit that we should prefer some other for the beautiful shrubs, which are now called Leucothoë. There are in the United States five species of Leucothoë, one of which is found north of Virginia—the *L. racemosa*. This species is found from Massachusetts southward, and though not classed among the rare plants, we do not recollect to have ever seen it abundant. It is a shrub from four to six feet high, and, when out of flower, has much the aspect of a huckleberry bush. Its flowers, which appear in May and June, are borne in racemes three or four inches long, which are situated at the ends of the branches. The flowers are pure white, cylindrical and contracted at the mouth; they are arranged with great regularity, are all turned downward, and have been likened in appearance to rows of teeth. The shrub, when in bloom, presents an attractive appearance, and the flowers are pleasantly fragrant—qualities that give it a stronger claim to a place in the garden than many exotics present. Its cultivation is easy, and, like many other plants that naturally grow in moist localities, it will flourish in common garden soil. The engraving gives a flower cluster or raceme, and the leaves of the natural size.

CLUSTERED LEUCOTHOË.—(*Leucothoë racemosa.*)

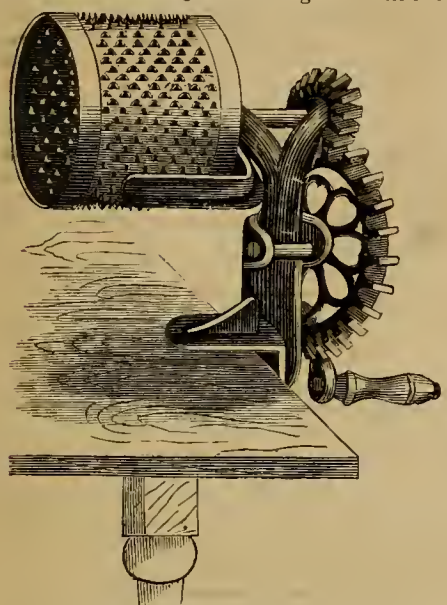
"HARDY" PEAR STOCKS.—"Rustic," an Iowa correspondent, writes that the peddlers in his state do not sell dwarf pear-trees grafted on quince stocks, as they have proved too tender for the climate, but they can furnish them upon Sycamore, Maple, or White Elm-stocks. He asks, "Are such trees raised for sale, and if so, are they good for anything?"—We do not know what a tree peddler might do, save tell the truth, but no one else, so far as our knowledge goes, ever saw a pear growing upon either of the above named stocks. The humbug is an old one. Grafting succeeds only with nearly related resuscitated plants.

THE HOUSEHOLD.

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

A Revolving Grater.

We have seen the pickle-venders in the market prepare horse-radish by means of a large revolving grater, moved by a treadle, and have wondered why no one had invented a small revolving grater for family use. Some one has done it. We were a few days ago looking through the house-furnishing stock of our neighbor, J. H. Baldwin, in Murray-street, in search of new household appliances, and there stood the very thing we had been long looking for—a revolving grater. The grater itself is of



REVOLVING GRATER.

tin, with the teeth made of a triangular form, and well adapted for cutting. It is fixed upon a stand, which may be readily screwed to the kitchen table, and is moved by multiplying cog-wheels. This grater will be found handy not only for horse-radish, but for grating cheese, carrots, crackers, or any similar thing that it is desired to reduce to the form of coarse powder.

Home Topics.

BY FAITH ROCHESTER.

THE BABY'S "SECOND SUMMER."—The little one is teething; and unless it has a strong constitution, and proper food, clothing, and attention, it is often very peevish, and shows symptoms of illness that call for careful nursing.

Its bowels will probably be "loose," and that is all right, provided this looseness does not become downright diarrhœa, or take on a dysenteric appearance. Constipation is more dangerous than simple looseness—more likely to be accompanied by convulsions or diseases of the head. To check a diarrhœa suddenly, may throw the disturbance to the head, and cause a malady more dangerous and difficult to reach. I have invariably found that an injection of cool (not shockingly cold) water, immediately following every passage of the bowels *that had a slimy appearance*, mitigated this symptom of dysentery. It simply washes and cools the lining of the intestine which the slime shows to be morbidly irritated. If farther treatment seems necessary to prevent dysentery, wrap a bandage of double coarse linen (a folded towel will do,) wrung out of cool water, around the little one's abdomen, and over this secure a doubled dry towel. Wet this compress again before it becomes dry, unless the child is sleeping. If you would prevent bowel diseases in children, be careful to keep their lower limbs warm. Of course nothing is more important than the diet, which should be plain and nutritious, and given as regularly as possible. Nature calls for bone-making material, and the nursing mother's food or the food of the weaned baby should not be lacking in this element. Any food that requires much chewing is clearly improper for it.

If mothers are healthy, and are surrounded by intelligent friends who will guard them from overwork and excitement, it seems most safe for teething babies to depend mainly upon their mother's milk for nourishment; but many a case of *cholera infantum* has resulted from some severe physical strain or mental agitation of the mother; and because of this intimate connection between mother and child, it is, perhaps, best, that a teething child should not be too dependent upon the breast. A watchful mother can refuse to nurse her babe for several hours after any unavoidable excitement, drawing off the milk by artificial means and giving her child more wholesome food. My heart aches as I write this, because our race is still in such ignorance and wickedness as to make it almost impossible for mothers to give their babes a fair start in life, in respect to health and happy temperament.

It is not uncommon for teething children to suffer great distress just before a passage of urine, and mothers are sometimes in entire ignorance of the cause of their cries. If the writhing and crying ceases after this discharge, there is little doubt in respect to the seat of pain. For this I know nothing better (and in all this matter I speak from experience as well as inquiry) than warm sitz-baths. If the child is accustomed to wake in the night with this distress, try the warm bath before putting it to bed. Simply to immerse the feet in warm water and hold them there a few minutes, afterward drying them and guarding them from cold, is often sufficient to prevent this trouble returning. Water that feels only warm to your hand may be very hot for tender little feet. As children go, in these degenerate days, the mother of a teething child has almost constant work and anxiety night and day, in the simple care of her child, and should be relieved from other labors, and encouraged to take needed rest and out-door exercise. If people were wise just here—in the case of young children *and the mothers of young children*—statistics would show a much smaller proportion of deaths of infants under three years of age. At present not half the human race lives beyond the age of five.

TWO BOOKS FOR PARENTS AND TEACHERS.—I thought when I read the essay at the back of Miss Youmans' "First Book of Botany," that I should like to put it into the hands of every thinking parent and teacher of children. Her views of the education of children seem sound and sensible. She justly remarks in speaking of the importance of cultivating the observing faculties, "To postpone this, is to defeat it." For after the intellect once gets started in the way of "learning by rote" and accepting the "say so" of the books or teacher, its free development becomes almost impossible.

My own late experience makes me strong in the belief that Botany is one of the best things possible for cultivating the awakening faculties of a child, if taught very gradually and always as a pleasure to the child, never as a task, or when its heart is set on something else. But I think it has already been too long postponed—this early cultivation—if delayed until a child is old enough to make schedules such as Miss Youmans advises. This seems an excellent method for children who are old enough to read and write, but I wish Miss Youmans' book might be in every family as a guide for the older members in their chats with the three-year-old members. There is no hint in this excellent essay that its author was acquainted with the Kindergarten at the time of writing, but evidently her own observation and reflection had led her to many of the same conclusions that influenced Froebel, the inventor of the Kindergarten system.

Mrs. Horace Mann's "Moral Culture of Infancy"—a series of letters written to a friend more than twenty years ago, and published in the same volume with Miss Peabody's "Kindergarten Guide," shows how her experience as a teacher led her to the same conclusions. She speaks of it as a groping attempt on her part after the Kindergarten. As a mother, I could not afford to be without this book, and I think we should have more careful and conscientious teachers, if it was circulated among them. Miss Peabody's "Kindergarten Guide" will give any one curious upon the subject, the best information of any work I know of (Weibe's "Paradise of Childhood" excepted) in respect to the Kindergarten. Her "Guide" costs a dollar. Weibe's book costs three dollars.

WHAT WILL THE KINDERGARTEN DO FOR US?—It is a "garden" for little children, between three and seven years old, to grow in. Instead of a teacher or instructor to repress the natural activities of childhood while endeavoring to pour knowledge into the youthful mind, the little ones have a "Gärtner" (gardener) to keep the soil of this world's influences loose and genial about them, to see that all have a fair chance to be happy in the sunshine of love and congenial employment, to sprinkle and nourish with words fitly spoken the tender germs of the intellect and affection. The great principle of the Kindergarten is "to educate *by directing the natural activities.*" Ignorant and heedless persons cannot do this, and carefully trained "Gärtners" are absolutely necessary to conduct Kindergarten.

I would describe here the different occupations of the Kindergarten, if sure that I had not already done so in the previous article. The paper which will contain it (editors and publishers permitting) has not yet come to hand. At present I will only try to answer briefly the question proposed above. The Kindergarten is the only safe and reasonable substitute for constant wise parental care, that we can see at present. No mother can give her child constant care if she has more than one child, or any other duties beyond its care. Even then the Kindergarten is better for the child, during the three hours of its daily session, than a mother's continual presence. Children over three years of age absolutely *need*, for their most healthy development, companions of their own age. But we cannot turn them loose into the street. The ordinary primary school will not do for children so young, and no book-lessons can take the place of Kindergarten culture. In the Kindergarten no books are used, except for the pictures. All the employments are actual "plays" to the child, but so well ordered, that they afford just the gradual and genial discipline best adapted for the early culture of the physical, mental, and moral powers.

The children "play" with blocks, or weave slats together, or cut paper into various forms, but instead of an aimless play, and useless, except in the way of diversion, they are gently led to build and cut and mark and mold with method and exactness. Unconsciously they learn to use correct terms and good language. Their eyes grow observant and their fingers skillful. When once we get free Kindergartens well started, we shall begin to see how we are to be supplied with good and faithful workers in every department of labor and art.

More than this will the Kindergarten do for us, but we cannot say more on the subject at present.

Portable Clothes-Drying Posts.

A correspondent of the *American Agriculturist* in this city, who has a small place in the country, is annoyed at seeing posts, for tying the clothes-lines to, standing permanently on the lawn. He asks if there is any invention of a movable character that will obviate the difficulty?—There are several patented contrivances of this kind manufactured. We have had one in use for some years that answers a good purpose, but do not recollect the name of the manufacturer. The difficulty, however, can be easily overcome by having movable posts, that can be placed in position for a few hours, when needed, and then taken down and laid away till next washing day. We give a description of such a plan that has been used for some years, and found to answer the purpose.

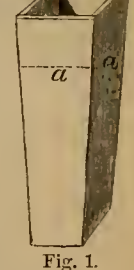


Fig. 1.

First make a box (fig. 1) of 1½ or 2-inch plank, 18 inches long, 7 inches square at the top, and 6 at

Fig. 2.—PLANK TO HOLD FIG. 1.

the bottom; next get a plank about 3 feet long, 2 or 3 inches thick, and 12 or 14 inches wide (fig. 2), in which cut a square hole which shall tightly fit the box at the dotted line, *a a;* next make a wooden stopper (fig. 3) to fit the top of the box (fig. 1); nail the box firmly into the plank (fig. 2), and plant them firmly in the ground, so that the top of the box is just level with the surface, ramming the whole well down. Make the end of your clothes-post to fit the socket (fig. 1), and,

Fig. 3.

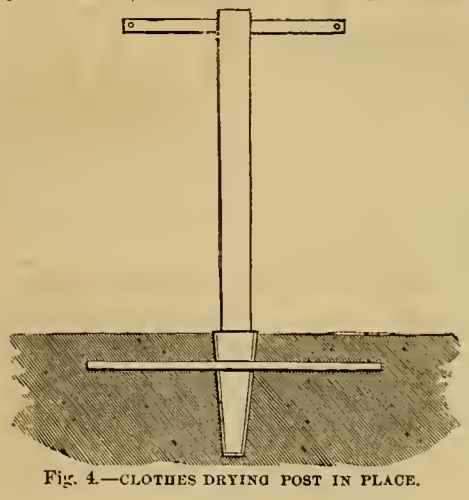


Fig. 4.—CLOTHES DRYING POST IN PLACE.

when you remove it, be careful to cover the hole with the stopper. Fig. 4 shows a section of the whole when fixed for use.

Hints on Canning Fruit.

BY ESTELLE EDGERTON.

The season when fruit will be plenty is fast approaching, and those housekeepers who have seen how much their canned fruit was enjoyed the last winter, will be making calculations to put up a large supply the present summer. There is nothing healthier, and really, hardly anything cheaper, than canned fruit.

It may seem unnecessary to those who are already adepts at the art to write anything on this subject; but I can assure such, that there are hundreds of bushels of fruit spoiled every year in this town alone.

A lady not long since was telling me that last fall she put up three baskets of as handsome peaches as were ever gathered, and every bottle was spoiled. I constantly hear the ladies talking about their spoiled fruit. There is another remark I often hear, and which seems absurd to me. It is this: "My fruit always white-molds, and I think it improves it." There *is* a thick leathery white mold, which often forms on the top of the fruit, and which can be removed whole without affecting, apparently, the flavor of the fruit; but it is not desirable to have even this sort of mold. It would be out of the question to send such bottles to a long distance, as the mold would be spread all over the fruit, if it did not impart any unpleasant flavor. There is such a thing as having bottled fruit without any mold whatever. I think the reason white mold forms, is, that the lid of the can is not applied soon enough, and many ladies consider this as part of the process. Only yesterday a friend told me that she always waited three or four minutes after the fruit was in the bottle before putting on the lid. "It lets out the air," she said. I looked surprised. "You know there are always bubbles of air that have to come up." "Oh, yes!" I said, "I know; but always run a knife quickly down the inside, and that brings them up." The quicker the lid is applied, the better, and it should not be disturbed until you want to use the fruit.

In regard to the air-bubbles, which often form while the bottle is filling, a little care will obviate the difficulty. In putting the fruit into the bottle, do not pour in such a way as to close the whole mouth of the bottle, because that prevents the escape of the air; but rather let the fruit slide gently down the side of the bottle. It can be done just as quickly this way as the other.

The secret of having bottled fruit keep, is to have a perfectly air-tight cover, and to be sure that the fruit perfectly boils all throughout, before putting it into the bottles, and then to be quick about putting on the cover, and letting the cover alone, until you want to use the contents of the bottle.

It is not necessary to let out the steam or air, after the cover is on. Do not place a string under the rubber for this purpose. Do not insert a penknife under the rubber (according to some directions) to let out air (I know a lady that learned this lesson after her peaches had all fermented). It is not necessary to bury the bottles in the earth, or to have a dark vault made in the cellar for the purpose. Mine keep perfectly, without mold, on a shelf in a rather light cellar. If you bottle your fruit in the right way, it will keep almost anywhere, but by the stove; if you don't *do* it right, and let in the air with a knife, or some other way, it won't keep, no matter where you put it. Of course, if you have not done it right, it will keep longer in a dark, cold place, but it will succumb to the atmosphere in the end. Bottled fruit put up in a proper manner will keep for years, if desired. I had some splendid peaches at a friend's the other evening, and she said she did not know whether they were two or three years old. But she *knew* they were not last year's, for she did not put up any, as she had used up all her empty bottles for cherries, plums, raspberries, etc.; and as she had several bottles of peaches on hand, she did not think it necessary to buy more bottles for a fresh supply.

GREEN CURRANTS—TO BOTTLE.—These are nice for pies, and many housekeepers put up a large quantity. Strip them from the stems. Allow six ounces of sugar to the pound of fruit, or about one pound of sugar to three pounds of currants. Put a layer of sugar and currants in the kettle until two-thirds full; set on back of stove, or in the oven, until the sugar melts and the juice starts. Now let them come to a boil, stew them awhile, if you wish, or bottle as quickly as possible; they must be boiling when bottled. Common, small-mouthed bottles will do. The corks should be cut off smooth and even with the glass, and waxed neatly.

GREEN GOOSEBERRIES—TO BOTTLE.—Remove the stems and blows, and allow about a half pound of sugar to a pound of berries. If you wish them whole, you will need a little water. Put a layer of sugar and gooseberries, and so on, and then water nearly to cover them, but not quite. Put the fruit into the bottles by the teacupful. Take them from the kettle solid in the cup, but allow some of the boiling juice, or they will chill. Have the bottle full of the berries, and then cover with whatever quantity of the boiling juice is necessary. If you want them made into jam, let them stew until a pulp is formed, and use no water. Ripe gooseberries are better made into a jam; a little less sugar than for the green ones is required.

RHUBARB, OR PIE-PLANT—TO BOTTLE. — Skin young and tender stems, and cut them into proper lengths. Allow a half pound of sugar (brown will do) to the pound of fruit. Stew it for some time, if you wish, or simply bring it to a boil, and bottle, sealing as quickly as possible.

TO BOTTLE CHERRIES.—I always stone the red sour pie-cherries; the large white look and taste better with the stone left in. Some persons consider the black Tartarian an unsuitable fruit to bottle. I put up a quantity the past year: they kept well and were delicious. I did some with stones, and some without. You may put them up with or without sugar. My way is this: To one pound of sweet cherries allow one-quarter pound of white sugar, and a little water. Bring to a perfect boil, and bottle.

PIE-CHERRIES—TO BOTTLE.—Stone them, allowing the juice to drop with the cherries. To a pound of fruit add nearly or quite a half pound of brown sugar. Let them stew until the sugar is reduced to a syrup, or until they look a little glazed. Now bring to a lively boil, and they are ready to bottle. Remember the invariable rule for all bottled fruit: seal quickly, while boiling hot.

STRAWBERRIES—TO BOTTLE. — Let them be as fresh as possible. Pick over, and reject every one at all decayed. Wash thoroughly before taking off the stems. To every pound of berries allow three ounces of white sugar; use a porcelain or brass kettle. Put layers of sugar and fruit; no water, until you have sufficient in the kettle. Put them on a slow fire, and stir them constantly until reduced to a jam. Let them stew until the jam looks glazed, then boil up and bottle. If you wish them whole, take the juice drained from the berries, and the sugar, no water, and boil well together. Then add the berries, and as soon as the fruit boils, bottle. Strawberries, done whole, change color badly, besides the husks from the seeds show unpleasantly in the syrup. I prefer to make a jam of them.

RED RASPBERRIES — TO BOTTLE. — One short quarter pound to a good pound of fruit; put in layers in the kettle, and reduced to a jam; stewed awhile, brought to a boil, and bottled. Excellent.

BLACK RASPBERRIES.—The same as red. They make delicious pies.

RED RASPBERRY VINEGAR.—Put a quart of good vinegar over two quarts of berries. Let them stand over night, strain, and pour the juice over two more quarts of berries; stand over night, then strain again. To every pint of juice allow a pound of white sugar. Let it come gently to a boil, and bottle for use in small-necked bottles. One tablespoonful to a glass of ice-water makes a refreshing summer beverage, and is also excellent for invalids.

Washing Dishes.—Mrs. E. Ward, Knox Co., Ill., 1871, writes: "In your March number, Mrs. W. Y. gives her process of washing dishes, which I approve of, except the pouring of hot water upon the soap. I like to put it in after I cool the water. Young people are apt to waste it in hot water. I wish to say to Mrs. W. Y., that I have a process for washing dishes which *I* always follow, and teach it wherever I can. After removing the bits from the dishes with a knife, I have about two quarts of hot water in a small pan; I then take my wisp of broom-corn, which I always have near my dish-pans, holding the dish with the left hand, not putting it in the water, but cleansing it with the wisp from all bits and grease, which are very objectionable to me, even in my large pan of soapy water. I must add here, that these wisps (which are made of broom-corn, tied into bundles as large as a broom-stick, or larger, by two strong cords near the coarse ends, which form a handle) are indispensable in cleaning kettles and frying-pans. I never allow myself to be without two or three, handy. I find them good in cleaning window-sash. In fact, if a housekeeper would use them one month, she would wonder how she ever lived so long without such a convenience.

Corn Bread.—2 teacups of sweet milk, 1 egg, 1½ teacups wheat flour, 2 teacups Indian meal, 2 tablespoonfuls of sugar, a little salt, 4 teaspoonfuls of Cream Tartar put on with flour, 2 teaspoonfuls of soda dissolved in warm water; add this the last thing. Bake in gem pans in a quick oven.

Carrie's Pudding. By "W."—Cut any nice stale cake into squares or thick slices, and pour over it a soft boiled custard, flavored with lemon or vanilla. Serve when cold.

A Refreshing Summer Drink.—A friend states that the most thirst-quenching drink that he found during the unusually hot summer was strong cold black tea, to which lemon juice and sugar were added in quantities to suit the taste. We have often used cold or iced tea, and found it an exceedingly grateful summer beverage.

BOYS & GIRLS' COLUMNS.

Fishing.

BY "CARLETON."

I need not ask the boys if they ever have been a-fishing: of course they have. If there is a lad anywhere in the United States who never dropped a hook and line into the water, and felt a nibble, and pulled up a perch or horned pout, he don't know what fun is. I have a vivid remembrance of the first time I tried my hand: it was not with a hook and line, however, but with a spear. It was in the spring of the year, when the birds were singing, the frogs peeping, and the suckers were beginning to make their appearance in the meadow brook, and my elder brothers were getting their billets of pitch wood in shape for a grand spearing excursion on the first calm night. They talked about it so much that I caught the fever, and sallied out one sunny afternoon in May, with a one-tined spear, which I had made myself, by driving a nail into a broom handle and filing the nail to a sharp point. I hastened down to the brook side, but saw no suckers nor perch nor pout. There were frogs by the score, swelling out their throats and winking at me with their great goggle eyes. "You won't wink at me in that way much longer," I said, as I let my spear drive at a great pot-bellied fellow, who leaped into the water *ker-chug*, and I followed him *ker-splash!* The bank was slippery, and I had not calculated the distance carefully, and unexpectedly found myself up to my arms in mud and water. I crawled up the bank and went home, thinking that there wasn't much fun in spearing.

I can remember the time when I caught my first fish as plainly as if it were only yesterday. I see the pond, although it is far away; the water is still: there is not a ripple upon the calm surface; the boat lies motionless. I have a little alder fishing pole, and there is a squirming mud worm on my hook. Ha! there is a nibble. An electric thrill runs through me, from the ends of my fingers to the soles of my feet. There is a heavier pull.

"O ——o, wasn't that a big one?" The O is several seconds long. Another pull, and the little alder pole bends with the weight. "I've got him! I've got him!" and the echoes come back from the wooded shore—"got him."

"O ——o, ain't he a *lunker?*" You need not look into the dictionary to see whether or not that is a choice word; but whether in the dictionary or not, the people of my native place used it when they wanted to describe a big thing. Are you impatient to know how large the "lunker" was? Well, it was a shiner, fully four inches long!

I think that I hear a haw-haw-haw from all the boys from Maine to Nebraska. Laugh away my lads, for I love to hear a good, jolly laugh from a wide-awake boy, even if it is at my expense. It is sweeter than anything else I know of, except the laughter of the girls. I like that a little better.

I have caught many fish since then that weighed more than that shiner, but I never have caught a fish so big—one that seemed so big, I mean. I caught that day a half-dozen perch and a pout, but I shall never again experience a thrill of pleasure like that which flashed through me when I pulled up that shiner. I have seen whales in the Atlantic and in the Pacific Oceans since then that were puffing, blowing, and spouting—one that was forty feet long, but he did not seem to be near so large as that first shiner. How proudly I walked home from the pond, carrying my string of fish, running ahead to let the folks know what I had done. "See there! O ——o, ain't they big ones?" I do not believe that Wellington at Waterloo, or General Grant at Appomattox, felt prouder than I on that eventful day, when I caught one shiner, three flat sides, six perch, and a pout. It was like capturing the "horse, foot, and dragoons" that we read about in the war books.

I have fished many times since then, and have caught pickerel, ponts, eels, cod-fish, and mackerel, and once I caught a great turtle in a funny way—by the tail with my hands. I was in Minnesota, on a beautiful lake, in a row-boat, with a long line trailing from the stern, trolling for pickerel, and was pulling them in one after another—great fellows with wide mouths, and voracious jaws, that made the water fly when they took the hook. A young Norwegian was rowing the boat, and we were gliding gaily over the lake, when suddenly I saw something black floating on the water, and as we came nearer, discovered that it was a great turtle, taking a morning nap. He was lying on his back, but waked up suddenly, flopped over with his face downward, and made a dive for the bottom; then, as if only half awake, and not knowing what he was about, he rose slowly to the surface. I could see him rising. He was a monster—an old settler—so old that his back was all covered with green moss like the shingles on an old building that has braved the storms of a hundred years.

"We'll have him yet," I whispered to the boatman, who worked the oars noiselessly, and sent the boat stern foremost toward the spot. I looked down into the water and saw the old fellow slowly rising. Up—up—up—he came.

"One more stroke," I said, and the boat shoots ahead to the very spot. He is at the surface: I grab him by the tail, and lift with all my might. The boat goes over, but a quick backward spring saves it from turning bottom-side up. Another lift, and he is mine. He is in the boat, flopping and floundering. The boat is half filled with water, and the turtle is making at me with his jaws wide open, hissing, snapping, snarling, digging his great scaly claws into the side of the boat. The frightened Norwegian is dancing about at the other end, ready to leap overboard. It is an exciting moment. Let the turtle but once get his jaws hold of my flesh, and it would take an iron bar to open them again.

He is making at me. I seize an oar, for defence. I must whirl him upon his back, and then I can master him. He bites the wood into splinters, in a twinkling. But at last I have him on his back, the oar upon him, the boat-chain around his legs, and so with our prisoner snapping and hissing me, work our way to the shore, and find, when we weigh him, that he is a forty-eight-pounder—one of the largest fresh-water turtles probably that ever were caught. That was fun worth having, and the eating in our camp at night was worth having also. And here let me give you a bit of advice in regard to turtle-catching—always grab them by the tail!

Aunt Sue's Puzzle-Box.

Instead of giving one prize for the longest list of correct answers, I shall give four sets of anagram-letters, to be drawn by lot, for the solution of all the anagrams. I receive a great many letters containing answers only to the anagrams. I should like to reward each one, but that would be a little too much of an undertaking. So I shall draw four names for this month's anagrams, and give to each one drawn, a prize. Answers to these must reach me before the first of July. Those received later will not be credited.

Address AUNT SUE, Box 111, P. O., Brooklyn, N. Y.

ANAGRAMS.

1. Sure bond.
2. Comet is dated.
3. A fed horse.
4. Is soda, gin?
5. O! bail a ring.
6. C. torn side.
7. I can apples.
8. Never no wit.
9. O! go finger.
10. Featherer.

WORDS ENIGMATICALLY EXPRESSED.

11. What vessel? TEMPY.
12. A warm letter.
13. Greasy pronoun.
14. Observe an instrument with teeth.
15. A foolish weight. HOPPER.

MULTUM IN PARVO.

16. Out of what one pronoun can you get nine pronouns inclusive?

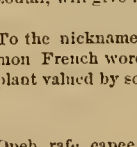
DIAMOND CROSS PUZZLE.

17. 1. The capitol of Norway. 2. A fish. 3. A cutter. 4. A city. 5. A color. 6. Great anger. 7. The tail of a bird. The center letters, perpendicular, will name a great city, and the center letters, horizontal, will give the name of the State it is in.
ADOLPH M. NAGLE.

18. To the nickname of a great statesman add a common French word, and a wild beast, and make a plant valued by some for its medicinal properties.
M. RICHARDSON.

PI.

19. Opeh, rafe, capee dun trisef
Kame pn hist gedlant bew fo file. A. R.

20.  Lay down 24 matches, forming 9 squares, as in the accompanying diagram. Now, take away 8 of the matches, without displacing the rest, and leave two perfect squares.

ALPHABETICAL ARITHMETIC.

The following is a simple sum in division; letters are substituted for figures:

21.
ENP) DIEOA (GEP
NTG

ODO
OME

GGA
ENP

OM

CHARADE.

22. My first is a vehicle, my second the nationality of its driver, my whole the casing of the room he lives in.
TEMPY.

RIDDLE.

23. There are two nicknames, both well known,
One of sister, one of brother
Place a vowel before each one
(Each vowel, mind, unlike the other),
And lo! a wondrous organ,—human;
Can our puzzlers guess the true one? TEMPY.

410. *Illustrated Rebus.*—A saying which many unfortunately find true.

PUZZLE.

Find the word out of which the following sentence was made:

24. A modern Matron had on a Roman garment, and tore the hem on a thorn.

ANSWERS TO PUZZLES IN THE APRIL NUMBER.

ANAGRAMS.—1. Innumerable. 2. Turmoil. 3. Imagined. 4. Universal. 5. Wearied. 6. Builders (this was often answered with "Rebuilds," which I credited as good). 7. Ransacked. 8. Retrospect (several young ones answered this—"Protecters," and then informed me that it should have been "—ors"). 9. Blemishes. 10. Entangle. 11. Black, white: brew, lash, alibi, currant, kayle. 12. Barbarous. 13. Taintless (J. A. B., and others send "nevertheless," which is equally correct and more elegant). 14. Microscope. 15. Intwine. 16. Farthing. 17. Figure. 18. (There was an error in this puzzle, so I shall republish it, amended.) 19. Share, hare. 20. Bear, ear. 21. Heel, eel. 22. Bass, ass. 23. Goat, oat. 24. Rice, ice. 25. Spike, pike, Ike. 26. Sea-lion. 27. Promise little and do much.—406. One ought to manage, arrange, and superintend all his own business.—407. Fort Wayne (four twain). (This Rebus has met with universal approval).

Correct answers to more or less of the puzzles have been sent by Willie Webster, M. St. John, Susie H., M. C. S., M. Soule, J. L. W., J. Corbett, F. W. H., N. Y.

411. *Illustrated Rebus.*—Words used by the weather-wise or otherwise.

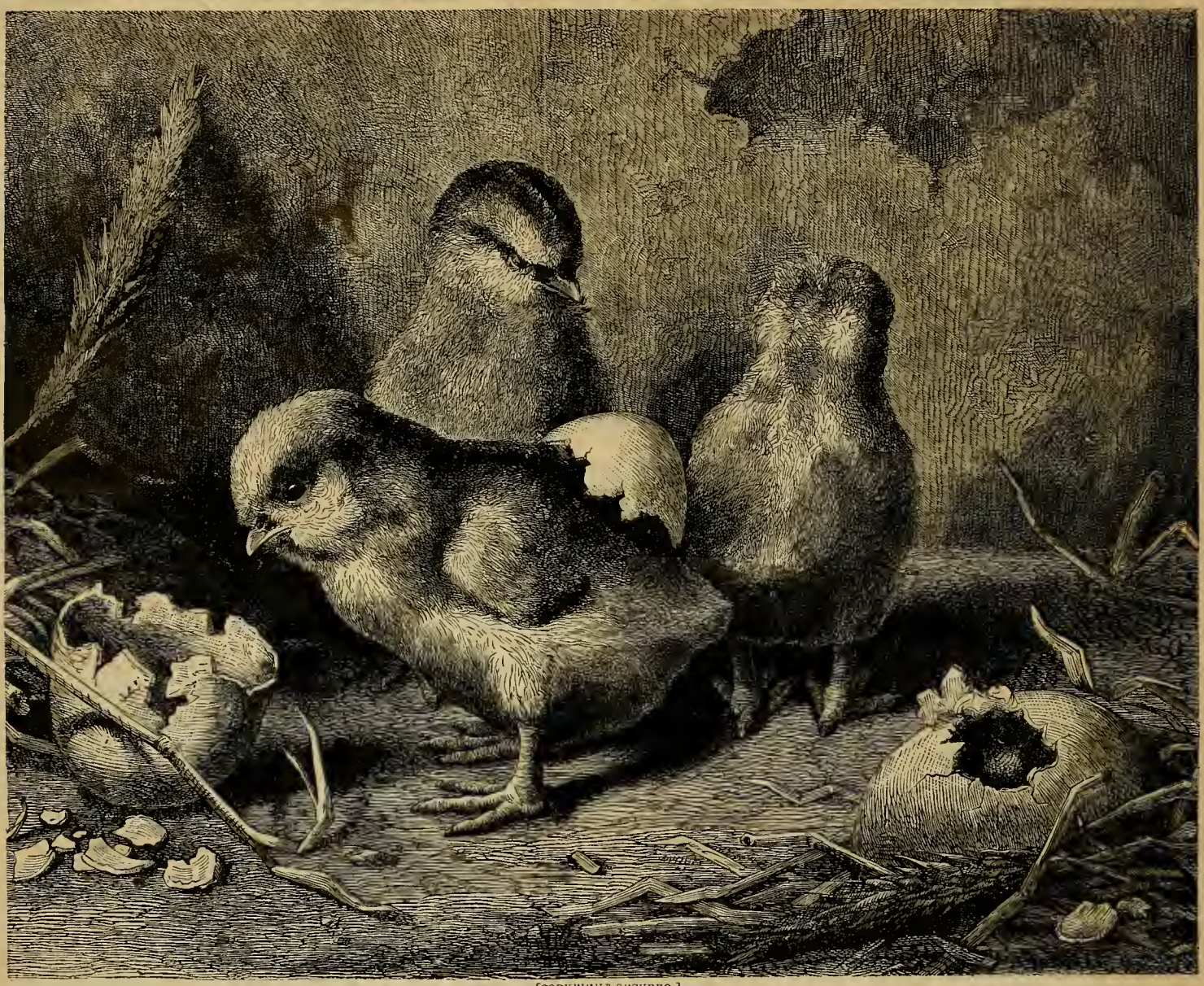
H., J. E. S. D., A. A. M., C. A. S., S. L. D., W. Taylor, W. H. R., Laura E., M. T., O. A. G., M. C., W. H. & S. G. K., J. H. B., Gipsy Jane, M. B. C., C. H. K., R. B. E., J. W. L., Emma D., H. E. P., M. St. J., J. P., W. W. Y., H. P., E. M. H., L. E. M., L. S. G., M. M. M., Ainslee Bros., U. H. W., B. W. P., and J. B.

AUNT SUE'S NOTICES TO CORRESPONDENTS.

J. A. B. Some of those "proverbial" words, I think, might be considered obsolete.

H. H. CLARKE. Thanks for your puzzles, which are very good. It is quite a relief to not find any numerical enigmas nor cross-word enigmas among them. I should prefer giving the puzzlers your first item to square, rather than describe each word, if yo have no objection.

NEVVY. "Rich" and "pretty." Bless me! it must be some other party. But proceed to "cultivate," I'm willing. Give my love to your "mother" for the "sister's" sake.



JUST HATCHED.—*Drawn and Engraved for the American Agriculturist.*

MAOGIE C. The idea of addressing your Auntie as "Dear Sir!"

MOCKING BIRD and JENNIE FOSTER. The way to find out "how to solve" any puzzle is to study the answer and the puzzle together.

BLUE BIRD thinks that HAUTBOY must subsist on "*stews* and *soups*;" perhaps that is what makes him such a "broth of a boy." I believe that is complimentary; if not, I take it all back.

ANDREW M. G. How you must enjoy having *earned* your paper, when many boys, who are not "cripples," don't earn their salt.

LILLIE S. GOTWALT. Can you tell me why young gentlemen who answer puzzles, like to sign young ladies' names?

B. W. P. The "prize" has been a gold pen, to gentlemen; but you will see a change in the prize programme with this number.

JOHN C. WATSON. Do you know how fortunate you are to have a mother who is willing and who has the time to enter into your amusements?

TOCCOA COZART. (Have we an Indian among us! Whence came such a name?) You are welcome to our "charmed circle." I cannot tell you "the age of my oldest correspondent," but I am proud to say that some of them are grandmothers and grandfathers. Some are so young that they print their little letters; and some younger yet get their sisters or other relative to write for them. One little chap, in his dictation, said: "*Tell Aunt Sue I falled in the water.*" I like to have the little ones make a household word of "Aunt Sue."

WILLIE S. ON. What is the matter, dear, with "Betrothal?" Suppose you look in your big dictionary and make your mind easy.

HAROLD FROTHINGHAM sends 258 words made from the word "valentines." Can any one make more words out of that one, or out of any other word of ten letters? I fancy they can. (He does not use the plurals except when they have a different signification.)

H. W. OTIS. Thanks for your puzzles and rebuses, so good, and so modestly presented.

HORACE MILLER. Did you receive your anagram letters?

MAOGIE D. C. Yes, dear, your answers were quite right as far as they went.

MT. VERNON. (No signature.) You must remember that the *Agriculturist* is issued long before its date.

Thanks for Puzzles, etc., to B. W. P., S. L. D., E. L. C., Aunt Molly, G. M. B., G. B. C., and W. W. Y.

THE PRIZE.

I have been very much exercised this month upon the question of who deserved the prize. First came S. L. Dimon, who answered all but Nos. 17 and 407; then Blue Bird, who misses 16 and 407; then Star and Crescent, who misses 27 and 406. Now come Lillie Streeper and John A. Boston, who both fail on 407; and now we have three who answer the whole list (leaving out No. 18, of course, as it was faulty). Nevvy, W. F. Curtiss, and O. B. Joyful. O. B. J. gives the original answer to No. 13, and I suppose I *might* decide that he wins the prize; but Nevvy and W. F. C. give "knotless," which is certainly unexceptionable. So I have concluded to give each one a gold pen, instead of drawing lots.

THE ANAGRAM PRIZE was drawn, from among fifty-two names, by Clara R. Taylor, Oakfield, Genesee Co., N. Y. I hope the pleasure that the other fifty-one took in solving the anagrams will compensate them for their trouble in writing the answers.

Just Hatched.

The above picture was made for you, Boys and Girls; but I wonder if any of you will be as much amused with it as I was when I first saw it. You may think it strange that one old enough to be your grandfather can find amusement in a picture for children. You must not suppose, that we old fellows are going to let you young ones have all the fun. Now, is not there something right funny in the expression of the little chick that is looking at the broken egg-shell. His countenance says as plainly as can be, "Did I come out of that?" "How did I ever get into "such a little brittle cell?" Poor chicky, he is only puzzling himself about that which has proved too much for much larger bipeds without bill and feathers. We daily hear and read of wonderful discoveries and mysterious things, but after all there is nothing more wonderful than the egg we eat at breakfast. If we examine it ever so closely, we find in it nothing like a chicken, and not the least sign of life. Yet twenty-one days under the hen brings out of the shapeless mass of white and yolk, bones, flesh, down, bill, and claws, and all these belonging to a living and moving thing! What are the most wonderful feats of magicians compared to this? The chick standing behind the first one has an air of wisdom. It was probably hatched some hours before the other, has seen something of the world, and looks with a feeling of contempt upon the later comer. It seems to me that I have seen something of this feeling shown by individuals who were not chickens. Then there is the little fellow that has picked his shell and has not come out. I wonder what it is thinking about. It evidently is not in a hurry to try the new world, the light of which has just come into its narrow dwelling. I think this not only a very pretty, but a suggestive picture, and I hope you will agree with—THE DOCTOR.

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NOTICES BY THE PRESS.

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It is the most complete and valuable work on the matters of which it treats yet published. It will be found a plain and sufficient guide to any one in any circumstances likely to occur, and is illustrated with elegant engravings of many breeds of fowls. *Farmers' Cabinet.*

This is a reprint, with numerous wood engravings, of an English book, the object of which is to convey in plain language a great deal of practical information about the breeding and management of poultry, whether for domestic use, the markets, or exhibition....The book is eminently practical, and we recommend it to farmers and others interested in breeding and selling poultry. *Philadelphia Press.*

It is a handsome volume, brought out in the best style, and enriched with nearly fifty illustrations. It is evidently the fruit of a thorough, practical experience and knowledge of fowls, and will be found a plain and sufficient guide in all the practical details of poultry management as a profitable business. *United Presbyterian.*

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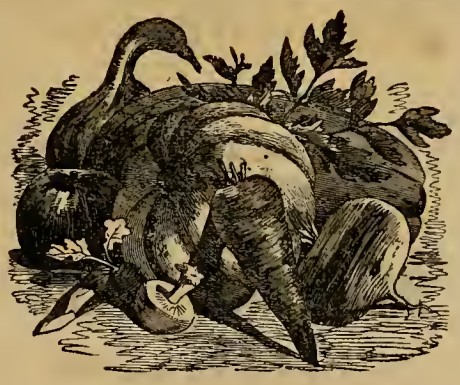

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VOLUME XXX.—No. 7. NEW YORK, JULY, 1871. NEW SERIES—No. 294.

THE WOODCOCK'S FEEDING GROUND.—*Drawn and Engraved for the American Agriculturist.*

Of all American birds the Woodcock is the most prized by sportsmen. Not only does its excellent quality upon the table commend it to their attention, but the skill required in finding its haunts, and the difficulty experienced in flushing it, are such that the true sportsman thinks more of bringing home a brace or two of woodcock, than he does of a bag-full of other birds. So secluded is the bird in its habits, that many ridiculous stories have been told about its manner of feeding. It is a popular notion that it feeds by "suction",—if any one knows what that means. The fact is that the Woodcock is mainly a nocturnal bird, only flying at dusk, unless startled from its covert by the approach of danger. Its principal feeding-time is also at night, unless in some densely shaded spot, where the daylight is obscured by an abundance of undergrowth. The favorite retreats of the bird are moist lands, where there is a heavy covering of ferns, briers, and similar wild growth. Its long bill is well adapted to probing the soft ground, and its senses are so acute, that it detects a hidden worm or grub with the greatest accuracy. It is sometimes found in woods, turning over the dead leaves in search of any larvæ that may be concealed beneath them. The Woodcock is an enormous feeder, and is said to devour in a single night a quantity of worms equal to its own weight. Its digestion is very rapid, as it is rare to find, upon opening the bird, any undigested food. In captivity the birds have been taught to take vegetable food by mixing soaked bread with worms. In searching after the worms the birds become accustomed to the vegetable food.

Contents for July, 1871.

INDEX TO "BASKET," OR SHORTER ARTICLES.

Calendar for July.

Day of Month.	Day of Week.	*Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon.* Sun rises.	Sun sets.	Mo'n sets.	*N. Y. City, Ct. 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	S	4 26	7 40	rises	4 32	7 35	rises	4 38	7 29	rises
2	S	4 26	7 40	8 8	4 32	7 35	8 2	4 38	7 29	7 56
3	M	4 27	7 40	9 3	4 33	7 34	8 58	4 39	7 29	8 53
4	T	4 28	7 40	9 47	4 33	7 34	9 43	4 39	7 28	9 39
5	W	4 29	7 39	10 25	4 34	7 34	10 21	4 40	7 28	10 18
6	T	4 29	7 39	10 54	4 35	7 34	10 52	4 41	7 28	10 49
7	F	4 30	7 39	11 20	4 35	7 33	11 19	4 41	7 28	11 18
8	S	4 30	7 38	11 43	4 36	7 33	11 43	4 42	7 27	11 43
9	S	4 31	7 38	morn	4 37	7 33	morn	4 42	7 27	morn
10	M	4 32	7 38	0 8	4 37	7 32	0 10	4 43	7 27	0 11
11	T	4 33	7 37	0 32	4 38	7 32	0 34	4 44	7 26	0 37
12	W	4 33	7 37	0 56	4 39	7 31	1 2	4 44	7 26	1 5
13	T	4 34	7 36	1 28	4 39	7 31	1 32	4 45	7 26	1 37
14	F	4 35	7 36	2 3	4 40	7 30	2 8	4 46	7 25	2 13
15	S	4 36	7 35	2 43	4 41	7 30	2 48	4 46	7 24	2 54
16	S	4 37	7 34	3 29	4 42	7 29	3 34	4 47	7 24	3 40
17	M	4 37	7 34	sets	4 43	7 29	sets	4 48	7 23	sets
18	T	4 38	7 33	8 32	4 44	7 28	8 27	4 49	7 23	8 22
19	W	4 39	7 32	9 7	4 44	7 27	9 3	4 50	7 22	8 59
20	T	4 40	7 31	9 38	4 45	7 26	9 35	4 51	7 21	9 32
21	F	4 41	7 30	10 7	4 46	7 26	10 5	4 52	7 21	10 3
22	S	4 42	7 30	10 33	4 47	7 25	10 32	4 52	7 20	10 32
23	S	4 43	7 29	10 59	4 48	7 24	10 59	4 53	7 19	11 0
24	M	4 44	7 28	11 26	4 48	7 23	11 27	4 54	7 18	11 29
25	T	4 45	7 27	11 55	4 49	7 23	11 58	4 55	7 18	morn
26	W	4 46	7 26	morn	4 50	7 22	morn	4 56	7 17	0 1
27	T	4 47	7 25	0 29	4 51	7 21	0 33	4 57	7 16	0 37
28	F	4 48	7 24	1 10	4 52	7 20	1 15	4 58	7 15	1 20
29	S	4 49	7 23	2 8	4 53	7 19	2 8	4 58	7 14	2 14
30	S	4 50	7 22	8 4	4 54	7 18	3 9	4 59	7 13	3 15
31	M	4 51	7 21	rises	4 55	7 17	rises	4 59	7 12	rises

PHASES OF THE MOON.

MOON.		BOSTON.	N. YORK.	WASH'N.	CHA'STON	CHICAGO.
	D.	H. M.	H. M.	H. M.	H. M.	H. M.
Full.....	2	8 52 m.	8 40 m.	8 28 m	8 16 m.	7 46 m.
3d Quart...	9	8 25 m.	8 13 m.	8 1 m.	7 49 m.	7 19 m.
New Moon	17	0 43 ev.	0 31 ev.	0 19 ev.	0 7 ev.	11 37 m.
1st Quart.	25	1 7 m.	0 55 m.	0 43 m.	0 31 m.	0 1 m.
Full.....	31	4 33 ev.	4 21 ev.	4 9 ev.	3 57 ev.	3 27 ev.

AMERICAN AGRICULTURIST.

NEW YORK, JULY, 1871.

The *American Agriculturist* was one of the earliest advocates of the plan for communicating by telegraph the state of the weather at different points of the continent. We were fully satisfied of its importance to the farmers of the country. And we cannot but rejoice that the Government is now furnishing daily reports to the papers. Probably a still more efficient system will, in time, be inaugurated by the use of signal guns. But even now, those farmers who take a morning paper can receive timely warning of the approach of a storm. We believe, however, that it would be well to tell us what the "probabilities" are for two or three days in advance. Farmers have not time to study out this matter every day for themselves, and we believe they would cheerfully excuse a good many mistakes if the meteorologist would give us his opinion of what the weather is *likely* to be for two or three days in advance. We do not expect certainties, but would like to know the probabilities. And it is nearly as important for us to know that the indications are favorable for settled weather, as to know that a storm is approaching. No sensible farmer will leave his hay out any longer than he can help. If it is ready, he will draw it in whether a storm is approaching or not. What he most needs to know is whether he had better cut his grass to-day or wait until to-morrow. After it is cut, the meteorologist can help him but little.

We are very differently situated in this respect from the English farmer. He does not ask when he shall cut his grass, but when he shall stir it. He often cuts in a rain, thinking that by the time he is through cutting, the rain may be over, and he shall have fair weather to make the hay. As long as the weather is damp or rainy, the fresh cut grass will not be injured in the swath, but after it is stirred and partly cured, then rain or dew is very injurious. But with us, grass cures so rapidly that we cannot allow it to lie in the swath or spread out on the ground. When it is cut we must attend to it—dry it as rapidly as possible and get it into cock. After it is in cock, it is sometimes a question with us, as it is in England, whether we had better open the cocks or let them remain as they are. It is at this point that we want to know what the weather is going to be for a few hours in advance. If by opening the cocks we can get the hay dry, and there is time to draw it in, it is best to open them; but if the weather is uncertain and the hay is well cocked, it is better not to disturb it.

Hints about Work.

Haying and Harvesting are supposed to be the most important work for July. There is a sense, of course, in which this is true. But if those of our readers who keep a daily record of their farm operations will turn to them, they will find that gathering the crops constitutes, notwithstanding its traditional and real importance, a very small part of the actual work of the month. With mowers, reapers (we wish we could add binders), tedders, rakes, and unloading forks, all run by horses, harvesting calls for the exercise of very different faculties than it did when the farmer, notwithstanding his many cares, found it necessary to lead the mowers and cradles in the hay and wheat field.

The most important work of this month is doing those things which we are constantly tempted to neglect. Among these may be mentioned:

The cellar, drains, sinks, privy, etc., must be kept clean. Dry earth is the best and cheapest disinfectant. For sinks and drains, use copperas or chloride of lime. The nights and mornings are frequently chilly. Make a little fire on the hearth, or in the stove. Go to bed early and get a plenty of sleep.

The health of our Animals.—The sickness and death of stock constitutes one of the greatest losses and discouragements of the farmer. The immediate cause of their death may be beyond our control, but in nine cases out of ten, the disease, if we search back far enough, might be traced to dyspepsia, derangement of the bowels, and general debility. Improper and irregular feeding, overwork in a hot sun, going too long without water, and then giving too much, are among the causes of bad digestion and general ill-health. And these are under our control.

Killing weeds is one of the most important labors on the farm, at this season. None should be suffered to go to seed, if it can be avoided without too great expense. At any rate, not a weed should be suffered in corn, potatoes, and other hoed crops.

Summer-fallows for Wheat are apt to be neglected this month. A good plowing or cultivating during this dry, hot weather, will kill every weed that has germinated. Heavy, cloddy land, that can be reduced and pulverized when completely dry, will not forget it for years.

Cultivating corn we regard as the most important labor of the month. There can no longer be any doubt that thorough and repeated cultivation will frequently add one-third to the yield, while the future condition of the land is greatly improved.

Hoeing corn is becoming less and less necessary, owing to the improvements in our horse-hoes and cultivators. We sometimes wish that the phrase "hoeing corn," or "hoeing potatoes," was banished from our agricultural vocabulary. We try to impress it on our own men that we do not want them to "hoe the corn." We want them merely to *hoe the weeds.* They would get over twice as much land in a day, if this simple idea could be got into their heads. We want every weed destroyed that the cultivator cannot reach—and that is all or nearly all that is required. Many men waste half their time faddling about the hills of corn, forgetting that we have cultivators that will do the work of hilling nearly as well as it can be done with the hoe, and for one-third the cost.

Hilling corn, notwithstanding so much has been said against the practice, still has many advocates among intelligent farmers. In our own case, we throw up a little soil to the plants early in July, in hopes of smothering some of the small weeds in the hill. About the first of August we go over the field, and hoe out such weeds as have escaped, and the soil that has been thrown up can be hoed away without injury.

Cultivating and Hoeing Potatoes.—There are few crops which suffer more from weeds than potatoes. They require more moisture than corn, and every weed robs the ground of moisture. The weeds are constantly absorbing, from the soil, water through their roots, and evaporating it through their leaves into the atmosphere. The weeds in many a field of potatoes, evaporate during our hot July weather, 500 gallons of water per day, per acre! And yet the farmer is complaining of drouth and sighing for rain! If possible, stop the weeds from growing at all, but if they have got possession of the land, destroy them at all hazards, even if it is necessary to disturb the roots and tubers.

Mangel Wurzel and other root crops, require abundance of moisture, and must be kept entirely free from weeds. And recollect that a mangel plant that is not needed is just as much a weed as a thistle, and will evaporate nearly as much moisture. Single out the plants early. In our own case, we leave only one plant every twelve or fifteen inches. If the work is done during rainy weather, vacancies may be filled out, as the mangels transplant as easily as cabbage.

Ruta-bagas should be cultivated, hoed, and singled out as soon as they are in the rough leaf. Single them out to a foot apart in the rows. Ruta-bagas may be sown as late as the middle of the month. After this, it would be better to sow white turnips instead. Dusting the plants, while the dew is on, with ashes, plaster, or lime, will check the ravages of the turnip beetle. After the plants get into the rough leaf, the danger is over, and all that need be done is to single out the plants and keep the land clean by the use of the cultivator and hoe.

Corn for soiling may still be sown. See directions for last month.

Timothy seed has been and still is very scarce and high. A crop of timothy that could not be cut early enough for hay, had better be left for seed. Cut it with a reaper and bind it into sheaves.

Barley was got in early and in good condition, but has been seriously injured by the drouth. It will probably be wanted at higher figures than for a year or two past. The best way to harvest it is to cut it with a reaper and bind into sheaves. But much of it will be too short for this, and will have to be cradled or cut with a mowing machine and raked up with a steel rake.

Peas can sometimes be cut with a mowing machine, or they may be pulled up with a wooden revolving rake. But it is a slovenly practice, and renders the haulm unfit for fodder. The better plan, with a good crop, is to mow it with scythes, and pull it into small cocks. Turn the cocks as often as needed. A well-cured crop of peas affords straw almost as valuable for fodder as clover hay.

Wheat should not be cut before all trace of "milk" has disappeared from the kernel when crushed between the thumb and finger; neither should it be left to get dead ripe. Much wheat is lost every year from careless binding and shocking. The farmer himself or one of his best men should attend to the shocking, and see that the sheaves are made into compact shocks that will shed the rain and not easily blow down.

Thrashing, where barn room is scarce, is best done as the grain is drawn from the field. Steam engines are yearly becoming more common, and will thrash the grain as rapidly as three or four wagons can draw it from the fields. If the grain is dry enough, so that it will not heat after thrashing, we can confidently recommend this plan. It saves all the expense and risk of stacking.

Turning over the grain after it is thrashed, should never be neglected. No matter how dry it may appear, it will sweat if not turned occasionally. If it gets heated, turn it at once, and then run it through a fanning-mill

Straw will be valuable this year. Much of it is usually wasted through careless stacking. If possible, put all the straw in one stack. The larger and higher it is, the less chance there is of its being damaged by the rain. *Keep the middle full* and well trodden down, and make the roof as high as possible. Better find that it is impossible to get all the straw on to the stack than not have enough to make a good, steep roof. In our own case, we thrash the wheat and barley as drawn in from the field. The oats are thrashed two or three weeks later, and by this time the straw stack is so settled that by spreading out the roof a little all the oat straw can be put on the top and make a good roof.

Recreation.—After the harvest is all secured, go a fishing for a few days and take a little rest! A farmer needs it if any one does.

Work in the Horticultural Departments.

Weeds will grow in spite of the heat and dryness, and a constant warfare must be waged against them. When weeds are hoed up and allowed to wilt under the scorching July sun, there is very little danger of their growing again, unless there is plenty of yellow docks. Never allow a weed to run to seed if it can be helped, as the garden can be kept free of weeds, to a certain extent, if they are carefully pulled up when small.

Orchard and Nursery.

Trees newly set last spring ought to be heavily mulched, as stated in article on page 262.

Insects will appear upon many of the trees in the orchard and nursery. It will require a constant watchfulness to prevent their ravages, both on the foliage and fruit.

Seeds.—As fast as fruits ripen, save the seeds, if it is desired to propagate. Seeds of many ornamental trees in the nursery require to be sown as soon as ripe.

Seedlings of evergreen and other forest trees require to be shaded from the hot sun by means of brush, or, what is better, a lattice-work of laths. A mulch of hay or straw between the rows of larger plants will prevent the growth of many weeds, and thus save much time and labor in weeding.

Grafts set in the spring will require looking after now, as the stock often sends out new shoots, which rob the cion of nourishment.

Layers may be made of vines and shrubs as soon as the new growth becomes firm. See page 263.

Suckers should be rubbed off wherever they appear upon budded or grafted stocks.

Cherries.—Care must be used in picking not to injure the bark or break any limbs.

Thinning of fruit should be continued this month, if not already finished in June.

Fruit Garden.

Where one has an abundance of small fruits, it will pay to preserve a good supply for winter use, by drying and canning.

Blackberries for home use should be allowed to become perfectly ripe before picking, as they are then much sweeter, and of a higher flavor; it is necessary to pick earlier where they are sent to market. Never allow the new canes to grow higher than five or six feet, and when the side branches reach a length of eighteen inches, pinch off the ends.

Raspberries.—The canes which bore fruit this season, should be cut as soon as the crop is off, and all but three or four suckers cut out, unless it is desired to propagate the variety. A good dressing of well-rotted manure spaded in between the rows is a great help to the growth of the plants.

Currants.—Where the currant worm makes its appearance, dust the bushes with white hellebore. Give the ground between the rows a thick mulch; it will save a great deal of time during the season in keeping weeds under.

Strawberries.—The season of these will be over by the first of this month, and the plants ought not to be neglected. Give a good compost to the beds, and where the plants are in hills, keep the runners cut off.

Dwarf Trees ought to have their fruit thinned. Pinch the growing shoots so as to give the tree a compact and symmetrical form.

Grape-vines.—If these have been properly trained and pruned when small, they will need nothing but a little pinching during the summer. Where the fruit shows any signs of decay, it ought to be cut out; and if a part in any case is taken out, the remainder of the fruit will be much finer. Young vines just planted must be kept tied up to stakes. Keep the ground free from weeds, and the soil well stirred. If mildew makes its appearance, use sulphur freely, applying it by means of a bellows. Some good work upon grape culture is very necessary to one who grows many vines.

Kitchen Garden.

A full crop of garden vegetables will reward the cultivator this month for the time and care used in their cultivation; and it is the fault of the gardener if he does not have fresh vegetables upon his table every day until cold weather. Where the surplus products of the garden are marketed, they ought to be gathered late in the afternoon, and kept cool, and then taken to market early the next morning. If a farmer has land within a short distance of a good market, he will find that it will pay him to devote his attention to the growing of early vegetables.

Asparagus.—No cuttings ought to be made from the asparagus bed at this season, but encourage the vigorous growth of tops by a good covering of manure. Where seed is wanted for making new beds, select a sufficient number of strong plants; gather the seeds as soon as ripe, and sow early next spring. Weeds ought not to be allowed to grow in the bed, but kept down by the constant use of the hoe or rake. If the asparagus beetle appears, cut off all the tops infested by them, and burn.

Beans.—Bush beans may still be planted for pickling, or for late use as string-beans. Those now growing should be hoed frequently; do not hoe until the dew is off. Limas must be kept pinched after they have reached the hight of the poles; five or six feet is high enough.

Beets.—A late crop may be had if sown early this month. Keep those already growing free from weeds, and pull the young plants where they are too thick, and use for greens. The ground ought to be loosened frequently between the rows, so that the plants may be kept in a growing condition.

Cabbages and Cauliflowers.—Set out late sorts in well-manured soil. Hoe those already planted, and give a little top-dressing of guano, or a watering of liquid manure to encourage a rapid growth.

Celery.—Set out in freshly-stirred soil, wetting the plants before setting, and pressing the earth firmly around the roots. Put the plants six inches and the rows three feet apart.

Carrots.—Allow no weeds to grow, but keep the ground well stirred until the tops are large enough to cover the ground.

Corn.—Some of the early varieties may be planted now for late use. Keep the cultivator in frequent use among that already growing. Plant enough to have a quantity to dry for winter use.

Cucumbers.—Keep the plants already up free from weeds, and sow for pickling early this month.

Egg-Plants should be forwarded as fast as possible, by hoeing and giving a good watering of liquid manure at least once a week.

Endive may be sown for a late crop of salad.

Herbs ought to be cut when they flower, tied in small bundles, and allowed to dry in the shade.

Lettuce for late use may be sown in a shady place. Silesian is a good summer sort.

Manure.—No garden ought to be without a good cask for liquid manure; the house slops can also be very beneficially applied to growing plants. If there is no liquid-manure cask, the slops should be applied to the compost-heap.

Melons.—The weeds ought to be destroyed as soon as they appear between the hills, and the ground loosened with a hoe or fork.

Onions require to be well hoed and weeded, and where too thick thinned out.

Peas.—Sow for succession; they should be plant-

ed deep, and only the early varieties should be sown.

Potatoes.—The early varieties may be harvested this month, and the space filled with late cabbages, lettuce, or turnips.

Rhubarb.—Do not exhaust the plants by allowing them to throw up flower stalks. Give the beds a thick dressing of stable manure.

Squashes.—Keep the plants free from weeds, and pinch the ends of the shoots that run too far.

Sweet-Potatoes.—Do not allow the vines to root, but move them often, and keep down all weeds.

Seeds.—It is usually better to procure seeds from some reliable seedsman than to attempt to raise them. Where one grows his own seed, preserve only the best plants or roots.

Tomatoes must be kept hoed until the vines are too large. Place brush or a mulch of hay around the plants to keep the fruit from the ground. Destroy the green worm which is so destructive.

Turnips.—Sow for winter use. Keep the early sown varieties free from weeds, and thin.

Weeds should be killed as soon as they appear above the surface; an iron rake is very effective, as is also a push hoe.

Flower-Garden and Lawn.

Everything in this department requires constant attention to ensure neatness. All tall growing plants must be tied to stakes or trellises, and dead flowers, weeds, etc., carefully removed. The lawn will need to be kept mowed so as to give it a soft, velvety appearance.

Annuals sown last month may be transplanted from the seed-bed to the flower garden, arranging the taller growing ones at the back side, and the low ones in front.

Carnations should be tied up to neat stakes; make layers and cuttings.

Dahlias growing in pots may be put out; set the stake at the same time, and keep carefully tied up during the summer.

Gladiolus should be tied to stakes to prevent being broken by high winds.

Gravel walks.—Keep clear of all weeds, and where the gravel has become thin apply a new coating. The edges of the paths must be cut with an edging-iron to prevent grass from growing into the walk.

Propagation.—Many of the ornamental shrubs may be propagated from cuttings of the new growth, set in a light soil in a shady place.

Rhododendrons may be preserved from injury by the drouth by supplying them with a good mulch.

Perennials.—Sow the seed of these as fast as they ripen in a light, rich soil.

Potted Plants.—Do not allow plants in pots to suffer from dryness; the best way is to plunge the pots in the soil.

Roses.—Keep the climbing varieties tied to trellises. Layers may be made from the new growth this month. Use sulphur for mildew.

Verbenas and other low growing bedding plants ought to be pegged down so as to give a better show of flowers, as well as for the sake of neatness.

Weeds.—A constant fight must be kept up with the weeds; never allow a weed to grow among the flowers.

Greenhouse and Window Plants.

All plants left in the greenhouse or house ought to be carefully watered, and during the middle of the day shaded. The shading in the greenhouse is best effected by means of whitewashing the glass. Give plenty of air during warm days.

Budding may be performed whenever the bark of the shrubs will lift.

Callas.—Re-pot after flowering, and give only a small quanity of water.

Earth.—Get a stock of potting earth ready for winter use, and store in a cellar or damp place to prevent drying.

Potting.—All cuttings which are rooted must be potted before they become drawn; shade for a few days until established.

Propagation.—Cuttings of plants wanted for winter blooming ought to be started in time to get well established before fall.

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 15, 1871, 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.	271,000	3,151,000	2,816,000	87,000	41,000	1,413,000
25 days *last* m'th.	225,000	875,000	664,000	26,000	129,000	147,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
27 days *this* m'th.	247,000	2,745,000	2,933,000	65,000	23,000	1,156,000
25 days *last* m'th.	254,000	1,517,000	1,281,000	31,000	216,000	908,000

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

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
27 days 1871	271,000	3,151,000	2,816,000	87,000	41,000	1,413,000
25 days 1870	361,000	2,389,000	664,000	263,000	201,000	817,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
27 days 1871	247,000	2,745,000	2,933,000	65,000	23,000	1,156,000
25 days 1870	267,000	2,988,500	1,137,000	78,000	40,000	1,228,000

3. *Exports from New York, Jan. 1 to June 15:*

	Flour.	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
1871	871,090	6,153,732	3,200,638	31,919	78,843	14,889
1870	727,097	5,435,282	13,519	36,595	——	9,378
1869	420,294	3,802,539	1,328,869	——	——	49,401
1868	403,556	2,580,305	3,559,097	153,093	——	99,008

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

1871.	*Wheat,* bush.	*Corn,* bush.	*Rye,* bush.	*Barley,* bush.	*Oats,* bush.	*Malt,* bush.
June 12	230,370	292,188	114,783	3,480	334,159	142,572
May 9	283,700	259,245	160,734	50,725	376,224	171,933
April 10	211,871	180,947	150,964	164,393	709,363	171,897
March 13	1,523,785	204,388	150,514	529,319	1,133,897	218,231
Feb. 13	2,203,677	311,471	148,498	481,863	1,109,995	215,124
Jan. 16	3,685,116	272,618	157,730	554,491	1,736,936	216,894
1870.						
Dec. 15	3,060,762	208,319	148,069	500,897	2,085,137	231,129
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	1,659,658	237,453
Sept. 12	1,387,487	761,891	50,869	107,174	1,053,679	130,881
Aug. 8	1,138,876	589,973	25,137	106,101	691,766	19,046
July 11	1,281,913	483,540	28,816	98,600	655,068	109,478
June 7	706,178	69,845	21,891	94,630	488,143	108,775

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.
1871	48,500	2,511,500	2,093,800	38,200	29,700	593,500
1870	83,400	1,900,600	127,700	41,200	78,900	382,500
1869	28,500	1,531,000	718,000	124,400	11,800	519,600
1868	65,700	3,684,900	3,297,400	119,200	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	61,300	41,700	898,700
1865	94,100	547,900	731,800	51,000	114,300	1,944,300

CURRENT WHOLESALE PRICES.

	May 15.	June 1.
PRICE OF GOLD	111¾	112¾
FLOUR—Super to Extra State	5 40 @ 7 00	$5 50 @ 7 00
Super to Extra Southern	5 65 @ 9 75	6 75 @10 25
Extra Western	6 00 @ 9 75	6 20 @10 25
Extra Genesee	7 00 @ 8 75	7 10 @ 8 75
Superfine Western	5 40 @ 5 90	5 45 @ 6 00
RYE FLOUR	4 20 @ 6 10	4 20 @ 6 10
CORN-MEAL	3 25 @ 4 20	3 25 @ 4 20
WHEAT—All kinds of White	1 60 @ 1 90	1 60 @ 1 85
All kinds of Red and Amber	1 32½ @ 1 62	1 45 @ 1 65
CORN—Yellow	81 @ 83	76 @ 78
Mixed	79 @ 82	69 @ 76
OATS—Western	65 @ 70	65 @ 70
State	67½ @ 69	66½ @ 67½
RYE	1 05 @ 1 21	1 02½ @ 1 15
BARLEY	75 @ 1 20	Nominal.
HAY—Bale ₱ 100 lbs	1 00 @ 1 45	1 00 @ 1 40
STRAW, ₱ 100 lbs	80 @ 1 65	85 @ 1 95
COTTON—Middlings, ₱ lb	15¾ @ 16¾	20¾ @ 20¾
HOPS—Crop of 1870, ₱ lb	6 @ 12	7 @ 13
FEATHERS—Live Geese, ₱ lb	65 @ 75	65 @ 75
SEED—Clover, ₱ lb	9¼ @ 9¾	10 @ 10½
Timothy, ₱ bushel	3 50 @ 4 00	3 50 @ 4 00
Flax, ₱ bushel	2 12½ @ 2 20	2 30 @ 2 45
SUGAR—Brown, ₱ lb	8¾ @ 10¾	8¾ @ 10¾
MOLASSES, Cuba, ₱ gal	20 @ 45	20 @ 45
COFFEE—Rio, (Gold, in bond)	10 @ 13½	10 @ 13½
TOBACCO, Kentucky, &c., ₱ lb	5¼ @ 11	6 @ 12
Seed Leaf, ₱ lb	13 @ 70	12 @ 70
WOOL—Domestic Fleece, ₱ lb	47 @ 57	49 @ 60
Domestic, pulled, ₱ lb	28 @ 52	33 @ 53
California, unwashed,	20 @ 38	23 @ 30
TALLOW, ₱ lb	8½ @ 9	8¾ @ 9¼
OIL-CAKE—₱ ton	39 50 @42 50	39 00 @41 00
PORK—Mess, ₱ barrel	17 00 @17 25	15 50 @15 75
Prime, ₱ barrel	14 00 @15 00	12 75 @13 50
BEEF—Plain mess	10 00 @15 00	8 00 @14 00
LARD, in trcs. & barrels, ₱ lb	10¾ @ 11¾	9½ @ 11¾
BUTTER—State, ₱ lb	12 @ 35	12 @ 30
Western, ₱ lb	10 @ 28	10 @ 23
CHEESE	8 @ 15	5 @ 12¾
BEANS—₱ bushel	75 @ 3 10	1 35 @ 1 40
PEAS—Canada, free, ₱ bu	1 40 @ 1 45	— @ —
EGGS—Fresh, ₱ dozen	15 @ 17	16 @ 19
POULTRY—Live Fowls	16 @ 17	16 @ 18
Turkeys, dressed, ₱ lb	16 @ 17	16 @ 18
Geese, ₱ pair	— @ —	1 50 @ 2 00
Ducks, ₱ pair	1 00 @ 1 25	75 @ 1 00
POTATOES, ₱ bbl	3 00 @ 5 50	3 00 @ 7 00
SWEET POTATOES, ₱ bbl	4 00 @ 5 00	— @ —
TURNIPS—₱ bbl	75 @ 1 25	— @ —
CABBAGES—₱ bbl	— @ —	1 75 @ 2 00
ONIONS—₱ bbl	— @ —	— @ —
CRANBERRIES—₱ bbl	8 00 @ 6 00	— @ —
BROOM-CORN—₱ lb	4 @ 8	4 @ 8
APPLES—₱ barrel	1 25 @ 4 75	4 00 @ 9 00
Strawberries, ₱ quart	— @ —	15 @ 25

The Gold market has been more active, since our last, and the price has been advanced to 113, closing June 15, at 112¾, as against 111¾ on May 15... The supplies of Breadstuffs have been more liberal, and though the demand has been good, particularly for Wheat and Corn for export, prices have been variable, closing, as a rule, in favor of buyers. The foreign advices, which had been of an encouraging tenor, were rather against the export movement toward the end of the month under review. The decline in ocean freights, however, served to check the depressing influence of the later Liverpool reports. The grain coming to market by Canal is arriving in unusually good order, and the bulk of it is in merchantable condition....The Cotton market has been active, excited, and higher, under speculative operations, based mainly on the assumption that the next crop would be a short one. The final dealings indicated less confidence in this theory, and less buoyancy in values....The Provision markets have been less active, and prices have been quoted lower and unsettled, particularly for hog products. ....There has been a good inquiry for Wool at firmer rates, on a limited offering of desirable samples....Tobacco, Hops, Hay, and Naval Stores, have attracted more attention.

New-York Live-Stock Markets.

WEEK ENDING.	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	*Tot'l.*
May 22d	6,986	106	4,014	21,978	20,571	53,815
May 29th	6,744	88	3,239	18,473	17,556	46,121
June 5th	7,172	59	5,006	14,086	18,891	45,210
June 12th	6,215	85	8,373	24,690	26,002	60,365
Total in 4 Weeks	27,117	338	15,631	79,206	83,200	205,511
do. *for prev. 5 Weeks*	31,957	361	21,298	83,686	77,241	217,542

	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per Week	6,779	84	3,908	19,801	20,800
do. do. *last Month*	6,991	72	4,259	16,787	15,448
do. do. *prev's Month*	6,219	86	1,765	19,490	12,977
Average per Week, 1870.	6,817	97	2,240	28,151	17,108
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	26,605
do. do. do. 1866	5,748	94	1,200	20,000	18,000
do. do. do. 1865	5,255	118	1,500	16,091	11,823
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	3,369	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	836,733	573,190
Total in 1861	267,609	7,603	75,621	782,462	660,277

Beef Cattle.—The supply of cattle is large, and reports show that there is a heavy stock still pressing forward. Trade was somewhat unsettled during the month just ended, prices falling off 1c. per lb. one week, with a heavy run, and recovering a like amount the next week, closing a little lower than it opened four weeks ago. Texas has not given us many grass cattle, but they are liable to come forward any moment. One or two lots of cattle came through in stock Palace cars, but they did not show enough better to warrant the extra expense. There is probably some experimenting yet to be done before these cars will be looked upon with favor. As yet there are no indications of a general reduction of cattle freights, but a few of the leading shippers doubtless obtain drawbacks.

Below we give the range of prices, average price, and figures at which large lots were sold:

May 22d, ranged	11 @14c.	Large sales	12@13½c. Av. 12¾
do. 29th, do.	10 @14c.	do. do.	12@13 c. do. 12¾
June 5th, do.	9½@13c.	do. do.	11@12 c. do. 11½
do. 12th, do.	10 @14c.	do. do.	12@13 c. do. 12¾

Milch Cows.—These have been offered more freely, and after a dull month, there is a little improvement at the close, helped by an advance in beef, which enables the milkmen to sell their fat, dry cows to advantage. Some miserably poor cows are being sent to market, and sold at $40@$45 each, with ordinary to fair milkers at $55@$65, and good to extras at $75@$90.....**Calves.**—The offerings are still quite free, but not so large as in May. They dragged heavily for a week or two, after last report, fat veals selling at 7½@8c. Now they are doing better. Butter-milk and grass calves are worth 5½@6c., thin milk veals, 6½@7½c., good to choice, 8@9½c. A lot of 33 State calves, 142 lbs., just sold at 8c., with a pen of 204 lbs. at 9c....**Sheep and Lambs.**—Receipts are larger, the greatest increase being in lambs. These have declined 2@3c. per lb., poor Southern and Western selling at 9@11c., fair to prime State and Jersey, 11½@12½c., with a few extras at 13c. Sheep have been running down quite gradually, but close firm at 4¾@5½c. for poor to medium, and 6@6½c. for good to prime, some choice lots selling at 6¾c. Most of the sheep are now coming from Ohio, and Ill., with lambs from N. J., and this State, an occasional lot being received from Ky., Va., and Ohio....**Swine.**—Free as were the receipts of the previous month, they are still larger now, and live hogs have declined about ¾c. per lb. They went to 4¾@5c., a fortnight ago, but close somewhat firm at 5c@5¼c., a recent advance in lard helping them. City dressed vary from 6c. to 6¾c., according as heavy hogs or light ones.

Stock Breeding.—Charles R. Hoffman, Kansas. In breeding stock of all kinds, it is a rule never to breed the progeny to its sire. This rule is often departed from among breeders; but exceptions should only be made for some good reason. The male progeny of a thorough-bred heifer might be used on a half-bred heifer from a native cow, although the sire of both was the same, as this would not be considered close breeding. But judicious selections should be made. A change of blood would be well every four or five years.

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.

A Necessary Item.—To correct a mistaken idea that has got abroad in some quarters, we wish it distinctly understood, that The

AMERICAN AGRICULTURIST (Monthly),

and **HEARTH and HOME** (Weekly),

are two totally different, independent Journals—as much so as if published a thousand miles apart. Their engravings and their reading matter are entirely unlike, and neither Journal takes or supplies the place of the other. HEARTH and HOME is an Illustrated Weekly Family Newspaper, of a high order, designed especially for the HOME CIRCLE—containing a variety of home reading, and general information, with full and choice departments for the Housekeeper and the Young People, and a NEWS department, giving the news of the World for each week, in that complete but condensed form desired and needed by busy men and women who wish to keep up with the times, but have not leisure to wade through the acres of printed matter of the general newspapers. Our readers know the character of the AMERICAN AGRICULTURIST. The issuing of the two journals under one business management, is a saving of expense to each, which enables the Proprietors to do more for both journals than if each had to separately bear the entire expense of offices, clerks, printing machinery, etc.

The Agriculturist as Premiums.—A member of the Lehigh Co. (Pa.,) Agricultural Society, writes that the *American Agriculturist* is offered by that Society as a premium at their fair, and commends the example of that society to other similar associations. This has long been done by many societies, and the plan might be profitably adopted by a great many more. Aside from its intrinsic value, it will, as our correspondent suggests, be of great use in reminding the recipient each month of his relations to the County Society. The money could not be more wisely expended.

The American Pomological Society.—The circular of the President comes to us just as we are making up the paper. The meeting will be held at Richmond, Va., on September 6th, 7th and 8th, in Assembly Hall, Eighth street. All Horticultural, Pomological and kindred societies are requested to send delegates, and all persons interested in the cultivation of fruits are invited to take seats in the convention. The Virginia Pomological and Horticultural Society will hold an exhibition in conjunction with the meeting, and besides the premiums offered by that society, there are premiums from $50 to $5, offered by individuals for the best collections of apples, pears, grapes, peaches, figs, etc. The Pomological Society has never held a meeting so far south as Richmond, and it is hoped that there will be a large attendance from all parts of the country.

Peter Henderson & Co.—The firm of Henderson & Fleming having dissolved, Mr. Henderson, his son Alfred, and Mr. Wm. Carson, have formed a co-partnership under the above name. The new firm will be located at 35 Cortlandt street, and will soon present a general stock of seeds, plants and other articles usually found in a first-class horticultural establishment.

A New Early Peach.—Mr. S. G. Bilyeu, of Littleton, Halifax Co., N. C., exhibited to us on June 19th, specimens of a new early peach called *Beatrice*. This is a seedling by the celebrated Thomas Rivers, of Sawbridgeworth, Eng. Upon the grounds of Mr. B. the Beatrice is at least 20 days earlier than Hale's Early. Like all early peaches, it is small, but it has a very high color, is very fragrant and of good quality for a very early variety. The specimens presented to us had been picked for five days, and were in perfectly good condition, and would seem to warrant Mr. Bilyeu's claim that they possess superior shipping qualities.

Prevailing Disease among Horses.—Dr. Liautard, of the N. Y. College of Veterinary Surgeons, writes to the *American Agriculturist:* "In relation to the disease which is now raging amongst the horses of this City, I would say that it is not a new disease, but the Cerebral Spinal Meningitis, or Spotted Fever—that the disease has shown itself this year in a peculiar form, and has been of a much milder character than I have seen it before, that the curative treatment which consists principally of counter-irritants, cathartics, nervous arterial sedatives, is, in many cases, unsuccessful, and that I am satisfied that in that disease, more than in any other, prevention is the true way to treat it. In several instances where I have seen horses dying from it, by putting the remainder of the stock under prophylactic treatment, I *always* stopped the disease, and feel satisfied that the same result could have been obtained in this fearful outbreak."

Pure Water.—Chickens that are kept confined should always have at least the luxury of pure, cool water, and they will not flourish without it. Many contrivances are in use for this purpose, none probably better than the Flowing Spring Poultry Fountain.

Will Turnips and Cabbages Mix?—"R. W. W.," Union Lakes. We never knew of a case in which cabbages and turnips crossed with one another, but they are so closely related, that we should not be surprised to learn that such admixture had taken place.

Hot-bed Covered with Muslin.—"Amateur" asks how to make one. Such a thing would be so much bother, that it would be poor economy to use muslin instead of glass. The plants would not get sufficient light, and snow and rain would get it out of order.

Potato Bugs.—Joseph Bowland, Wineshick Co., Pa., wishes to know if the Colorado potato beetle has left Colorado. Who can tell?

Sweet-Potato Insect.—G. J. Read, Adair Co., Ky. The insect that looks "like a terrapin" when magnified, is one of several tortoise beetles that infest the sweet-potato. Yours is the Mottled Tortoise-beetle, *Cassida guttata*. The larvæ of the half dozen species all have the singular habit of making a screen or shelter of their own excrement. As the beetles are upon the under sides of the leaves, it is difficult to reach them with Paris green, which it is said will destroy them. Examining the young plants, and picking off the first comers before they increase, is the best remedy.

The Grain Moth or Little Wolf.—Quinton Dick, Marshall, Ohio, has his granary infested with small worms of a dirty white color, which spin a web connecting several grains of wheat together. They eat out the heart of the grain, and now (May) are in the chrysalis state and appear as brown pupæ three-eighths of an inch in length. They are the larvæ and pupæ of the Grain Moth or little Wolf, at the present time, and until August they exist as moths which may be found on the walls and ceilings of granaries by day, and flying about by night. They may be destroyed by burning a candle in the granary. The worms and chrysalides will be destroyed by scrubbing the floor and walls of the granary with hot soft-soap suds and limewashing the ceiling. All cracks should be carefully cleaned out and then filled up. Once got rid of, they may be kept out by using fine gauze screens to the windows.

Sundry Humbugs.—In reference to one of the "Gift Enterprises" referred to last month, that for the "Home" at Washington and the "Asylum" in N. Y., we have heard from several parties interested. Mr. Appleman, of Hagerstown, Md., says, he believed it to be a well conducted enterprise, everything on the square, and he put in some property with the distinct understanding, that all profits from it should be given to the Soldiers' and Sailors' Home at Washington. Mr. Devlin says, he took the New York agency of the tickets, just as he would of any other business, which he believed honorably conducted, but he took extra pains to have a part of the profits go to the N. Y. Roman Catholic Asylum, in which he was interested. Probably every one connected with the enterprise would show similar good intentions, unless it be that some first originator who started it to get a ready market for real estate, that had come to be an "elephant" on his hands. We believe no one denies that, as a whole, the property offered in this scheme is priced far above what it would sell for. Indeed, we are told that it was estimated that the managers should receive $10,000 each, and that there would still be a good surplus for the institutions, after paying all expenses, advertising, commissions, etc. It amounts to just about this: People are invited to pay in their money, partly because a small percentage of it will go to benevolent institutions, which is "touching them in a tender spot," and they are further stimulated with the hope that there is a possibility (a very remote one) that they may draw a big prize. The best result which can happen to any but the managers, who get $10,000 each, and those who have put in property, will be that: 1,003 persons will get something worth on the average half of what it is priced at in the scheme, and **50,997** persons will get *nothing*, except the consolation that a few cents on the dollar have gone to good objects. The whole scheme, like every other one of the kind, is bad in its results; it differs nothing in principle from the old lotteries, and no amount of good intentions, and good faith in carrying it out, can whitewash it into credit. Lotteries of any kind, in and for churches, asylums, or otherwise, from the grab-bag up to Pike's Opera House and the San Francisco Library, are worthy of the severest condemnation. They appeal to and cultivate a morbid hope of "luck," that stifles self-reliance, painstaking effort, and manly energy, which lie at the foundation of all true success in life..... An Illinois Loan Agency, proposing to receive and invest funds at 10 per cent, appears very plausible, and something on this plan, under the control and management of thoroughly known, *responsible*, and *experienced business* men would be useful. The one before us, may be all right, and we think the originator means well, though we always look with suspicion upon any *business* circular, addressed specially to clergymen, beginning with the patronizing "Dear Brother.". ... A swindler, calling himself J. T. Stewart & Co., advertised a paper, "The Press," at 10 cents a year, and offered a $50 Greenback in every hundredth paper as a prize to secure a large circulation. A multitude of such ignorant people as are always expecting somebody to give them $20 for $1, sent in their subscriptions. *Every* subscriber received an intimation that *he* was the lucky one, and received a picture of a greenback, informing him, that on remitting $10 for expenses, he would receive a $175 Watch. And thus it is, that these rascals go on stealing from their ignorant dupes..... **190,000** foolish people (no others can be expected to participate) are invited to send $6 each for a remote chance of drawing $60,000 in breastpins and ear-rings, etc., to be positively distributed at Washington, July 5th, and they are expected to take the tickets promptly, because the "victims of the French war" will get some benefit. Anybody who wishes to sport a $60,000 breastpin, and believes such a thing will be distributed, and is positively sure that, among 190,000 people *he* will be the lucky one, will send on $6 for a ticket instanter. All others better think it over until July 4th, 1872, and in the meantime send their whole contribution at once to the proper relief-committees.. .. Will the self-dubbed "Dr. Andrews," of Albany, never die, but forever keep on distributing those numberless disgusting circulars, etc.? In one before us he tells the post-masters they have been his constant friends, and helped him for over 40 years! He ought to be known well enough by this time to be every where avoided — but his latest circulars come to us from way down in Texas..... And now one of the "Spanish Policy" swindlers calls himself "C. P. Barkis, 1210 Broadway, N.Y." He is "*willing*" to take and *keep* your money—for there is no "Spanish Policy." Next month he will assume other names..... One signing himself S. C. Thompson & Co., 41 Maiden Lane, N. Y., sent out lists of cheap goods, and filled small orders quite satisfactorily. The bait took, and many others waited in clubs and forwarded considerable sums of money. After waiting and waiting, week after week, the only answer they could get was, that part of the goods ordered were "out," but would soon be on hand and be immediately forwarded. We find no such person

or firm at No. 41 Maiden Lane. This is another illustration of the risk, concerning which we have so often cautioned our readers, of sending money to any unknown parties advertising by circulars.....GAIUS W. HUBBARD, JR., AGAIN. This scoundrel who has his headquarters at 208 Broadway, is full of ingenious swindling schemes. The pretended counterfeit money or sawdust game he has worked under a great variety of names, and in this as in other cases, he usually manages to operate upon other dishonest people in such a way that they can not appear as witnesses against him without criminating themselves. Here is one of his latest swindles: The following is a copy of many similar documents returned to us by honest people. Hubbard had a large lot of them written out and forwarded to different parties all over the West. They are all alike except in the name of the person addressed. (The Bill Head is neatly printed in the usual form; the rest is written.)

"NEW YORK, May 15th, 1871.

Mr. W. P. Gillenwaltus, Rogersville, Tenn.

TO DURVIN, ELLIOTT & CO.,
Importers and Manufacturers of
Watches, Jewelry and Silverware,
Wholesale Department up stairs. No. 198 Broadway.

For repairs on Hunting, Stem-Winding, Gold Chronometer, made by Jugerson, No. 15,021, viz.:

1 Balance Wheel and Hair Spring, $7.50
1 Main Spring and Cleaning, - - - 1.25
1 Fine Lever, regulating, etc., - - 5.00
1 Gold Cap, Eng'd, - - - - - - - 6.50—$20.25

Please remit by Express.

DEAR SIR:—The above watch received from you 21st Feb'y, is now ready for delivery. You were correct when you stated it could not be repaired outside of this City.—We have had great difficulty with it, but is now in thorough order, and we warrant it to keep correct time for five years.—You wrote that the watch was found and desired to know its worth. It is a very valuable time-piece, and must have cost at least $500 in gold. It is now worth $100, and for any one desiring a correct time-piece, is really cheap at its first cost.—Please remit the amount of above bill by express, and the watch will be immediately forwarded.—Oblige by responding at once, as every day it remains with us entails additional trouble and expense. Respectfully, DURVIN, ELLIOTT & CO., 198 Broadway, N. Y."

After mailing sundry thousands of the above, Hubbard got out a regular power of Attorney, signed by Durvin, Elliott & Co. (probably the real names of some of his employees), directing the Express Companies to deliver their parcels to himself. The result was that many dishonest people said to themselves, "well, there is no such person hereabouts, and if there was, the watch was 'found,' and did not belong to him, and so I'll privately forward the $20.25 and get the watch and keep it." Of course, Hubbard pocketed the funds and let the dupes whistle for their money. They dare not expose themselves by complaining, and if they did, they would find no Durvin, Elliott & Co., at 198 Broadway, for the building is unoccupied—such buildings are often selected as their *advertised* headquarters by various swindlers. Of course no thoroughly honest person would forward money for a watch not belonging to him, but he would promptly do as Mr. Gillenwaltus and others have done, forward the documents to this office, or elsewhere, for investigation.—We have given considerable space to the description of this particular swindle to illustrate how ingenious are the dodges resorted to, and to show that great care should be exercised in responding to circulars, etc., from unknown parties. We confess also, to a little satisfaction in showing those who have had a hand in sending the thousands of dollars in response to this operation, how completely they have been "done for" in their dishonest attempts to get watches not belonging to them.

We have the usual assortment of "queer," alias "Sawdust," alias pretended counterfeit money, circulars and letters, but this subject has been so well ventilated that it is needless to say much. The swindled, willing-to-swindle, people throughout the country must have mostly received their dose of "sawdust" and had their eyes scoured open with it by this time. They have contributed enough to enable Hubbard and others to own Fifth Avenue Houses, splendid turn-outs, large bank accounts, and abundant solid investments, besides liberal expenditures for gambling, wines, etc. Geo. L. Decker (so-called), 688 Broadway, sends out boxes of old medicine bottles as a blind, with $15 to $50 C. O. D. bills, and writes to the victims very plausible letters.—Henry Parker & Co., 48 Liberty St., pretends to have city policemen paid to protect him and his customers. Among new names of "queer" operators we find Saml. J. Hale, 31 Park Row; Thos. Bailey & Co., 42 Liberty St.; I. F. Burroughs & Co., 1 Beekman St., and 11 Ann St.; Christopher Yates, 129 Nassau St.; Daniel Elliott & Co., 190 Broadway; Francis Ogden, 131 Fulton St. (old name and new circular); Howard L. Jones & Son, 194 Broadway, etc., etc. All these are merely the *names* adopted by two or three operators.....☞ Every RECIPE Seller, whether he advertises by circular, by newspaper, or otherwise, is to be let alone severely, no matter how grand his show of profits to be made, etc.

MEDICAL HUMBUGS.—Despite all we have written, we still receive (from new subscribers generally) large numbers of inquiries in regard to this and that doctor, medicines, etc. As a general answer to all, we say: Every one of the doctors, remedies, etc., inquired about in the numerous recent letters before us, *is a humbug*—no exception—whether referring to "eyes," "ears," "lungs," "consumption," "early indiscretions," "premature decay," "impotence," "seminal weakness," "diseases of women," "urinary diseases," advertised "medical colleges," "medical institutes," and "medical universities," no matter how high the pretented State Authority Endorsements.—☞ Every circular or bill sent through the mails, in reference to any medicine, or doctor, or medical institute, that we have ever seen, and we have seen many thousands, has been a swindle. We do not speak ignorantly, or at random. If you don't believe this, reader, but choose to risk your health and your money, we can't help it. If you let one of these fellows have a line from you, they will worm themselves into your feelings and fears by ingenious plausible letters, and they will stick to you as long as you have a dollar left, or can borrow one. They will send you stimulants or tonics to make you "feel better" for the time, and then lead you on to further investments; or by some other ingenious dodge get your money.

Tansy for Currant Worms.—E. Bonney, Jr., Syracuse, N. Y., makes a strong decoction of tansy and sprinkles it upon the bushes from a watering pot. He applies it when the dew is on, three mornings in succession, and then waits until the worms reappear. The remedy is cheap, simple, and easily applied, and in the hands of Mr. B. has proved successful.

Cocoa or Nut Grass.—"N. H. K.," Fulton, Miss. This is a troublesome species of sedge, growing in the Southern States, which can only be killed by constant and thorough cultivation. Plow the land once a week during the season, and harrow it at least twice a week; or, if this plan is too expensive, plow in the spring and sow wheat or some other grain, applying a good dressing of manure, and sow ten or twelve pounds of clover seed to the acre.

"The Southern Farmer."—We learn that this paper, published in Memphis, Tenn., is now entirely owned by its former editor, Dr. M. W. Phillips. Dr. P. is a veteran in the service, and has always made a most excellent paper. We hope he will be equally successful as a publisher.

Washing Trees.—"Subscriber." The best wash for fruit-trees is a strong solution of soft-soap, applied with a brush. The best time to perform this operation is early in the spring.

Cucumber Bugs.—"A. J. M." destroys them with boiling hot soap-suds, sprinkled on the vines. He also washes the stems of young apple-trees with the same, and thereby kills all lice and makes the bark shine. We think the soap-suds might be beneficial, especially if made with carbolic soap, which we have tried on the bugs with success; but we fear the boiling heat might be too much for the vines; we should advise caution in using it at such a temperature.

Fairbank's Patent for railroad scales has been extended by the Commissioner of Patents for 17 years. The proof shows that these scales have been put in use to the amount of $789,000, and that they have revolutionized the railroad freighting business. The Patent is justly extended; it is benefiting the people by many millions annually.

American Raisins.—In the May *Agriculturist* we made the statement that raisins could not be made from any American grape. This must be qualified so far as the Walter grape is concerned, as Messrs. L. M. Ferris & Son, of Poughkeepsie, N. Y., send us some dried berries of the Walter, which, though small, are really raisins. The specimens sent were from inferior fruit, dried without any especial care, and give encouragement to try what can be done with selected fruit cured in the best manner.

Plaster on Potatoes.—"Virginia." Plaster is not generally considered beneficial to potatoes. All applications of lime affect the quality of this crop injuriously. The potatoes boil hard, and have a disagreeable flavor. We have heard this maintained, and have also experienced it. As soils differ widely in character, it would be wise to try a few hills, or a single row.

Locust for Posts.—"C. M.," Delphi, Ind. That which you refer to as Black Locust is probably the *Robinia Pseudacacia*, known in the East as Yellow Locust, from the color of its wood. It is one of the most valuable and durable sorts of timber for posts and other uses. Large quantities are used in all ship-yards for tree-nails. If you should fail to want them for your own use, they will surely come to a good market. The great drawback to their cultivation in the West has been the borer, which honeycombs the collar, and soon destroys the tree. Scald the seed before it is sown. For full directions for sowing and cultivation see back numbers. We have no experience with the Honey Locust for post timber.

Traveling Shows.—We well know by experience, the anxiety that parents undergo in reference to proper amusement for their children—and especially is this the case, when the great half-acre, high-colored, show-bills appear, announcing some traveling show, circus, menagerie, or other exhibition. The little ones are all excitement, and if there is not a prompt decision that they are to go, or a positive negative, the amount of solicitation, teasing, and ingenious argument one hears, is amusing—often painful. An ordinary circus is not refining, and its accompaniments are such that its influence upon young or old people, or upon a community, is deleterious. A *well conducted* menagerie is instructive, and when kept clear of low characters and performers, can be safely visited by families with profit. As a rule, parents should always go *with* their children to all such places, or keep them at home. We have frequent inquiries from all parts of the country, as to whether a Christian man can visit with his family the Traveling Exhibition of Mr. Phineas T. Barnum. We have not personally seen it, but some intelligent friends have, and from their report, and from what we know of Mr. Barnum personally, we judge that he carefully excludes all immoral features, and that he has a collection of animals, curiosities, etc., more worthy of visiting than usual, and on the whole more entertaining, and less objectionable than one will ordinarily be likely to meet with.

A Prolific Graft.—"H. H.," Riverside, Me., set some apple grafts in 1870. One of them made a growth of seven feet, and at the time of writing this spring it had twenty-four clusters of blossoms upon it. He asks what he shall do with it.—A graft should be treated as if it was a young tree; its growth may be controlled, if need be, by pinching, and it should not be allowed to overbear.

Smut in Wheat.—"J. T.," Nokesville, Va. Smut is not a disease, properly speaking, but it is the cause of an injury which may be regarded as a disease. It is a minute fungus, living in and upon the grain, and is propagated by *spores*, which answer the purpose of seeds. These spores are so very small that they may adhere to the seed grain unnoticed, and from them the smut will be developed more or less abundantly, as the season is favorable or otherwise to its growth. The usual preventives are soaking the seed wheat, just before sowing, in very strong brine or in a strong solution of Blue Vitriol (Sulphate of Copper), in either case drying the grain by the use of quick-lime.

Pinching the Grape-vine.—"Subscriber" should have pinched his vine shoots as soon as the leaves could be distinctly seen. It is now too late, but had he done as every person should who writes to an editor or any one else—given his name and address, he would have had a timely answer by mail.

Potato Bugs once More.—"I. B. D.," Lockport, (State not given), writes that he has used a decoction of May-weed or Dog-fennel (*Maruta Cotula*), to which soft-soap had been added. When the decoction is cool, the plants are sprinkled with it from a watering-pot. Our correspondent speaks of using it for *the* Potato bug. As there are many Potato bugs, we have no means of knowing if it is the dreaded Colorado beetle, or some other insect, that is killed by the above mixture.

The First Book of Botany, by Eliza A. Youmans.—When the first edition of Miss Youmans' book appeared, we commended it to the notice of teachers. We now have a revised edition, enlarged by extending the subject upon the same plan. The work is admirably calculated to "cultivate the observing powers of children," and to teach botany in the only way in which it can be successfully taught—from the plant itself. We are glad to learn that the work has met with a favorable reception by teachers, and though intended for quite young children, older persons can, by its aid, lay a good foundation for the study of more advanced works.

Sumach.—G. W. Walker, Lowell, Mass. We know of no attempts to cultivate our native Sumach, and cannot tell you what the yield per acre would be. It is cut from the middle of July until frosts. Crude, dry leaves were worth at the mills in Virginia, last year, $1.75 per 100 lbs. The European Sumach is *Rhus Coriaria*, but it is not white-berried. Our native white-berried sumachs are poisonous. We do not find the European in the catalogues of our nurserymen, but it is in the French ones.

Guano.—"R. R.," Newark, wants to know how and when to use guano. This being a very soluble and concentrated manure, should be applied early in the season. For corn or potatoes, mix in the proportion of one part of guano with three of fine, dry earth, and apply a handful in the hill at planting. For vegetables, harrow or rake in the guano at the rate of 500 pounds per acre just before sowing. For strawberries or the lawn, apply about half the above quantity just as the growth commences in the spring. It is apt to burn a crop if the season be dry.

Manuring Cheap Land.—C. D. Koch, Pearlington, Miss., lives in the piney woods where land is worth ten cents to $1 per acre, and is therefore supposed to be unable to repay the expense of proper manuring and cultivation. He wants to know if manure is roughly spread on in big lumps and plowed under, whether he cannot subsequently get the full benefit of it by plowing and cultivating.—Most certainly not. Manure in big lumps cannot be properly decomposed, and is not in a condition to yield to the soil its full amount of fertility. To get the full benefit of manure it must be well rotted, and in a fine state of division. It must be evenly distributed in the soil, so that each plant may get an equal share, or the crop will be very uneven—some parts getting too much, and others none at all. In this way neither portion will be benefited. The fact that land is worth but $1 per acre does not necessarily make it unable to yield to an improved system of cultivation. Where land is cheap and labor dear, the effort should be to make the crops as large as possible, and return most for the labor expended. The first step towards this is to use manure most efficiently.

Plaster on Wheat.—Luke Townsend, Black Water, Del., asks about plaster on wheat in stiff clay soil, that brings eight bushels of wheat per acre. This land certainly needs "doctoring," but plaster is not the thing needed. We would recommend lime at the rate of twenty-five or thirty bushels per acre.

Lime on Corn-Stubble.—J. H. Mussen, Center Co., Mo. To lime a corn-stubble most profitably where manure is scarce, the ground should be plowed and sown with buckwheat early in July. When the crop is in full blossom, but before any seed has matured, it should be plowed under, and carefully harrowed. After a lapse of two or three weeks, spread evenly what manure there is, and cross-plow the field thoroughly. Twenty-five bushels of slacked lime per acre should now be spread, harrowed in, and the seed (rye if the ground is poor, wheat if it is in better condition) may be drilled in. Such a field should be sown with clover (one peck per acre) in the spring, and that clover to be left on the ground the first year, and the second year turned under.

Superphosphate on Meadow Lands.—J. M. Cowles, Norfolk, Conn. Guano, which would cost a little more than superphosphate, will be preferable for meadows. It would not be wise to apply either to very dry land, especially in a dry season, they would both burn the grass. On moist land, guano might be applied successfully in any season.

Peas for Green Manure.—J. M. Graham, Pine Wood, Tenn. Peas make a heavy crop of stems and leaves, and are considered specially beneficial to land by reason of the dense shade afforded. To sow them for green manure, the land should be plowed, and if a drill is used, harrow; if not, the peas may be sown on the plowed ground and covered by drawing the harrow across the furrows on its back. When the peas are in blossom, turn them under, and don't cross-plow until they are rotted. In the South the cow pea is used; further North the common field pea, or the black-eye marrowfat. The time of sowing will depend on the time you want to use the land. Two months will be required for the peas to come into blossom.

Red Corn.—"A. W. M.," Ind. We do not know of any special virtue in red corn that would, when fed to the mare, cure scours in a colt Probably a change from green to dry feed would have this effect. Colored corn is said by millers to make *stronger* feed than white corn. The greater proportion of oil contained in it is supposed to be the reason of this.

Salt-fish as Manure.—A subscriber Alexandria, Va., asks what he shall do with 250 barrels of salt herrings. Take the herrings near to where you want to use the manure, throw up a bank of earth a foot high, and spread on that a layer of herrings 6 inches thick, then put a layer of earth—the surface soil of the field—then fish, and so on until your stock is exhausted. Cover the sides, ends, and top of the heap with soil to prevent the escape of the ammonia which will soon be abundantly produced. Leave the top dishing, to receive the rains. When decomposition has somewhat reduced the mass, turn over, and when well decomposed, spread on grass or plow it in for corn. If you have an old pasture or waste ground, whence you can get sods, use them or any similar waste matter in the compost.

Improvement of Marsh Lands.—R. J. Wood, Portage Lake, Mich., wants to know how to bring into cultivation a marsh, which has a layer of twenty inches of black muck, resting on an impervious white sand. First, drain. The manner of properly doing this may be learned from Waring's "Draining for Profit." When drained, plow thoroughly in the fall; in the spring, spread fifty bushels of freshly slacked lime per acre, and harrow until the lumps are well broken up. Sow to oats, and seed to timothy. On such a piece of land, this grass will take though sown in the spring.

Clover.—A Subscriber, Beaufort, Mo. Where frosts are not severe or injurious, clover seed may be sown in the fall, say August or September. A dry season would prevent a good catch anywhere. Early sowing in the spring generally takes the best.

Potatoes Growing to Tops.—Wm. H. Erwin, Mifflin Co., Pa., has a very rich lot that he plants in potatoes, and they grow to tops only. He wants to know if cutting the tops would do any good, and if so, at what time. This lot is probably in need of a rotation. If very rich, a crop of cabbages taken off would bring it into condition for potatoes. The yield has sometimes been improved by preventing the tops from maturing seed-balls. Cutting off the blossoms would effect this.

Wire Fencing.—J. P. Smith, Hinds, Co., Miss., asks will it turn cattle or hogs, also about its relative cheapness. A good two-wire fence will turn cattle if properly put up. Its first cost will be more than with boards at $20 per thousand. A wire fence that would turn hogs would be worth several times as much as the hogs. The cheapest way would be to fence in (not *out*) the hogs with a tight board fence, and make them earn their living by working up coarse manure.

Potatoes in new Ground.—John P. Kast, Mechanicsburgh, Pa., has raised a crop of potatoes, partly in new and partly in old ground, and finds those from the new ground had a brown streak through them, and that the Harisons thus raised were "sad" when boiled and smelt disagreeably. There is nothing surprising in the fact, that the Harisons were sad when boiled. They are not only very generally sad themselves, but the cause of much sadness to those who unwittingly eat them. The brown streak and bad odor is probably owing to the abundance of undecomposed vegetable matter in the soil. Among Pennsylvania farmers it is considered best to take a crop of grain, generally buckwheat, off new ground before planting to potatoes.

Curing Hay.—R. L. Cooper. You will find in the June number of the *Agriculturist*, page 219, directions for curing hay. The green color can only be preserved in the hay by drying quickly and in the shade. The least heating or fermentation will destroy it. As a slight heating is considered an improvement to clover hay, the green color cannot be preserved when it is cured in cocks. Timothy hay may be cured so as to retain its green color by constantly turning, and putting in the barn the afternoon of the day it is cut. It does not require so much curing as clover, being less full of sap.

Timothy Hay.—F. Kraft finds his hay to be so dusty that it chokes his horses when thrown to them, and wants a remedy. If timothy hay is not dry when put into the barn, some mold will gather on it, which makes a dust very hurtful to horses. On limed soils hay will be dusty, and the dust acrid and productive of coughs. If wetted before feeding, the dust would be prevented in a measure, but if cut and wetted, the dust would be effectually prevented from injuring the horses. Salt, spread on the hay when put into the barn, a few handfuls at a time, will prevent mold and keep down dust, as the hay will be always a little moist.

Curing Clover Hay.—George Muth, Carrolton, Ind., cuts his clover from the 6th to the 15th of June, or when about one-fourth to one-third of the heads are browning; cuts, according to quantity and labor force, from two to six acres at a time; commences about four o'clock in the afternoon, cuts next morning until nine or ten, sees that all the clover cut is evenly spread; at noon he commences raking (where first cut) in light windrows, at the same time starts the team to load and haul into the barn. His hay-mow is 14x50 feet, 12 feet high, with a jointed floor; on this he commences spreading evenly at one end, about the thickness of a middle-sized forkful; he thus goes over the whole mow, then sprinkles a little salt over all the hay, in quantity about as much as he would give his stock if the hay was not salted, rather less, than too much. Next he goes through the same process until the mow is filled up. He is careful to tramp and pack the clover as little as possible, to let it settle of its own accord. Further, he places in the mow every eight feet a ventilator, to permit evaporation, and prevent the hay from molding. These ventilators are made each from two planks six inches and two planks eight inches wide, and fourteen feet long, to reach to the top of the hay; the planks are bored full of holes with a two-inch auger, and form an inside space of six inches square; they are set on the floor, and propped until the hay supports them. He learned this evaporator plan many years ago from the *Agriculturist*. Where the clover crop is light, this plan would do; but with a crop of two tons per acre the clover would heat in the barn and probably take fire or become worthless. He does not give time for a heavy crop to become cured.

Grass Seeding in the Fall.—E. A. Goodell, Minnesota, has a piece of land sown to barley, and wants to seed to grass this fall and cut a crop of hay next season. He has also two or three high knolls, soil, sand and gravel, which he would plant with trees, and asks what kinds he should plant. If the land is in good heart, it may be successfully seeded to timothy this fall by thoroughly harrowing, spreading some fine manure, and sowing and brushing in eight quarts of seed per acre. If clover is desired to be sown in the spring, put on only six quarts of timothy, and early in spring four quarts of clover. Those knolls might be planted either to fruit or timber trees; but if planted, the young trees should be kept well cultivated until established. On just such soils, sainfoin succeeds, and it is a question whether it might not be profitable to introduce that, plowing in a crop after a few years to enrich the soil. It is not wise to plant poor spots with fruit or any other trees.

Gang Plows.—"M.," Chowchilla Creek, Cal., says that in the San Joaquin Valley three or four gang plows are in more common use than any other; further north, "in the sand," four to seven plows are used in a gang. For a four gang, ten-inch plow, a team of eight good mules are used, and work from daylight to dark, and keep in good condition, fed morning and evening on all they can eat of wheat and wheat straw. It would have been an interesting item to know what amount of land can thus be plowed in a day of ten hours. "M." does not inform us on this very material point.

Colic in Horses.—A. M. Alexander, Miss. —In this disease, prevention is better than cure. Colic may be prevented by care in feeding. When succulent green fodder is used, such as the blades and tops of the green corn, colic is common. It is caused by the production of gas in the stomach and intestines from the fermentation of the food, or by permitting the horse to drink too freely of cold water when tired and exhausted by work. Feed sparingly of succulent food until the animal has become accustomed to its use. Water often and give little at a time and never either immediately before or after a feed. If the horse has been permitted to become very thirsty, give no more than half a pailful at a time; letting fifteen minutes elapse between the drinks, until he is satisfied. If notwithstanding all care, he is troubled still with colic, give him 2 oz. sweet spirits of nitre and 1 oz. tincture of opium in half a pint of water. If necessary repeat in half an hour, adding 1 oz. tincture of aloes. Any spirituous medicine should be carefully administered. If no inflammation be present a pint of rum with half an ounce of pure ginger might afford relief.

Fast-Walking Horses.—Geo. S. Myers, Lewiston, Pa., says he has a colt four years old that can walk a mile inside of ten minutes. If our correspondent can procure another animal of equal walking capacity, he would have a valuable team.

Broken-winded Horse.—"H. C. M." asks if "anything can be given to a broken-winded horse to stop his blowing while he is working?"—We know of nothing. Feed him on moist, cut-feed, say 8 lbs. of chopped timothy hay, 8 lbs. of bran, and 12 lbs. of ground oats, peas, barley, or corn, per day. The main object should be to let him have sufficient nutriment without overloading his stomach. And he should never be worked for an hour or two after eating. Let him have all the food and water he wants in the evening, but comparatively little before he goes to work in the morning. When he is brought to the stable at noon, give him half a pailful of water, with a pint of meal stirred into it. Then

give him, say 3 quarts of the cut-feed, and before he goes to work, another half pailful of water. When he comes home in the evening, after the harness is removed, and he has been rubbed down, give him a pailful of water with a pint of meal in it. Then give him 3 quarts of cut-feed, and in an hour or so let him have all the water he will drink, and also all the cut-feed he will eat.

Bloody Milk.—Chas. A. Morse, Leominster, Mass., writes that during the past ten years he has cured frequent cases in which cows gave bloody milk, by the use of the root of Garget—also, called Poke-weed and Pigeon-berry—*Phytolacca decandra*. A piece of the root half the size of a hen's egg, is given, inserted in a potato or carrot. Repeat the dose if necessary, in twelve hours. A widely different plant, the *Veratrum viride*, is called Poke in some localities, the use of which would be attended with serious consequences.

Tanning Cat Skins.—F. Fuller. We suppose that the process for tanning rabbit skins will answer as well for those of the cat. The flesh side being first cleansed of any adhering fat or flesh, is sprinkled with a mixture of two parts each of alum and salt and one part of saltpetre, all pulverized. Enough is put upon the skin to make it look white, the edges are folded in and the skin rolled up. After remaining three or four days the skin is first washed in clear water and then in soap and water. While drying, it must be pulled in all directions, in order to make it pliable. If any one has a better process we should be glad to know of it.

Four Calves at a Birth.—A. H. Lord, Somerset Co., Md., informs us that a cow in his County gave birth to three heifers and one bull calf. The last named lived only about a day.

"Where to Locate."—A basket item with the above heading appeared in our columns in May last. The case of a gentleman in St. Louis was taken as an illustration of the difficulty of giving advice in such matters. It was a specimen of many unanswered and unanswerable applications, and the letter was destroyed. A large number of persons have taken the notice as a request for proposals, and have forwarded us letters by dozens. As we have now no recollection of the name of the gentleman in St. Louis, we reluctantly consign these descriptions of desirable places to the waste basket.

Chester County Mammoth Corn.—Berea College, Ky. The sample and statement sent show that you have been humbugged. But how can we show up the parties unless you sign your full name? No one has a right to ask us to expose a humbug who is not willing to be called in evidence in case it is necessary. Meanwhile, let this "Mammoth Corn" alone and plant your old sort.

Artificial Hatching.—An inquiry reaches us from Olympia, Wash. Ter., for a good *incubator*. Experiments are being made by many poultry raisers, with the various incubators in the market, but the evidence is not in yet to show which is the best. It is certain, however, that some that are advertised and puffed extensively, are worthless. We have never tried one ourselves that was as satisfactory as the natural method. It can hardly be expected, we think, that any greater per cent of eggs will be hatched by the most perfect artificial apparatus that will ever be invented, than by natural incubation. Also, whether there can be less cost in money and trouble in the artificial method, is very doubtful. An artificial apparatus that would work well would have this great advantage, however: eggs might be hatched when desired, without waiting for hens to become broody, and on this account we shall gladly report progress in inventions of this sort as soon as able.

New Poultry Paper.—The "Poultry Standard," is the title of a new monthly paper published by W. H. Lockwood & Co., Hartford, Ct., devoted exclusively to poultry. It is evident that there is a growing interest in this branch, when a sheet so well illustrated and printed can find support.

Testing Medicines for Live-Stock.—We cannot be expected to report upon the value of "specifics" sent us for diseases in animals, because opportunity may not occur for their trial, besides it is not safe to pronounce on the effects of a prescription administered to one, or a few animals only, but a great number of cases should be tabulated to make the test value.

Light Brahma Fowls.—From Lockport, N. Y., we received the following: "After a careful experience of four years with the Light Brahma fowls, I am satisfied they are the most profitable breed now known. I have for thirty years had various breeds, embracing White Leghorn, Black Spanish, and the common mixed breeds, and believe the country would be vastly benefited by discarding these and raising only the full-blooded Light Brahma. They are quiet and keep within a 4½ ft. fence, the best winter layers known, and not surpassed as layers by any other breed. Very hardy and easily raised, weigh from ten to twelve pounds at maturity, and exceedingly fine flavored. Always fat and ready to kill, if properly fed."—While our correspondent is zealous in praising his favorites, other persons are as positive in favor of other breeds. For ourselves, we concur in his testimony respecting the hardiness, winter-laying qualities, and quiet manners of the Light Brahma fowls. As regards the number of eggs per head yearly, there seems to be a great difference in different strains of this breed, and though in some instances where count has been kept, the average yearly yield has been high, yet in many other cases it has been only moderate, owing to a great propensity of the birds to sit during warm weather, which results in scanty laying at a time when other breeds are laying profusely.

What can be done with a wet Meadow?—"H. C. M.," of Rockland Co., N. Y., writes: "I have a wet meadow, the grass on which is about run out. Should I plow up the meadow or sow good grass seed on it after the hay is taken off, without plowing?"—Plow the land. Roll it, and then harrow lengthwise of the furrows, and continue to harrow sufficiently often to keep down the weeds. A Shares' or Nishwitz harrow, so-called, is the best implement that can be used, as it cuts the land three or four inches deep without disturbing the tough sod underneath. Make the land as clean, mellow and fine as possible, and the latter part of August or first of September, sow on the grass seeds, and if the land is rich and not too wet, you will probably get a good crop of hay the next season. But if possible, the land should be drained. And it is rare, indeed, to find land so low that sufficient fall cannot be obtained to drain it, with more or less efficiency.

The Farmer's Workshop is a necessary department on every farm. Not only necessary, but it affords an agreeable variation to the boys, and in rainy days will furnish them profitable and pleasant occupation. Give them a tool chest and a supply of tools, and let them make all such things as rakes, harrows, handsleds, hen-coops, mend harness, cut threads on bolts or burrs, or anything else they desire. Let them experiment there as much as they wish, and by and by you will see them bring out something useful, save many trips to the blacksmith's or wagon maker's, and many hard-earned quarters. If "variety is the spice of life," it is surely needed on the farm where hard and constant labor is the rule, and recreation is the exception. If you give them a supply of oil and paints, you will probably some fine day find the plows and harrows, or may be the old wagon looking like new, in a new coat, and the garden gate smiling to the passer-by, in a new clean dress. By all means, try to induce them, both by practice and precept, to keep the work-bench neat, and the shop orderly, habits thus formed will influence them through life, and may lay the foundation for future success. If you cannot teach them yourself, furnish them with a book; there are many such published at such a price as will be repaid many times within a year, besides leaving a lasting investment of good effects for a lifetime.

About Editorial Advertisements.—A Grievous Wrong.

When the conductor of a newspaper finds a good thing—one which he believes, after full examination, to be highly useful to his readers—he *ought* to tell them of it editorially. Usually this should be done without charge, for when a man sits down to write a puff simply because he is paid for it, he becomes an advocate rather than a disinterested Judge of merit. The description of any unpatented article—one free to the public use—ought not to be paid for. When any person holds an exclusive right, or royalty, in any article, however good, he should, in justice, remunerate the publisher who supports the journal that gives notoriety and salable value to the article, but, as above stated, it is dangerous for any editor to "puff" any article simply because he is paid for doing so by advertising patronage or by money direct.

There is a kind of editorial advertising, however, which merits the strongest condemnation, and though largely practised by several leading religious and non-religious journals, it is really a fraud upon trusting readers. We refer to the practice of allowing an advertisement to appear in such a type and position among reading or editorial matter, that it is easily mistaken by the reader for the actual language and endorsement of the editors, when this is not the case. *Large prices are paid for such advertisements, because it is known they will deceive the readers.* The editor of one of our otherwise most excellent religious journals, was recently called to account by a reader for puffing an imposter. The editor replied in effect, that the complainant was a "greenhorn," not to know that the item was in a "business" column. Yet, in this case, as in thousands of other similar ones, nine out of ten of the great mass of readers, unskilled in type and "make up," could not distinguish between the item in question and the real editorials on the same page and in the same type.

We go so far as to say that any editor or publisher who knowingly admits into his paper at all, an advertisement of any kind which he does not believe to be worthy of the attention of his readers, or which at least can harm any one of them in pocket or morals, is accessory to any wrong or loss that may result to them. He takes the quack doctor, the vender of useless or hurtful medicines, the swindler or the cheat, by the hand and introduces him to the homes of the readers of his paper. But even if we admitted the plea that the publisher merely puts up a bulletin for anybody to cover with posters who will pay him well for its erection, and that the readers know or ought to know that the advertisers are there simply because they pay for space, we should still claim that any editor who hires out his own clothes (his peculiar type and place in a paper) to a swindler, or even to an unreliable, or an unendorsed advertiser, is a direct *particeps criminis*, and by no subterfuge or casuistry can he escape the verdict of "sold himself for lucre."

Bee Notes for July.—*By M. Quinby.*

As moths increase, treat them to a drink of molasses, vinegar and water, set in saucers near the hive at night. Their appetite for it proves their ruin. Let the chickens have the moths, and use the liquid again, renewing if necessary. Italians defend themselves from the moth better than black bees, and are less liable to foul brood. Foul brood, where it exists, should be attended to now, or in three weeks after the *first* swarm, as all healthy brood, except a few drones, has matured. Cells containing dead larvæ remain sealed. Make examinations in the middle of the day. If you are timid, put on some protection, but the bees will not be likely to sting if directions are followed. With the box hive you will first blow a few puffs of smoke under it. Then turn it bottom up, drive the bees away with a little more smoke, spread the combs apart, and if among the brood comb you discover any sealed cells, open a few of them with the point of a knife. If they are black and putrid, while yet in the larva state, drive out the bees at once. Set an empty hive on the old stand, to catch returning bees, put another on the inverted hive, and with a hammer or stick, gently and rapidly strike the lower hive. In fifteen minutes the bees will mostly be in the upper one. Set this on the old stand, and all will soon gather there to begin anew. With movable comb hives it is only necessary to lift out the combs and shake the bees off at the entrance of the empty hive—which should, of course, be on the old stand—taking care to have a wide board or sheet to facilitate their creeping directly in. All movements should be made very gently. It is not necessary that one should be a smoker in order to manage bees. Decayed wood, that which will just hold together, will burn a long time without blazing, and answers a very good purpose. If any choose to use tobacco, take a bit of cotton cloth a foot square, cover it with tobacco a quarter of an inch thick, roll it up, fasten with a few stitches, and set fire to one end. This answers every purpose of a pipe. It subdues Italians quickly, but the next time you meet them, you will be likely to find them more irritable. Early swarms will often fill the hive and store a quantity of surplus. If such is the prospect, it is just as well to put on boxes soon after bees are hived. This becomes necessary when two swarms are hived together. Keep a supply of boxes on hand, and change as fast as filled. No need of waiting until every cell is full. When taken from the hive, keep them the same side up if practicable, and raise them a little from the ground to let the bees creep out. Always avoid turning over, further than on one side, and keep the sheets vertical, else the honey will leak and look badly. Keep them out of the sun. In movable comb hives, weak colonies are easily strengthened by giving them a comb or more filled with brood from some strong one, shaking off all bees, of course. Replace these with empty ones. In a time of a great yield of honey there is danger of too little room for breeding, and consequently weak colonies. In such case remove the outside frames, that will be well filled with honey, put some of the inside ones in their places, and empty ones in the center. The full combs can be used for feeding, or otherwise, as may be desired. If moth-worms appear among them, smoke with brimstone, in a close box or barrel.

Raising Pigs for Fresh Pork.

The author of "Walks and Talks" writes: "The most profitable branch of pig raising and feeding is to get the pigs fat at from three to four months old, and sell them for fresh pork. If of the right breed, and well fatted, they are as tender, juicy, and delicious as a turkey. The most provoking thing about it is, that the few consumers who know what choice eating such a pig really is, cannot get it; and the few farmers who produce it cannot get half what it is worth. It is a fact almost unknown in the American markets. Till it is known, those of us who raise the article in perfection must content ourselves with such prices as we can get, in hopes that when it becomes known we shall get what it is actually worth. But even now, at the present low price such pork brings, it will pay as well as any other branch of farming—which, it must be confessed, is not very much. Take such a pig as my young Essex sow, that at a little over four months old weighs 110 lbs. She will certainly dress over 80 lbs. Such a pig would sell for at least $7.00, and *ought* to bring $10 or $12. A sow should average 8 pigs at a litter twice a year—say 16 pigs, at $7 or $112. A good sow, weighing say 400 lbs, kept, as she should be, in extra store condition, would eat food equivalent to two tons of clover hay per year. But much of it is food that she picks up, slop from the house, etc.; and we will estimate it at $25 per year, which is certainly liberal. If it is not, how much profit do those farmers realize who keep a pig *two* years to make him dress 400 lbs., and then sell him for 7 cents per lb.?

Now, what will it cost to feed the little pigs? Till they are three weeks old, they will get all their food from the sow, and a good proportion of it till they are from two months to ten weeks old. Taking our data from Dr. Miles' experiments, and bearing in mind that we must, if possible, induce our pigs to eat more food than his did, we will estimate that the pigs the first month eat little or nothing more than they get from the sow, and the second month that they eat half a lb. each of corn per day, and the third month 1½ lb. each per day, and the fourth month 3 lbs. per day, the litter of 8 pigs would eat 20 bushels of corn; or the two litter would eat 40 bushels, which we will estimate worth $40.

The keep of a sow per year is $25
The keep of the little pigs is.....40—$65
The pigs sell for.....$112
To pay for the trouble of grinding and cooking the food, etc., we have.....$47

And besides this, we have the manure, and have disposed of our corn at one dollar per bushel.

The figures would have a more pleasing aspect if we got 15 cents a lb. for the pork. Instead of getting $47 for our trouble, we should then get $127; and that, when the article becomes known, such pork will average 15 cents by the carcass I have no sort of doubt. In London, "large pork" is quoted at 11 cents per lb., and "small pork" 16 cents per lb. in gold, by the carcass. And New York, Boston, Philadelphia, and other large American cities are better markets for *really choice* meat and butter than London. We can no more glut the market with choice meat than we can with choice fruit. The greater the supply of such an article of fresh pork as I have described, the greater will be the demand; for the simple reason, that it is intrinsically worth much more than we ask for it. Let us study the interests of the consumers, as well as our own. They do not want bone or rind a quarter of an inch thick, but sweet, tender, delicate, juicy meat; and it costs no more to produce it than rind and bristles.

Country Roads and Bridges.

BY W. J. CHAMBERLAIN, HUDSON, O.

Travelers over the wagon roads of our Western States will agree with me that the way the road tax is usually expended, discloses a great lack of judgment on the part of the supervisors thereof.

I wish to show how, with due regard to economy, to keep the road hard and smooth, the hedges firm and durable, and give the whole highway a neat and tasteful appearance. To this end these rules should be borne in mind:

1. Let the water have its own way.
2. Don't let the water have its own way.
3. Drain the road perfectly, keep the surface smooth, the crown high, and sloping well away to the ditch on either side.
4. Never leave a piece of new turnpike unfinished, but once begun carry out rule 3d before you leave it.

Within a mile of my house a small stream crosses the road diagonally no less than four times in a length of ten rods. In all these places the bridge is at the wrong place. In one case shown in figure 1, the bridge has always been at the point *b*. So at every freshet the brook, impatient of the abrupt curve just below *a*, figure 1, washes away its banks in the direction of the semicircular curves *d*, until it rushes triumphantly across the road and makes itself a new channel indicated by the dotted lines *e*. For fifty years the brook has been emphatically showing where the bridge *ought* to be, and for fifty years the supervisors with commendable pluck have insisted that it should flow, like a law-abiding brook, in the course laid down for it by their forefathers. Every spring at least this occurs, and then the district turns out with plows and scrapers, and turnpikes the road again, ready for the next freshet.

Last year it came my turn to be supervisor (this burden is borne by turns) and it so happened that a new bridge was required. I asked advice of the neighbors as to its location. A. said, "Guess you better put it in the old spot; the brook has kind o' got used to going that way." It seemed to me that was just what it hadn't "kind o' got used to," but I didn't venture the remark. B's and C's advice agreed with that of A. But D. bluntly remarked, "Bet-

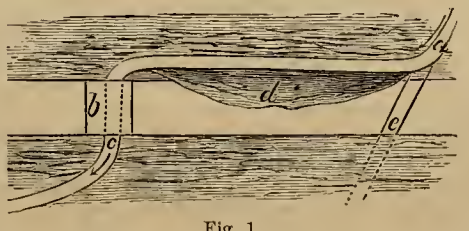


Fig. 1.

ter let the brook have its own way. It's been a fightin' fifty year' an' more to have the bridge put jest so the water could shoot right across the road when it got its dander up, and we 've been such a set o' fools we couldn't see what it wanted. The last big freshet I had the hull idee kind o' popped into my thick old head. Look here, neighbor," he continued, walking to the point *b*, figure 2, "you jest put the bridge here, and you make it big enough, and you build it slantin' across the road jest as the brook slants, and you bolt it from foundation to top-rider, and turnpike the road *right*, the hull length of the holler, and *I'll keep up bridge and turnpike fifteen year'* for what it cost the deestrick to do it *last year alone*. Once get the water across the road and it aint a-goin back agin to wash away the turnpike."

Well the job was done as he suggested, and as represented in figure 2; and he will be safe in taking the contract on the terms he named. In fig. 2, *d* is the old bridge, *b* the new one; *c*, *c*, are stones to preserve the bank. The only wonder is that the "hull idee" hadn't "kind o' popped" into some one's head before. But since that time I have seen many cases as bad as the one I have described.

The bridge then should always be opposite the inlet not the outlet of the stream, and where practicable, should point in the same direction as the current, that the water may flow clear through, forming no eddies, which have a fatal tendency to undermine and wash away banks and abutments. Once more, the bridge should be constructed with its floor on a level with the

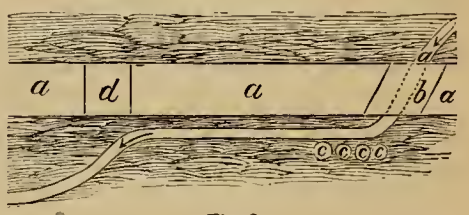


Fig. 2.

road each side, thereby avoiding the strain put upon a bridge whenever a heavy load is driven on it from a road at a greater elevation. Another important point is to afford sufficient "waterway" even during the heaviest floods, which in hilly districts will often swell a stream to ten or fifteen times its usual bulk. Finally, the bed of the brook for some distance from the road downwards should be made and kept large enough to discharge the water as fast as the bridge. Otherwise the water will set back in extreme cases, even flooding the road. This then is an illustration of what I mean by the first rule. "Let the water have its own way." The remaining rules, with the structure of small bridges and the general maintenance of the highways may be treated of hereafter.

Agricultural Societies and Fairs.

No agricultural community should be without its Agricultural Society. An organization having for its object mutual assistance and instruction should be of interest everywhere. To assist in the formation of such coöperative societies, we give a few hints as to the mode of bringing them into existence, and some of the advantages which may be derived from them.

As nothing can be done without money, the first business will be to interest and associate together a sufficient number of men to contribute the necessary funds. Laws exist in all the States for the encouragement of these enterprises and it is only necessary to follow them, in the mode of organization and incorporation set forth in each instance. These societies should have for their objects, in addition to the usual exhibitions, the introduction of improved stock, farm machinery, seeds and agricultural literature. Each one should aim to possess one or more thorough-bred male animals, together with mowing, reaping and thrashing machines, and a well-selected library for the use of those of its members who cannot afford to purchase for themselves. An annual exhibition should be held at some convenient period, to which the public should be invited to bring their stock, seeds and specimens of fruit and crops for competition. The funds necessary to furnish the

prizes offered should be raised by means of a small admission fee, and to make these secure, they should be guaranteed by the members of the association or some of the wealthier of them. Once put in operation, experience will soon show what is wanting and suggest the remedy. If an exhibition is all that can be accomplished at first, a good commencement will have been made. Above all things, get plenty of exhibitors, and if the stock does not show better than the seven lean kine dreamed of by Pharaoh, well and good, there is something to start from. Each year will improve on the preceeding one, and having an ideal in view, every farmer in the county will endeavor to attain it. We remember the first exhibition in a county in a Western State, at which there was no blooded stock of any kind, but such was the impetus given to improvement by the spirit of competition engendered, that in five years from that time there were exhibited three kinds of pure-bred horned stock, five of pure-bred sheep, and two of hogs; while the grades had already become respectable in numbers and appearance. Besides this, a mutual insurance company had been started among the members, and nearly every house and barn in that district was insured against fire.

As interchange of ideas is a great help to improvement, it would be well to enlist in these annual gatherings some well informed farmer from a distance who should deliver an address upon some interesting topic. This probably might be found more instructive than a horse-race. We wish this doubtful *agricultural* feature, could be stricken out of the programme on these occasions.

Bots in Horses.

There are probably more mistakes made in the treatment of horses supposed to be suffering from Bots, than from any other complaint whatever. While we admit the existence of Bots, we don't believe in the many stories of their injurious effects on horses' stomachs. We have owned at different times many horses, and have had them occasionally afflicted with what was called Bots, but have never lost a horse by death from this cause. The reason of this exemption from loss, has arisen, we firmly believe, from the fact that we have never permitted them to be dosed with the poisonous mixtures so much in favor with drivers and hostlers. The writer with ten horses in his stable at one time for a period of three years, had no case of sickness, not even an attack of Bots, from the moment he cleared the hostlers apartment of all the powders and villainous drugs he had there stored up in fearful array. Previously the horses had the Bots all the year round, and many were the remedies administered. Turpentine, milk and molasses, whiskey, and raw potatoes were common medicines. Now if the Bots were actively engaged in boring holes through the coats of the beast's stomach and laying bare the sensitive membranes, we fancy turpentine or whiskey would not be a soothing application thereto. A fatal inflammation would more likely be the result, and the remedy would prove as bad as the disease. In passing through the interior of the horse the Bot is undergoing its natural development; and when the proper time comes, it passes out with the excrement. To bore a passage through the carcass of the horse is not its natural mode of exit. We may always safely trust to the laws of nature, and the instincts of living things, to guide us in our operations. These all point to the fact that Bots are not necessarily injurious to the stomach of a living animal. We may then safely search elsewhere for the cause of those complaints generally attributed to the grubs of the Bot-fly. When we think of the carelessness with which horses are generally treated in the matters of over-driving, feeding, and watering, we cannot be astonished at the numerous forms of ailments of the stomach and intestines to which they are subject. In the majority of these cases the horse, if left to himself for a few hours, will be relieved naturally, but in a serious and prolonged indisposition, it would be wiser to seek the help of a practised veterinarian than that of the ordinary ignorant village horse or cow doctor, who will probably in nine cases out of ten, do more harm than good, for while he is endeavoring to kill the supposed Bots, he is more likely to succeed in destroying the horse. Generally it may be taken for granted when a horse rolls in his stable, gets up and lies down again often, turns his nose to his flank, and repeatedly makes ineffectual attempts to state, that he is suffering from indigestion or from inflammation of the stomach or bladder, resulting from errors in feeding or watering, after excessive labor—in such a case, nature will almost always find a means of relief in a few hours without any assistance other than rest, and care to prevent the horse from bruising himself.

Sheep on a Poor Farm.

Some farmers of our acquaintance feel an antipathy to sheep, for the reason that they "bite close." We consider this their chief recommendation. They can only bite close where the pasture is short, and the pasture is short only on a poor farm. A poor farm will necessarily be encumbered with briers, weeds, and brush, in the fence corners. Under such conditions, we would say to a farmer who has twenty dollars or upwards in cash (or credit for it, and then let him borrow the amount if he has to pay one per cent a month for the use of it), invest it in as many ewes, not older than three years, as you can get for that money. Put them this summer in such a field as we have described, and give them, in addition to what they can pick up, a pint of wheat bran and oat-meal daily, with free access to water and salt. They will first "go for" the briers and clean them out; every portion of that field will be trodden over and over again, and the weeds will have no chance. Fold them on that field during winter, and carry to them feed sufficient to keep them thriving. Get the use of a good buck in season—South-Down would be preferable—and in the spring, if you *have luck* (that means if you give them proper attention and feed *regularly*), you will raise more lambs than you have ewes. The money will be more than doubled, and the wool and manure will pay for their feed and interest. In the spring you may put that field in corn, with the certainty of getting fifty per cent increase of crop.

The Color of Bulls.

It is a little difficult to seriously and patiently discuss the bearings of the question of color in our domestic animals—a question that is raised almost exclusively with reference to the Jerseys—for nothing is better known than that nothing at all is known about it. If Mr. A. tells us that he wishes his Jerseys all to have black tongues and black hair on the ends of their tails, and a uniform color of body and limb, because he thinks they are so much more "stylish"-looking, we may smile at his taste, and even think that he attaches importance to a very unimportant characteristic; but we can find no serious fault with him for gratifying his own taste in his own way. If Mr. B. tells us that he wants his cattle to be of all colors, and some to have broad patches of white for the sake of contrast, we may or may not think that he, too, is working for a trivial object. But if either of these gentlemen tell us seriously that the color of an animal, or of any of its members, has a known physiological significance, he must excuse us if we give him credit for more enthusiasm than discretion. (We except, of course, those well-known indications of a tendency to the high coloring of butter, which is indicated by a corresponding deposition of color in the udder, in the horns, under the white hair, and in the ears.) We have been gravely told, more than once, that a bull with a black tongue is more likely to perpetuate his own characteristics than one with a light-colored tongue. After some investigation and much inquiry, we are confident that there is no ground for this theory, which, so far as we know, finds its adherents only among men of limited experience. What peculiar virtues attach to black tails, we do not know. That they are handsomer, we cannot think; but this, again, is a matter of taste, and is not to be discussed.

A new idea is now being sprung upon the public. It comes, as its predecessors did, in the modest form of a suggestion; but one after another will probably take it up, and in a few years it is not unlikely that it may become a cardinal article of faith with the proselytes. It is no less than the following: That the fawn, or *blonde* color, represents a more delicate constitution, and that when animals of this color are bred together they deteriorate; and it is also suggested that, as in the human family, the introduction of dark blood tends to reinvigorate the race. Not to go far for our illustration, we refer to the cattle of the Island of Guernsey, whose characteristics are well known to Jersey breeders. They are the blondes of the blondes. Not only are their colors very light, but they even lack the dark eyelids, muzzles, and horn-tips so common (but not universal) with Jerseys; yet they are as hearty and vigorous and persistent a race as is known, and a single cross of their blood will be evident for many generations. The shorthorns are blondes almost without exception, and no race is more vigorous. If we were to meet the question by reference to the human race, we would modestly suggest, being Anglo-Saxon ourselves, that these blue-eyed, flaxen-haired men of the North have held their own tolerably well in the world, and that their fair-haired cousins show a constitution for which the dark blood of France has no terrors. If the objection is raised that the triumphs of these races are due to intellectual rather than to physical causes, we have only to cite the Russians, who are almost uniformly fair, who have superabundant animal health and vigor, and who show by their close personal resemblance to each other, observable especially among the common people, that they are a thorough-bred race of long standing, without the intermixture of dark blood.

The mulattoes of our own country are not quite so clear a case in point, because in their case the infusion of dark blood is from the mother's side; but their weakness of constitu-

tion, as compared with either whites or blacks, is well known; and if we are to carry the teachings of human reproduction into our stables, it seems to us that we find here a hint in favor of avoiding the admixture of dark and light Jerseys—which is probably an absurd conclusion—showing only that we ought in our breeding operations to be guided, not by our fancies as to the influence of color—for this influence is as yet a sealed book to us all—but by the well-known experience of successful breeders. If we put a dark bull to a light cow, or a light bull to a dark cow, we may or may not be able to guess at the *color* of the progeny. Farther than this, surely no man can yet go; and we advise all breeders, whether of Jerseys or any other pure race, to stick to the good old plan of having a good cow served by a bull that had a good mother. An adherence to this practice would have a better effect on the future value of the breed than all the vagaries of all the theorists who ever owned a black-tailed bull.

The Foot and Mouth Disease.

BY JAMES P. SWAIN, BRONXVILLE, N. Y.

GENTS:—In compliance with your request, I send you a history of foot and mouth disease as it occurred in my herd. Early in March last, I purchased at Bull's Head, an ox apparently in good health and condition. He was put in my yard on Tuesday, and worked well until Friday evening, when he refused to eat. I examined him on Saturday morning, when he seemed to be in great pain, nervously shaking his chops, drooling from the mouth, and shaking his feet as if endeavoring to throw something off. He was immediately removed from the other cattle and kept under a shed half a mile away from them. The next day a cow showed the same symptoms, and the day after, Monday, several others did the same. I then reported the case to the State Cattle Commissioner, Dr. Moreau Morris, who treated me with all the consideration that could be expected, gave me all the advice he could, and sent a Veterinary Surgeon to examine the animals. Several other Physicians and Veterinary Surgeons saw them, and all agreed as to the character of the disease, and the mode of treatment, but I had previously commenced an entirely different and exactly opposite treatment, and carried it out. I do not recommend this treatment to others, but I should myself try it again in preference to any and all others. I purchased five gallons of crude carbolic acid at the suggestion of Dr. Morris, and should have used it for disinfecting my yards, for I think very well of it, but I chose to use more simple things that I more fully understood. My first operation was to cart fresh earth into my yards, and two or three times a day the diseased animals were driven into the mud and water where it was two feet deep, and were let stand there for an hour or more; after the first one or two trials they would go of their own accord, and stay longer than we wished them to. I let them drink freely of riley water, which they preferred to the pure water of the Bronx river. My cows averaged about one week, after showing the first symptoms, before they got to the worst. The blisters in the mouth and about the feet showed themselves in three to four days, and began to break in six to seven days. Either from the effects of the disease or from the difficulty and pain of masticating the food, or from both causes, the entire alimentary canal is irritated, some are costive, and others scour, discharging undigested food, and in bad cases, bloody mucous. This was in all cases corrected at once, by giving gruel made of Linseed oil-cake meal—cotton-seed is not so good for this purpose. In some cases I had common salt rubbed in the mouth, just as the blisters began to break, and apparently with good effect. Some of my animals that stood on board floors were much worse than others; in several instances the animal would seek the soft, moist earth, and lie down and try to bury its feet in the earth; in such cases I threw on earth enough to cover them, and they would lie still for hours with it on their feet and legs.

The last phase of the disease, which is in the third week, is a mucous sweat which mats the hair, and the last appearance is scabs or scurf about the nose, and sometimes around the lips, and occasionally spots on the body. It is a painful and troublesome disease, but I do not think it dangerous; it leaves the animals in good heart, with improved appetites, and mine are in decidedly better condition than before they had it. I have twenty-four animals at home, all of which had the disease, and I had twenty-seven at another barn, half a mile off, attended by the same men, without any extra precaution, and none of them have taken the disease. I have now mingled these animals for over two weeks, and have had no new cases, and it has not extended to any of my neighbors' cattle. I have been as singular in my mode of disinfecting my yards as in the treatment of the disease, but it is too soon to publish it, as it may not prove effectual, and I would not willingly lead any one astray by my peculiarities. I presume there is nothing peculiar or different in my case than in others, except it may be that of one of my imported cows that was affected differently from the others, and my theory is that she had the disease in Europe, and was only relatively affected, much as a man has varioloid after small-pox, or kine-pox, or as he has the kine-pox the second time. If you wish my mode of disinfecting yards, you shall have it.

Ogden Farm Papers.—No. 19.

For once we are fairly up with our work; every thing, that it was planned to have done by this time (June 10th), has been done. The carrots were put in sharp upon time this afternoon, and a rain that is brewing, ought to make such a reaction in the 2,000 lbs. of Manhattan Co's Dried Blood with which the 2 acres have been manured, that under such heat as we have a right now to expect, the carrots will be up nearly as early as the weeds remaining after the repeated harrowing of the land; and if the weather continues favorable for their growth, it will be a far simpler matter to nurse them until they are ready to "lay by," than if they had been planted, as is the custom, a month earlier. In fact it has been amply proven by experience, that carrots sown at this time are more easily cared for and make quite as good a crop as those planted early in May. I shall have however, from this field, no large crop to report as the variety grown is the Early Horn raised more for its color than its substance. Quantity can be more cheaply made up with Mangel and Ruta-baga.

After all sorts of experiments in the coloring of butter, I have come to the conclusion that the old-fashioned way is the best, that is, to color the cow. A peck of carrots a day with other root feed, fed to Jersey cows, will keep up a sufficient color for the highest demand of the market. This will take 40 bushels carrots, for a cow in full milk, all winter. With ordinary success they should be raised at a cost of 15 cents, per bushel; 25 cts. would surely leave a safe margin, and at this price the cost would be $10 for a cow. The carrots are worth nearly if not quite this amount as food. With a good dairy, having a high-priced market, they would certainly make a difference, of 10 cts. per lb. in the price of the butter, and this would amount fully to the extra outlay, showing a fair arithmetical profit, and ensuring what is of the utmost of importance to the permanence of high prices, a uniform color and quality, especially during the spring.

We got on very well this spring until the carrots we had laid by for coloring began to grow. Their renewed vegetation turned their sugary juices into gall and wormwood and spoiled two makings of butter and more than two profitable customers. We had already commenced green feeding, but before the grass color can affect the butter, it has first to affect the whole cow, and it takes a couple of weeks of grass to bring the color to the right standard.

There was another defect in our arrangements this spring that would not perhaps have manifested itself but for the prolonged drouth. We had too little soiling rye, only three acres, and we were afraid to commence cutting as early as we should have done, lest we should run out. As result, the drouth and heat of the latter weeks of May threw the bulk of the crop into head and blossom, making it too hard and too bitter for the cows. As a consequence they have had to go to grass, where they will remain until the middle of next week when the oats will be fit for cutting. I am now adopting brother Harris's recommendation to the extent of summer-fallowing a full section of the farm (9 ½ acres), to be laid down with rye this fall. We can safely commence cutting this in the spring when eight or ten inches high, and by keeping it cut short, will have a good supply, virtually of grass, until the middle of June.

In seeding down over nine acres of meadow this spring, I had intended to sow grass seed by itself, but yielded to the entreaties of our good German foreman, and let him sow something less than a bushel to the acre of oats for a shelter to the grass. As it has turned out, the venture has been an excellent one. Under the continued drouth, the grass came up but slowly. While we were for weeks without rain, we had frequent heavy fogs which made the oats dripping wet and so gave the soil an amount of moisture, without which the seed would hardly have germinated at all. Now the grass has taken well, and owing to the good condition of the land, we have a good deal more than half a crop of well-stooled oats for soiling now ready for the mowing machine. With this, and the crops that are to follow, we are morally certain of a superabundant amount of forage for the whole season; — a condition which it was not predicted by my neighbors would arrive so soon as the year eighteen hundred and seventy-one.

Contrary to our established rule, we are experimenting a little in butter-making. A lot of cans have been procured about 18 inches deep and 12 inches in diameter; a supernumerary horse-trough has been scrubbed out and put into the summer milk-room (under ground). Into this there runs a stream of water from the

windmill, the water having a temperature of about 58°. The milk as it is drawn is poured into these cans until they are nearly full and they are then stood in the cold water. Whether we shall get to using ice-water remains to be seen. In fact the result of the whole experiment remains to be determined. I can only say now that it has been going on for two churnings and both quantity and quality of cream and butter are at least as good as under the much more laborious system of using innumerable shallow pans. A month hence, I shall probably be able to speak more definitely.

Riding on Horseback.—No. 5.

We have now given our learner a preliminary shaking into a smooth and secure seat by mounting him on a horse whose management is intrusted to a friend, have taught him the use of the stirrups, and have shown him what sort of saddle and bridle he needs for his outfit. He is now ready to begin to learn to be a horseman, and he may next be taught to mount properly.

He should first learn (if young enough for such efforts) to vault into the saddle. We now and then hear of Princes, and the like, who lay one hand on the pommel and "gracefully vault into the saddle," but we do not see the feat performed except by skilful acrobats, and it is not very gracefully performed even by them. The following method, however, demands but little skill or strength, and, while always a good way to mount, is sometimes the only way it is practicable to mount a restive horse.

1. Stand facing the horse's left shoulder; 2, adjust the reins in the left hand, and take a lock of the mane in it; 3, lay the right hand on the pommel of the saddle, with the fingers inside and the thumb outside of it; 4, spring upward and throw the whole weight on the hands, with the crotch at the hight of the saddle, fig. 1; 5, raise the right leg slowly, well over the horse's croup (without bending the knee), and drop lightly into the saddle,—during this movement most of the weight is borne by the right arm; 6, withdraw the hands from the neck and pommel, and put the feet into the stirrups. These movements should be practised until it becomes easy to make them moderately; it looks very awkward to see a man "scramble" into his seat by hooking his right leg over the saddle and tugging himself over by his hands. As soon as your horse is accustomed to the manœuvre, and will stand quietly, practise the two movements (4 and 5) separately;—first learn to spring from the ground to the position described, and to drop easily down again without effort (and without *kicking*), and learn to handle the weight, when up, by raising the body until the knees are on a level with the hands, and settling back again. This movement depends very much on the ability to handle the weight of the person with the arms, and will need a little practice, which may as well be taken on a wooden horse or a bar, fastened five feet from the ground—a little higher after this has become easy. In short, make it easy to get into this elevated position and to feel unrestrained, while in it; next, learn to get the control of your right leg, so that it becomes natural and easy to throw it over the horse's croup with a bold swing—not poking it over knee foremost—and to carry it so high that there is no danger of touching his hips with the toe, nor of scraping his flank with the spur, as the foot descends. Keep up the alternate motions of throwing the leg over the saddle, and of returning again to the erect position, until you can arrest the movement at any point, and have such perfect command of the weight that you can be sure of getting lightly into the saddle under all circumstances. This knack once acquired will never be lost, and you may be sure of mounting any horse, except a bad rearer, on whose neck and saddle you can once lay your hands,—that much accomplished, you are sure of him,—and you can safely dismount by reversing the movements, in spite of his efforts to give you a fall.

Fig. 1.—LEARNING TO MOUNT.

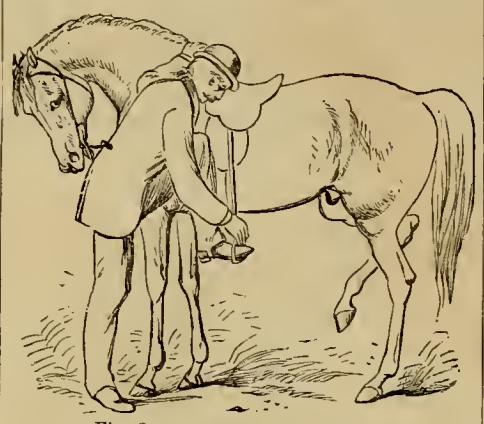


Fig. 2.—OLD MILITARY MOUNT.

While this vaulting is a very valuable knack to possess, the ordinary steady, sober citizen whom we are addressing, will usually wish to mount with the stirrup. It is curious to see what different ways different people adopt to do so simple a thing. Some practise the old military system:—standing at the side of the horse's neck (face to the rear), with the left hand holding the reins and a lock of the mane, they hold the stirrup with the right hand, fig. 2, put the left toe into it, give two hops which slews them around until they face the horse and catch the cantle (back part) of the saddle with the right hand, then rise and get their seat. The first position of this manner of mounting exposes the rear of the rider to a bite from the horse, which—the hand being engaged in the mane—he is powerless to prevent. A beginner usually takes hold of both ends of the saddle, finally manages to get his toe into the dangling stirrup, and then struggles with more or less difficulty into the saddle, where, for a moment he has no control of the horse, who, if he is at all spirited, commences the exercises by a very confusing start.

The correct manner of mounting with the aid of the stirrup, is, in our opinion, the following:—1. Stand opposite the cantle of the saddle (face to the front), with the right hand (holding the rein short enough to feel the horse's mouth) far over on the right side of the cantle; 2, take the lower part of the stirrup leather in the left hand, and steady it while introducing the left foot, fig. 3; 3, give a spring, upward and forward, throwing the weight as evenly as possible on the left foot and on the right hand, so as not to turn the saddle, grasping the lower part of the mane with the left hand in rising, and standing erect in the stirrup, with the feet touching each other, fig. 4; 4, throw the right leg (without bending the knee) well over the horse's croup, and (raising the right hand at the same time) drop lightly into the saddle; 5, as the right hand is raised from the cantle, let go of the mane and receive the reins between the fingers of the left hand, letting go with the right as soon as they are properly adjusted. In dismounting, exactly reverse all of these movements,—especially bringing the feet together while standing in the stirrup. Practise these exercises until it becomes easy to mount a tall horse without disturbing an ungirthed saddle.

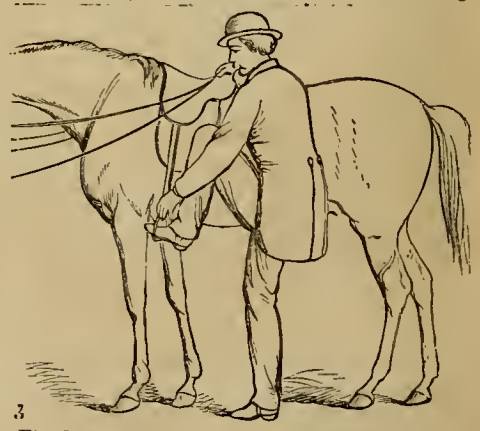


Fig. 3.—PROPER WAY TO MOUNT WITH STIRRUP.

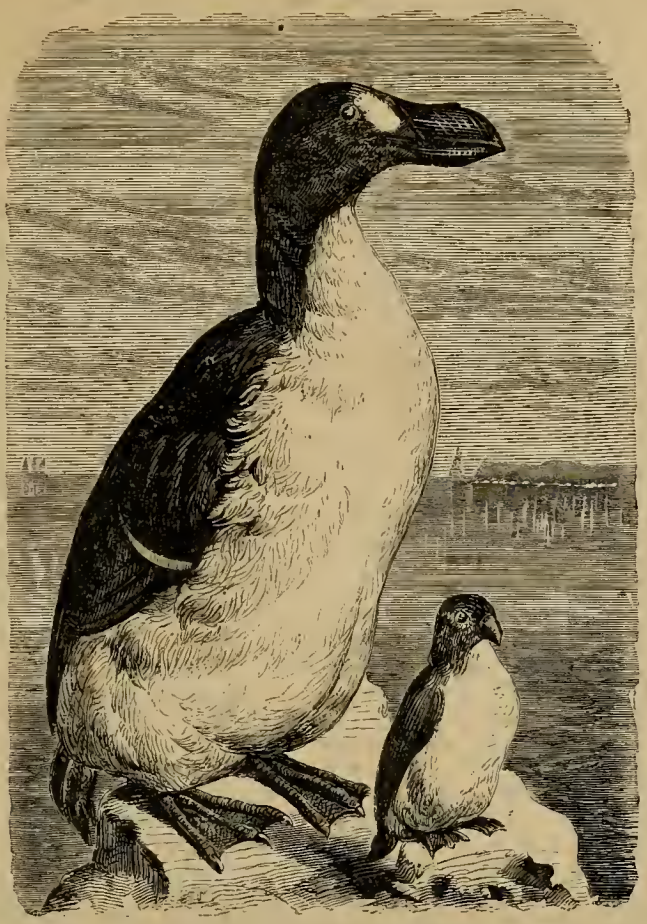
There is a method of training, invented by a French rider, Baucher, and named after him, which is the most effective means for making both horse and rider perfect in their work. Its details are too minute for repetition here, but they are well set forth in Herbert's Hints to Horsekeepers, and will well reward the attention of those who have the time and the enthusiasm to follow them out. By their aid an unbroken horse, if a good subject, can be made a very nearly perfect saddle beast in two months' time—having a lesson of thirty minutes or less, morning and night.

While it is not practicable to give here even an outline of this system, we shall adhere to its general principles, which are: to teach the horse but one thing at a time; to teach that thoroughly before proceeding with the next step; to make the lessons so short as not to disgust the pupil; to reward obedience more especially than to punish disobedience (or rather *non*-obedience); to make the horse thoroughly *supple* in every muscle of his body, and to teach him to move all his members as easily—under the rider's weight, and under the restraint of his hand and legs,—as he would do if playing in a pasture; and to practise him in handling the rider's weight, and in obeying the rider's impulses and restrictions, so that all his movements shall be made in accordance with the rider's will rather than his own—so that he shall, in fact, make no account at all of his own will, but execute that of the man instead.

We are aware that this sounds like an impossibility, but any one who will faithfully study and practise Baucher's system, will soon see that any horse of tolerable form and strength, and of average courage and temper, may be brought to this state of discipline without difficulty.

The Great and Razor-billed Auks.

The family of Auks includes marine aquatic birds, with large webbed feet, from which the hind toe is absent. The wings are frequently so small as to be useless for flight, and the short, strong legs are placed so far back, that when the birds are at rest upon the rocks, they appear to be standing in an upright position. The penguins, with which most persons are familiar through pictures, belong to this family. There are two Auks, the Great Auk (*Alca impennis*) and the Razor-billed Auk (*Alca torda*),both of which are found in the Arctic regions of North America. As far as the Great Auk is concerned, it perhaps would be safer to say it *was* found, as the bird is now believed to be extinct. The new museum of Natural History at Central Park is fortunate in possessing a specimen of this rare bird, there being but two others known to exist in the country. The bird was once obtained in Iceland, but it is some twenty years since a pair was captured, though English naturalists have since visited its former haunts for the purpose of obtaining specimens. The egg has sold in Europe for as much as £30 a single specimen. The Great Auk stands nearly three feet high. The bill is long, curved, and flattened sidewise, the upper mandible being marked by six to ten curved transverse grooves. The head and upper parts of the body are brownish-black, the under parts white, and there is an oval spot of white in front of each eye. The wings are mere rudiments, and the bird is unable to fly, though it moves with great rapidity in the water, and is said to have distanced a six-oared boat. Formerly the skins of this bird were much used by the Esquimaux as a material for garments.

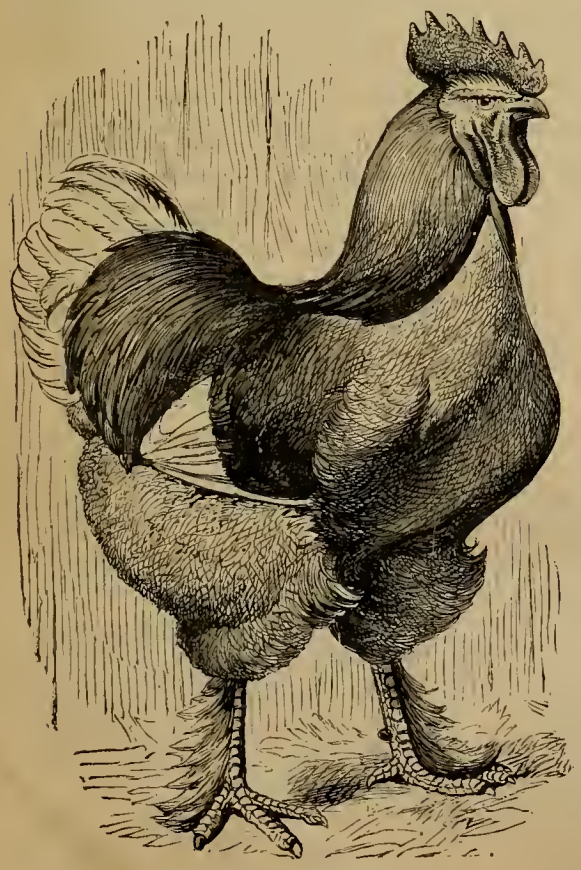


GREAT AUK AND SEA DOVE.

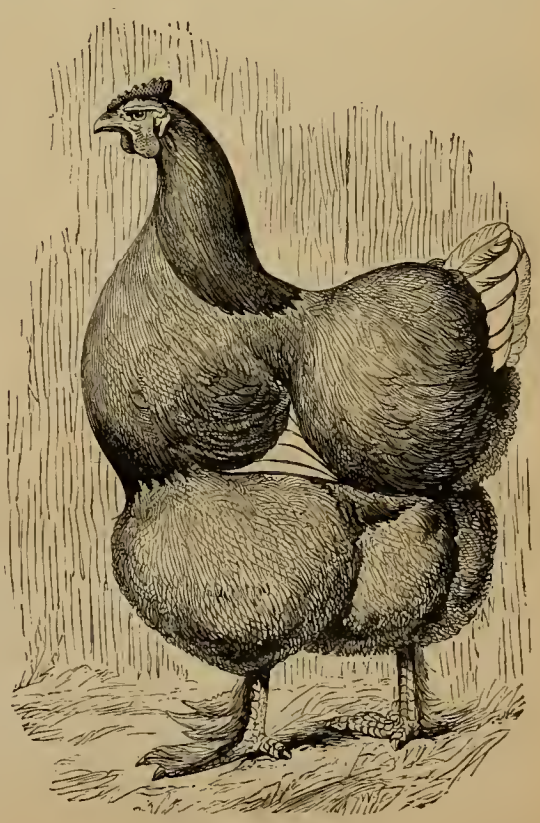
The Razor-billed Auk is not considered a rare bird. It comes down from the Arctic regions in winter, and is occasionally found as far south as the coast of New Jersey. Having the same general form as the Great Auk, this species is only about half its size. It is, moreover, able to fly. The bill is flattened, black, with a single transverse line of white, and with three to five transverse grooves. The head and entire upper part of the body are brownish-black, with a clearer brown on the neck in front. The under parts white. A line of white, extending from the base of the bill to the eye, is one of the distinguishing marks of this species. This Auk is also found in the northern regions of the Old World, and is hunted wherever found for the sake of its warm and elastic breast feathers. It lays but a single egg, which is as large as a turkey's egg, and curiously poised upon end by means of a viscid substance, which accompanies the egg when it is deposited. The eggs are considered a great delicacy. The small bird by the side of the Great Auk, in the engraving, is the Sea Dove, which is not rare upon the Atlantic Coast in winter. This is sometimes called the Little Auk, but it differs from the Auks proper, in many particulars, especially in the structure of the bill. Our engraving is from specimens at the Museum at Central Park.

A New Variety of Buff Cochins.

The engravings here given, show the portraits, taken from life, of a pair of Cochin fowls raised by Mr. Andrew Gorsline, of Bloomfield, N. J. The birds are of a light buff color, with beautiful and uniform plumage. The legs are feathered of a lighter color to the tips of the toes. The combs are single. These birds are strikingly unlike ordinary Cochins in the markings of their plumage, the flight feathers of the wings and the tail feathers being pure white. The hackle is also marked with white. These peculiar markings give the birds a very stylish appearance. The hens weigh eight pounds each, and the cock twelve pounds. These fowls are said to be good layers, summer and winter, and their flesh is of fine quality. The owner of these birds, who is quite a poultry fancier, regards them as the choicest of his stock, as they combine three very desirable qualities, namely: the rapid production of flesh, prolific laying of eggs, and the possession of the most beautiful plumage. Mr. Gorsline does not at present state the manner in which this cross was produced, but it is evident that it was accidently or intentionally done through the agency of some breed with white plumage. At all events, the markings seem to be quite well fixed, as several broods of chickens from the eggs of these fowls uniformly present the same characters. The owner of these fowls proposes to exhibit them at the



BUFF COCHIN COCK.



BUFF COCHIN HEN.

New Jersey State Fair, to be held at Waverly, next fall, where they can be seen by those interested in poultry. We understand that neither eggs nor chickens are at present for sale.

Walks and Talks on the Farm—No. 91.

There seems to be an unusual amount of red-root in the wheat and clover this season. There are acres in some fields where it has actually choked out the wheat and taken full possession of the soil. The Deacon has a little of it in his wheat and has been pulling it out by hand and throwing it into the road. My own wheat, especially that I "fall-fallowed," two years ago for barley, is tolerably clean; but I have one fifteen-acre field of two-year-old clover that is one thick mass of red-root. I never saw anything like it. If the clover was mown for hay, there would be red-root enough in it to seed the whole farm for years to come. But we are pasturing the field, and the question is what I had better do to get rid of this terrible pest. I had intended plowing up the field and sowing it to wheat this fall. The seeds of the red-root will, of course, be on the surface of the land, and if the sod was turned over six or seven inches deep, with a skim coulter, or what we used to call a Michigan double plow, the seed would probably lie at the bottom of the furrow and not germinate this fall, and consequently the wheat would not be troubled with it. It is, however, only postponing the evil day. The seed is there, and sooner or later it will produce a great crop of red-root. If we sow the field to wheat this fall, and seed it down again with clover, the greater portion of the seed of the red-root would probably lie at the bottom of the sod till the field was again plowed. If it was then broke up in June and fallowed for fall-wheat, we should have reason to expect a great crop of red-root. Being in the wheat, there would be no opportunity of killing it. It would go to seed, and the evil would be increased rather than lessened. If, instead of fallowing the clover soil for wheat, it was broken up in the spring and planted to corn, followed with barley or oats, and then sown to wheat, we should adopt the very best course to cause the red-root to germinate in the wheat. It is said to be a fact that red-root seed will not germinate except in September or October; and that the only way to get rid of it is to prepare the land for fall-wheat, and then *not* sow it to wheat. The red-root will then germinate, and the plants will be plowed under in the spring and destroyed.

"I wish you would tell us, through the *American Agriculturist*," writes a distinguished New York gentleman, who has a farm of barren sand, "whether it is best to let clover ripen and rot on the surface, or plow it under when in blossom? I have heard that it gave more nitrogen to the land to let it ripen and rot on it, but as I am no chemist I do not know."—If, instead of plowing under the clover—say the last of June, it was left to grow a month longer, it is quite possible that the clover roots and seed would contain more nitrogen than they did a month earlier. It was formerly thought that there was a loss of nitrogen during the ripening process, but the evidence is not altogether conclusive on the point. Still, if I had a piece of sandy land that I wished to enrich by clover, I do not think I should plow it under in June on the one hand, or let it grow until maturity and rot down on the other. I should rather prefer to mow the crop just as it commenced to blossom, and let the clover lie, spread out on the land, as left by the machine. There would, I think, be no loss of fertilizing elements by evaporation, while the clover hay would act as a mulch, and the second growth of clover would be encouraged by it. Mow this second crop again about the first week in August. Then, unless it was desirable to continue the process another year, the land might be plowed up in two or three weeks, turning under the two previous crops of clover that are on the surface, together with the green clover still growing. I believe this would be better than to let the clover exhaust itself by running to seed.

I am aware that this is contrary to the deductions drawn from Dr. Voelcker's celebrated experiments on clover. But in truth it must be admitted that this able and usually cautious chemist has for once been hasty in his conclusions; and several of our ablest American agricultural writers seem to have accepted his opinions without giving them due consideration. The *facts* are simply these:

A field of 11 acres was sown to winter wheat, and seeded down in the spring with 12 lbs. per acre of clover. The wheat yielded 40 bushels per acre. The next year, on the 25th of June, the clover was mown for hay. We are told that "the *best part* of the field yielded 3 tons (6,720 lbs.) of clover hay per acre; the whole field averaging 2½ tons (5,600 lbs.) per acre."

We are not informed how much land there was of the "best part," but assuming that it was half the field, the poorer part must have yielded only 4,480 lbs. of hay per acre, or only two-thirds as much as the other. This shows that there was considerable difference in the quality or condition of the land.

After the field was mown for hay, it was divided into two parts: one part was mown again for hay August 21st, and yielded about 30 cwt. (3,360 lbs.) of hay per acre; the other half was allowed to grow six or seven weeks longer, and was then (October 8th) cut for seed. The yield was a little over 5½ bushels of seed per acre. Whether the clover allowed to grow for seed was on the richer or the poorer half of the field, we are not informed.

Dr. Voelcker then analyzed the soil. That from the part of the field mown twice for hay, contained per acre:

	1st six inches.	2d six inches.	3d six inches.	Total, 18 inches deep.
Phosphoric acid.....	4,950	2,725	3,575	11,250
Nitrogen.....	3,350	1,875	1,325	6,550

The soil *from the part mown once for hay, and then for seed*, contained per acre:

	1st six inches.	2d six inches.	3d six inches.	Total, 18 inches deep.
Phosphoric acid.....	3,975	4,150	3,500	11,625
Nitrogen.....	4,725	3,350	2,225	10,300

Dr. Voelcker also ascertained the amount and composition of the clover *roots* growing in the soil on the two parts of the field. On the *part mown twice for hay*, the roots contained per acre 24½ lbs. of nitrogen.

On the *part mown once for hay, and then for seed*, the roots contained 51½ lbs. of nitrogen per acre.

These are the *facts*. Now, what are the deductions? If I was shelling the corn from a couple of corn cribs, and should find that one crib contained 100 bushels of corn and the other only 50 bushels, and should find furthermore a large rat in the former and a small one in the latter, and should send the rats to a chemist for analysis, and he should report that the big rat contained twice as much nitrogen as the small one, I should be somewhat surprised to find that the learned chemist had written an elaborate essay on the matter, giving the composition of the two samples of corn and of the two rats, closing with the following "summary:"

1st. A good rat removes from corn a considerable amount of potash, phosphoric acid, nitrogen, and other matters which enter into the composition of our cultivated plants.

2d. Notwithstanding the large amount of nitrogen and other constituents of food removed from the corn in the body of the well-grown rat, there was found, nevertheless, a larger amount of nitrogen in the corn from the crib in which the aforesaid rat was grown than in that where the small rat was found.

3d. During the growth of the rat a large amount of corn accumulates in the corn cribs.

4th. The larger the rat the greater is the accumulation of corn in the crib.

Dr. Voelcker draws similar deductions from his experiments on clover. He says "an immense amount of nitrogenous food accumulates in the soil during the growth of clover." "This accumulation of nitrogenous plant-food is, as shown in the preceding experiments, much greater when clover is grown for seed than when it is made into hay." "An *enormous quantity* of nitrogenous organic matter, as we have seen, is left in the soil after the removal of the clover crop." This is all very true. And so there was a large amount of corn in the corn crib when the small rat was found; and a still larger amount when the large rat was discovered. But there is *no evidence* to show that the clover had anything more to do in producing this nitrogenous matter in the soil than the rat had in producing the corn in the crib. We do not know how much corn there was in the crib before the rat got into it; neither do we know how much nitrogen there was in the soil before the clover was sown!

There was 3,350 lbs. of nitrogen per acre in the first six inches of soil, when the clover was mown twice for hay, and 4,725 lbs. when it was allowed to grow six or seven weeks longer and go to seed, or 1,375 lbs. more in the one case than the other. Dr. Voelcker says, and says truly, that "more leaves fall on the ground when clover is grown for seed than when it is mown for hay; in consequence, more nitrogen is left after clover seed than after hay, which accounts for wheat yieldiog a better crop after clover seed than after hay." In other words, there was 50 bushels more corn in the crib where the big rat was found—and it would be just as reasonable to attribute this increase to the rat as it is to attribute the increased amount of nitrogen in the soil, to the fact that the clover was allowed to go to seed. To produce the extra 1,375 lbs. of nitrogen found in the six inches of surface soil, would require over *one hundred tons* of clover leaves.

The truth of the matter seems to be, that the part of the field on which the clover was allowed to go to seed was naturally much richer than the other part, and consequently produced more clover and more clover roots. And if Dr. Voelcker's analyses prove anything they prove this—and nothing more.

In 1864, I plowed up a field of clover and planted corn. In 1865, planted corn again, and used the cultivator very freely both years to kill the weeds. In 1866, sowed barley, followed by wheat, and seeded down into clover in the

spring. In 1867, mowed the clover for hay, and the second crop for seed. In 1868, mowed it again for hay. After the hay was off we plowed half the field, and allowed the other half to produce a second crop of clover. It was a wet season, and the second crop of clover grew splendidly. I think it would have made a ton of hay per acre. This clover we *plowed under.*

The next spring (1870) the whole field was cultivated, but not plowed, and sown with barley. I could see no difference in the growth of barley on the part plowed immediately after hay harvest, and that when the clover was allowed to grow and then plowed under. After the barley, the field was plowed and sown to winter wheat. So far, I can see no difference in the color or growth of the wheat.

There was no more labor expended on the one part of the field than on the other. The only difference was, that one was plowed before the clover commenced to grow, and the other after the clover had attained its growth. The presumption is, that notwithstanding the fact that a large growth of clover was plowed under, there was no more nitrogen or other plant-food in the soil on one part of the field than on the other. The plant-food organized in the clover was simply taken out of the soil, and was merely returned when plowed under. Had the part of the field plowed immediately after harvest been harrowed, cultivated, and then plowed again in the fall, and otherwise exposed to the decomposing influences of the atmosphere, I believe *more* plant-food would have been developed from the soil than on the part where the clover was allowed growth. This probably would not be the case in poor, sandy land; but I have no doubt that clay loams, which abounded in latent plant-food, would become richer from being worked and exposed to the atmosphere than from the mere growth of clover. If there is any evidence to the contrary, I would like to have it produced.

I believe in clover. No one has written more in its favor as a renovating crop. We cannot grow too much of it. But it should all be consumed on the farm, and in addition, the clay-land farmer should "fall-fallow" as much land as he can. I am satisfied, though I admit the evidence is not conclusive, that fall-fallowing is more in accordance with the facts of scientific farming than the practice of plowing under clover.

A young man in Wisconsin has a farm of 150 acres, 45 acres cleared, and the rest what was called oak openings, but the young trees have grown up thickly. He asks a number of questions, which I will give in the *Agriculturist* in hopes of drawing out the opinions of those who have had more experience on the points than I have. 1st. "What kind of grass would do to sow under fruit-trees, so as to make pasture?"—There is no grass which will afford much nutriment when grown in the shade. I should try Kentucky blue grass. 2d. "What is the best treatment for blind staggers in pigs?"—Let the pigs have cool pens, clean troughs, fresh water, the run of a good clover pasture, and a moderate allowance of cooked meal, either of oats, barley, or corn. A gallon or two of water, sprinkled over each pig every day in hot weather, is also excellent. In case of a violent attack, give a tablespoonful of castor-oil for a 100 lb. pig, and if there is much prostration, give from two to three tablespoonfuls to half a pint of whiskey, according to the size of the pig and the urgency of the case.

3d. "What books on the horse, cow, sheep, pig, poultry, would you recommend for general uses; also on manures, crops, etc.?"—The best general work for a young farmer is the new edition of "Allen's American Farm Book." Youatt's books on the horse, cattle, and sheep, are all good [as is "Harris on the Pig."—Ed.]. On sheep, especially fine wools, "Randall's Practical Shepherd" is the best work in the English language. I do not know much about the poultry books. But I suppose "Wright's Practical Poultry Keeper" is as good as any. We have no book on manures. "Boussingault's Rural Economy" treats the subject with great ability, and is otherwise worthy the study of every intelligent farmer.

4th. "Are Norway oats and Alsike clover, humbugs? or are they worth trying?"—Better first try to get your farm clean and in good condition, and then if you have time, energy, and money to try new things, do so.

5th. "What shall I do with my woodland, so that I can keep it as woodland, and yet get grass on it?"—Thin it out to let in the sun. Sow on some timothy and blue grass seed. Let the cattle brouse the young under-brush. I imagine the result will be inferior grass and inferior timber. But I have no experience.

6th. "Will farm machinery pay at first?"—I should buy as little machinery as possible. In my experience, with a few exceptions, it costs as much, with ordinary hired help, to do work by machinery as by hand. I asked a farmer who has had considerable experience with machines, if they paid? "If bought with good judgment," he replied, "and used with great care, I think they do." A farmer can lose more by using a broken, one-tined fork, a dull, rusty hoe, a worn-out ax, and a battered-up spade than he can save by using a machine to saw wood or a reaper to cut his grain. A small farmer had better *hire* the work done with a machine than to buy the machine himself.

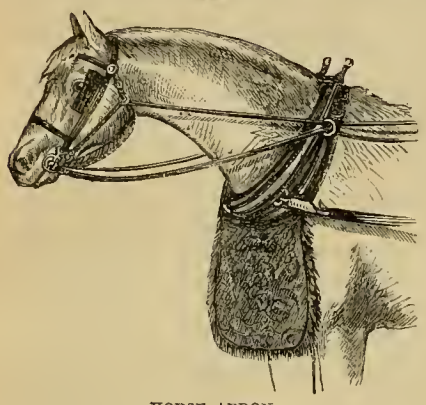
Our correspondent in Missouri is not satisfied with our answer to his question about curry-combs. He says: "I encourage the rolling of my horses and mules, and as soon as the harness is off, they always take a good roll in the stable-lot. But they sometimes select places to roll where I do not wish them. In my pasture there are some clay banks, and whenever they can, they prefer to roll there; and when the ground is wet, they get a coat of clay on them which all the straw in the country cannot rub off, and which, when it gets dry on their backs, will be so hard as almost to pull the hair out if you try to curry it off. I generally wash them clean, but am always afraid of their catching cold."—I do not see how I can help him. I think I should *scrape* as much of the mud off as possible before it got dry, and then remove the remainder after it was dry with a curry-comb. It seems to me, however, that if the horses were well curried and cleaned every day, they would not be so much inclined to roll on the wet clay. A Welchman, who went into Shropshire to work during harvest, was much surprised at finding that an Englishman combed his hair every morning. "Why," said he, "I only comb mine once a week, on Sunday, and it is an awful job. I don't see how you can find time to do it *every* day."

The Chester White breeder in Iowa, who thought I was "grinding my ax" in recommending Berkshire pigs, has written another letter in reply to our remarks, which exhibits more candor and courtesy. He claims that "the Chester White, or Magie pigs, will produce *more* pork, and as good pork, at six months or a year old, *according to the amount of food consumed*, than either the Berkshire or Suffolk pig."—Possibly this is true, though I should hardly expect it. But this is not the point I make. We have some thirty million pigs in the United States. They are kept for the production of pork and lard. Confessedly, there is great room for improvement. Of these thirty million pigs, 29,975,000 are what may be called "common pigs." They are of no distinct breed. Now, we have to select from them this fall—say 5,000,000 sows to breed from. I do not know how it is elsewhere, but in this neighborhood, if I wanted to get a score of sows to raise pigs to fatten, I should have no difficulty in finding just what I wanted—vigorous, healthy sows of fair size, that would probably prove good breeders and good milkers. Now, having got my sows, what breed shall I cross them with? My object, mark you, is simply to raise pigs for the pork barrel. Shall I use a Chester White, a Magie, or other large, coarse breed? or shall I use a small, highly refined, thoroughbred boar? I advocate the latter course. It is in accordance with well-established principles of breeding, and confirmed by general experience and observation. "But why do you make this point," asks our Iowa correspondent, "when you admit that the thorough-bred is preferable to half-breeds or grades?" I never have admitted anything of the kind, *when pigs are raised solely for the butcher.* For producing pork, I should never dream of keeping thorough-breds. A thorough-bred boar is of great value for improving our common stock, and that is all.

This Chester White breeder seems to think that I am "prejudiced" against this breed of pigs. It is not so. I wish they were far more common than they are. If I was obliged to raise my own sows from which to raise pigs for the butcher, I think I should get a Chester White boar and a Magie sow; and the sows from this cross I would put to a thorough-bred Yorkshire or Berkshire boar. If the offspring was not fine enough, I should select some of the best sows and mate them with a thorough-bred Essex boar. I think this last cross would give me the perfection of pigs for the butcher. And after that I should merely have to repeat the process. Such pigs I should expect to fatten more rapidly (because they would eat more), and to be in every way more profitable for the mere purpose of raising pork than any thorough bred Essex, Berkshire, or Yorksbire.

Horses in Summer.—Farm work during the hot summer months, requires only the lightest harness. Wooden collars are now used with great comfort to the horse. In the city of New York the harness worn by the street railroad horses is as scant as is consistent with the work they have to perform. No breeching is used, and hip-straps are dispensed with. Teams may often be seen plowing in the hot days of July and August, in the same harness they wore during the winter. This is unnecessary, nay sometimes it amounts to positive cruelty. Remove every superfluous strap, take away the back-strap and crupper-band and let the air circulate freely around the body. At night when work is over, wash the sweat and dust from the legs and thighs of the horse; a dash of water on his flanks would be grateful to him. Let his stable be airy and clean, with a bed of clean straw.

Kindness to these serviceable animals is the truest economy. Besides, we feel better when our horses are made comfortable; the sensation is akin to that derived from the doing of a benevolent action. A sensitive man cannot see a horse sweating under and galled by a heavy harness during the intense heat of a summer's day, without sympathy and pity, nor can he retire to rest with an easy conscience, knowing that his faithful servants in the stable are improperly cared for and suffering. "The righteous man regardeth the life of his beast."



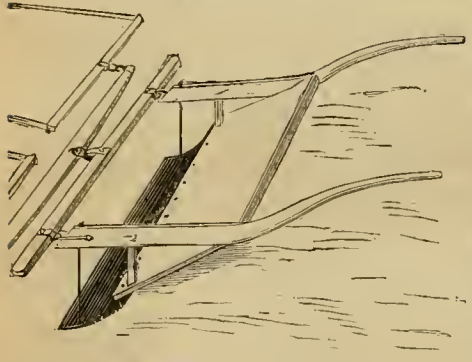
HORSE APRON.

Aprons for Horses.

Though rarely seen in the country, aprons are a much needed addition to the harness. They may be made of cloth, a piece of carpet, or tanned sheepskin. Suspend them from the lower part of the collar and allow them to reach the knees. A cloth fastened under the jaws suspended from the throat-latch to the curb strap by short strings, is also highly necessary as a protection from the pertinacious attacks of the Bot-fly. With this and the apron, the wearisome and irritating attentions of this abominable pest will be greatly mitigated. The plowman will also be much relieved by the absence of the frantic efforts of the suffering horse to rid himself of his relentless enemy.

An Implement for Cutting Tussocks.

In reclaiming bog meadows, the first thing after draining and removing the water is to get rid of the unsightly tussocks. This is a slow and wearisome process, when undertaken by hand-labor. We have used with great satisfaction a hoe, suitable for a pair of horses, made something like a horse-shovel or scraper, as represented in the engraving. The cutting part was



CUTTER FOR TUSSOCKS.

made of a used-up mill-saw, ground sharp; the frame and attachments were all home-made. If good, white oak timber is used, it can be made light enough to be quite easily handled. When cut, the best way to get rid of these tussocks is to pile them up, let them dry, set fire to them, and heap damp muck on them so that they may burn slowly. The ashes of slowly burnt materials are much richer in fertilizing elements than those resulting from a hot, quick combustion, and the ashes of these otherwise almost imperishable things, thus burnt, would be valuable. The surface once well dried and leveled, reclamation becomes a simple process.

A Deep, Loose Soil.

A deep, loose soil can only be had by subsoiling or trench-plowing. Trench-plowing is fitted only for very deep and rich soil, in which the subsoil is equally fertile with the surface. Where there is but a shallow depth of fertile soil, the work of subsoiling must be performed before it can be improved in depth. This is generally done by means of a subsoil plow following in the furrow, and necessitates the use of an extra team. This is an obstacle which is insurmountable on the great majority of farms. To provide a means of accomplishing the important work of loosening the soil below the bottom of the furrow, we have hit upon the expedient here described. The attachment here figured may be affixed to almost any plow. Three bolts fasten it to the landside of the plow on the inside; the arrangement of the bolt-holes should permit the teeth only, to project beneath the sole—a small block of wood will be necessary to be laid between it and the landside, to correspond with the flange generally found at the bottom of plows on the inside. The draft is not materially increased, and the

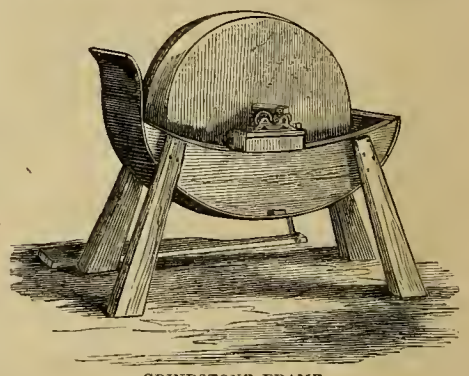
plow holds the ground more steadily. The teeth, two in number, and about four inches apart, should be of steel, and should be kept sharp in front; the rest is of wrought iron. A blacksmith can make the affair at a cost of something over one dollar.

The constant use of this addition to the plow will loosen the subsoil, and allow it to be turned over and intermixed at the rate of two or three inches deeper each year. It will dry the soil by thus loosening it, in a degree gaining some of the benefits of underdraining, without any of its cost. But its great advantage is, that it will gradually break up the hard stratum of soil which has been formed at the bottom of the furrow by continued plowing and trampling, and permit the penetration of roots into the subsoil, without unnecessarily bringing it to the surface.

Seed Wheats.

By the time this number of the *Agriculturist* is in the hands of the farmers all over the United States, they will be casting about where to get their seed wheat. We would suggest that it would be advisable to experiment a little with fresh seed. It has been found that seed procured from a distance—either greater or less—has been used with profit, and generally it has been found that seeds brought from a northern locality have been more profitable than those from a southern one. Doubtless the continued use of the same seed on the same ground leads surely, though gradually, to deterioration in the crops. Farmers have changed seed with neighbors only a few miles distant, with advantage.

As to varieties there is abundant room for choice. The white or amber varieties furnish a valuable grain for the first quality of flour, and millers are glad to see such wheats coming to them; but they require good soil and good preparation, as well as early sowing, or drilling in, all of which will prevent heaving by frost in ordinary winters. We have found the Treadwell a very profitable wheat, stooling thickly, and proof against the midge, but very subject to heaving on undrained ground. It has yielded with us over twenty-five bushels per acre on what was two years previously a badly used up field. This wheat has the peculiarity of producing smooth and bearded heads from the same stool, and a field of it would look to the uninitiated as if it were badly mixed. The grain is small and therefore heavy, weighing 60 lbs. to the struck bushel. The Diehl is also a favorite wheat with us; it, too, requires good farming to secure a good crop. In fact, we cannot mention a wheat that does not require good culture, though some varieties seem to stand neglect better than others. The old Lancaster Red is a favorite in some districts, and



GRINDSTONE FRAME.

we have seen fair crops on what we should call poor farms. Aim to get a trial piece well prepared this fall, and sow it with some new, well recommended wheat. In every neighborhood there is usually some go-ahead farmer who has been experimenting, and has some seed to offer. Encourage him by trying his seed if of promising quality, he will then make other trials.

A Grindstone Frame and Trough.

The sides of the frame are made of stout plank, the bottom is of galvanized sheet-iron, nailed on close enough to be water-tight, and brought up in front sufficiently high to protect the person using it from being spattered with the dirty water. The blocks on the sides are screwed on, and, as the stone wears down, one or both may be removed. The ordinary friction-roller hangings are used. A peg in the lowest part of the side lets out the water when necessary, which should be when done with.

BARN BARROW.

A Barn Barrow for Fodder, etc.

The engraving which is here given is of a barrow, that we have found very useful. Its structure will be understood without any extended description. The handles being long—four feet, the whole barrow being eight feet—a large load can be wheeled by one man. If used

for carrying grass, a light rack may be set up on it. It will be found useful in the feeding alley, or in the field where only a few animals are kept. If made of stout stuff, it will be found capable of bearing several bags of grain at a load.

Fig. 1.—TREE WITH CROOKED TRUNK.

Implements for Moving Stone.

A very easily constructed and handy boat for moving large stones may be made as follows: Select a couple of small trees, six inches in diameter—oak or hard maple is best—with crook-

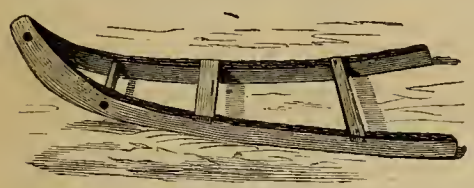


Fig. 2.—STONE BOAT.

ed stems, like that in figure 1. Hew the sides, if desired—it will make it lighter. At the crook, bevel the insides for a few inches so as to allow sufficient spread to the hinder ends (fig. 2). Pin with a two-inch pin at the "nose," and wedge firmly. Put another two-inch pin about a foot further back; this is also to be wedged firmly. This pin is to fasten the chain on to draw logs. A couple of cross-pieces are then to be spiked or pinned on, and the boat is ready for use. This is a useful vehicle for moving plows or harrows from field to field, and a very large stone may be rolled on to it with a cant-hook, and afterwards easily moved off. A deck of plank may be laid on with its sides slightly raised, and a ton of small stones may be taken at a time. Much lifting and much back-ache may be saved by using such a "boat," rather than a wagon or cart, and it may be made in an hour or two without laying out a cent for materials. A cant-hook (fig. 3) may be made with a long handspike to which is attached a grab-hook, by means of a short, stout rope or piece of chain; once get hold of a stone with this and it must come or something will break.

Fig. 3.—CANT-HOOK.

An Egg Farm.

BY H. H. STODDARD.—*Third Article.*

The distance once around to each station amounts to several miles, and the rounds must be made four or five times at least every day. The distance would be too great for the attendant to walk over, even if empty-handed, and transporting grain and water without a team would be out of the question. A supply of water through pipes, connecting with each station, would be too costly, especially as they would be idle when the land was cultivated. A running stream conducted in an open ditch to each building would freeze in winter, make the ground near its banks too damp, and be in the way of plowing, moving buildings and other operations; besides, few lots suitable in other respects can be found where the slope of ground with water supply at top admit of the construction of such an aqueduct. Each flock of fowls needs a pailful of water daily, taking account of the evaporation in hot weather, and the necessity of emptying the drinking vessels at night in winter to prevent freezing. Such an amount of water could not well be carried by hand.

The most convenient wagon for our use is that sometimes kept for moving stone at quarries, and called a stone-cutter's dray, shown in figure 1. In Maine, such are used very commonly to carry timber about saw-mills, and on short routes where no stumps or stones are to be passed over, thus saving much lifting.

It is desirable that the driver should ride the ten-rod stages between the fowl-houses to lighten his labor, and that the team should trot to save time. But to climb in and out of an ordinary wagon to ride ten rods, would involve more exertion than walking. Besides, the labor of lifting grain in and out will be much less in a low wagon; the water-cask may be filled and drawn from readily, and it is especially convenient in gathering dry earth. The vehicle should be built just heavy enough to support a barrel of water, five or six bushels of grain, and the driver; or when rigged for earth, the amount designed to be carried is about equal to an ordinary horse-cart load. It is not intended to be used off the premises at all, and as there are no stones, hummocks, or the like, and no deep ruts, the body is set so as to clear the ground by only 8 inches (10 inches are allowed in the Maine wagons). The body is 12 feet long, and 4 feet 2 inches wide behind, and 3 feet wide in front, the tapering shape being necessary to give a chance to turn the wagon without cramping; and the turning is also facilitated by making the axle-trees so long that the wheels track 5 feet 7 inches, or about 4 inches wider than a common horse-cart. The side-boards are but 6 inches wide—the aim being to keep as near the ground as possible—and of two-inch plank, serving as part of the body frame. Four cross-pieces underneath, fastened to the side-boards by stout clamp bolts, complete the frame; and the whole is so constructed that no part of the body projects from under the side-boards, the compactness of shape serving a useful purpose when we come to load dry earth. The rear axle-tree is made in one piece of wrought iron 2 inches square. The king-bolt should be made stout, and allowed to turn freely in the forward axle-tree. To carry

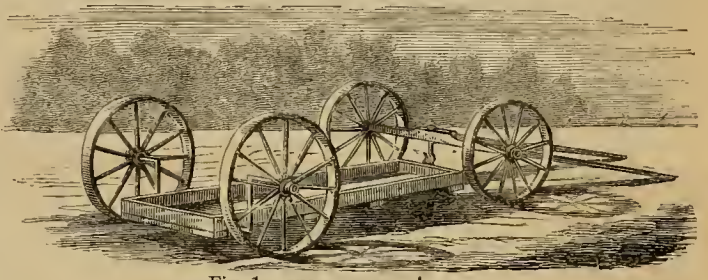


Fig. 1.—STONE CUTTER'S DRAY.

eggs without breakage, a movable stand for the egg-basket, furnished with springs, can be set in the wagon. A low sled may take the place of the wagon when the season requires it.

The road may be constructed quite narrow, as there will be no occasion to pass other teams; and an easy way to raise a path sufficiently to avoid wet is, to plow a strip of ground a number of times over, always throwing the furrows

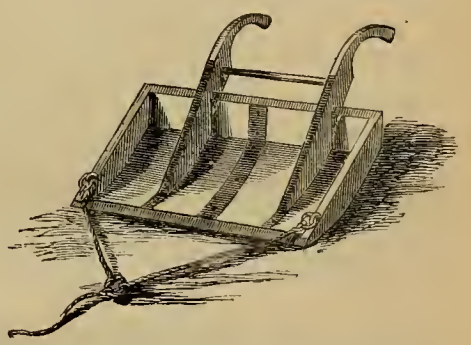


Fig. 2.—SHOVEL.

towards the center, and the rounded ridges thus made with ditches on each side is to remain in the field permanently, and may be cropped with the rest of the land if desired. The wheels of the wagon are made with very wide tires, as shown in the illustration, and must not be driven in the same track twice in succession, but used as rollers to smooth down the whole ridge, for there must be no deep ruts to cause the wagon-body to graze the ground.

To gather and store dry earth, the following plan is submitted as available not only for the

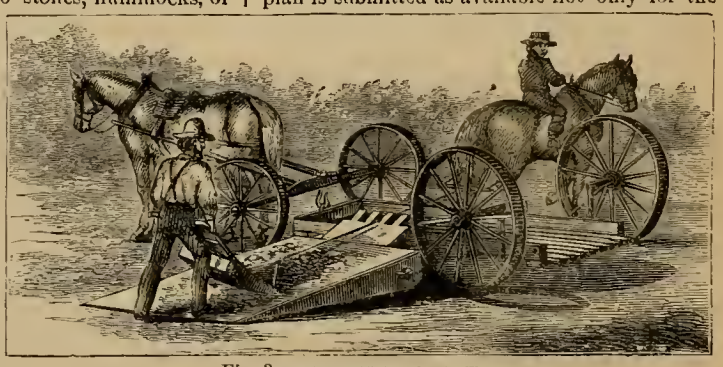


Fig. 3.—LOADING DRY EARTH.

poultry business, and that invaluable invention the earth-closet, but for preparing absorbents and litter for stables and pig-pens. The best farmers are fast learning to use dry earth for all their animals, not only for the cleanliness and health of the stock, but to lighten the labor of attendance, substitute a cheap litter for straw, and save every particle of manure.

The spot of ground set apart for the dry-earth harvest should be kept free from weeds and turf, and harrowed as shallow as possible, using a harrow with numerous very short teeth. The ground should not have been plowed for a year, the object being to pulverize it only at the surface, for in this way the top soil can be better kept from absorbing moisture from below, reversing the usual maxims of tillage. There is seldom a summer without several weeks when the soil for a couple of inches is almost dry. This is the time to proceed with the work. The implements used are a wide scraper (fig. 4) 5 feet × 10 inches, and a shovel (fig. 3) 2 feet 3 inches × 2 feet. They are made lighter than

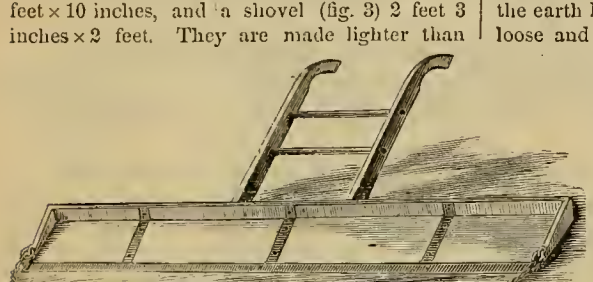


Fig. 4.—SCRAPER FOR DRY EARTH.

similar ones designed to work among stones and gravel, and both are intended to be always used in a nearly perpendicular position, and therefore the backs need not be shod for wear, as is usual with team shovels and scrapers.

They are both built of wood, edged and bound with iron. The shovel is made somewhat concave, being designed to move a pretty full load for a short distance; the scraper which only skims the surface is made straight. A rope is substituted for the iron bail for draft attachment in the shovel to make it lighter, and for

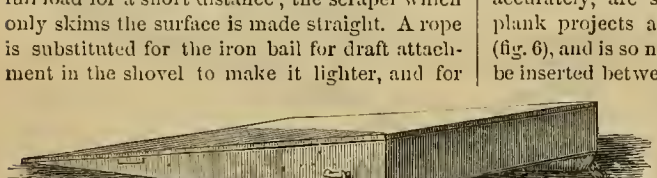


Fig. 5.—PLATFORM FOR DRYING EARTH.

the same reason the iron edge and bands are thin. The mass moved being very dry, light, and mellow, admits of a rather slight construction of the implement; and as this is to be used by backing the team at every shovelful, and pulling the shovel back by hand, as little weight as possible is desirable. The wooden rod connecting the two crooked handles of the shovel is essential, serving as a convenient handle in backing. Now, during a time of dry weather, by harrowing your ground with the short-toothed harrow half a dozen times on a hot day, the soil will become sufficiently pulverized, and also advanced one stage in dryness. The next day—watching the weather as

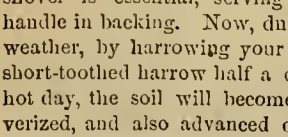


Fig. 6.—BOTTOM OF DRAY.

closely as a hay maker — hitch your horse to the scraper, and try to scrape one inch deep, no more, and gather the earth into small winrows, extending regularly across the field, the operation being like raking hay. Next make the team follow the winrows, and cock the dirt into heaps of a cart-load each. Now, you have piles of earth nearly dry, but they will not grow any drier until placed, so that moisture cannot be absorbed from below. Platforms of boards (fig. 5), 8 feet square, and built wedge-shaped, and 14 inches high at the highest part, are now drawn by the team upon the joists which form the sides and serve as runners, and located one by each heap with the thin edge towards it.

Attach the team to the shovel by a rope about 12 feet long, and transfer the earth to the platforms, heaping the first shovelful upon the edge next the pile to cover it, so that it may not obstruct the shovel. The platforms should be on the north side of the heaps at the commencement, so as to slope toward the south, and afford direct exposure to the sun. In two or three days of fine weather the piles will be nearly as free from moisture as if kiln-dried, if the earth has been well pulverized, for it is so loose and porous that the moisture from the bottom finds its way to the surface as fast as the latter dries. If the weather becomes threatening, house the earth without waiting for further drying, or cover with hay-caps, according to circumstances. When ready for housing, draw the wagon close to the north side of the platform, and connect the two with a skid 5 feet × 14 inches, with teeth projecting over the body to hold up the shovel, and let the earth drop through. The same length of rope between the horse and shovel will be needed as when piling earth upon the platforms. Fig. 3 shows the manner of loading.

The flooring of the wagon, when used for carrying feed and water, consists of movable boards, which are taken out with the hind board when preparing to haul earth, and $1^1|_2$-inch planks, 5 inches wide, with planed edges fitting accurately, are substituted. One end of each plank projects a few inches behind the body (fig. 6), and is so narrowed that a handspike may be inserted between the planks. By prying them up one at a time, the wagon is readily unloaded. There will not be any appreciable leakage between the planks in hauling 40 or 50 rods, and, to save travel, the earth plat should not be more than that distance from the store-room at farthest. An underground basement in the granary of the establishment is the proper store-room, and, by driving in above, the load may be discharged through a trap-door in the floor into a capacious hopper-shaped bin. Underneath the bin should be space to drive in winter the wagon or sled, and, by pulling a slide, let the earth fall until a load is obtained to be carried to the stations. In this way the earth is pulverized, heaped upon the drying platforms, loaded upon the wagon, transferred to the bin, and re-loaded, without touching a hand-shovel to it at all. The wagon may be loaded with the aid of the team shovel in less than three minutes. The farmer may make an earth-bin, of the kind described, in his barn cellar under a trap in the barn floor. The earth, upon a tract of such mellow loam as is suitable for poultry, will become, by pulverizing and drying, reduced completely to dust. The loading and unloading by team power not only saves labor, but overcomes the difficulties insep arable from shoveling such a light powder, that flies at the least wind. Of course only slight pulverization will be best in preparing dirt for the earth-closet and stable, but for poultry the finer the better. In the fall, when dry weather gives opportunity, labor may be still further saved by scraping heaps of dry earth directly upon the winter sites of the fowl-houses, and drawing as many of the latter as are rendered tenantless by the sale of the old stock upon the heaps, where the earth can remain sheltered awaiting the new flocks of pullets, and no wagon is needed at all for the earth in that case.

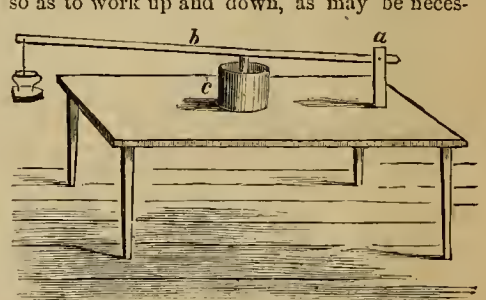
After the dry earth has been used in the houses through the winter, the final disposition of it must be made in the spring, as much with an eye to labor-saving as in collecting it. The fowl-houses are to be pried up to loosen their sills from the dust-heap in which they are embedded, and drawn off to summer quarters. Then the earth, mixed with the manure, is to be first moved with the shovel, and scattered about the immediate vicinity, one shovelful in a place. The scraper is next in requisition to spread these heaps, and the harrow comes last, reversing the order of gathering.

Cheese-Press.

A small family cheese may be made on any farm, where two or more cows are kept. The night's milking may be kept over, and added to that of the morning, about fifty to sixty quarts being sufficient. Bring the milk to blood heat, that is, so as to feel warm to the hand. A piece of well-saved rennet, two inches square, is to be soaked over night, in a pint of warm water, and the liquid from it added to the warm milk, which may be left for half an hour to set.

A small tub, or a common wash-boiler well scoured, may be used for this purpose. When well set, the curd should be cut across both ways, into small squares, of two or three inches, with a long bladed knife, to facilitate the separation of the whey. Lift the curd out carefully with a strainer, and place it in the hoop.

This may be of tin, eight inches in diameter. A six-quart pail, which has become useless for other purposes, will serve. Punch the bottom full of holes for the whey to drain off. Set the hoop on a stand for pressing. A handy press may be made as in the engraving. A piece of $1^1|_4$-inch board, will make the bench; four legs are put beneath, fitted into holes bored to receive them. An upright, *a*, is put through a hole in the end of the bench, and a pin passed through underneath to prevent it from being drawn out. A lever *b*, is fitted on *a* so as to work up and down, as may be necessary. The hoop *c*, is set on the bench, a wooden follower fitting loosely, is laid on the curd, and a sad-iron is hung on the end of the lever. The weight can be increased as desired by shifting the cheese nearer to the post *a*. A few grooves are necessary to carry off the whey which drains from the curd, and drops into a pan underneath. As soon as the cheese is sufficiently pressed to handle, take it out, wrap a bandage of fine muslin round it, and sew the edges.



HOME-MADE CHEESE PRESS.

Butter the cheese all over, and put it away in a cool, dry place to cure. The next week make another, and repeat the process as often as desired. A very palatable cheese may be made

with three parts skim-milk and one of new. A few experiments will make a green hand quite an adept at this branch of housekeeping.

The model of the above cheese-press was designed and made by a boy of fourteen, and it answered its purpose admirably.

ROOT CROPS.—The great objection among farmers to raising root crops is the great danger of the destruction of the young plants by weeds. There is no remedy, that we can see, but in greater care to clean the ground by thorough fallowing and thoroughly rotting the manure, which must be well incorporated in the soil by at least three plowings and harrowings. This will permit the weeds to start, and be plowed under and torn up and rooted out by the teeth of the harrow. In the fine, rich soil thus produced, the seed will germinate quickly, and get ahead of the weeds that remain. A well-grown root crop is the most valuable, and will carry the most stock per acre.

How to get Thorough-bred Stock.

LETTER FROM A YOUNG KANSAS FARMER.

C. F. T., a young Kansas farmer, writes to one of the editors of the *Agriculturist* asking the price of pure-bred Essex pigs, and adds: "I cannot afford to pay fancy prices. I am a young farmer, trying to make my two-year-old farm support me. Stock-raising is money; but to do it well you must have a large herd, and a herder, and this requires a large outlay of money, and hence I am turning my attention to hogs. I have two sows of Silver's 'Ohio Improved Chester's,' long, coarse, well-made hogs, though hardly enough shoulder, and I can trade around and pick up fair grade sows at $8 and $10 each. Now, if I can cross a pure Essex with these common hogs, and also with my Chesters, would I not be able to turn out thirty or forty hogs a season. At the same time, by raising some pure Essex, I could show intelligent farmers what I was doing, and dispose of them at good prices for stock pigs. Now will you give me some good, substantial advice. I have read Harris on the Pig, and also the *Agriculturist* regularly, and I would like to be a good farmer, but it is almost discouraging. I now own four good cows and 11 two-year-old heifers, and for common stock they are good. My neighbor proposed for us to buy a Shorthorn bull together, and I wrote to five different breeders and received elegant catalogues, fine engravings, etc., with prices $400 and $500 for 14 months old, and $250 for an October calf. Is not this enough to get one vexed? I would be willing to pay from $100 to $200 for a good yearling, but these prices put it out of our reach."

This is a very sensible letter. Our young friend has got hold of the right ideas, and we prophesy that he will be heard from by and by. Our advice is: *do not be in a hurry.* Improve the farm, and at the same time improve the stock, gradually. Do not pay "fancy prices." See what you can do nearer home. There has been some good stock taken into Kansas. The writer has sent as good Essex pigs there as he ever raised. And there are superior herds of Shorthorns in the State. Patronize the home breeders. Visit them and tell them what you want, and you will very likely find a pure-bred animal that is just as good for your purpose as one from abroad costing three times as much. If a man with abundant capital likes to pay $10,000 for a Shorthorn bull, no one has any right to complain. It is a good thing for the man who raised the animal. He gets well paid for his skill, judgment, and experience, and the fact should encourage other practical breeders to persevere in their efforts to improve their stock. But it is folly for an ordinary breeder to pay such prices. We must not lose sight of the fact that the ultimate object in keeping Essex pigs and Shorthorn cattle is to raise animals for the butcher. And while it is certain that nothing will pay our correspondent better than to give $25 or $50 for an Essex boar, or $100 to $200 for a Shorthorn bull, it is doubtful if he will get any corresponding benefit by paying fancy prices for fancy animals.

Thrash the Grain Early.

It is always economical to thrash early. We would advise every farmer, who can possibly do it, to thrash his wheat, rye, or oats, as the crop is drawn from the field. There are many considerations in favor of doing this. 1st. By reason of the state of dryness in which it is hauled off the field, the grain is in better condition for the thrashing machine (or certainly as good) than at any other time. 2d. Only one handling is necessary, and thus labor is saved. 3d. At harvest-time grain is almost always in better demand by millers, and in the general market often brings a higher price than at other times, Taking one year with another, it will be found that this is the most advantageous time to market grain. If the farmer holds his grain for speculation, very well: he has a right to become a speculator if any one has; but we hold as a general rule, that so soon as a farmer has his produce ready for market, then is his best time to sell. The earliest markets are almost invariably the best. We were once enabled to sell the whole of our crop of wheat at a high price, for seed, because we had thrashed in time and none of our neighbors had. Lastly and most worthy of consideration is the fact that, by thus early thrashing and marketing, the destruction by vermin—mice, rats, weevil, etc.—is prevented. We believe that ten per cent at least of the grain put into barns is put there,—unintentionally of course, but not the less surely,—for the benefit of rats and mice. A granary may be made rat-proof, but a barn cannot, and if it could, would soon be stocked by the animals carried in from the field among the sheaves.

If four horses are kept on the farm, one pair may be hauling while the other is at the machine. If only a single team is kept, they can be unhitched from the wagon, put into the machine, and as soon as the load is thrashed, taken to the field again for another load. While loading, two extra hands may be profitably engaged putting away the straw or cleaning up and bagging grain, or storing it in the granary.

If it is impracticable to thrash the grain as it is drawn, we would stack it close to the barn, make the top secure for a few days, and *as soon as possible*, thrash it out. Even this mode would tend to save labor as well as grain, and on a small or new farm where machines are not yet introduced, any plan whereby labor can be saved is worthy of consideration and adoption.

SAVING CLOVER SEED.—It is not an uncommon occurrence for a field supposed to have been sown with clover seed to prove to have been sown with many other seeds not mentioned in the catalogues. While the seed purchased from responsible seedmen is generally free from admixture with seeds of weeds, in consequence of the care with which they select it, many a farmer has permitted impure seed bought at country stores to be put into the ground, and has in consequence, reaped a plentiful harvest of mulleins, ragweeds, and other abominations. This might have been avoided had he raised his own seed. For clover seed, select a small piece which was well summer-fallowed, and freed from weeds and laid down with carefully selected seed in the first place; cut early and save the second growth for seed. This would be a profitable experiment on any farm. Any surplus seed so grown would meet with ready sale at a high price, by reason of its purity. Clean seed will often bring a dollar a bushel above the market price, while impure seed will be begging a sale unsuccessfully at any price. Clover for seed may be conveniently cut and gathered by attaching a light frame behind the cutter-bar of the mowing machine and covering it with a piece of cotton cloth. The heads will fall on this cloth and may be raked together by a boy following; when a sufficient quantity has been gathered, one sweep of the rake will leave them on the ground in a heap. Being at this season almost free from sap and moisture, seed clover is very easily cured. A wetting with rain and subsequent drying will make it thrash more easily.

Substitutes for Hay.

A dry May makes a short hay crop. We have experienced the former, and shall suffer from the latter in all probability. Farmers who bestir themselves in time may secure abundant crops of hay, or substitutes for the general hay crops thus cut short. That which will first suggest itself to most persons is

FODDER CORN. — This requires soil in a fair state of fertility, a fresh sod or manure. It may be sowed at any time before the 10th of July. There are three kinds of corn commonly used for seed, viz., any large sweet corn like the Evergreen or R. I. Asylum, the southern White Dent or Yellow Western Dent; besides, any tall-growing variety will do. It is sown in drills, 24 or 30 inches apart, or broadcast. Drill-culture requires less seed; a better and evener stand is usually secured; cultivation with horse-hoe is possible, and usually remunerative, and, where green fodder in small quantities is required, the rows may be easily thinned.

In planting, the ground should be laid off with a marker, furrows opened, manure dropped in them, and the corn scattered by hand, or by a sowing machine, at the rate of about eighteen to twenty kernels to the foot. This requires three to five bushels to the acre, according to the size of the kernels, and the distance the rows are apart. In furrowing, if a common one-horse plow be used, the furrows should be alternate, turned together in pairs, the plowing being done back and forth across the field in the most natural way. Then, if one has a Shares' cultivator, the teeth being removed, and the wings opened, two drills may be covered by once passing through, which will greatly expedite matters. Corn sowed broadcast, if the ground be rich enough, and the stand be thick enough, gives an excellent return of fine, tender fodder. It is hardly possible, however, to get so heavy a yield, and it requires fully one-third more seed, which, when seed-corn is worth two dollars per bushel, is an item worth considering.

MILLET is another summer crop, which affords an excellent substitute for hay. This will grow well on light, rather dry soils, bears drouth well, and produces on ordinary land some two to two-and-a-half tons of excellent hay to the

THE RUBBING POST.—DRAWN BY W. H. CARY.—*Engraved for the American Agriculturist.*

acre, if cut before it is fully ripe; indeed, while the ripest of the grain is still in the milk. There are several kinds of millet, of which

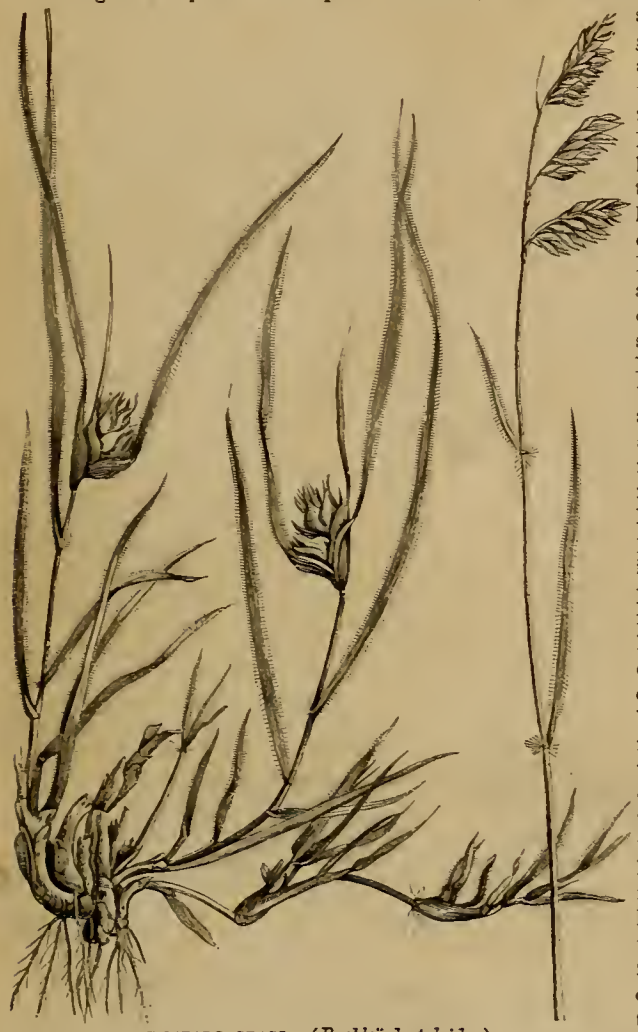
HUNGARIAN GRASS, since its introduction some fifteen years ago, has grown in favor, and in many sections is cultivated to the entire neglect of other varieties of millet. It is really only a delicate variety of the Italian millet, having a closer, shorter head, and more abundant foliage. It is usually sown after the hay-crop is known to have been cut short, rarely before the middle of June, and very good crops may be obtained, if sowed as late as July 10th to 15th, as it needs only about sixty days to matnre. Of course, it needs moist weather to promote the germination of the seed, but after it has a good start, it will bear dry, hot weather well. A rich, sandy loam is best for it, but it will make a crop on any tolerably clean land, with a top-dressing of some good fertilizer. It should be cut before the seed approaches ripeness, as the hard shell, which incloses the ripe seeds, is so indigestible, that injury sometimes comes from feeding the unthrashed straw of the ripe millet. Horses, and indeed all our domestic animals, are very fond of hay from Hungarian grass, and, if cut early, it may be fed with impunity.

The Rubbing Post.

White's Natural History of Selbourne, gives an account of the animals and other natural objects, of a very small district in England. It was written something like a hundred years ago, yet it remains a standard work to the present day. This remarkable popularity is due to the fact that the author gives the habits of the animals he describes—whether quadrupeds, birds, or insects—and it is full of interesting observations as to their modes of life. While we have most accurate descriptions of our native quadrupeds, birds, etc., and their structure is so closely described that there is but little difficulty in identifying them, our literature is very barren in respect to the habits of the animals. But few, since Audubon, have thought it worth while to record the very facts that most interest the general reader. By listening to the talk of a group of Adirondack guides gathered around a camp fire, one can learn more about the habits of Deer than he can find in any book, and the western hunter is full of curious anecdotes concerning the ways of the Buffalo. Mr. Cary, who passed some time in the buffalo range, illustrates in the above engraving a habit of the buffalo that we have not before seen noticed. The vast plains over which the herds of buffalo range are treeless, and it is only along the infrequent water courses that trees are found at all, and at those streams to which the buffaloes resort for water, they are even there of rare occurrence. The buffaloes, besides trampling down the young growth, destroy the trees of any considerable size, by using them as rubbing posts. One after another of these rub their shaggy sides against the tree until it is completely barked and killed. Once in a while, a tree will, after a fashion, survive this rough treatment, and here and there there will be a gnarled, scraggy, mutilated willow or cotton-wood, which maintains a struggling ex tence in spite of the buffaloes, and these are known to the hunters as "rubbing posts." One of these trees is represented in the engraving. A bear, that is enjoying the luxury of a good scratching, has his pleasant occupation broken in upon by the approach of the herd to water. The leading bull, finding the rubbing post occupied, charges upon the intruder, who, as soon as the remainder of the herd come up, will find himself in the minority and be glad to retreat.

The Buffalo Grass.

Our largest quadruped subsists mainly upon one of the smallest of our grasses. Viewed as a single specimen, the Buffalo-grass appears a most insignificant plant. Yet upon it the immense herds of buffalo depend for sustenance, and so, indirectly, do numerous tribes of Indians. The Buffalo-grass extends from the British Possessions, through a broad range of country, southward to Texas, covering immense tracts with a turf composed of its strong interlaced roots, and its very narrow leaves, which, except in the growing season, are curled and twisted into a closely matted mass. Mr. T. L. Rankin, of Osage Co., Kas., the gentleman who, last winter, introduced buffalo-beef into the markets of the Eastern cities, recently brought us a specimen of the turf, and we thought that some account of the grass itself might be of interest. We give an engraving of the plant of its natural size. It is not very nearly related to any grass with which our readers are likely to be familiar, and it gives us an instance of what is very rare, a *dioecious* grass, that is, one in which the staminate and pistillate flowers are borne by separate plants. Buffalo-grass was described some fifty years ago by Nuttall, who called it a *Sesleria*, but was doubtful about its being properly determined, as he had never seen the seeds. For many years our botanists were on the look-out for specimens of the Buffalo-grass with ripe seeds, but none came. It was supposed that a plant which multiplied itself so rapidly by runners, had no need to be at the trouble to propagate itself by seed, and consequently the flowers were abortive. Only a few years ago, the acute Doct. Engelmann, of St. Louis, Mo., in examining a collection of plants, made upon an exploring expedition by his brother, found the clue to the whole puzzle. He determined to the surprise of all botanists, that the grass was dioecious. The pistillate plant is so unlike the staminate in its general appearance, that no one would suspect their relationship. Indeed, so dissimilar are they that the pistillate plant had long ago been described by an European botanist as a species of another and widely separated genus. Doct. Engelmann was so fortunate as to discover an abnormal specimen in which staminate and pistillate flowers happened to be growing upon the same plant, and thus the matter was established beyond a doubt. Numerous collectors had brought in the staminate and the pistillate plants, without suspecting that they were in any way related, much less that they were man and wife, but Mr. Engelmann was the first one fortunate enough, or shrewd enough to collect them together. The engraving shows a pistillate plant, and a detatched flowering stem of a staminate one. It is not necessary to go into a botanical description. It will be seen at a glance that the two kinds of flowers are as unlike as are the tassel of Indian corn and its ripened ear. The pistillate flowers of the Buffalo-grass are surrounded by a leafy covering, or involucre, which, as the seed ripens, becomes very hard, even bony and shining. The engraving, modified from Doct. Engelmann's figure, shows the abundant provision for the spread of this plant by means of "runners." The turf formed by the Buffalo-grass is so very compact, and endures drouth so well, that were it not for its unpleasant, grayish color, it would be worth while to experiment as to its availability as a lawn grass. There was, a few years ago, a small bed of it at Shaw's garden at St. Louis, which seemed to be well established.



BUFFALO GRASS.—(*Buchloë dactyloides.*)

The Pasque Flower.—(*Anemone Pulsatilla.*)

The Pasque-flower, or Pasque Anemone—so-called because it blooms about Easter—is common in England and other parts of Europe. With us it is rarely seen in cultivation; yet there is no plant in our very large border whose early bloom we greet with more pleasure than we do that of this very old-fashioned flower. It has a very long and thick woody root, from which arises a tuft of finely-cut leaves; these, when young, are very downy. The large purple flowers are borne singly upon stems three to eight inches high; they consist of six petal-like sepals, which are violet-purple within, and very silky outside. The stem-leaves are three, placed in a whorl just below the flowers. The Pasque-flower remains in bloom for many days, keeping wholly or partly closed in dull weather, and only fully opening in the sunshine. The plant has a very sturdy, vigorous look, and appears quite unlike its near relative, the delicate Wind-flower of our woods—*Anemone nemorosa*. We have, however, in Illinois and westward an Anemone that very much resembles the European Pasque-flower, and is called the Wild Pasque-flower. It is the *Anemone patens*, var. *Nuttalliana*. It differs from the European species in cutting of its leaves, which appear later than the flower.

PASQUE FLOWER.—(*Anemone Pulsatilla.*)

Notes from the Pines.

A Silver-gray Edging.—Last year *Artemisia Stelleriana* (not *A. stellaris*, as some catalogues have it), was sent out as a new "foliage plant." I had enough to encircle a bed of Coleus, and the effect was quite satisfactory. The plant bears cutting admirably, and while its leaves have not the delicacy of *Centaurea gymnocarpa*, they are sufficiently small not to appear coarse. In the fall clearing up, this bed escaped, and, much to my surprise, the Artemisia very early this spring, began to push buds from the old stems. It proved perfectly hardy, and with the proper trimming, the edging is

better than it was last year. I put just within it a circle of the dark red *Achyranthes Lindenii*, and filled up the center with one of the Coleuses.

GARLAND-FLOWER — DAPHNE CNEORUM.—What a charming thing this is where it does well. It succeeds finely in my light soil, and is, as a neighbor says, "too pretty for anything." I thought my clumps were fine, but Olm Brothers sent down a plant in full bloom, which shows that Springfield can beat "The Pines" on Daphne.

THE GOLDEN YEW.—A group of this has been a daily pleasure. It is a variety of the English yew, and, as sometimes happens, the variety is hardier than the regular form. My plants are small, but there are some fine, large ones at Parsons' nursery, at Flushing, which quite bear out the enthusiastic Scotchman, who likened it to "a golden candlestick ornamented with glow-worms." For a door-yard, or for a place on the lawn near the house, nothing can be better in the way of an evergreen than this yew, which is never green.

DICENTRA SPECTABILIS ALBA.—A great flourish was made over this when it was first introduced. Too much cannot be said in praise of the original Dicentra Spectabilis, or Bleeding Heart—but this white variety is miserable rubbish. It looks like what it is, a poor, sickly albino; a poor grower, a sparse flowerer, and of a very dirty white.

NAMES AND NUMBERS.—When Rogers' hybrid grapes were known by numbers only, I did not take half the interest in them that I do now that the best of them bear names. Who could recollect the difference between 13 and 33; they seemed to have but little individuality. Now, as I pinch "Barry" and train "Wilder," and tie up "Lindley," I, as a matter of course, think of those whose names they bear, and they are the pets of my little vineyard.

THE WHITE WIEGELA.—Let no lover of shrubs omit from his collection The White Wiegela—*Wiegela nivea*, I think the catalogues call it. Its flowers are pure white, and it keeps in bloom much longer than the other varieties. Last year it bloomed nearly all summer.

HOW A MONARCH DIES.—Last summer I stated that my tallest Pine, a grand old specimen, probably the growth of a hundred years or more, was struck by lightning. A slight crack in the bark was the only visible injury, and the tree retained its usual appearance through the remainder of the summer, and all through the winter. Early this spring some of the lower limbs looked of a less fresh green than the rest. As the season advanced, one after another of the lower limbs gradually browned, the upper portion still remaining green. As it would be a difficult matter to fell it without injury to other trees, I sent for a man known for his skill in wood-craft. He examined the tree and said "that 'are ain't dead only in the lower limbs," and proposed to cut them away. In these last hot days the monarch that has clung so tenaciously to life has yielded, and now its very top is as if scorched with fire.

CARNATIONS FOR WINTER BLOOMING.—Many persons think that a plant, which has flowered all summer should, when taken up in the fall and removed to the house, flower all the winter. A few plants will keep up this continuous blooming, but the carnation is not one of them. If carnations are wanted for winter-blooming, either in the greenhouse or dwelling, they must be prepared beforehand. Plants raised from cuttings this spring and set in the open ground, should not be allowed to flower. The flower-buds must be cut off as soon as they appear. By this treatment the plants become strong and stocky and when potted in the fall are ready to furnish a good supply of flowers.

Strawberries for Next Spring.

The amateur or the retired merchant who, for the first time finds himself in the possession of a garden, presents an amusing embodiment of impatience. These enthusiasts cannot see why a plant should not flower all summer; they expect the pear tree they put out this spring to be loaded with fruit next fall, and the strawberries they set in April to yield a crop in June. The itinerant and irregular dealers find their readiest customers among this class, who are ready to believe any impossible story about plants, if it accord with their wishes. As far as strawberries are concerned, we would say to these impatient people, that the only way they can get a satisfactory crop of strawberries next spring—assuming, of course, that they have yet to plant their bed—is to begin now. Layers, rooted in pots, may be planted even in the hot days of July and August; the plants will grow right on, and become sufficiently large to give a good crop next spring. Plants rooted in pots are not generally for sale by nurserymen, but there will be no difficulty in getting them done to order. Small pots, those known in the trade as verbena pots, are filled with good compost, and sunk in the soil of the bed. The runner is placed upon the soil of the pot, and a clod of earth or a small stone placed upon it to keep the wind from disturbing it until it is rooted. The plants should not remain so long in the pots as to become at all root-bound, but as soon as they are well rooted they should be turned out and planted in the new bed. The plant should be set in freshly stirred soil, and if the operation is properly managed, it will show no signs of having been disturbed.

Collecting Flower Seeds.

It is desirable to save one's own flower seeds, not only as a matter of economy, but as a means of improving the variety. In a collection of annual plants, all from the same stock of seed, there will be considerable variety presented. Some may vary from the general stock in the size or color of the flower, and others in the habit of the plant. These peculiarities are not certain to be reproduced, but the probabilities are, that some of the seeds from such plants will show them, and by following up a course of selection, one can in a few years so establish a variety, that it will come constantly true from seed. It may be here remarked, that florists have found in practice that, though a peculiarity may not show itself very strongly the first year, yet it will manifest itself the next year, if the grower perseveres. It is well to mark those plants, the seeds of which it is desired to save by themselves, while in full bloom, and not trust to memory. In a bed of plants, from which seeds are to be saved promiscuously, and when it is desirable to have all of one color, the "rogues" must be pulled out as soon as they show themselves. For instance, if we wish to use Drummond's Phlox for bedding purposes, it is important that each lot of seed produce flowers all of a similar color. If we have a patch of dark rose, from which seeds are to be saved, pull up every light-colored one before it goes to seed.

To be successful in seed-gathering, one must study the habits of the plants. Nature provides for the scattering, not the saving of seeds, and we must study her methods and anticipate her a little. Some seed-pods open with a jerk as soon as ripe, and scatter the contents to a distance; some open by a hole or crack, and as the plant is swayed by the wind, the seeds are gradually sifted out; again each seed has a downy tuft, that will allow it to sail away upon the breeze. In other cases there is no provision for scattering the seeds, but the fruit or seed-vessel must decay, before they can be liberated. It is not necessary to wait until seeds are dead ripe before collecting them; a little experience will teach one to know the point at which it is safe to gather them. Those seed-vessels, which in breaking scatter the seeds, should be gathered just before they open, and be allowed to pop under a sieve or convenient cover. Pansies and other Violets, Phloxes, Ricinuses, and others, need care in this respect. As soon as seeds are gathered, put a label with them, and as soon as they are thoroughly dry, clean them, and store them away. The manner of cleaning the seeds is varied according to circumstances; sifting, gentle winnowing, rubbing between the hands, and hand-picking being resorted to, according to the kind of seeds. A series of small sieves, of different size of mesh, will accomplish most of the work.

The Red Spider.

Whether the Red Spider, that attacks trees and plants in the open air, is the same as the pest of the greenhouse we are unable to say. As far as the gardener is concerned they are practically the same. The insect is so small, that it is not usually discovered, until considerable mischief has been done. It attacks fruit and ornamental trees and evergreens as well as the soft-wooded plants of the flower-garden. A general browning of the foliage is usually the first intimation of its presence.

A few years ago we saw a fine pear-orchard nearly ruined before the owner found out what the trouble was. It was during a dry, hot summer, and he supposed the leaves to be sunburned. One familiar with the work of the Red Spider will detect it at once. When browned leaves are observed, examine their under surfaces. If the insect be present, a very delicate filmy web will be found, and minute red or blackish specks may be seen in motion, which a magnifier will show to be the dreaded enemy. Frequent syringings with clear water will perhaps answer as well as whale-oil soap or any other insect-destroying application. Moisture is their greatest enemy, and water applied often will check their operations. Some of the small garden pumps or engines will be found convenient for the purpose.

Young Trees in Hot Weather.

July and August are usually trying months for young trees. Those that were set this spring, and have appeared to be doing well thus far, may succumb to the long continued heat and drouth of midsummer. It is safest to mulch all young trees, but where this has not been

done, all those that show signs of suffering should be attended to at once. A timely mulching may save the tree. It makes but little difference, what material is used so that the soil around the tree is prevented from losing its moisture by evaporation. Stones, if most convenient, will answer as well as anything. If the tree has an exposed trunk, it should be protected from the intense heat. A couple of boards tacked together like a trough, and set up against the trunk will furnish the required shade, or the trunk may be bound with a hay rope or be loosely strawed up as for winter protection.

Where to Look for a Cranberry Bog.

The large profits realized from the sale of cranberries for the last ten years, has led many to inquire for suitable lands for a plantation. It is by no means necessary to go to New Jersey, or to Cape Cod for this purpose. There is undoubtedly a larger amount of peat bogs and sand banks in these sections than can be found in most places, but there, also, the value of the raw material is best appreciated, and the prices are correspondingly high. So far as climate is concerned, a peat bog in any of the shore towns from Maine to New Jersey is just as good as Cape Cod or Ocean county. The frosts are kept off by the sea air, and the land, if properly handled would be quite as productive. Peat bogs in these localities which the cranberry fever has not visited are still cheap, say from ten to twenty dollars an acre, while on Cape Cod, they would be worth at least ten times that sum. To make a plantation a successful commercial enterprise, several things are to be considered. We must have the three essential things—peat, sand or gravel, and capacity for flowage, or there is no assurance of success. A bog that does not have these requisites is not cheap at any price. Then, a bog, with every thing promising well, may be bought at such figures as to leave a small margin for profit. If the raw material costs three hundred dollars an acre, and the skinning, sanding, and planting cost five hundred more, the capital is eight hundred per acre, and one will have to wait three years, before he can expect to make much return. The conditions are changed for the better when we can get equally good land for twenty dollars an acre, and the cost of preparation is only two hundred. Such lands can be found in many of these shore towns, and the owners are willing to sell them because they are unproductive, and they have no faith in cranberries, or no capital to invest in such improvements. Still further back from the shore for fifty miles or more, there are lands just as good, if the stream running through them is large enough to admit of sudden flowage to guard against the frosts of September. Sometimes this can be secured by a reservoir, even where the stream that supplies it is small. But this reserve of water can only be had at an extra expense, and must be taken into account in making the investment. The cranberry interest is constantly increasing in the localities referred to, and large sums are annually expended in grubbing old maple and cedar swamps, carting sand or gravel, and planting the vines. James A. Bill, of Lyme, Ct., is just finishing the sanding of thirty acres, at a cost of about twenty thousand dollars, when the plants are all in. Mr. Spencer, of Saybrook, near the Shore Line road, has about twenty acres, nearly covered with gravel, and the plants will be set this season. Dennis Tuttle, at Madison, has been at work upon a plantation several years, and his vines put out last year are coming on as finely as could be desired. The small plantation put out by Mr. Small a dozen years ago, though not so thoroughly prepared as the later ones, still bears abundantly, and annually makes converts to the cranberry faith. A single acre of this plantation, one year, produced one hundred and sixty barrels of fruit, worth not far from $1,600. This successful enterprise has led many to drain their peat bogs, and make plantations in all the neighboring towns. There is still much land of this sort to be possessed, and the chief thing wanted is capital to develop it. The business is now pretty well understood by the gentlemen who have undertaken these improvements. Skilled labor can be found to sand the land, and to set out the plants. There is no more risk in the investment than in ordinary farming, and capital judiciously expended brings a large reward. Men who wish to make investments in this kind of fruit culture, can hardly do better than to visit these plantations along the Connecticut shore. CONNECTICUT.

Seed Sowing in Dry Weather.

BY PETER HENDERSON.

I do not remember to have heard so many complaints of seeds coming up badly as have been made this year, in consequence of the continued dry weather. Even those kinds of seeds that germinate most freely, such as cabbages, turnips, and beets, have been complained of, and celery plants particularly, will be scarce, in consequence of the unusually dry May. Such, in many cases, have been the results when seeds have been treated in the ordinary way, and continued drouth ensued; but it is necessary that the gardener should always apply common sense to his work, and not simply follow routine, for what will suit for one condition of soil or atmosphere, would be unnecessary or even wrong for another. I will give a case to illustrate. About the fifth of May of this year, I sowed a large patch in the open ground with celery seed, and another with cabbage seed. The soil was in fine order, and the beds after sowing, were raked; the celery with a fine steel rake, the cabbage with a large wooden rake, which covered the seed of each to the regular depth. The weather was dry, with indications of its continuing so, and after sowing I had both the cabbage and celery beds *rolled heavily*, leaving, however, a strip of each unrolled, so that I could clearly show to some of my young men what the result of this omission would be if dry weather continued. Had a heavy rain fallen within a day or two after sowing, it would have compacted the soil, excluding the air from the seed—in fact, producing the effect of rolling it. But we had no rain for three or four weeks, and a burning-hot atmosphere, passing through the shallow, loose covering of the seeds, shrivelled and dried them up so that it was impossible they could ever germinate. This little experiment resulted exactly as any one having experience in seed-sowing knew it must; our crop of celery and cabbage plants were as fine as need be on the rolled bed, while not one seed in a thousand of the celery, and not one in a hundred of the cabbage started in the strips left loose. The season for sowing turnip seed is at hand, and the same care is more likely to be necessary now than in May, for July and August are always hot and often dry months, and it is imperative that seeds be closely covered so that the dry, hot air is as far as practicable kept from them. In the sowing of cauliflower, cabbage, or lettuce in September, the same precaution had better be used. But in small beds, such as are usually taken for these, if a roller is not at hand, after raking the beds, the soil should be firmly patted with the back of a spade; this not only produces quicker and more certain germination, but it leaves the surface of the bed smooth, so that the plants come up straighter than if the beds were left rough. We consider the practice of soaking seeds before sowing worse than useless.

Summer Layering.

To the amateur who has not the facilities for propagating plants in any other manner, layering is the simplest method of multiplying his shrubs and vines. It is not sufficiently expeditious for the nurseryman, and it is too wasteful of material, as he could make a dozen plants from cuttings of the material required to make one layer. In private gardens, we wish to increase the stock moderately, either to obtain a few plants for our own use, or to present to friends, and to do this, layering answers admirably. Even the nurseryman is obliged to resort to this method with plants that cannot be propagated in any other way. The operation is of the simplest. We have only to bend down a shoot and bury a portion in the earth, and in most cases it will be found well rooted by autumn, and it may be severed from the parent plant, and removed at that time, or be left until the following spring. There are a few points necessary to be observed. The wood of the shoot should be partially ripened or hardened, before it is layered. In most cases the rooting is much facilitated by cutting a tongue in the portion to be layered. This tongue should be made upon the upper side of the stem. It is simply a cut from below upwards, an inch or two long, and extending about half way through the stem. In bending the shoot down, care must be taken not to break it at the cut point. The soil should be mellow and rich, and a little trench being opened, the shoot, including the cut portion, laid in it, and fastened down with a hooked peg. The earth is then replaced and pressed down firmly, and the upper end of the shoot, which projects above ground, is to be tied up to a stake; this will give a better shape to the new plant than if it were allowed to take a reclined position. Want of success in summer layering is due to the ground around the layer becoming too dry to allow the formation of roots. This may be remedied by placing a mulch of moss or other material, over the surface. A flat stone laid upon the soil over the layer answers an admirable purpose.

THE NEW REMEDY FOR THE PEACH-BORER.—Mr. M. B. Bateham, of Painesville, O., writes as follows: "Since the publication of my article in the April number of the *American Agriculturist*, I have received several letters asking for more particulars respecting the use of carbolic soap as a remedy for the peach-borer. A correspondent in Southern Tennessee wishes to know the capacity of a "barrel," or how many gallons of water I use for five pounds of soap. My answer is, about *thirty* gallons—a little more or less is not material. But for small or young trees, the strength of the liquid should not be so great, as it might flow down and injure small roots. I would say eight or ten gallons of water to a pound of the soap. For bearing trees, 5 or 6 years planted, I have dis-

covered no injury to the roots from using a pound of soap to six gallons of water. It may be necessary to apply this remedy earlier in the season at the South—say the middle of June—then again in August, if the fly continues to deposit eggs until that time. I am confident that this remedy will prove completely effectual both for the peach and apple borers, and hence be of immense benefit to orchardists and cultivators generally throughout the country."

ARROW-HEAD.

The Arrow-head.

Along the margins of ponds and in wet places, there is an aquatic plant which is noticeable for the arrow shape of its leaves, and its white flowers, which are produced all summer. We refer to the Arrow-head, or *Sagittaria*, one species of which is very common in swamps and along streams. The botanical name, *Sagittaria*, is suggested by the prevailing shape of the leaves, and our most common species is properly called *variabilis*, as the foliage varies greatly. In some specimens the points of the arrow facing the lobes of the leaf are very broad and blunt, and in others, as shown in the engraving, they will be long, narrow, and acute. Indeed, the foliage presents every possible gradation, from leaves with almost linear lobes to those in which the arrow form is quite lost. A plant with such a tendency to vary is puzzling to young botanists. The staminate and fertile flowers are sometimes upon the same plant, and often on different plants. The three white petals are quite conspicuous, and the plant is a desirable one to those who have a situation in which they can grow aquatics. Plants with double flowers have occasionally been found growing wild, showing that the great tendency to vary is not confined to the leaves alone.

The Wild Pink.—(*Silene Pennsylvanica.*)

The Pink Family produces many very unattractive plants, and a share of our troublesome weeds, such as Chick-weed, Cockle, Carpet-weed, Bladder Campion, Soapwort, etc., but it also furnishes a large number of ornamental plants. Besides the Pink proper (*Dianthus*), in its many species and innumerable varieties, including the Carnations, we have in cultivation various species of Silene, Lychnis, Gypsophila, Cerastium, etc., many of which are favorites in the flower garden. We have wondered why one of our native species of Silene never became better known, as it is as showy as many of those now popular in cultivation. We refer to the *Silene Pennsylvanica*, commonly known as Wild Pink, and in some localities called Mountain Pink. It is not a rare plant, and is frequently found in great abundance in gravelly and rocky places, from New England southward. The plant is a dwarf perennial, not more than 6 or 8 inches high, and forms dense patches. The shape of the leaves as well as the general habit of the plant, are shown in the engraving. The flowers are produced in clusters of six or eight, each about an inch across. The calyx is hairy and sticky, and the five notched petals are rose-purple, of a very lively tint, varying in intensity, and sometimes so pale as to be almost white. When the plant grows, as we have often seen it, in large masses, the effect is very pleasing—almost brilliant. The Wild Pink grows readily from seeds and cuttings, and there is no difficulty attending its cultivation.. While our gardeners have quite neglected this plant, it has been recently introduced into England, where it is found to be a desirable ornament to rock-work. A closely related species is the Fire Pink (*Silene Virginica*), with fewer, and deep crimson flowers, found in Illinois and southward, and another is the Royal Catch-fly (*Silene regia*), which has very handsome deep scarlet flowers, and is found on the prairies of the West and South-west.

WILD PINK.—(*Silene Pennsylvanica.*)

TWO-LEAVED SOLOMON'S SEAL.

The Two-leaved Solomon's Seal.

In May, in moist woods, especially in the Northern States, there is found an abundance of a little plant which somewhat resembles the Lily of the Valley—the Two-leaved Solomon's Seal. It is only from three to five inches high, and each stem bears two, and often three, heart-shaped leaves. The minute white flowers are in erect spikes, an inch or more long. When the plant grows, as it frequently does in dense tufts or clumps, it makes an exceedingly neat and pretty appearance. The root-stock is slender and creeping. The plant is easily cultivated, and though it does better in a partially shaded place, it will flourish when fully exposed. Care must be taken to keep the weeds from encroaching upon it. In its season we frequently see the flowers of this Smilacina used in bouquets by the city florists, its delicate spikes projecting above the coarser flowers, producing a graceful effect. There is a Three-leaved Solomon's Seal, *Smilacina trifolia*, which is a little taller and more robust, and with longer leaves; it is less common than the one engraved. These plants belong to the Lily Family, and are closely related to the Lily of the Valley.

THE HOUSEHOLD.

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

An Unpatented Trap.

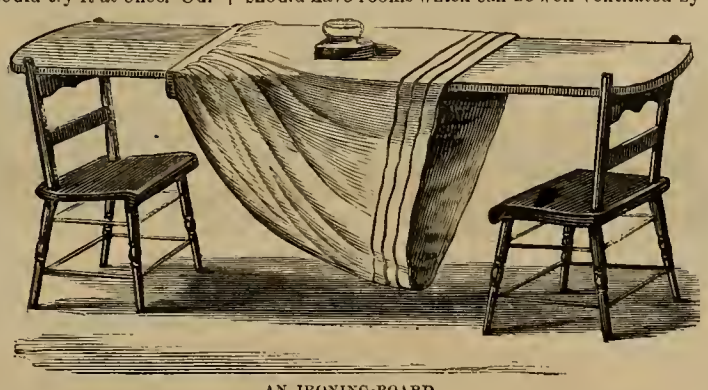
A friend, who has a great fancy for making traps, says that the one here figured is very effective in taking rats and mice. He uses a bucket fitted with a circular board or false cover, which is so nicely suspended, that a slight weight upon either side of the center will cause it to tilt. The bait is suspended by a wire in such a manner, that it can

A MOUSE OR RAT-TRAP.

only be reached from this treacherous platform. The bucket contains water for the reception of the rat or mouse. Where rats are shy, as they will be where traps have been frequently set, it is well to fix the platform so that it cannot move, and allow them to take away the bait for a few times. When they have become accustomed to the affair, they may then be easily trapped.

An Ironing-Board.

Maggie Martin, Sussex Co., Del., after reading "Ironing Made Easy" in the May *Agriculturist*, sends us an account of her ironing-board. This simple contrivance, though much used, may not be known to all our readers, and we give it with the suggestion that those who have never made use of a similar help in ironing should try it at once. Our correspondent says: "My method is to take a board five or six feet long, one foot wide and an inch and a half thick. The board is covered with two or three folds of woolen material, and over this is put a piece of linen or flannel, which is lightly tacked on, in order that it may be taken off and washed when necessary. In use, the ends of the board rest upon the backs of two chairs, or they may be supported at the proper hight in any other convenient manner. I consider a board of this kind almost indispensable in ironing dresses or skirts, as no part gets rumpled while the rest is being ironed—a thing which always happens when the ironing is done upon a table. The board is to be put into the skirt in the manner shown in the engraving. Shirts can be ironed by the aid of this board, and it will be found to greatly reduce the trouble of ironing the bosoms. Every man that has any taste for dress (and the most of them have), especially prides himself upon a perfectly smooth shirt-bosom. I think if a board of this kind were in general use, there would be less frowning over badly ironed shirt-bosoms than there is at present."



AN IRONING-BOARD.

Home Topics.

BY FAITH ROCHESTER.

City guests in the country.—It is folly for country people of moderate means to attempt to give their city guests the *style* to which they have been accustomed at home. The effort to do so only makes all parties ill at ease, and can never be quite successful. The luxuries of city life are by no means to be despised—soft couches, bath-rooms, gas-light, early fruits in the markets, attendance of servants, etc. But city people are often glad to turn their backs upon all their home luxuries as warm weather approaches, and go in search of simple *comfort*. Let country people who take such truants into their families for a season remember that *comfort* is the essential thing to give their city guests.

Comfort means so much to some of the pampered children of wealth, that it is no easy matter to satisfy them; but when you are sure that you have done all that it is reasonable for you to do, be as deaf and blind as possible to any unreasonable discontent on the part of your guests. They ought to know, before they take up their quarters with you, whether your rooms, and beds, and table furnishings are such as they can put up with, and of course you will take all reasonable pains to accommodate their habits and tastes. They should consider beforehand how much attendance they will require, so that they may not call for more assistance from the families where they board than can be conveniently and willingly rendered. If they do not *know* that silver forks and napkins will be furnished them, they should take such small things, necessary to their comfort, with them. To some excellent people the preference for silver forks still seems a mere whim, dependent upon fashion's changes. People who must have luxurious carpets and curtains, and several courses at dinner, should go to the fashionable summer resorts where these things are to be had and roundly paid for.

On the other hand, country families who "cannot afford" to keep clean rooms and clean grounds, who are not willing to swerve in the least from their habitual manners to accommodate people of different tastes, who have no charity for the ignorance of city children in respect to farm life, ought never to attempt to take city boarders.

What is that comfort which sensible city people are in search of? Pure air, coolness, natural scenery, good milk for the little ones, quiet. They should have rooms which can be well ventilated by fresh breezes from out-doors, protected by netting in the windows from danger of filling them with mosquitoes and moths. There should be low, wide, easy benches of some sort, under shade trees in the yard, in the orchard, down by the brook, and wherever there is a shady spot to sit and see the changing landscape, or listen to the running water. In the house there should be as many comfortable lounges and easy chairs as the hosts can afford. I say "benches" and "lounges," because these can be made so as to be comfortable, easily and cheaply; while sofas and pretty "rustic" seats cost more, either in time or money. No sensible person reckons fineness of fabric and beauty of form of no account, but coarse lounge-covers and table-cloths, kept clean by frequent changing and washing, give more real comfort than soiled ones of finer texture.

City people who go into the country for comfort should have the good sense to wear plain, strong clothing, loosely made. No climate in the world can give a woman, fashionably dressed, all the pure air she needs. Especially should the children be dressed in simple clothes, that they may—little girls as well as little boys—climb the hill-sides, wade in the brooks, visit the cow-yard and stables, and have a genuine good time in the country.

The hearty food that suits working farmers will seldom satisfy the daintier palates of city boarders. The latter are not likely to be contented without a variety, and a plenty of fresh vegetables and fresh fruits. With these, and with light, sweet bread, fresh dairy butter, sweet cream and rich milk, they ought not to complain if porter-house steaks are not on the bill of fare.

City people who put on airs of superiority when among country people, show their own inferiority, and persons of good sense can only pity them. But sometimes the daily intercourse between country hosts and city guests is very pleasant, and socially profitable to both parties.

Washing Dishes.—I know their tricks and manners—those little girls who "hate to wash dishes!" I know how they find some long errand out of doors while they leave the table standing uncleared of the soiled dishes; how they dawdle about the table, handling the cups and saucers daintily, as though afraid of contact with them; how they discover at the last minute that they have not heated any dish-water, and must wait for it; how they leave everything they dare to "asoak" until the next dish-washing, and feel that the most disagreeable drudgery of their household is washing dishes.

Little girls, how do you suppose I found this out? Must I confess that I learned it by my own childish experience? But I have learned by observation that the state of things described above is very common to girlhood. My little sisters, let me talk with you about it, though we are not in the "children's column" at present. Indeed, I had rather have my say on this subject in this department, hoping that some older girls may possibly get a helping hint from my remarks.

You sometimes hear grown-up persons say that they like to wash dishes, but you doubt their sincerity. I think that every one of you may learn to like it too, if you set about it in the right way. In the first place, look at the matter reasonably, and you will see that a great deal of work, which is not very agreeable in itself, must be done in every family. Comparatively few families can, even if they prefer, have all this labor performed by paid servants. Shall we not each bear a part—each according to our ability? You would prefer to do a part of the cooking, perhaps, but that requires a degree of judgment which your experience has not been long enough to develop; and you can *help mother best* by doing such work as demands least of her oversight. By being faithful in the least things, you will prove yourselves worthy of trust in more responsible situations. You will never like to wash dishes until you learn to do the work well.

A large tin dish-pan is a great convenience. You can work more rapidly with such a pan than with one that is small and shallow, spattering your clothing and slopping your sink or table with its contents. Have a large dish-apron, with a bib, or a "high apron," and roll up your sleeves, or wear oil-silk over-sleeves. In clearing the table, scrape off the crumbs, and especially the grease, from your dishes, gently, so as not to injure the glazing, and pile them neatly on one side of your pan. Gather the spoons and forks (if silver) by themselves. Contact with the knives is liable to mar them.

If you are obliged to wash dishes in hard water, it is best to use no soap, but with soft water use soap enough to make a bright suds. Now, you always want a clean dish-cloth and clean wiping towels. You can keep them clean by washing and scalding them every day, if you have not towels enough for frequent changes. Always wash out your dish-cloth the last thing, and leave it clean. It is best to have at least two—one for the coarser dishes and kettles. If you have much glass and silver ware to wash, there should be a third soft dish-cloth for that purpose. Wash the glass first, the silver next, then the knives, then the cups, saucers, plates, etc. You should have plenty of dish-water, and keep that in the pan clean and hot enough to cleanse the dishes as they go through it. Wipe the glass and silver from the hot suds, rubbing them with a soft towel until they shine. The knives, lay aside to be scoured after you have finished washing. Rinse the crockery well with *hot* water. If you can have a rack to place across the top of the sink, made of wooden slats half or three-quarters of an inch apart, the open places being wide enough to slip in the edges of the plates and saucers, it will facilitate the drying, and save the towels some wetting.

My young haters of the dish-pan, let me tell you frankly that if you are going to make useful women, treasures and blessings to others wherever you go, you must learn to do faithfully the work your hands find to do, whether it be agreeable or not. Let your consciences guide you in this matter, and you will find that the surest road to happiness is the way of usefulness.

PLAYTHINGS FOR CHILDREN.—How to employ and amuse the little ones, is a question that puzzles all mothers more or less. The children over three years old, who have no playmates of their own age, puzzle one the most. They grow so desperately naughty, they are so full of push and pull, and have such a fund of unapplied activity running to waste, I see no reasonable cure for this but the kindergarten; but those who need it just now came a little too soon to share its full blessing.

Mrs. Horace Mann, who taught a primary school in Boston for years, before the kindergarten was launched, says that mothers have often told her that the little ones who had been full of irrepressible rudeness and tyranny in the nursery, alone or among younger children, grew more manly and gentle in their manners from the time their little world was enlarged by their entrance to her school. But this was no ordinary school. It was a most *extraordinary* one, for those days at least. Any mother whose love is "according to wisdom," would gladly loosen her arms from about her child and send him half across the continent, if needful, if sure of placing him under care as conscientious, wise, and loving.

But such teachers are very rare, and we cannot risk the mental and moral injury which our more tender little ones might sustain if sent to ordinary primary schools under six, or at least five years of age. We cannot *buy* them the best of playthings—living playmates; or if we did, how could we be sure that the association, if left without oversight, might not do more harm than good?

Of playthings, the best are those in the form of miniature tools—little hoes, brooms, carts, wheelbarrows, dishes, etc. By most little girls, dolls and play-houses are more prized than anything else; and little boys, too, will often find some comfort in them if grown-up people are not so thoughtless as to ridicule them.

Children have so much imagination, and enjoy its use so much, that they really seem to like the play-houses patched together from all sorts of odds and ends better than expensive doll-houses. A plain rag-baby, with changes of clothing to take off and put on, gives better satisfaction than a fine "bonghten" dolly, with flimsy finery sewed on.

Every child should have its slate with a pencil tied to it. A pair of round-pointed scissors is an excellent plaything, if plenty of paper be furnished, and a little care be taken to teach the little one to cut some *simple* but pleasing forms. Coarse perforated card-board, with strong colored worsted (silk is still better), will give much pleasure and employment, *if you do not expect too fine* results from the little worker. All children love to string buttons (or button-molds) and beads. Colored glass beads can be bought by the ounce for children old enough to use them—over three years, perhaps. Younger children like to fill a large-headed pin with button-molds and empty it into a dish beside them. *Of course* they love to play in sand, and it pays to provide a box of clean sand, with a little tunnel and a few little tins or bottles to pour it back and forth. Hammer and tacks have great fascination. Very little ones love to drive the tacks into a bar of soap, sitting by the table in a high chair.

After all, there is nothing that wears better for children of all ages than blocks. Only yesterday I heard a little boy begging his younger sister to "keep still a minute," and when I asked the reason, it was whispered to me that he "wanted to pray to God for more blocks." Afterwards I was privately informed by him that he told the Lord he had "not blocks enough to build a large house." I smiled and said nothing, but thought within myself, "The Lord works by means, and now I *will* send for the box of Crandall's building blocks, for which I have long been importuned."

To be sure we have all of the kindergarten blocks, but they are so small and so useful for future kindergarten lessons in the family, that I cannot have them used very freely without my oversight now that the doors are wide open.

Salads and Salad Dressing.

A subscriber in Illinois thus writes on the subject of salads: "My partner for life, who attends to the culinary business of our firm, says she wishes to know how to make such salads as are to be had at the tables of first-class hotels. My partner says she cannot imitate these by following any of the recipes of the 'Cook Books.' Can you tell through the *Agriculturist* how it is done, and oblige a subscriber who thinks people in the country ought to have as good eating as city folks. The trouble is with the dressing."—We quite believe with our correspondent, that country people should have all the luxuries that any one has. A celebrated cook says that he can never make a salad twice alike; he is governed by the "inspiration of the moment." All the recipes and even the French cook's "inspiration" are of no avail, if the materials used are not of the very best quality. The foundation of salad dressing is olive oil, and here is the very thing that those who live in the country will find it most difficult to procure. Unless the oil is absolutely without unpleasant odor or taste, and if it have not a pure, nutty flavor, don't use it. Sweet, not over-salted butter, is much better in salad dressings than most of the oil that is sold. The butter should be slowly melted by a very gentle heat, without the least approach to frying. Let the melted butter stand a short time, then pour it off from the salt that will have settled, and use it instead of oil. The vinegar should be of the best, and so should the mustard. We give Mr. Harrison's recipe for dressing: Mix a heaping teaspoonful of mustard, the yolk of a fresh egg, and a tablespoonful of vinegar, rubbing them into a smooth paste with a silver fork. Mix one tablespoonful each of vinegar and lemon juice, and measure out twelve tablespoonfuls of oil. Add to the egg mixture, very slowly, and stirring constantly, two tablespoonfuls of the oil. When the mixture becomes thick, add a teaspoonful of the mixed vinegar and lemon juice, stir this well, and then add more oil, and thus continue alternately adding oil and vinegar, until the quantity measured is used up, and a smooth, creamy paste is obtained. The stirring must be thorough, and a fresh quantity of oil should not be put in until that previously added is thoroughly incorporated in the mixture. Properly made, and with good materials, this dressing can hardly fail to suit either city or country folks. It may be used for chicken or lobster or meat salad, and as a dressing for celery, cabbage, or lettuce. Salads may be made of chicken, lobster, mutton or beef, mixed with celery, lettuce, cut cabbage, etc. Boiled beets, olives, capers, and slices of hard-boiled eggs, are often added to meat and chicken salads.

Economy in Ice.

Refrigerators are made upon one general principle—that is, to keep the ice from melting, except by means of the heat it abstracts from the articles that we wish to cool. The walls of refrigerators are made double, and the space between them is filled with sawdust, charcoal, or other substance that will serve as a non-conductor of heat. There must be a metallic lining to prevent the filling material from becoming wet. There must also be a pipe to convey off the water resulting from the melting of the ice. The simplest refrigerator is the common grocer's box, which is a plain chest of convenient size lined and filled as above indicated. A lump of ice is placed in the box, and the articles to be cooled are set around it. Where ice is plenty, a box of this kind will answer a good purpose, and it can be mainly made at home, the aid of a tinsmith being required for the zinc lining. Then there are refrigerators of numerous patents, each claiming to be superior to all others. We are unable to see a great deal of difference in principle among the most popular of these, though they differ in details, and some are more convenient than others. It is desirable to have two compartments, in order that butter and milk may not absorb odors from meats and vegetables. The later styles of refrigerators have the receptacle for the ice at the top, which is according to correct principles. There are also various devices for ventilating, and other contrivances, which, the inventors claim, add to the efficiency of their particular patents. Where there is no refrigerator, ice may be kept tolerably well by wrapping it in a thick woolen blanket, and keeping it in a covered box. In removing portions for cooling water or other purposes, chip it from one side, and do not break the lump in several parts.

Recipes.

The following seasonable recipes are from "Common Sense in the Household:" a work by the well-known authoress, Marion Harland, and one which has received high praise from competent judges.

Green Pea Soup.—4 lbs. beef, cut into small pieces, ½ peck of green peas, 1 gallon of water. Boil the empty pods of the peas in the water one hour before putting in the beef. Strain them out, add the beef and boil slowly for an hour and a half longer. Half an hour before serving add the shelled peas; and twenty minutes later, half a cup of rice flour, with salt and pepper. After adding the rice flour, stir frequently to prevent scorching. Strain into a hot tureen.

Tomato Soup.—2½ lbs. of veal or lamb, 1 gallon of water, 2 quarts fresh tomatoes, peeled and cut up fine. Boil the meat to shreds, and the water down to two quarts. Strain the liquor, put in the tomatoes, stirring them very hard, that they may dissolve thoroughly; boil half an hour. Season with parsley, or any other herb you may prefer, pepper and salt. Strain again and stir in a tablespoonful of butter, with a teaspoonful of white sugar, before putting into the tureen.

Scalloped Tomatoes.—Peel and cut in slices quarter of an inch thick. Pack in a pudding-dish in alternate layers, with a force-meat made of bread crumbs, butter, salt, pepper, and a little white sugar. Spread thickly upon each stratum of tomatoes, and when the dish is nearly full, put tomatoes uppermost, a good bit of butter upon each slice. Dust with pepper and a little sugar. Strew with dry bread crumbs and bake covered, half an hour; remove the lid and bake brown.

Fried Cucumbers.—Pare and lay in ice-water half an hour. Cut lengthwise and lay in ice-water ten minutes longer. Wipe each piece dry with a soft cloth, sprinkle with pepper and salt, and dredge with flour. Fry to a delicate brown, in sweet, clarified drippings, nice lard or butter.

BOYS & GIRLS' COLUMNS.

Setting Traps.

BY "CARLETON."

I dare say, my young friends, that you will think it strange when I inform you that I was once a great hunter; but it is a fact, nevertheless. I commenced very early, when I was a little white-haired boy.

"I'll give you a cent for every mouse, and two cents for every rat you will catch," said my father, and I went to work. My traps were figure fours, and they were made with three thin splinters of wood, with notches cut in them, and a board with a heavy rock on top of it. When the trap was set, the three sticks resembled the figure 4, under a board. I tied a bit of toasted cheese to the trencher, and wound it round with a thread, so that the mice would have to nibble a long while to get it off; and the chances were that if they touched it, they would be squeezed flatter than a pancake in a twinkling. I set traps in the garret, in the cellar, and in the granary.

You may be sure that I was up early the next morning. I dreamed of catching rats and mice all night. I rushed up to the garret, but the traps were not sprung. I hastened down into the cellar, two steps at a jump; no mice there. My enthusiasm was cooling; but I went to the corn-bin, and there was my first prize, a little mouse flattened out almost as thin as a wafer, and spread over an astonishing amount of surface. How proudly I walked into the house carrying the trophy by its tail, which for all the world looked like a shoe-string! How gloriously that first cent I ever earned slipped into my pocket! There was only one drawback to my pleasure, I wanted another cent to chink with it. I showed it to all the boys at school; looked at it during school hours, when I ought to have been reading about the dog that met a bad boy and bit him—in the spelling-book. I rubbed it on the seat to make it bright and shining, and let it fall, and saw it roll across the floor on its edge toward the master, a thin-faced fellow, with eyes like a pig, who picked it up and put it in his pocket, and that was the last of my first fortune.

When I told the story of my loss at home, my older sister, who was always saying queer things, and quoting poetry, said it was another illustration of the truth of the saying that "Blessings brighten when they take their flight;" and all the grown-up folks laughed, though I could not see anything particular to laugh at. My father said that it showed that riches take to themselves wings and fly away—that money is slippery stuff. I am sure that it is; so far from that time to the present, it has slipped away from me in an unaccountable manner. But though I lost my first fortune, those figure fours were profitable concerns as long as the game lasted, and I soon had a dozen cents to chink in my pocket. I remember that one Sunday I astonished the whole congregation when one of the deacons came round with his black beaver hat to take up a collection for the Tuscarora Indians, by letting them all drop one at a time into the hat. It was by far the largest contribution made that day, judging by the sound!

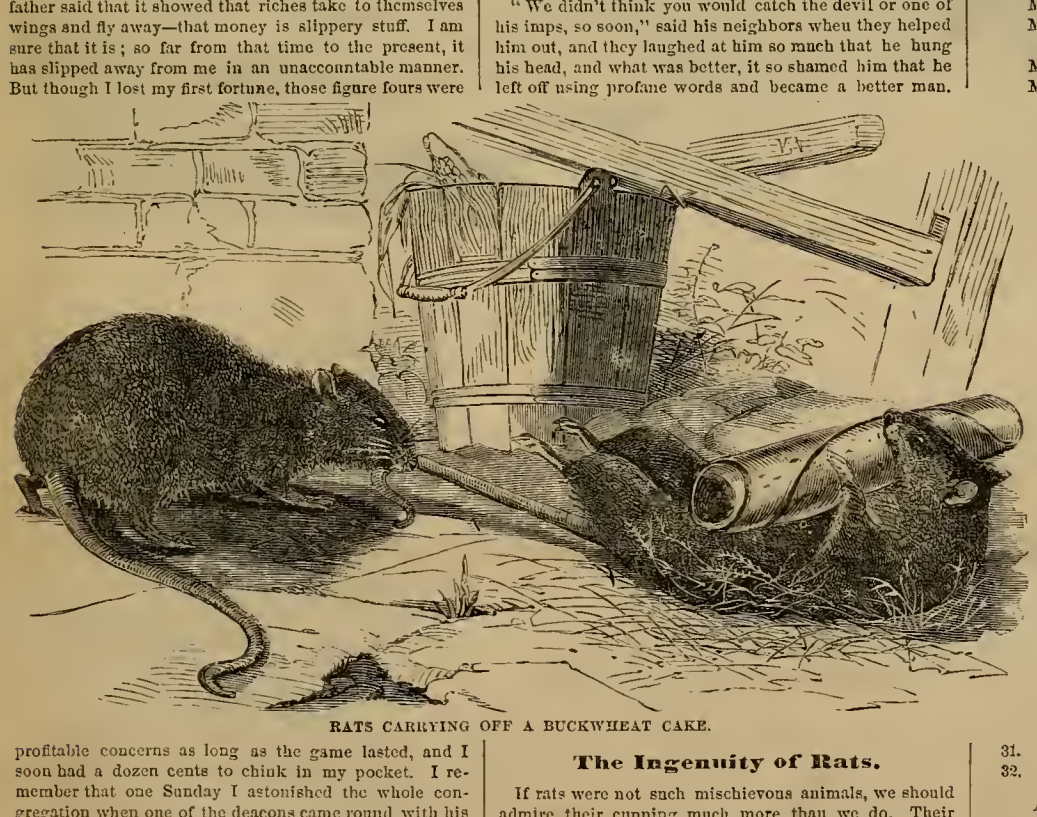
I had great fun in trapping the blue-jays that came in flocks during the winter and helped themselves at the corn-crib. I bored holes in shingles and buried them in the snow, and put some corn underneath. When the jay put his head through the hole to get at the corn, he could not get it back again, for some slips of basket stuff held him fast. The silly creatures plunged their heads in without once stopping to think whether they could ever get them out again. But, then, I have seen boys and men quite as silly in some of their habits, especially when they take to drinking whiskey.

I am afraid that I was a mischievous fellow in my boyhood, especially in trapping the hens. But it was such fun to bend a pole, with a slip-noose lying coiled on the ground, with a kernel of corn on the trencher, to see a biddy pick it up, and the next moment be dangling, squawking and fluttering in the air!

There was a bad boy who lived near by who used to tie two kernels of corn together by a string. He would manage to have one hen swallow one, and another the other. Then there was pulling and hauling, squawking and fluttering—now one hen losing her breakfast, and now the other,—the bad boy rubbing his hands and screaming with delight to see the strife. But his father saw what was going on one day, and dusted his jacket with a withe, and served him right, for if there is anything mean and low and deserving of punishment, it is the wanton giving of pain to a dumb creature.

If I had space I could tell you some nice stories about trapping rabbits and foxes—how I set my first fox-trap, and how I hastened out the next morning and found I had caught a skunk! how an old fox knew all about the trap and used to spring it by striking it suddenly with one of his fore feet, and then quietly ate up all the bait, and undoubtedly had a hearty laugh all to himself to think how he had outwitted me, and how the sly fellow was caught at last, by setting two traps. But I must make my stories very short, and I can only tell you about a man who started for the woods one day with a great trap, large enough to hold a bear. "What are you going to catch?" asked one of his neighbors. "O, I don't know but the devil or one of his imps, like enough," said the man with the trap, who didn't read his Bible much, and who used bad language now and then. A bear had been seen in the neighborhood and had killed a sheep, and the trapper set his trap to catch him. He fixed the bait upon the trencher and tied some more to a stake driven into the ground, and was going away when, not noticing where he was stepping, put his own foot in the trap. The great iron jaws came together with a grip that held him fast. He screamed and yelled for help, and the people ran to see what was the matter, and found him in the trap.

"We didn't think you would catch the devil or one of his imps, so soon," said his neighbors when they helped him out, and they laughed at him so much that he hung his head, and what was better, it so shamed him that he left off using profane words and became a better man.



RATS CARRYING OFF A BUCKWHEAT CAKE.

The Ingenuity of Rats.

If rats were not such mischievous animals, we should admire their cunning much more than we do. Their sagacity is all employed in ways that are injurious, and in avoiding punishment for their misdeeds. An old rat is a shrewd animal, and if we wish to catch him, we must exercise a great amount of strategy. He has a suspicious turn of mind, and a sharp eye for any thing in the shape of a trap, and unless the trap is thoroughly concealed, the most tempting bait will not tempt him to come and be caught. There are many curious stories told of the devices rats will resort to to obtain food. A gentleman at Chicago, Ill., sends a drawing to illustrate something that happened in his neighborhood, and we have had it engraved. A lady threw out at her back door some griddle-cakes for the chickens, and soon after, upon looking out of the window, she saw a large rat smelling around them. He ran off and soon returned with a companion. He then rolled up one of the cakes with his nose, and, turning upon his back, held the rolled cake by his legs, while his companion took him by the tail and dragged him to their hiding-place. We have often heard of eggs being carried in this manner by rats, and that is a performance that seems sensible, as an egg is a load that cannot well be divided; but why the rats should take this method to carry off a thing that could be so readily gnawed into pieces, seems rather singular. Still the story comes well authenticated.

Aunt Sue's Puzzle-Box.

ANAGRAMS.

1. I rise to a hut.
2. At it, mnle.
3. Sun. a planet.
4. Duns spare us.
5. Run at it, Lass.
6. Did hinges suit?
7. I battle sore.
8. Pure lamb tribe.
9. Nice tone, Dorr.
10. Ah! rude love!

11. I am composed of 25 letters:
    My 1, 13, 21, 17, 22, is an article of clothing.
    My 9, 6, 4, 25, 1, 3, 12, 10, 17, is a sad affliction to many.
    My 7, 5, 24, 20, 15, 16, 13, is a prolific subject of conversation.
    My 18, 2, 6, 8, is what children love to hear.
    My 23, 19, 11, 14, 5, 13, is what the universe is composed of.
    My whole is the name of an eminent man.
    SAM D. MAY.
12. Behead a name and leave it the same.
13. Behead a fish and leave a vessel.
14. Behead tragedy and leave comedy.
15. Behead males and leave females.
    WILLIE W. YOUNG.
16. I am composed of 20 letters:
    My 11, 4, 2, 16, 17, 1, is a girl's name.
    My 1, 17, 6, is an insect.
    My 13, 8, 20, 2, is a titled person.
    My 5, 8, 9, is an animal.
    My 3, 19, 8, 5, is an animal.
    My 7, 16, 17, 18, 10, 20, is a spice.
    My 12, 16, 2, 19, is a stick of wood driven into the ground.
    My 14, 8, 20, 15, is an article of food.
    My whole is the name of the author.
17. Square the word "Masts."
18. Square the word "Grace."
    STAR AND CRESCENT.

PI.

19. Snesedil sl het cheerlnps fo a ginvil nsm.

BIRDS, FRUIT, ANIMALS, ETC.

20. A title and an angler.
21. A file and a fruit.
22. A tree and a fruit.
23. Another tree and a fruit.
24. A plaything and a reptile. HARRY H.

CRYPTOGRAPH.

25. Hsgy xuffxq zacq fsmy lai uy mrq,
    U oqqzqo zicqxp mxzaef m emrq;
    Lwf yah eqqz hacfsuqc fa lq efixqo
    Pac uryacmyng-mxzaef m nsuxo.
    H. H. CLARKE.

TRIANGLE PUZZLE.

26. 1. A number. 2. A color. 3. A coin. 4. A country. The center letters of these will form one of Shakspeare's characters.
    ADOLPH M. NAGEL.
27. Join a cake to a verb and make a vessel.
    BEN.

TRANSPOSITIONS.

(Fill the following blanks with the same words transposed.)

28. They —— ceremony in that ——.
29. Bridget do not —— so with that ——.
30. Why —— what was so beautifully ——?
31. Many a wicked —— is done in the ——.
32. —— men were ——.

ANSWERS TO PUZZLES IN THE MAY NUMBER.

408. A new broom sweeps clean.

1. Glass, grass. (Many answered this with "brass, grass," confusing "mineral" with "metal.") 2. Chat, chap. 3. Girl, girt. 4. China, chine. 5. Proscribe, prescribe. 6. Voracity, veracity. 7. Dictionary. 8. Power, olive, wires, event, rests. 9. Pyrannees, Adelaide, Red, Itasco, Soudan: Paris, Sedan. 10. H., mule, Oquawoka,

WAITING FOR A BITE.—*Drawn and Engraved for the American Agriculturist.*

Hudson river, Detroit, Noah, A. 409. Put none but Americans on guard.

11. There stands a castle by the sea,
With an ancient keep and turrets three.
And in it dwells a lady rare,
Rich and lovely, with golden hair,
By the wild waves plashing wearily.

12. Volley, lovely. 13. Usurper, pursuer. 14. Master, stream. 15. Retina, retain. 16. Wells, swell. 17. Selma, Salem.

THE PRIZE.

Nevvy and J. B. Howes sent complete lists of answers, but Nevvy answers No. 1 with "Brass, grass," and No. 17 with Nevin, Niven. I have a very complete gazetteer, but I can find no such place as Niven, Mr. Nevvy, so we must count you out. J. B. H. wins the prize, as he fails only on No. 5, which he answers with Commend, condemn.

AUNT SUE'S NOTICES TO CORRESPONDENTS.

AGNES LEE.—You wish I would "please write" to you. Bless your little heart! I should like to write to you all, personally and individually; but just think! how could I?

MRS. H. A. D.—I am "*that* AUNT SUE," and your loving remembrance does me a world of good.

"MOTHER."—You may give the "little ones" all the "help" you can. Your answer to No. 16, "the Iser began to rise with the rain," was very clever.

H. E. O.—What do you now think about the spelling of "peek?" You were not the only one who put the cart before the horse.

R. A.—Yes, to both your questions.

H. W. OTIS.—I am very glad you liked your "beautiful presents."

QUESITOR.—It is not worth while "explaining about the prizes" when I do not mean to offer any more. I find they give more dissatisfaction than the reverse, so I shall discontinue them. Those who answer puzzles in future will do so *con amore*, and not with the hope of gaining a prize.

Thanks for puzzles, etc., to J. P. W., H. E. D., and J. M. F.

Correct answers, more or less, were sent by W. H. and S. G. Kerr, Anna K., C. G. T., Wm. Taylor, J. P. P., H. E. P., E. L. D., J. C. W., O. A. G., F. S., H. E. P., Ainslee Bros., H. E. O., M. T., R. A., and L. N.

SPECIAL NOTICE TO PUZZLERS.

It is impossible for me, dear children, to tell you "how" to find out the different kinds of puzzles. If you do not understand them at first, wait until the answers to them appear, and then you will know all about it.

Whenever you write to any one, asking information for your own especial benefit, it is only polite to enclose a postage stamp.—We want none but original puzzles.

Waiting for a Bite.

Of all the children in the pleasing group in the picture, we best like the boy in the center, who is quietly and patiently waiting for a bite. We suppose that all the boys, and most of the girls too, read what Carleton had to say last month, about fishing. Carleton has so much "go" in him as a man, that he must have been tremendous as a boy, and the fish that came anywhere near his hook would have been jerked to land in short order. One so active as Carleton, naturally presents the lively side of fishing, or any other subject he writes about. We quieter old fellows look at fishing from a different side. We like to go out with hook and line, and have plenty of *fishing*, whether we get any fish or not. The pleasant breeze, the singing of the birds, the hum of the bees, the flowers, the ripple of the brook, the insects that play upon the surface of the water, or just above it, all these and many more things, come into our idea of fishing, as well as do the fish. A true fisherman can enjoy himself if he does not catch a fish. We look upon fishing as a school in which many good lessons are taught. Patience is one of the virtues that the fisherman must learn. The boy in the center of the picture is evidently exercising patience, while he, at the same time, looks ready to take advantage of the first nibble. Then the good fisherman must have perseverance. If one part of the stream affords him no sport, he will go to another and another, until he succeeds. Then, where there is a party of fishermen, there always will be some bungler who will give one an opportunity to exercise self-control. If you can go a fishing with several other boys and have some careless fellow entangle his line with yours, just as you are feeling a good bite, and not get angry, you have a better control of your temper than most boys have. When a trouble of this kind occurs, take it quietly—scolding will not untie knots half as well as patient fingers. Don't cut your companion's line, as I have seen boys do, but quietly go to work and disentangle the snarl without an angry word. You will feel all the better afterwards for having acted like a gentleman. Don't understand from what has been written that we do not like to catch fish: we only wish to say that fish are not all that there is about fishing.

How to Purchase a Clothes Wringer.—In purchasing a clothes wringer we prefer one with cog-wheels, as they greatly relieve the rubber rolls from strain that would otherwise occur, and add much to the durability of the machine. The next point is to see that the cog-wheels are so arranged as not to fly apart when a large article is passed between the rollers. It matters not whether the cog-wheels are on one end or both ends of the shaft; if large articles disconnect them, they are entirely useless. This is very important, for as the larger the article the greater the strain; therefore, if the cog-wheels separate so as to disconnect, they are of no service when most needed. We have taken some pains to examine the various wringers, and much prefer the "Universal," as lately improved, because it has long and strong gears (Rowell's Patent Double Gear), and is the only wringer with "patent stop" for preventing the cog-wheels from separating so far as to lose their power. —[*New England Farmer.*

Having used for many months the kind of wringer named above, we fully endorse all that is said of it by our New England cotemporary.—*Editors of Scientific American.*

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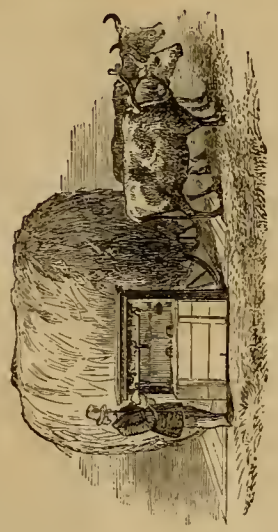

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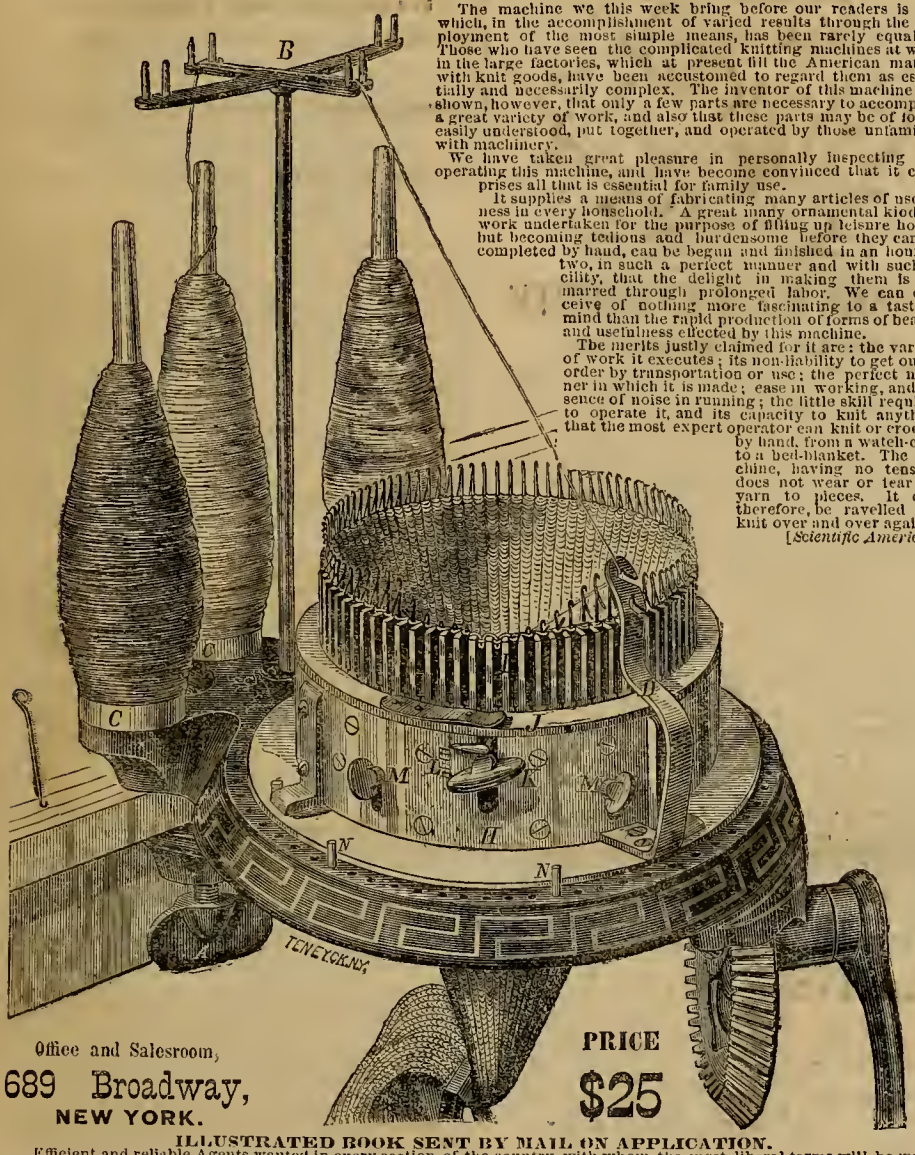

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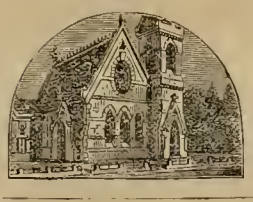

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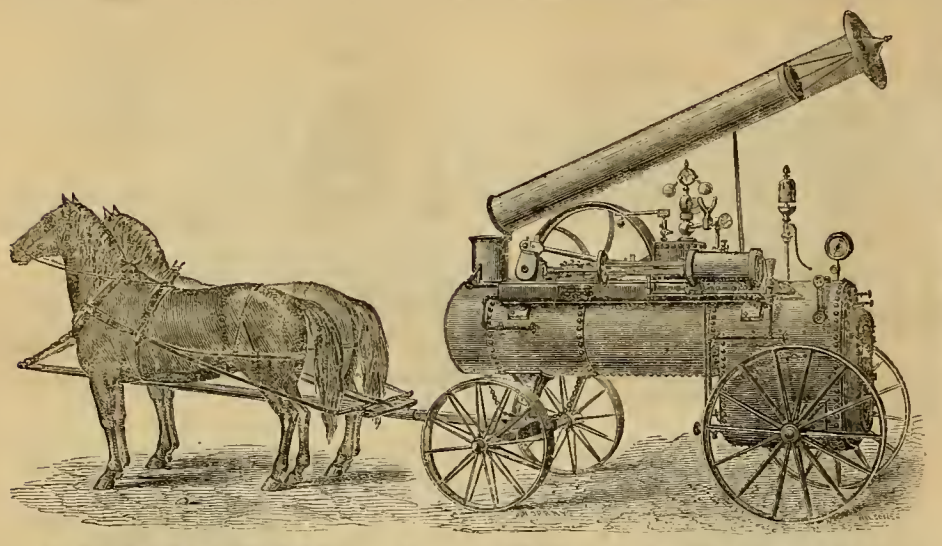

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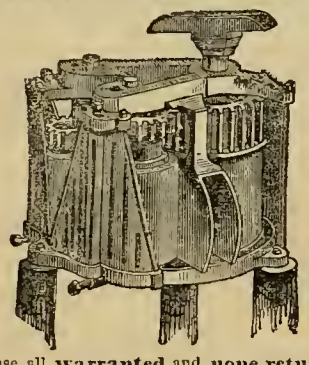

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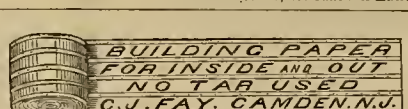

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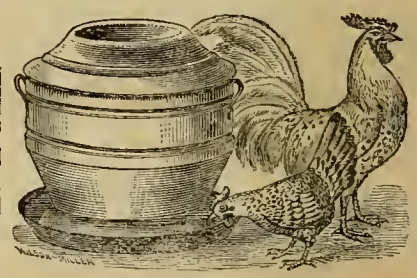

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"	5 "	3.50

ALSO,

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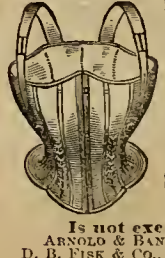

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AMERICAN AGRICULTURIST

FOR THE

Farm, Garden, and Household.

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ORANGE JUDD & CO., PUBLISHERS AND PROPRIETORS. Office, 245 BROADWAY.

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VOLUME XXX.—No. 8. NEW YORK, AUGUST, 1871. NEW SERIES—No. 295.

HUANACO. MERINO RAMS. MOUFFLONS. CASHMERE GOAT.
FAT-TAILED SHEEP. LLAMA. ALPACAS.

A GROUP OF WOOL-BEARING ANIMALS.—*Drawn and Engraved for the American Agriculturist.*—(*See page* 289.)

Contents for August, 1871.

INDEX TO "BASKET," OR SHORTER ARTICLES.

Cows Leaking their Milk.—C. E. Rogers, Orleans Co., Vt., wants a remedy for cows leaking milk. Milk such cows three times a day. On page 203, vol. 28, *American Agriculturist*, the following preventive was given, viz., apply collodion (gun cotton dissolved in ether) to the end of the teat, covering the orifice. This will form a thin skin over the end of the teat which must be picked off before milking. It will also tend, by its contraction, to press the teat together, and close the aperture whence the milk escapes. If there are cracks or sore spots on the teats, wash them clean with water before applying the collodion; it is a very healing application, though slightly painful at first.

Calendar for August.

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

PHASES OF THE MOON.

MOON.	BOSTON.	N. YORK.	WASH'N.	CHA'STON	CHICAGO.
	D. H. M.	H. M.	H. M.	H. M.	H. M.
3d Quart...	7 11 40 ev.	11 28 ev.	11 16 ev.	11 4 ev.	10 34 ev.
New Moon	16 2 18 m.	2 6 m.	1 54 m	1 42 m.	1 12 m.
1st Quart.	23 6 51 m.	6 39 m.	6 27 m.	6 15 m.	5 45 m.
Full.....	30 1 37 m.	1 25 m.	1 13 m.	1 1 m.	0 31 m.

AMERICAN AGRICULTURIST.

NEW YORK, AUGUST, 1871.

We have had an unusually hurrying time on the farm the past month. The hay crop was late, and the wheat crop early. We have also had heavy and frequent rains, which, though much needed, and of great value to pastures, corn, potatoes, oats, and roots, have not only retarded the hay-making operations, but caused a great growth of weeds in the corn and potato fields, and rendered necessary an extra amount of hoeing and cultivating. Seldom has work been more pressing, and he is a fortunate farmer who has been able to secure his hay and grain in good condition, and at the same time keep his growing crops clean.

To those who have been able to do this, August is a month of comparative leisure. Or, rather, it is a month of freedom from pressing work. We have time to breathe. We can stop to think. But the battle is not over. A farmer's work is never done. Next year the same things must be done again, and now is the time to prepare for them. If we have had good crops, this should encourage us to renewed exertions; if we have had poor ones, it should spur us up to more vigorous efforts to remove the cause. As a rule, we know what the cause is. And many of us know also how to remove it. What we need is promptness, energy, and forethought. The weak point in the management of not a few farmers, is the neglect of little things. Tools, implements, and machines are out of order. Gates sag, the hinges are off, the lower board is broken, and the fastening is gone. Fences are out of repair. Boards and shingles are loose upon the barn. The apple-trees are full of suckers. The fence corners are a mass of weeds, rubbish, stones, and brush. Every year the owner of such a farm has made up his mind to improve, but he does not know when and where to commence. We can tell him: There can not be a better time than the month of August, 1871, and the first thing to do is to reform *himself*. Agriculture is, or ought to be, a grand educator. It should teach promptness, order, system, energy, self-reliance, patience, a sense of responsibility, faith in Providence, and a joyous hopefulness. As a rule, a farmer has no one to blame but himself. He may complain of the weather, but it is no worse for him than for others, no worse this year than it was in years past, or will be in years to come. He may complain of "want of time," but he will soon learn that he has *all the time there is*. No one robs him of it. It is a good thing for a man to feel his responsibility. We all want to blame some one other than ourselves.

It is no use quarreling with circumstances, or the "constitution of things." We must meet our difficulties like men; and patience, perseverance, and intelligent industry will enable us to triumph over them.

Hints about Work.

Thatching Hay Stacks.—We are no advocates of the English system of stacking and thatching hay. It is far better and cheaper to put it in a barn. But where this can not be done, the stacks should be thatched with more or less care, according to circumstances and the value of the hay. With a carefully made roof much may be done to enable it to shed the rain by *raking* the hay downward on the roof, so as to make it lie smooth and straight. It is better to do this during or immediately after a rain. It is better, however, to regularly thatch the stack, directions for which were given in the *Agriculturist* for October, 1870, page 374. Long grass, very useful for thatching hay stacks, may frequently be cut on low land. It should be put on while green, and laid straight, and carefully raked. If straw is used, the great point is to have it thoroughly wet, so that it can be made to lie straight on the roof of the stack. If thatching is considered too much trouble, at any rate do not neglect to tie some poles together with hay-bands, and place them astraddle the roof to prevent the wind from tearing up the hay.

Thrashing Grain.—A farmer had better hire an extra man than to work at any steady job connected with thrashing. He can save more by seeing that every thing is done properly, than by doing, as is frequently the case, the hardest part of the labor himself. A thrashing machine is a "regular horse killer." The thrashers are inclined to save their own horses at the expense of those of the farmer. The outside horse has to walk much faster than the inside one, and should have a correspondingly longer part of the evener. Bore a hole in the evener of the inside horse, for the clevis, from two to three inches nearer the center than that of the outside horse. See that the track is firm, even, and free from stones. If possible, let it be on level land, as a free horse is inclined to pull harder when going up hill. When stopping for lunch, let the horses have some water, and if a pint of meal is stirred up in a pail of water for each horse, it will enable them to do extra work without feeling it. The granary, of course, will be put in order before the thrashers arrive. If there is a cellar underneath the granary or the thrashing floor, it is better to be on the safe side and put an extra prop or two underneath to support the floor. Fodder will be scarce the coming winter, and all the straw *and chaff* should be carefully saved. It is a common mistake to make the straw stack too wide, and not high enough. This gives too flat a roof, and much of the straw is damaged by the rain. Better make the bottom of the stack too small than too large. The great point in stacking straw is to keep the middle full and tread it down solid. For the first ten or twelve feet the better plan is to put a horse or an ox on the stack, and drive him about to tread down the straw. With a horse that is used to it, there is no trouble in getting him off the stack, especially if a part of one side is made a little slanting, and a few forkfuls of straw are placed at the bottom for him to alight on. When the middle is kept full and well trodden, the outsides will settle more than the middle, and thus make a better roof. The hole where the man stands to take the straw from the carrier, should, after the stack is completed, be carefully filled with a few bundles of straw, so placed and held in by thatch-pegs that they will keep out water.

Weeds in Corn and Potatoes must be destroyed. Better knock down a few hills of corn in cultivating, than suffer the land to be covered with weeds.

A shallow-running cultivator with broad shares will not injure the corn by cutting off the roots. Go through the corn after the cultivator and pull or hoe all the weeds from the hills of corn. It is hardly safe to use a cultivator on potatoes so late in the season. Pull the weeds out by hand.

Weeds in Pastures and Fence Corners should not on any account be suffered to go to seed. Let them be mowed at once.

Stubble Land, especially after barley, is often full of weeds; a mowing machine may be used with advantage to cut them. Also, in pastures where thistles and other weeds or rough grass and rushes are abundant, a mowing machine affords an easy method of checking or destroying them.

Milch Cows are apt to fall off rapidly in their milk this month, and that dairyman is fortunate, or, more correctly speaking, prudent and enterprising, who has a good supply of corn fodder. There is little profit in keeping cows, unless they have all the food they can eat and digest. The trouble with corn fodder is that it is too bulky. The cows are capable of digesting more of it than their stomachs will hold. They need, if the grass is of poor quality, a little corn-meal in addition to the fodder.

Horses suffer greatly from flies this month, and should be provided with nets or light cotton covers. Washing them with water containing a little crude carbolic acid is a temporary relief.

Sheep frequently suffer greatly this month for want of water. If there is no water in their pasture lot, let them be put at night in a lot where there is water, or else be driven to water night and morning; allow them plenty of time to drink. If the weather is wet, and the grass long and succulent, it is a good plan to mow a portion of it occasionally. The sheep will eat and thrive on the dried grass. It is a true saying that "sheep like roast meat better than boiled." Lambs, if not done already, should now be weaned. Let them have the best of pasture after weaning, and place the ewes on poor pasture until dry. Examine the bags for a few days, and, if necessary, draw out the milk. When dry, and if early lambs are desired next spring, the ewes, towards the latter end of the month, should begin to have abundance of good food. Strong, healthy lambs can only be expected from ewes in good condition. Sheep intended to be fattened next winter, should now be purchased and placed in good pasture. In the case of Merinoes, select strong, thrifty wethers, three or four years old. There is no money to be made in fattening poor sheep in winter. Most of the fat must be put on between now and November.

Swine.—Low prices are causing farmers to neglect their pigs. It is poor policy. If kept at all, they should be kept well. Our own plan is to feed the pigs at night, but not in the morning. They are then hungry enough to search for their food, to run on the stubbles, to pick up wormy fruit in the orchard, and to eat weeds and grass. At night they have a feed of soaked corn, and go to sleep contentedly with a full stomach. They should have constant access to fresh water, and an external application will be gratefully received.

Winter Wheat.—Where wheat is sown after barley or oats, the land should be plowed as early after harvest as possible. If this can not be done at once, harrow the land, to break down the stubble and destroy weeds, and cause the seeds to germinate. The rubbish will act as a mulch and keep the ground moist, and it will plow easier than if left unprotected to bake in the scorching sun. The fallows must not be neglected. Get every thing ready, but do not be in too great a hurry to sow. If the land is in good condition, from the 5th to the 25th of September is the best time in our latitude. To prevent smut, the old-fashioned plan of moistening the seed with fermented chamber-lye, and then drying it with quicklime, is safe, and, if thoroughly done, effective. The liquid from the stables, if fermented so as to develop the ammonia, is equally good. The main point is to turn over the heap until every seed and every part of each seed is moistened with the liquid, and the same is true in regard to the lime. A simpler and entirely effective plan is to dissolve, for each bushel of seed wheat, 3 ounces of blue vitriol in one quart of water. When cool, sprinkle it over the wheat, and turn carefully until every seed is completely moistened. Old wheat will require three pints of water to each bushel. No lime is required to dry the wheat, and, in fact, would probably do more harm than good, as it would decompose the vitriol. The seed wheat, after being treated with the vitriol, may be kept for days or weeks without injury, which is not the case in the old plan above described. Wheat is sometimes treated with brine to prevent smut, but we have always thought it rather risky.

Renewing old Pastures, by harrowing them and sowing timothy, can be done any time this month, or the beginning of the next.

Manure may be drawn out and spread on the pastures or meadows, or on grass or clover land intended for corn next spring. Many farmers are afraid that the hot sun will evaporate all the ammonia. It would do so if there was any free ammonia in the manure, but such is rarely the case. Spread the manure at once, and be careful to break up all the lumps. Thomas' smoothing harrow is a capital implement for this purpose.

Root Crops must be hoed and thinned out. Most people are inclined to leave the plants too thick. White turnips may be sown any time during the month, and even ruta-bagas sometimes afford a fair crop on good land, sown early this month.

Work in the Horticultural Departments.

At this season there is, as usual, a great deal of work to be done in the garden and orchard, but the labor of planting is very light compared to that of two months since; all that now needs to be done is to keep the horse and cultivator busy, stirring the soil as often as possible. Many things can be done now to good advantage about a place, such as cutting brush and weeds along fence-rows and making it look as neat as possible.

Orchard and Nursery.

The newly-set trees ought not to be neglected during the hot, dry weather of August, when a little timely attention and care would save many which would otherwise perish at this trying season. A heavy mulch applied now will save a great deal of time in hoeing, besides keeping the ground moist.

Marketing.—In marketing early apples and pears, care must be used in packing, to prevent the fruit from becoming bruised during transportation. All fruit should be picked by hand, after it is fully developed, but before it softens. Establish a good name for fair dealing, and have each package of uniform quality throughout. In picking take care not to break or injure the limbs.

Insects.—Pick up all unripe fruit which falls to the ground and feed to the pigs, or allow the pigs to run in the orchard, where they can devour the fruit as fast as it falls. Remove all late caterpillars' nests as soon as they make their appearance.

Budding should be done whenever the bark is loose enough to run easily, and well-ripened buds can be had.

Borers.—If borers are found, probe with a wire.

Seeds and Seedlings.—Young seedlings require shade from the scorching sun; this may be given by using laths, as already mentioned, or evergreen branches. Collect tree seeds as soon as ripe, and either sow now or preserve in sand until spring.

Weeds must be kept out of nursery rows, either by the use of the horse or by hand. Where old trees have been neglected, and the ground near the body of the tree is occupied by weeds and suckers, a heavy breaking-up hoe can be used.

Kitchen Garden.

During this month most of the vegetables will be fit for the table, and a well-stocked garden will furnish a family with a supply of healthy food during the summer, as well as a good part of the winter. The soil between the rows of plants must be kept light and free from weeds by the use of the cultivator, or with some hand implement.

Asparagus.—Never allow the bed to become filled with weeds, but keep the soil between the rows hoed often. This is a good time to apply a dressing of manure, in order to give the plants a good start in the spring. If new beds are wanted, gather a supply of seeds.

Beans.—Plant Refugee or other early sorts for late use and for salting. If Limas are inclined to run higher than the poles, pinch them. Never hoe beans until the dew has dried up, as it will cause the vines to rust.

Beets.—Where the plants are too thick, thin out and use as greens. Keep the rows free from weeds, and in dry weather apply liquid manure.

Cabbages and Cauliflowers.—Plants, if set out now, will produce a crop in most localities. Where caterpillars are troublesome, destroy by hand-picking or by the use of salt or other application

Carrots.—Keep hoed and thinned, and if young carrots are preferred, sow for a late supply.

Celery plants for the late crop may now be set in well-enriched ground.

Corn will need constant care in hoeing and weeding; where seed is to be saved, select the earliest and best ears.

Cucumbers.—Cultivate the soil around the hills until the vines cover the ground. Gather for pickling as soon as they reach a suitable size.

Egg-Plants.—Draw the earth around the stem, and give thorough cultivation. A little straw placed around each plant will preserve the fruit from becoming soiled by touching the ground.

Endive.—Tie up the leaves of the early-planted crop when dry, to blanch them for use. Set out plants a foot apart for a late crop.

Herbs should be cut on a dry day, just as they commence to flower, tied up in small bundles, and dried in a shady place.

Lettuce.—It is of no use to sow lettuce now, unless one has a shady place, for it soon runs to seed.

Melons.—All fruit not likely to perfect itself ought to be cut off; this makes the remainder much finer. When the fruit approaches maturity, it will be benefited by turning occasionally, and by having a little straw placed under it.

Onions.—Harvest as soon as the majority of the tops fall over, and after being thoroughly dried store them in a cool, dry place. Store onion sets in an airy loft, with their tops on, taking care not to have them so thick that they will decay.

Peas.—Late-sown peas are liable to mildew, and produce a very scanty crop; if desired, some of the earlier varieties may be sown now.

Potatoes.—The early crop may be dug and sold, or if used in the family, dig only as wanted. The tops may be buried in the rows, or else placed on the compost heap.

Radishes.—The best winter sort is the Chinese Rose-colored; sow late this month or early next; if sown earlier, it will become overgrown.

Seeds should be gathered from the earliest and best specimens as fast as they mature, if one is anxious to improve his stock. The best way, in small gardens, is to buy most seeds from reliable seedsmen, as they cost less than home-grown ones.

Squashes.—Examine the vines to find and destroy all the injurious insects which infest them.

Sweet Potatoes.—Vines must not be allowed to root, and the soil kept clear of weeds, and light.

Tomatoes.—Destroy the large green worm which eats the foliage. Pinch the rampant shoots, and keep tied to some sort of trellis; or allow the vines to rest upon brush placed around the plant.

Turnips.—Ground from which early crops have been taken may be sown with turnips. Thin ruta-bagas, and keep the rows free from weeds.

Fruit Garden.

The main work here is the care of the fruit as it ripens; remove all superfluous growth, and keep the soil free from weeds. Where there is more

fruit than can be used, it should be preserved by canning, bottling, or drying. Directions have often been given in the Household Department.

Blackberries.—Do not allow the new canes to grow over four or five feet high, and pinch the laterals when a foot or eighteen inches long. Fruit for home use should be thoroughly ripe before it is picked, while that for the market must be gathered before it becomes soft enough to bruise in handling.

Dwarf Trees.—Thin out all poor fruit, and if the crop is too large, remove a part of it. Control the shape of the tree by pinching.

Grapes.—If mildew appear, give a thorough dusting of sulphur. Keep the vines tied to stakes or trellises, and do not allow them to become entangled with each other. Cut off all bunches which are affected with rot.

Raspberries.—Remove all of the old fruiting canes, and keep the new growth tied to stakes, to prevent its being blown down; three or four strong canes are enough for one plant to carry. The soil between the rows must be kept loose and clean.

Strawberries.—New beds, if set out with young plants, will produce moderately next spring. Old beds should be cleared of weeds, and thoroughly enriched with a good dressing of manure.

Weeds will grow in the fruit garden as well as elsewhere, if not kept down by constant cultivation. A thick mulch between the rows will save much time and trouble in cultivation.

Flower-Garden and Lawn.

The severe heat of this month often prevents the growth of plants, and it is not until the late rains have watered them that they produce their finest effect. Weeds will, however, grow, and they will require constant attention.

Box ought to be clipped this month, to preserve the edging in good shape.

Bulbs.—If any spring flowering bulbs are still in the ground, take them up.

Climbers.—The annual climbers ought to have strong supports, to prevent the wind from blowing them down. Keep the woody climbers tied up, and cut off all superfluous branches.

Dahlias ought to be tied to strong stakes, which should be firmly set in the ground. Remove all imperfect buds and flowers.

Grass.—Lawns and edgings need constant care to preserve their good appearance. They ought to be mowed once a week at least, and, if possible, twice. Where a lawn has been recently seeded down and weeds are abundant, many of the larger ones can be removed by the use of a spud; this is a thin-edged chisel, about two inches wide, having a socket for a handle, which may be of any convenient length; the root of the weed can be cut off below the surface without disturbing the grass.

Gladiolus.—Tie flower-stalks to stakes to prevent breaking by the wind, for if once bent it is very hard to bring them into an erect position.

Hedges.—Give their summer clipping this month.

Potted Plants.—Do not neglect them at this season, but keep supplied with water.

Perennials.—Seeds of these, as well as of biennials, are better if sown now, as they will generally produce plants large enough to flower next season.

Greenhouse and Window Plants.

The thorough renovation of the greenhouse should be finished before the pressure of fall work comes. See that all insects are destroyed by a thorough washing, and afterwards paint or whitewash the inside woodwork. If the heating apparatus is out of order, repair before cold weather. See that there is a good stock of potting material on hand for winter use, and also provide boxes and pots for the large plants which have been planted out during the summer.

Worn-out Stock.—There is no profit in feeding old stock. When cows and sheep are past their prime, they can not be made to pay for feeding. Therefore we would not advise sheep to be kept over five years, or cows over eight or nine. Occasionally a ewe or a cow will be profitable to keep for breeding purposes for three or four years after these ages, but no expectation of fattening them profitably need be entertained; and it is a question whether the gain in one way is not lost altogether in the other. After the system begins to run down, the teeth become worn, and food is no longer perfectly digested. Waste occurs, and though it is true the manure pile is enriched when aged stock is kept, the advantage does not compensate for the waste. During the latter part of summer, selections should be made for feeding for market next spring. No time should be lost then in preparing those of full age, intended for this purpose, as much care and attention must be given them and early feeding be commenced, or they can not be successfully brought into condition for market.

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 17, 1871, 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.	380,000	2,911,000	3,415,000	51,000	321,000	815,000
27 days *last* m'th.	271,000	3,151,000	2,816,000	87,000	41,000	1,413,000

Sales.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
27 days *this* m'th.	343,000	3,436,000	2,325,000	59,000	6,800	1,371,000
27 days *last* m'th.	247,000	2,745,000	2,983,000	65,000	23,000	1,156,000

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

Receipts.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
27 days 1871	380,000	2,911,000	3,415,000	51,000	321,000	815,000
25 days 1870	378,000	3,341,000	1,328,500	76,000	53,000	734,000

Sales.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
27 days 1871	343,000	3,436,000	2,325,000	59,000	6,800	1,371,000
25 days 1870	283,000	4,237,000	1,568,000	109,000	13,500	1,411,000

3. *Exports from New York, Jan. 1 to July 13.*

	Flour.	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
1871	703,831	8,303,177	4,824,872	43,018	83,706	14,889
1870	880,626	7,944,108	164,468	63,731	——	9,788
1869	705,950	6,260,268	1,481,849	68,576	——	42,257
1868	48,063	2,956,532	4,044,642	153,093	——	39,368

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

1871.	*Wheat,* bush.	*Corn,* bush.	*Rye,* bush.	*Barley,* bush.	*Oats,* bush.	*Malt,* bush.
July 10	337,163	631,954	97,935	——	271,099	199,541
June 12	236,340	292,184	114,783	3,450	324,459	142,572
May 9	285,100	239,215	164,774	5,725	370,226	171,933
April 10	811,871	180,047	15,964	164,393	709,363	171,897
March 13	1,523,785	204,388	150,514	3,9,349	1,133,897	218,231
Feb. 13	2,203,677	311,471	148,198	481,863	1,109,905	215,124
Jan. 16	3,085,116	273,618	157,730	551,191	1,736,936	216,394
1870.						
Dec. 15	3,060,762	208,319	148,069	500,797	2,085,137	231,129
Nov. 9	2,092,000	300,000	116,800	400,100	2,125,000	——
Oct. 10	1,809,021	476,544	53,391	184,803	1,679,658	237,433
Sept. 12	1,381,487	791,991	50,859	107,174	1,055,079	130,881
Aug. 8	1,138,876	589,973	25,137	106,101	691,766	110,046
July 11	1,281,913	483,510	28,816	94,600	655,063	109,478
June 7	706,178	69,845	2,891	94,630	488,143	108,775

CURRENT WHOLESALE PRICES.

	June 15.	July 17.
PRICE OF GOLD	112¾	113½
FLOUR—Super to Extra State	$5 50 @ 7 00	4 60 @ 6 50
Super to Extra Southern	6 75 @10 25	5 15 @10 25
Extra Western	6 20 @10 25	5 40 @ 9 75
Extra Genesee	7 10 @ 8 75	6 50 @ 8 75
Superfine Western	5 45 @ 6 00	4 60 @ 5 15
RYE FLOUR	4 20 @ 6 10	4 00 @ 5 50
CORN-MEAL	3 25 @ 4 20	3 40 @ 4 15
WHEAT—All kinds of White	1 60 @ 1 85	1 45 @ 1 70
All kinds of Red and Amber	1 45 @ 1 65	1 30 @ 1 52
CORN—Yellow	76 @ 78	72 @ 74
Mixed	69 @ 76	67 @ 72
OATS—Western	65 @ 70	64½@ 70
State	66½@ 67½	65½@ 67½
RYE	1 02½@ 1 15	85 @ 1 12
BARLEY	Nominal.	Nominal.
HAY—Bale ₱ 100 lbs	1 00 @ 1 40	1 05 @ 1 45
STRAW, ₱ 100 lbs	85 @ 1 95	65 @ 1 65
COTTON—Middlings, ₱ lb	20¾@ 20¾	21 @ 21¾
HOPS—Crop of 1870, ₱ lb	7 @ 13	7 @ 13
FEATHERS—Live Geese, ₱ lb	65 @ 75	65 @ 75
SEED—Clover, ₱ lb	10 @ 10½	10¼@ 11
Timothy, ₱ bushel	3 50 @ 4 00	3 75 @ 4 50
Flax, ₱ bushel	2 30 @ 2 45	2 40 @ 2 50
SUGAR—Brown, ₱ lb	8¾@ 10¾	8½@ 10¾
MOLASSES, Cuba, ₱ gal	20 @ 45	20 @ 45
COFFEE—Rio (Gold, in bond)	10 @ 13½	10¼@ 13¼
TOBACCO, Kentucky, &c., ₱ lb	6 @ 12	6 @ 12
Seed Leaf, ₱ lb	12 @ 70	12 @ 70
WOOL—Domestic Fleece, ₱ lb	49 @ 60	50 @ 70
Domestic, pulled, ₱ lb	33 @ 53	37 @ 55
California, unwashed	23 @ 30	23 @ 40
TALLOW, ₱ lb	8¾@ 9¼	9 @ 9¾
OIL-CAKE—₱ ton	39 00 @41 00	40 00 @42 50
PORK—Mess, ₱ barrel	15 50 @15 75	14 75 @15 02
Prime, ₱ barrel	12 75 @13 50	12 00 @13 00
BEEF—Plain mess	8 00 @14 00	8 00 @12 50
LARD, in tres. & barrels, ₱ lb	9½@ 11¾	9¾@ 11
BUTTER—State, ₱ lb	12 @ 30	13 @ 32
Western, ₱ lb	10 @ 23	13 @ 27
CHEESE	5 @ 12½	6 @ 12
BEANS—₱ bushel	1 25 @ 3 50	1 00 @ 3 75
PEAS—Canada, free, ₱ bu	1 35 @ 1 40	1 25 @ 1 35
EGGS—Fresh, ₱ dozen	16 @ 19	16 @ 21
POULTRY—Live Fowls	16 @ 18	18 @ 19
Turkeys, ₱ lb	16 @ 18	18 @ 19
Geese, ₱ pair	1 50 @ 2 00	1 50 @ 2 00
Ducks, ₱ pair	75 @ 1 00	75 @ 90
POTATOES, ₱ bbl	3 00 @ 7 00	2 50 @ 3 00
SWEET POTATOES, ₱ bbl	— @ —	— @ —
CABBAGES—₱ 100	3 50 @ 6 50	3 00 @ 5 00
BROOM-CORN—₱ lb	4 @ 8	4 @ 8
APPLES—₱ barrel	4 00 @ 9 00	2 50 @ 4 50
Raspberries, ₱ quart	— @ —	7 @ 18
Blackberries, ₱ quart	— @ —	13 @ 18
Gooseberries, ₱ bnsbel	— @ —	2 25 @ 2 50

Gold has been up to 113¾ and down to 112 since our last, closing, July 15, at 112½.....Breadstuffs have been offered with more freedom, and have been generally quoted lower, with a fairly active business reported in the leading kinds, for home use, shipment, and, to a limited extent, on speculative account. The arrivals of Wheat have been quite generally in poor order, while those of Corn have been well up, on the average, to the standard of merchantable. Several lots of new-crop Wheat, chiefly Southern and South-western amber, have been received and marketed within the month at equal to full current rates. The quality, in most instances, was superior to that of the earlier offerings of new-crop last year.....Provisions have been depressed and lower, yet not active. At the close, more steadiness was apparent. .....Cotton has been less freely dealt in, at variable prices, though closing with a fair show of firmness, on a less liberal offering of stock.....Wool has been in good demand, at advancing prices.....Tobacco, Hops, Hay, and Naval Stores are in request.

New-York Live-Stock Markets.

WEEK ENDING	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	*Tot'l.*
June 19th	8,566	63	2,971	28,093	26,979	66,672
June 26th	7,891	113	4,229	26,035	20,589	67,869
July 3d	7,542	102	2,942	26,581	29,140	66,310
July 10th	8,196	48	2,159	29,751	22,720	62,874
Total in 4 Weeks	32,198	326	12,301	110,463	108,428	263,716
do *for prev. 4 Weeks*	27,117	388	15,641	79,206	83,200	205,511

	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per Week	8,049	81	3,075	27,616	27,107
do do. *last Month*	6,779	84	3,908	19,801	20,809
do. do. *prev's Month*	6,991	72	4,250	16,737	15,448
Average per Week, 1870	6,847	97	2,240	28,151	17,103
do. do. do. 1869	6,275	92	1,752	28,836	15,848
do. do. do. 1868	5,733	105	1,588	27,182	18,809
do. do. do. 1867	5,544	61	1,320	22,151	20,665
do. do. do. 1866	5,748	94	1,200	20,000	13,000
do. do. do. 1865	5,255	118	1,500	16,091	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	3,369	69,911	1,174,154	1,102,643
Total in 1866	298,880	4,885	62,120	1,040,000	672,000
Total in 1865	270,271	6,161	71,991	836,783	573,190
Total in 1864	267,609	7,603	75,621	782,462	660,277

Beef Cattle.—With an average increase of 1,300 bullocks per week, during the past month, the markets have ruled dull and decidedly against the drover. There has been a steady decline from beginning to end, amounting to about 1c. per ₱., the closing rates being 3½c. below what they were one year ago. Texans begin to come forward somewhat freely—much faster than they can be sold. Operators in this kind of stock are likely to have a hard time of it. When people are starved to it, they take to the dry Texan beef, but in a glut of good stock, as at present, when fair Illinois cattle can be bought at 10¼c.@11c., these wild breeds go begging at 8c.@8½c. They are frequently sold at about what they cost in Illinois. Altogether, the trade is very discouraging for Western shippers and Eastern speculators. Low freights alone save them from heavy losses, but do not always keep them from going behind.

Below we give the range of prices, average price, and figures at which large lots were sold:

June 19th, ranged 9 @14 c. Large sales 11¼@13 c. Av. 12¼
June 26th, do. 8½@13½c. do. do. 11½@12½c. do. 11¾
July 3d, do. 8½@13 c. do. do. 11¼@12¾c. do. 11¾
July 10th, do. 8 @13c. do. do. 11 @12 c. do 11½

Milch Cows.—The price of beef has much to do with the value of milch cows. Cattle ruling very low, causes a dull trade in milkers, and prices are lower, or $35@$45 for very poor; $50@$65 for ordinary to fair, and $70@$85 for good to extras.....**Calves.**—The falling off in numbers is not equal to the lessened demand, hence trade is slow and prices low. Poor grass and buttermilk calves can scarcely be sold at all. They will only bring 3½c.@4½c. per ₱., a large lot, of 170 lbs., selling at 4c. Ordinary milk veals are quoted at 6c.@7c; fair to prime, 7½c.@8½c.; and only extras reach 9c.....**Sheep and Lambs.**—Arrivals are much larger, swelled by the free receipts of spring lambs. Fat sheep have been in request every week, their surplus fat being in demand for dressing off thin lambs. Still there is an average decline of fully ½c. per ₱. on sheep for the month. Poor stock sells at 4c.@5c.; fair to good, 5¼c.@5¾c., and prime to extras, 6c.@6¼c. Lambs suffer most, Western selling at 7c.@8½c.; few choice, 9c., with Jersey and State at 8½c.@9½c., and 10c. for very fine....**Swine.**—These, too, are in heavier supply, but there is no decline. In fact, we quote ¼c. advance during the past few days, live selling at 5½c.@5½c., with dressed at 6c.@7c. Some small pigs, which are scarce and wanted, reached 7¼c.

Crops in Virginia.—Gilbert Child, Staunton, Va., sends us specimens of wheat, rye, and timothy, grown in his neighborhood, where he says the best yield of wheat is 44 bushels per acre, though some claim to have made much more than that. Average yield of the county, 10 bushels. Land is worth sixty dollars per acre; labor is plentiful at one dollar per day and board in harvest, and eight to twelve dollars per month by the year. The specimens sent would indicate what we should call a fair crop, and would equal the average of a good crop in New York State. We rarely *see* a crop that will yield over 25 bushels of wheat, or 30 of rye, though we often hear of them. The writer never succeeded in

getting more than 25 bushels of wheat or rye, as the average of a crop, fairly measured; but out of such a crop much better specimens could be picked, than those sent.

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.

Special Notice.—Communications giving or asking for information are always acceptable. These should always be accompanied by the name of the writer. The name will not be published whenever there is indicated a desire that it be withheld. Writers may choose any signature they please, but we must be furnished with the real name. We are under no obligation to return rejected manuscripts. Where stamps are sent for their return, we, as a matter of courtesy, try to send them back. Writers should retain copies of articles which they consider valuable, as, with the best intentions in the world, we may not be able to return them if called for after the lapse of considerable time.

"The New York Agricultural Editorial Excursion" is announced as having started for the Mammoth Cave, Kansas, Colorado, and the Parks of the Rocky Mountains. Upon looking over the list of excursionists which start out under this flaming banner we do not find the name of a single editor of an agricultural paper. There are several male and female *attaches* of agricultural and daily papers who have thus boldly pushed off upon the railroad, and are ready to brave its dangers. For fear that these lambs (and—we don't know the feminine for lambs) should lose themselves in the agricultural intricacies of the Mammoth Cave, or get astray among the attractions of Denver, we have induced Tim Bunker to go with the party. If any thing transpires worth knowing that the sharp eye of the 'Squire does not see, we shall—for the first time—be mistaken in our man.

Odd Fellows will be specially interested in an announcement in the business columns. The publishing business association has been thoroughly reorganized on an efficient basis, and the Magazine will doubtless have a splendid success.

Wheat and Chess.—O. Gillette, Saybrook, O., sends us some newspaper accounts which shake his belief on the question of the degeneracy of wheat into chess. One of these statements is by Lewis Austin, of Austinburg, O., who some thirty years ago found "a perfect head of wheat out of which grew a perfect head of chess, each of which was well filled with its respective kind of grain." This is what we have been trying to get a sight of these many years, and have offered a reward for it. People have written us that they had such heads, and we have sent immediate requests to be allowed to see the specimens, but never have been able to inspect one. It is a matter upon which we shall accept the testimony of no one else, as the sources of error are so many that one not used to examining plants may be readily (and honestly) deceived. Until we can *see* and examine a specimen showing distinctly wheat and chess growing from the same root, or a grain intermediate in character between the two, we shall insist that the frequent claim that wheat degenerates into chess is not proven. Send on your specimens.

Farmers' Clubs.—A young farmer asks how to organize a farmers' club. These associations generally result from the action of some one go-ahead individual, who invites a few of his neighbors to a social meeting, where they converse without formality on the subjects most interesting to them, compare notes generally, and make arrangements for continuance. When the ice is broken and an interest in the thing is felt, there do not seem to be any difficulties in the way of getting along. The main point is to choose a chairman whose principal duty will be to prevent two men speaking at one time, and in other ways to see that the meetings are conducted in order.

Poppy Culture.—O. B. McCurdy, Muskingum Co., O. We gave considerable space to this matter last year, and in April, May, and June, 1870, you will find full directions. As your questions show that you have not looked into the matter at all, we refer you to those articles. It is too late to begin this year.

Building a Greenhouse.—The article on pages 301 and 302, upon building a cheap greenhouse, is, by one of those accidents that will sometimes occur in a printing-office, rather abruptly terminated. As we have in hand for September an article upon heating such a house, we can then give the description of the internal arrangement, which is now unfortunately omitted.

Criticisms.—"M. E. W.," Bowling Green, Ohio, is informed that letters which the writer does not consider of sufficient importance for him to attach his name to them, are not of sufficient importance to require a reply.

A Stock-Growers' Association.—Somebody at Cheyenne (whose name is entirely illegible) sends us a very plainly-written letter asking where he can obtain information as to the preparation of the constitution and articles of association for a "Territorial Stock-Growers' Association." We have no definite information on the subject, but, doubtless, many of our readers may have, and if our correspondent will be good enough to send us his address, we will try to put him in communication with the officers of some organization.

Corn should not be allowed to stand until a frost has injured it. As soon as the ears are glazed it may be cut up. Much corn is ready to cut by the middle of August which is left from day to day, until at last a frost occurs, and the value of the fodder is deteriorated, possibly one fourth. The great value of corn fodder is becoming recognized, and more care is exercised in harvesting it than heretofore. Cutting it at the right time is one of the first requisites in preserving it, and if this is neglected, no after-care can repair the damage.

Wash from Roads.—"I. A. V.," Kanawha, Va., asks if the wash from roads should be allowed to run into the fields.——By all means. Keep the ditches open, and turn all the road wash into your fields in such a manner as to have it spread over as much ground as possible. It contains much fertilizing matter.

Breaking in Young Steers.—A "Subscriber," Carbon Cliff, Ill., asks how to break a pair of young steers to the yoke. First train them to lead by a rope attached to the horns. Then procure a light yoke and bows, and teach them to stand with them on for a few days until they get used to them. Then take them out and exercise them gently, and with great patience, teaching them the meaning of the terms used in going to the right or left and backing. If they get restive, quiet them with a little salt and some coaxing. Never unyoke them while they are excited; cool them down first. Let the lessons gradually increase in length until they understand their business; then attach a chain, and soon after a small log or other weight may be given them to draw. Working in this manner, they may soon be broken in to do light harrowing or other work not too heavy for them. It would be well if oxen were broken in to the use of a line, attached to the horn, and the shouting commonly made use of were abandoned.

To Prevent Cows Holding up their Milk.—J. A. Wilson, of Erie Co., N. Y., says the best remedy he has found for preventing cows holding up their milk, is to "take a log-chain, double it, then lay it gently over the cow's back—on the 'small of the back'—so that the ends of the chain will clear the floor. The cow loses the power of holding up her milk, and after a few trials will forget the habit."——That cows *do* hold up their milk, every one who has had any experience knows to his sorrow. But still it is, to say the least, doubtful whether cows have the power of holding up or letting down the milk *voluntarily*. It is more likely that the muscles refuse to relax, from nervous excitement, rather than from a mere act of the will. And if so, any thing that will soothe the cow, such as kind words, or a mess of palatable food, would be the proper remedy.

Hide-Bound Calf.—Jas. Wilson, Fond du Lac, Wis., has some calves that are hide-bound, and wants a remedy. There is no better remedy than oil-meal, which will act as a gentle laxative on the bowels and remove the causes of the disease.

Horse that will not Lead.—Wm. Johnson, Benton, Tenn., asks how to make a horse lead. If the horse drags on the halter, or stops and pulls back, take him by the head close to the jaws, and stand back against the shoulder. If he objects to go then, touch him behind with a light switch. With patience you will persuade him to start, and with a little practice he will keep up with his leader.

SUNDRY HUMBUGS.—To many of our readers, the following will not be new, as multitudes have received this or a similar document. To others, it will be a curiosity, as it is a fair sample of a great variety of letters used by the "Queer" swindlers:

NEW YORK, June 9th, 1871.

DEAR SIR:—Your favor rec'd. I have concluded to take you into my confidence, and I here beg of you for God's sake not to betray me. I have at last got hold of the right thing, and all I want is a very few *true* men, and I guarantee we can each make a fortune in 6 months. I was trained up as an Engraver from boyhood, and after executing many plates for different banks, I was employed by the Government on the Treasury Notes. My last work was the engraving of the plates for the 1, 2, 5, and 10 dollar notes of the old Greenbacks issued in 1863. These bills are still in circulation, and I can refer you to them as evidence of my skill. When I had the plates completed, Sec'ty Chase publicly complimented me as the most skillful engraver in the U. S. Shortly after this, however, I was removed to make place for a political favorite, and I then vowed I would never die until I got square with the Government. I have been at work for years in secret, and I now have produced counterfeits of the 1, 2, 5, and 10 dollar plates which are absolutely perfect. I have printed a large stock of bills which I want to sell immediately. I use nothing but the very best paper, and the Dies, Signatures, and every thing are so perfect as to defy detection. I know there is a flood of spurious money afloat which I would not advise you to touch but I solemnly swear no one can detect these bills. Only keep perfectly sober, and I pledge you my word you can have no trouble. I have the money done up in packages of $250 and over, all properly assorted, and I will sell it for 10 per cent. If you mean business, come on here to 1,210 Broadway, and inquire in the Stationery store, which I carry on as a cover, and you will find me. Do not mention the nature of your business to any one, for I am in high standing here. Just mention the password "*Ink*," and I will know it is you. When you come bring money enough to buy a large stock, as I guarantee when you see the money you will buy all you can. If you can not come on, let me know, and I will send you the money on receipt of the price, for I must get my stock off at once. To favor you, I will send you $250 for $10 only, and you can pay me $15 when you pass it. I will sell you a $500 package for $18 cash and $30 after, or $1,000 for $32 down and $60 after. If you take a $5,000 package, I will send it for $120, and you can pay $300 after. Always send me National Bank bills. I can make Greenbacks enough. You can send the money simply folded in a letter, *well sealed*, and plainly addressed to me. I will send the money in such a way that no one will suspect it is money, and you need have no fears whatever. If you do not happen to have the money ready when you write, don't delay, but tell me how much you want, and I will send it by Express, C. O. D., and you can have the money ready to pay the Express Agent when it arrives. Now, my dear sir, I again implore you to use the utmost secrecy in this business. Do not mention it to your dearest friend, and while you remain faithful to me I solemnly swear to be true to you.

Yours, in Truth and Sincerity,
C. EMERSON.

This time, as a blind, be sure to address
☞ MISS BELLE VERNON, 1210 Broadway,
and I will certainly get the letter.
P. S.—Send money by express, if possible.

By sending out a great number of such letters, now and then one of them reaches a person green enough and dishonest enough to respond. If money is sent, of course it is never heard from. If a C. O. D. box is sent, the recipient finds, after paying the bill, and going to a secret place to open the parcel, that he has only old paper, sawdust, etc. If he calls, he is taken to a private room, stripped of all his money, usually by the aid of a bogus policeman, or he is shown a box of real money, and given another bogus one. In any case, he dare not complain, as he has himself tried to deal in counterfeits. Similar letters to the above are signed Wm. Webb, *alias* D. A. Mason, 1210 Broadway. Letters like these are sent to those who answer the following advertisement, which we are sorry to see in newspapers that claim to be respectable and reliable:

Conrad Long, hailing from the same place (and doubtless the same operator), sends neatly printed gilt certificates stating that so and so have drawn "solid gold watches, valued at $200," in a Spanish Policy, which will be forwarded on receipt of the usual 5 per cent—but said Long is just leaving for Spain, and the money must be sent by mail to Mr. Edward Miller, his appointed agent for the United States. What surprises us most is that many people

have faith enough in this humbug to ask us to receive the prizes and forward them, for which trouble they will pay us a commission. The "Spanish policy," advertised at many places, is a pure swindle.....We have always supposed that the good people of St. Lawrence Co., N. Y., were too intelligent to harbor a "gift enterprise" like that announced by "O. J. Stickles, Manager," Canton, N. Y. If he does all and just as he promises, the scheme is not a whit more nor less than a lottery, and will be let alone severely by all respectable people. We have a lot of tickets, sent us by generous subscribers, which, according to the promises made, ought to draw lots of farms, sewing machines, casters, center-tables, etc., etc. We haven't room to store so many things, Mr. Stickles!..... 100,000 people are invited to invest $10 each in a "Grand Gift Concert," at Louisville, Ky. If so many wrong-headed people can be found, 16 are to have prizes of $1,000 and upward; 243 of $200 to $900; 446 of $100, and **99,279** *contributors are to get nothing at all*, except the assurance that if any thing is left "after paying the expenses of the enterprise, and making the distribution of the gifts," "the balance will be appropriated to the establishment of a Free Library in Louisville." Had not these 99,279 persons, in which class the reader will most likely be found, better keep their money, and let the 721, among whom the reader will most likely not be found, put up the $1,000,000 required to give them a *chance* to draw $550,000? This affair—a pure lottery—is an outcrop of the San Francisco enterprise, managed by the same party, who, of course, finds it to pay *him*.....E. F. Rogers, 131 Nassau St., *alias* H. J. Worth, 4 Broadway, *quondam* 3½ Park Row, is sending letters all over the country, offering to each person addressed, a ticket in the Royal Havana Lottery, which draws every Saturday, that will surely draw $1,000 for each $1 said persons invest—which letters show the said so-called Rogers, *alias* Worth, to be a swindler, intending to pocket all money received, or a fool to sell thousands of people the certainty of getting $1,000 for $1, instead of taking these chances himself, or a liar in pretending to know what tickets will surely draw prizes. Our generous friend Young, editor of the Saratoga Sentinel, claims to be too poor to raise the dollar or two, and kindly offers to go halves with us in the prize offered, if we will advance the said dollar or two, and receive the $1,000 or $2,000. Thanks, friend Y., but we are too poor also, to spare $1, even, for *such* an investment. Can't you divide the cost with us, and send along a 50c. stamp? Please *bring* it down, and when we get the prize we'll go out on a bender and order one ice-cream and two spoons, regardless of expense.... A Michigan swindler, with more names and hailing places than we can print, sends out circulars and advertisements with great promises of wages, profits, etc., to those who will send him from $1 to $10, for rights, recipes, etc., including "Safety Oil," etc. He, of course, pockets the money, and if any victim takes the trouble to follow him, he has changed his name and place. We have frequently exposed him, his humbug oil, etc..... W. D. Miller & Co., Philadelphia, pretends to offer 100,000 gold watches, etc., worth $100 each and less, for $1.25 each, which is all bosh. He will give you nothing for $1.25 which does not pay him a round profit at that price. If there were not many foolish people, he could not pay his printer.....We are in continual receipt of the circulars and flaming sheets of perambulating Doctors, of immense pretensions, who advertise a place of business at some central point, usually at the West, and announce visits at specified places on particular days. Some of them give hundreds of names as references, and reports of scores of cases of remarkable cures. These are too numerous to describe in detail. We say positively, that one and all of these Doctors are outrageous quacks. The names given are usually fictitious; those of well-known persons are used without permission, and the few certificates that are genuine, when any are, are from weak, nervous people who have been cured of some imaginary disease by their faith in the pretentious claims of the quacks. Any man advertising to cure "Cancers," is a swindler. See our remarks on this subject last month, p. 240. We are asked our opinion of California Wine Bitters, Vinegar Iridin, and a hundred other nostrums. Ans.: If you have a mean, sheep-killing dog, which you are too tender-hearted to get rid of by cutting his tail off close behind his ears, make believe he is sick, and dose him with *any* one of these advertised medicines. *Caution:* Keep the bottles, boxes, or packages in a safe place where no human being can, by any possible mistake, swallow any of the stuff. N. B.—This includes each and every advertised medicine, lotion, bitters, soothing sirup, nerve antidote, electrical sure-cure, etc., etc., etc., etc., etc., etc., etc., etc., etc.—no matter how finely put up in glass or gilt parcels. You have our opinion, founded on much study and observation, and we have looked into medical science as much as half the doctors, and all the quacks in the country.....There is no photographic apparatus for $1, or for $5, that will take pictures worth a penny. West Virginians, and many other people elsewhere, will do well to heed this and save their money. The name of the sellers of such things is legion.....The "Arabian Secret" seller, recently exposed in these columns, has gone over to New Jersey, and taken a new name and P. O. ... The "New York Cash Prize Company" is still catching greenhorns, but will not take in many editors, unless cash goes with orders for advertisements "direct," and then only those who sell space to *all* paying comers. .....Here comes another "Academy of Music," in Charleston, S. C., to be given some one of the **150,000** people, who are asked to contribute $5 each to the "South Carolina Land and Emigration Association." One person in seventy is offered a prize of from ten dollars to an Academy of Music. Every good singer, who wants such a building, and knows he will draw it, better walk up and put down five dollars. Of course, **147,596** other persons, who don't want any prize, and can't get any, will help him buy the building by giving $5 each.....If not satisfied with the above, and you know how to keep a hotel, there is a "Caroline County Land Association," in Wilmington, Del., offering you the Leprerre Hotel in Denton, Md., "*worth*" $25,000, that only asks you to give $2, to have *one* chance in *fifty thousand* to draw said hotel.....**Or,** for $2, Omaha, Neb., offers you *one* chance in *nineteen thousand*, to get a cash prize of $20,000, all for the benefit of a public library!.....**Or,** for the same money, you can have *one* chance in *fifty thousand*, at a Frnit Farm, in Iowa City, "valued at $30,000."....**Or,** for $3, you can have *one* chance in *two hundred and thirty-four thousand* at the Pattison Market, Elmira, N. Y., valued at $100,000! .....**Or,** for $5, you can have *one* chance in a *million*, more or less, to become the proprietor of the "New Memphis Theater."....**Or,** for $5, you can have a similar chance in a "Monument to the Confederate Dead of Georgia," in nine hundred acres of land in Lincoln County, Ga., and in a prize of $10,000 U. S. greenbacks. Query: Will the deceased, or their friends, like this commingling of Federate and Confederate affairs? If you don't like any of the above "Splendid Chances," our Humbug Drawer can supply any quantity of others, in any one of which you will be a trifle more likely to draw a prize than you will be to be buried in the moon, with a green-cheese monument a mile high. But chance is a great thing; so hand over the money. The operators will be profited, i-f y-o-u a-r-e n-o-t.....A late swindle, becoming quite common, is that of writing to a distant man (or woman), and telling him (or her) that some relative or person of the same name has recently died, leaving considerable property, and that the operator has strong reason to believe that the person addressed is entitled to quite a slice of the estate, *and* that $5, or $10, or $20 will pay the said operator, who claims to be an "Attorney at Law," for looking up the matter. Several thousands of such letters are being scattered over the country. They catch a good many dollars. These swindlers are located all over the country, and only address persons living at a distance. This is a shrewd dodge, and many quite sensible people are caught by it.

Scolymus.—"T. B. H.," Hillsboro, N. C., sowed some Scolymus this spring, and it is now running to seed. He asks if the root will be good after the seed has formed.——With us it does not flower the first season. We should think that, like parsnip and carrot, the root would be worthless after it had produced seed. Still, as in its native country the Scolymus is perennial, it may, after seeding, form a supply of new roots. This is a matter in which we have had no experience, and we hope T. B. H. will tell us what the result is in his case.

Cutting Cions.—"A. J. W.," Port Gibson, Miss. One great object in cutting cions in early winter, is to be able to graft at any convenient season. If the cions be dormant, we can extend the season of grafting over several weeks, but if we delay cutting them until the time for grafting arrives, the business must be hurried up. If vegetation has started in the cion, the check it receives in removal from the tree is likely to prove fatal to it. Cions may be cut at any time during the period in which the plant is perfectly at rest. The growth of the previous season should be taken. The question "How dry should the cions be?" we suppose refers to the keeping of them. The object should be to preserve the natural moisture; they must not be allowed to shrivel, nor should they be wet and water-soaked.

Hard-Milking Cow.—Y. C. Smith, Carbondale, Pa., asks how a hard-milking cow can be made to milk easy. If the difficulty is natural to the cow and there is no stricture in the orifice of the teat resulting from disease, we do not think there is any remedy. We should feed the cow for the butcher. If the trouble has been caused by garget or inflammation of the udder that has resulted in stricture, or partial closing of the milk passage, it may be removed by cutting. The operation, however, is a delicate one, and we would rather not perform it unless the cow is a valuable one.

Four Lambs at a Birth.—William Woodzell, of Bath Co., Va., writes that he has two sheep that had four lambs each this spring. The year before they had three each. Seven of this spring's lambs are still alive and doing well. We have known frequent instances of common long-wooled sheep having four lambs at a birth. But it is not a habit that it is desirable to perpetuate in breeding ewes. We like good, strong ewes to have twins, but not triplets or quartets.

Relative Nutritive Value of Skimmed Milk and Corn-Meal.—"A. S. S." We can not answer this question any more than we can tell (as many pretend to do), how much bread is as nutritious as a pound of beef. One thing we do know, skimmed milk and corn-meal together are better for hogs than either alone. If you can get 10 cents per gallon for the skimmed milk *on the farm*, it will pay better to sell it than to feed it to hogs.

A Neglected Orchard.—"Lowery," Jasper Co., Tenn., has an orchard of some twelve acres, which, having been used as a camping ground by both armies during the war, and neglected since, is in a bad condition. He rightly concludes that the orchard needs both manuring and pruning, and asks advice. Pruning may be done at almost any time, except in early spring, when vegetation is vigorous, and in winter, when the limbs are frozen. The wounds should be covered with melted grafting wax. The amount of pruning will depend upon the condition of each individual tree. Remove limbs that cross and crowd each other, and leave the top open to light and air. Manure may be applied in autumn and winter: good, well-rotted stable manure is best. Lime and ashes applied before the manure, and forked in around the trees, will be found useful. If the ground has run up to briers and coarse weeds, a flock of sheep will do good service in reducing them, and their droppings will help fertilize the soil. The sheep should not be kept in the orchard during winter, as in the absence of green food they may gnaw the bark of the trees.

Fleas.—"H. E. C." says his "whole neighborhood" (but doesn't mention where) is infested with fleas. Pennyroyal and Tansy have been recommended. We should try Persian Insect Powder. Will any one help H. E. C.?

Strawberry Questions.—A subscriber (Athens, Tenn.) asks: 1. What strawberries are known to succeed best on red clay, in the South? 2. In strawberry culture, fruit is the main object. It is well understood that different substances, taken as food, go to form the bones, flesh, and muscles of animal bodies. Is this true of plants? Do certain kinds of food produce vines and leaves, while other kinds produce fruit? 3. What kinds of manure are found, from experience, best calculated to produce fruit? 4. Is it well authenticated that potash, at the rate of a pound to a barrel of water, applied twice a week, will cause plants to throw out large quantities of runners and produce a luxuriant growth of vines? And that ammonia—sulphate or carbonate—at the same rate, and applied in the same way, will produce large quantities of fruit, but cause the fruit to ripen late? 5. Can these substances be purchased at such a price as that their use on a small scale will be profitable? 6. The new plants of some varieties seem disinclined to take root. What treatment will be likely to help the matter? ——*Answer.*—1. The Wilson succeeds almost everywhere. Upon a clay soil we should try Jucunda and Triomphe de Gand and Napoleon III. 2. Practically, the parallel between plants and animals does not hold. You can not have fruit without an abundance of healthy foliage. 3. Well-rotted stable manure, especially that from cattle, is best. 4. Potash is excellent for the strawberry. A vigorous plant will produce an abundance of runners. Ammoniacal manures are also useful. 5. Potash is most readily obtained in the form of ashes, and Peruvian guano is the cheapest form of ammonia. 6. Probably the surface is too dry. Put on a mulch. If our friend will use plenty of good manure, he need not trouble himself about fertilizing, for fruit especially.

Tomato Wine.—"J. C. B.," Rulpsville, Pa. We do not know how to make "a good wine" out of tomatoes, and do not believe that it can be done. We have seen a miserable, sweet, alcoholic liquid made from tomatoes, and we thought it an insult to a respectable vegetable to put it to such a use.

Scab in Sheep.—H. S. Burris, Clinton, Mo. When this disease affects a flock, the closest attention is required, or it will spread; flies will "blow" the affected parts, maggots will breed, and the sheep perish

most miserably. To cure and prevent, use common mercurial ointment mixed with four times its bulk of lard, rub it on the skin in a line from the poll to the tail, and on lines four inches apart on the sides of the animal. A mixture of lard, sulphur, and carbolic acid, in the proportions of one hundred parts of lard, twenty-five of sulphur, and one of pure acid, may be rubbed on the sores, and the flies will be kept off. Common creosote may be used in place of the acid, doubling the quantity.

Glycerine.—"M. L.," Jersey Shore. We do not know "how" glycerine can be used in 'sealing canned fruits." Can any body tell her?

Plaster.—W. P. Tate, Clearfield, Pa., wants to know how to use plaster. Plaster for corn should not be used in the hill; it should be scattered over the corn when a foot high, a handful to three or four hills; it acts best in moist weather, and when the leaves are damp with dew or rain. It is now thought best to plaster clover early in the spring, and again when it covers the ground, using fifty lbs. per acre each time.

Alfalfa.—J. R. R. Moore, Worcester Co., Md., asks about alfalfa or Chili clover, and where the seed can be procured. It is Lucern, and nothing more. Having been cultivated for ages by the Spaniards as a forage plant, it was doubtless introduced by them into their American colonies, north and south. The seed can be procured at any seed store for about fifty cents per pound. Twenty pounds broadcast, or nine pounds in drills, nine inches apart, is the quantity per acre.

Lime vs. Ashes.—A correspondent from Nottoway Co., Va., asks how much ashes (unleached) would be equal to a bushel of lime. This is like asking how much cheese a pound of butter is equal to. A bushel of ashes contains, in eighty pounds of weight, from thirty to sixty pounds of lime, but it is not in the condition in which it is used in agriculture, viz., quicklime; and the things are therefore not comparable. Ashes are valuable for the potash and phosphoric acid they contain; lime for its solvent action on all vegetable and many mineral substances. The commercial value of ashes is double that of lime under ordinary circumstances.

Docking Lambs.—Isaac S. Batchtel, Stark Co., Ohio, docks his lambs as follows: He takes them between his legs with the rump before him, holds the tail between the thumb and two fingers, pressing up the skin as much as possible; then, with a stout pair of shears, cuts off the tail about two inches from the root. He continues the pressure until the blood "clots," when the bleeding will stop. We would suggest the application of blue vitriol (sulphate of copper), powdered, which not only cauterizes the wound, but keeps off the flies. The additional pain is only momentary. The earlier docking is performed, the better.

Harvesting Peanuts.—J. H. Yarnall. Peanuts are usually harvested immediately after the first frost, but where it is desirable to get the crop to market early, they are sometimes pulled earlier. The later the crop can grow, the greater the yield of nuts, while on the other hand, the vines are more valuable as forage if pulled and cured before they are touched by frost.

Oxford, Pa., Fair.—"T. F. W." We do not publish articles of the kind you sent unless the name of the writer is attached. It would seem to be as easy to write a full name as to append initials.

Currant Worms.—W. G. Barton, Salem, Mass., writes that he finds air-slaked lime a "sure cure" for the worms that attack the foliage of the currant and gooseberry....C. A. Morse, Leominster, Mass., uses with equal success a solution of one ounce of copperas (sulphate of iron) in a gallon of water. By "surface application" in the article referred to, the surface of the soil was intended.

A Lactometer.—A. M. Walker, Randolph, Wis., made use of the tubular portion of the chimney of a German student's lamp, and closed one end by filling the cover of a tin box with wetted plaster of Paris, and setting the tube in it. He attached a strip of paper graduated to 100 parts, as a scale, and had a serviceable milk tester. The hint may be of use to those who live far away from druggists and glass-dealers.

How Long will Seeds Keep?—"R. G. L." asks to what age do certain seeds arrive "before they become valueless?"—Much depends upon how they are kept. The practical point, and probably what our correspondent wishes to know, is the age to which they may be kept and still be sown with the probability of their germinating. Various tables of this kind have been published, the English and French authors differing widely. Of those mentioned by our correspondent, onion and parsnip are only safe for one year; carrot and sage for two years; cabbage and turnip for four years; beet, squash, and cucumber, from five to ten years.

Green Sand Marl.—Chas. L. Smith, Rahway. Marl may be applied to grass lands with benefit in quantities of from one to five tons, or even more, per acre. One ton or thereabouts is generally applied annually for three or four years in succession, when its effects become less apparent, a dressing of lime is found to restore the fertility. It is best to haul the marl during winter and deposit it in heaps, and let it be exposed to the atmosphere until spring, when it is spread. We lately saw a field that had been dressed with one ton of marl per acre three years ago: the good effects were abundantly visible in a heavy growth of clover, while on undressed land, adjoining, the clover was decidedly poor. A shovelful put into the hill in planting potatoes is found to be very beneficial.

Pollen.—"J. P. S.," Springfield, Mo. The package of yellow dust sent is the pollen from the flowers of some pine; showers of this pollen often fall, and to the ignorant and superstitious they are the cause of much fear, many imagining that it is sulphur, and that it is the forerunner of some terrible calamity.

Foul in the Foot.—A Subscriber, Clifford, Pa., wants a cure for foul in the feet of cows. This disease is most often caused by uncleanliness. In such cases, cleanliness will produce a cure, assisted by an astringent lotion or ointment. Wash perfectly clean with carbolic soap and water, and especially between the claws of the hoof. Apply an ointment of lard four parts, sulphate of iron and sulphur, finely ground, one part each; smear the raw or suppurating parts with it, and keep the cows in a clean, dry stable. If the cows are out of health, give half a pound of Glauber salts and one ounce of sulphur afterwards, daily for a week. The sulphur may be administered with some salt.

Lime on Oat Stubble.—I. G. Barger, Clearfield Co., Pa., would like to know how to apply lime to oat stubble which is to be plowed for wheat, and the proper quantity. Lime must be kept near the surface, therefore it must not be plowed in. When the last plowing is finished, spread the lime on the plowed ground and harrow it in. Fifty bushels per acre is the usual quantity. It must be properly slaked, so that it is in a fine state of division, or its full value will not be secured. To slake it, put it in small heaps in the field where it is to be used, and two showers of rain will do the business.

To Kill Milk-Weed.—W. G. Mathes, Okaman, Minn., asks how to destroy milk-weed. This is a difficult weed to kill in some places, in others it does not seem to be troublesome. The main trouble lies in the roots, which are long and penetrate deeply. It can not be eradicated without labor and patience. If it is in large patches, we would mow it often through the summer, and plow the ground in the fall, carefully picking up the pieces of root brought up by the plow or harrow. If in small patches, we would dig out the roots with the spade. If prevented from seeding it will not spread, but if the seeds are allowed to ripen, they will scatter widely.

How to get Land into Grass.—"B. D. C.," Baltimore Co., Md., has five acres of land which he wants to seed to grass, part for a lawn, and the remainder for feed and hay for a horse and cow. The land should be plowed and harrowed fine, with plenty of manure well incorporated; the part reserved for a lawn should be leveled, made smooth, and sown with a mixture of grass seeds—for instance, one bushel of red-top, four quarts of blue-grass, with a little white clover, say two or three pounds per acre. For mowing land nothing is better than six quarts of timothy and a peck of clover. If the land is inclined to be wet, replace three quarts of the timothy with a peck of red-top.

Thrashing Buckwheat.—Harvesting buckwheat is subject to so many accidents, and must necessarily be done at so short a notice, that it is valuable to know any plan by which it may be readily and quickly performed. Where it must be thrashed by hand, a floor may be prepared in the field by scraping and sweeping a piece of ground, or laying down sheets. Lay over this a bed of rails an inch or two apart, raised from the ground sufficiently to make room for the grain when it is thrashed. On these rails throw the straw as it is brought from the stooks, and thrash out the grain, which falls through the openings between the rails. The straw can thus be removed and separated from the grain very quickly. When all is thrashed, remove the rails, and the grain may be cleaned on the ground if desired, without moving it to the barn. It is absolutely necessary to clean buckwheat as soon as thrashed, or the chaff, being damp, will heat and spoil the grain in a few hours.

Carrots and Onions on Sandy Land.—George Cassels, Saratoga Co., N. Y., has four acres of poor, sandy loam, but he has plenty of green manure. He asks how to manage so as to put onions and carrots in next year. The green manure must be rotted, by piling and turning several times, until it is reduced to a fine state. Early in spring the land should be plowed deeply, the manure spread as abundantly as possible—25 two-horse loads per acre would not overdo it—and the land cross-plowed and harrowed. Another plowing would be a benefit, when the ground may be harrowed, the seed sowed, and a rolling given, which will compact the soil and secure germination.

Corn-Husking Machine.—J. T. Robertson, McLaughlin's Store, Pa., asks if there has been a machine invented that will husk corn and do it right.——A husking machine is advertised in the *Agriculturist* of this month, which we have seen in operation; if under the test of actual work in the field it acts as well as we have seen it in the manufacturer's hands, we should say it is a valuable machine.

Thomas' Smoothing Harrow.—I. A. Rogers asks what we know of Thomas' smoothing harrow, and how it will harrow corn.——It is doubtless a valuable implement for finishing the surface of land laid down to grass—when free from stone. It does not work well on stony land. We have successfully used it to harrow wheat in the spring, but our corn was badly injured by it. Others have used it satisfactorily.

Farm Gates.—A. C. Drury, Copper Creek, Ill., asks if there is a patent on the common sliding-gate. There is a patent on the rollers on which it works. The form of gate and the sliding movement having been in common use for many years back, we should say, without knowing positively, would not be patentable. It would be safer, however, to be certain of this before using it, by writing to the Patent Office, Washington.

Feeding Fodder Corn.—Chas. Strange, Grass Valley, Pa., asks how fodder corn should be fed, whether green or wilted. He says his grandfather, when he wanted to dry up a cow, used to put her in a lot and feed her all the green stalks she would eat, and did not milk her; in a few days she would be dry. If this is correct, it shows that we nowadays have improved on old-fashioned modes, for we feed green corn fodder and get more milk. There is a difference in opinion among dairy men as to the relative value of wilted and fresh fodder, but so far as the experience of the writer goes in feeding, and in our conversations with dairy men, we have learned that it is best to feed it when wilted by some hours' exposure to the sun. What is cut in the morning is fed at night, and the morning's feed is cut in the evening. The cows eat it with more relish, probably for the reason that fermentation of the juices has occurred to some extent.

Raising Little Pigs by Hand.—"W. H. B.," Fremont, O., writes: "I wish to inquire of you, or some of the many readers of the *American Agriculturist*, how to raise little pigs taken from the sow, when only a few hours old. I have a fine sow that has bad luck raising her pigs, and I have tried to do it for her by feeding the pigs cow's milk, from one to two tablespoonfuls every hour, using for one lot the milk of a fresh cow; for another lot that of a cow not fresh. But I failed in both cases." We should be glad to hear from our readers. Except in the case of valuable thoroughbreds, it will not pay to raise pigs by hand.

Green Fly on the Quince.—"H. B. H." Use strong tobacco water, either by syringing or bending down the shoots and dipping them.

Butter Making.—Mrs. N. J. Fisk, of Minnesota, sends the following short statement of her process of butter making: "I first rinse the pans with cold water, then pour boiling water in them and let them scald about five minutes, then pour out the water and turn up the pans to dry. Let the milk stand 24 hours, and then skim and set the cream in a cool place. Churn every other day, and keep the churn sweet and clean. Never let sour milk stand in a wooden churn. Rinse the butter well, salt it, and stand it away until the next day; then work it well, until no more brine can be got from it. Work fast, and you need not be afraid of its being oily." The directions are good for such short ones, but we would add: *Always use your brains.* Good butter can not be made in a varinble climate by any fixed rule. Sometimes

milk should stand only 12 hours, and sometimes it will take 36 hours for the cream all to rise. If the salt is well worked in, four or five hours is as good as all night for the collection of the brine. In working the butter over the second time, you may be fast or slow, according to the temperature. In cool weather speed is of no advantage. "Wiping" or "sopping" the butter with a damp cloth is a good way to get the moisture out. Never let sour milk stand (unnecessarily) in *any* dairy vessel, and never let *any thing* stand in a wooden churn—except sunshine and fresh air.

Sandy Uplands in N. W. Indiana.—Can they be farmed profitably? asks E. Y. T., Richmond, Indiana.—We have no doubt of it. Within sixty miles of Chicago, on direct railroad, the proprietors of such lands, who live by hunting and fishing, do it from choice, not from necessity. Such lands will, when cleared, grow excellent clover, and that is the key to all other crops. Around Chicago there is a great amount of such land, and occasionally one sees a good farm with flourishing surroundings in the midst of it. The adage, "There is more in the man than there is in the land," will apply here with force. If that land, unpromising as it now looks to the traveler passing through it, is managed well, its favorable locality will help it amazingly. Sweet potatoes, round potatoes, rye, clover, corn, and the dairy should be specialties. And we do not doubt that lime could be procured there cheap enough to give a dressing once in five years. Such lands in other localities flourish abundantly, but not without proper management and manure

Putty and Paint.—However much these two articles may be used to hide deficiencies and cover up faults by dishonest tradesmen, in the farmer's hands they may be made to do excellent service. Possibly the wagon, plows, and harrows that have been in active employment during the summer, have had their seams or cracks opened by the sun's heat. Now is the time to stop those cracks or seams with putty and a touch of paint, before the fall rains soak in and commence to rot the wood. Repeated swelling and shrinking do serious injury to all wooden implements, and now, while they are well shrunk, is the time to look after them and prevent the swelling which will occur if damp or wet is allowed to penetrate. Forks, shovels, axes, and all tools with wooden handles, should be rubbed with linseed oil while dry. They will have their elasticity preserved, and their durability and appearance improved thereby.

Care of Harness.—During the busy season harness is often neglected, and for want of cleaning becomes coated with dust, which causes it to dry and become cracked. It is then on the road to ruin. To save it, it should be taken apart, every buckle should be unloosed, and it should be thoroughly cleansed with warm water and soap. If a thorough sponging does not free it from the glutinous coating derived from former greasings with improper materials, a weak lye of wood-ashes, or a solution of borax or soda, may be used, until the old grease is all removed. Then wipe the surface, and while the harness is still damp, coat it with sweet-oil until no more is absorbed. The oil will displace the water, thoroughly penetrating the substance of the leather. It will thus be kept pliable. Harness should not be oiled when it is dusty or unclean; always wash it previously, as above directed. For fine harness an excellent dressing is made with 8 oz. beeswax melted, into which is stirred 2 oz. ivory black, 1 oz. Prussian blue, ground in oil, 1 oz. oil of turpentine, and ¼ oz. of copal varnish. This is made into balls. It should be applied with a stiff brush and the harness polished with a soft cloth. No hair or dirt will stick to this, and if expense is no object, working harness may be made to look well with a coat of it.

Garget and Bitter Cream.—"L. T. W.," Minn., has some cows which give stringy milk from one teat, which she calls dry garget. Also has occasionally a pan of milk in which the cream is bitter, and asks for remedies. Cows often suffer from inflamed udder when they come in, and if the calf is not allowed to suck or it is not reduced by other means, it results in "caked bag," or garget. Tumors often occur in consequence, which remain for a considerable period, and from time to time discharge their contents with the milk in the shape of a thick, glutinous matter. The remedy is to cause the substance of the tumor to be absorbed by the use of iodine applied to the udder, assisted by friction. The common iodine ointment of the druggist may be used, rubbed in around the diseased teat with gentle pressure. In such cases the milk from that teat should not be used. The bitter cream may arise from weeds eaten by the cow, or an abnormal state of the liver resulting in an excess of bile; or, what is most probable, the pan may not have been perfectly cleaned from sour milk, and the milk and cream may have soured prematurely; without knowing more than the bare fact communicated, it is impossible to give either a definite cause or remedy.

Curing Corn Fodder.—Mr. A. O. Bayley, Derby, Vt., says: "We fully agree with Mr. Foster (*Agriculturist* for May) about the value of fodder-corn, especially as a milk-producing feed, either in a green or dry state, notwithstanding Dr. George B. Loring pronounces it to be the 'meanest feed that can be given a cow.' We would, however, for winter use, cut and cure it before it has attained its full growth; when in blossom is probably the best time. Green-cut corn-fodder is as much superior to that which is ripe as early cut hay is to that which has matured its seed. Our practice has been to sow in drills, and of late years not more than ten or twelve kernels to the foot. I find from experience that cattle will eat fodder grown from this rate of seeding with better relish than the small and unnatural growth obtained from heavy seeding. I do not think that corn grown at the rate of thirty or forty plants to the foot contains so large amount of sweet and nutritious juices, in proportion to its weight, as that grown from thin seeding. The principal difficulty lies in the curing; a corn-stalk as green as I cut it is so limber it is next to impossible to make a stock stand that is small enough to cure well—it will tumble down when there does not seem to be the slightest occasion for it. Last year we tried several expedients, and at last hit upon a plan that worked with complete success: two crotched stakes were driven into the ground at a convenient distance apart; a pole was laid crosswise three feet from the ground; small bundles were placed on each side of this support, and bound together two and two, one on each side of the pole. There was some work in this, but it was the best of some half-dozen different arrangements. This was nicely cured, and made excellent winter feed, cattle eating it as readily as the best of hay. If we had let the corn stand until ripe we should not have had so much difficulty about making the stocks stand."

South Carolina Phosphate.—I. H. Satterthwait, of Aiken, S. C., writes: "You know of the extensive deposits of petrified bones of animals in the neighborhood of Charleston, S. C. These bones, when ground and made soluble, are excellent manure for our lands, but the price is so high when manipulated, that we farmers can not afford to buy it. Neither can we afford to farm these poor lands without manure. Consequently, we should know how to manipulate for ourselves, and I appeal to you for the desired information, hoping I am not asking too much. We can purchase the ground bone at the factory for from $12 to $15 per ton. When made soluble with an equal weight of sulphuric acid, they charge $40 per ton. Can we not add the acid ourselves? and will it pay?"—We have no doubt you could buy the ground bone and the sulphuric acid and make the soluble manure on your farm somewhat more cheaply than you could buy it, but the saving would not, probably, be so great as you imagine, though it would be worth while if the quantity needed were enough to cover the outlay for the necessary fixtures. The profit will depend on the cost of the materials and the labor required. If a ton of ground bone costs $15, and a ton of acid costs (including the use of carboys, freight, and handling) $50, the two tons would cost (for material) $65, leaving a margin of $7.50 per ton, to cover the cost of manipulation. What the material actually would cost, we do not know. It would be worth something to *know* you have the genuine article, but we do not hear that the manufacturers of South Carolina superphosphates are making undue profits by their business, and we would recommend farmers to figure carefully before they commence making their own superphosphate. Nothing can be more true than our correspondent's remark that it will not pay to farm any poor lands without manure.

Plantation Cows.

We have received the following letter from an esteemed correspondent in South Carolina:

"I would like to get some information about stabling cows, which I do not find in the agricultural books within my reach, and would be glad of instruction on the following points:

"1. When fastened with halter, how many feet of front is allowed each animal? 2. How much of a partition is there between the different cows? I can not recollect whether those I have seen fastened were secured with a collar around the neck, or whether the chain was around the horns. 3. In either case, how long should the halter-chain be? 4. Are common trace-chains used, or chains made especially for the purpose? The halter-chain I believe works with a ring upon an iron rod, giving the cow's head more play up and down. 5. How high from the ground should this rod be? The most puzzling question to my mind is how a common herd of plantation cattle are to be taught to walk up and be haltered of an afternoon. As the sole object in stabling them is to save the manure under shelter, I should much prefer dispensing with the halters, if there was any way to prevent their hooking one another under a reasonable-sized shelter. Dairymen, I suppose, have constantly to train new cows to 'come up to the rack,' and possibly I may get a hint from their experience. I can't agree with your esteemed contributor, 'Walks and Talks,' about making manure in an uncovered lot, and want to improve on our common plan of penning cattle; but as mild as our winters are and common as the cattle are, more for the sake of the manure than of the cattle."

1. For cows of ordinary size, 3 feet is a sufficient width to allow to each. 2. It is quite as well to have no partitions at all, only the posts to which the animals are fastened; these will separate them sufficiently. 3. In fastening to posts the chain has only length enough to go around the cow's neck—loosely—carrying a large ring that plays up and down on the post. 4. The chains are made for the purpose. They are not expensive. 5. If an iron rod is used in the place of the post, it should come to within about a foot of the ground. As the cow stands up to the rack, in a natural position, the post (say 3 inches in diameter, and of strong wood) should be close to the left side of her neck—a little back of the head. Each post carries its chain by a large ring or clamp that plays easily up and down upon it. The chain has several rings at one end (to regulate the length) and a cross-piece at the other. The tying is a very simple matter, especially if a nail be driven, a little out of the cow's reach, on which to hang the ring end of the chain so that it can be reached without stooping.

Cattle will soon learn to come to their stalls for any regular reward—either meal, bran, salt, or hay—and they should be fed at once on coming in. The only way to get on without tying would be to put the cattle in stanchions, which for the case in question would answer very well.

Bee Notes for August.—*By M. Quinby.*

The moth will continue or increase its depredations, and the price of exemption, for weak colonies, is perpetual vigilance. Continue to place sweetened water and vinegar about the hives at night. Any diseased stocks that have been neglected, may be driven out now. What they do will be good for another year, if not available this. Where buckwheat is abundant, strong colonies, in good seasons, will store a plenty of surplus, and boxes should be given them with reference to it. Boxes of clover-honey should be removed early this month, even if not quite full, as a little of that from buckwheat on the outside materially affects the price. Weak stocks will sometimes fill a box half full, more or less, and if honey fails somewhat, they will remove every particle of it to the combs below, while strong swarms may be gradually filling boxes. Watch such closely, and take off the boxes if necessary. As the honey in such boxes is free from bee-bread, it is nice for the table even if unsealed, and the supply of honey being limited at this time, it might not be safe to risk putting the boxes on another hive for filling. Swarms which come this month are worth but little, and the bees are needed in the old stocks. Should any swarm now issue, and should there be a queenless colony in the apiary, divide the swarm, give half the bees with the queen to the queenless one, and return the rest to the hive whence they issued. If not needed in this way, take away the queen and put the bees back in the old hive. They will not be likely to come out again so late in the season. Should a streak of white, powder-like substance be seen on the surface of the combs of box-honey that has been kept through the hot weather, it is a sign that a web will soon appear, and that a worm is there, though he does not appear. Put the honey-box in a close box, and smoke with brimstone, but not so strong as to discolor the combs. In rearing Italians, where they are surrounded by natives, it is difficult to keep them pure, as the queen will sometimes meet the drone three miles away. To obviate this, it is well to keep drones as late as October, at which time natives are destroyed. To do this, select now a colony of the best. Take away the queen, and eight days afterwards destroy all the queen cells. In such a case drones are not destroyed, unless destitute of stores. You may increase the number by introducing two or three drone-combs containing sealed brood. The same hive can be used to winter a colony if it has plenty of honey. The bees from some light colony may be introduced in November or December. Allow me to repeat here, that persons wishing to make the most of their bees *must* discard the box-hive, and educate themselves to use movable combs in some form. *Study the subject.* And I would strongly advise the use of the mel-extractor. It is proved that two or three pounds of extracted honey can be got where one can be obtained in a

box. Italians are disposed to fill their combs too full of honey in August, leaving too little room for brood. By using the mel-extractor room is given them, and consequently there will be plenty of young bees for winter.

Wool-Bearing Animals.

At the International Exhibition now open in London, there is a collection of wool-bearing animals brought together for the purpose of showing the origin of the material from which the fabrics exhibited are made. We give an engraving representing these animals upon the first page of this paper. With the exception of the Alpacas, which belong to Lady Coutts, the animals are from the Gardens of the London Zoological Society. The animals placed highest in the picture are Mouflons, from the mountains of Greece, Corsica, etc. Those shown here are females, the males having much larger horns. The Mouflon is a very strong and agile animal, and is interesting as being, in the opinion of some naturalists, the original of our common sheep. Next, below the Mouflons, is a fine specimen of the Cashmere goat, which furnishes the raw material for the most costly shawls. At the left of the Mouflons are two Merino Rams, which do not call for especial comment, and at the left of these again, a Huanaco, or Guanaco, as it is sometimes written, and lower down are the nearly related Llama and Alpacas. These three varieties or species of animals, aside from their furnishing wool, are interesting as having long been under a rude domestication. When South America was discovered by the Spaniards, the Llamas and Alpacas were found in use by the natives as beasts of burden, and it is stated that in the time of the Incas, it was the custom to have large hunts and drive in the wild herds, when the animals were shorn, and the old and imperfect ones were killed, in order to improve the race. The Llama and Alpaca are not known in the wild state, and those who have investigated the matter consider the Llama the descendant of the Huanaco, and the Alpaca as resulting from the Vicugna, an exceedingly wild animal found in the elevated mountains of Bolivia and Chili. The animal in the lower left-hand corner is the Fat-tailed sheep, which was fully described in June last, on page 213.

Pasturing Meadows, or Young Clover.

For want of sufficient pasture, cattle and horses are often turned into the mown meadows, or stubbles that have been seeded with clover. This is, to say the least, injudicious. Generally dry weather occurs after harvest, during which the clover and grass have a struggle to maintain their existence, the young clover plants especially suffering from the heat and drouth. Possibly for some weeks the principal dependence of the meadows for moisture is the nightly dews. If the leaves are allowed to be eaten off, this mode of supply is arrested, by depriving the roots of the shade which they would have afforded. Only a weak growth can then be made, many plants will be totally destroyed, and when the fall rains occur, followed by nightly frosts, the unsheltered roots are thrown out by thousands. A promising piece of young clover may thus be completely ruined and the next year's supply of hay be seriously curtailed. The small quantity of feed thus gained is dearly purchased. The life of the meadows is consumed and their existence threatened. We are aware of the great temptation there is to turn stock on to the aftermath and stubbles, but, unless in the very rare cases where the soil is rich and the growth is too heavy to be eaten nearly bare, it would be a great saving of money in the end, to hire pasture, buy feed, or sell the surplus stock which can not otherwise be fed at home On many farms, had this course been adopted for one season, the resources for feeding in after years would have been doubled; but by carrying too much stock on the fields during the fall months, they were eaten off too closely to stand the winter, and were too seriously injured to fully recover. It is becoming more apparent each year, that more stock must be fed on Eastern farms, nay, on many Western farms too, or their fertility can not be maintained; but it is bad policy to keep too many at the commencement, before the means of feeding have become equal to the demand. It is something like a man living upon his capital, instead of upon the interest of it each year; in the one case, he becomes poorer by mere ill-judged use of his means, which, by proper husbanding, in the other case would keep him by its income, and itself remain intact.

It is a question worth consideration, whether it would not be wise to largely reduce pasturing stock; whether money could not be made by selling off in the spring the bulk of the stock usually pastured, and mowing, or otherwise using the land to produce feed for keeping stock during the winter, which should be purchased in the fall, by which means more manure would be made, the difference in the values of stock at these different seasons saved, and all temptation to pasture mowing lands, or young grass or clover fields, removed.

Tim Bunker on Paying Crops.

"Ye see, Squire, taters don't pay, blamed if they du. Ye see, I've been raisin' 'em nigh on to forty years, and I don't git ahead a bit. When taters are high, ye see, I ha'n't got any; and when I've got 'em, which seldom happens, they don't bring any thing, if ye sell 'em. I'm gettin' sick of raisin' things that don't pay."

"How do you know they don't pay?" says I. "Do you keep any account of expenses? Do you know what it costs to plow, to manure, to plant, to hoe, to dig, and to store? Do you know what the crop has cost when you have put it down where you get your money for it?"

"Well, no, I don't keep an 'count in ritin', but kind o' keep the run on't in my head, and what a feller knows, he knows jest as well as if it was ritten. Ef I raise taters forty years and don't git ahead, it is pretty sartin 'taint a payin' business. No amount of ritin' would make it any plainer that they cost more than they come to."

"Well, neighbor Frink, has any thing paid on your farm? You haven't got ahead much."

"You see, Squire, I'm here, gettin' pretty well along in life; the farm is pretty much paid for, and the stock, and the clothes I stan' in. Ef suthin' hadn't paid, I shouldn't av been here, for I hadn't a red cent to begin with."

Thousands of people are just in Jake Frink's state of mind. They don't know what pays on the farm, and what brings them into debt. They keep no debt and credit with particular fields, or particular crops, or kinds of stock. They have a very indefinite notion that some things pay better than others, but they can not hole the fox, big or little, that eats up the grapes and destroys their profits. They keep on raising a great variety of things, some at a profit and some at a loss, on the whole getting a living, and that is about all. Now, I know just about what Jake's potatoes cost him, and I will figure up a little for his benefit and the public's: Plowing 1 acre, two dollars; 10 bushels seed at eighty cents, eight dollars; planting, three dollars; cultivating twice, six dollars; digging and storing, six dollars; 8 cords of manure, twenty-four dollars—forty-nine dollars. The crop is 50 bushels of potatoes, of which 10 are small; 40 bushels, at eighty cents, are thirty-two dollars, and the small potatoes are worth five dollars, total thirty-seven dollars; which, taken from forty-nine dollars, leaves twelve dollars as the loss on the operation. But if we take off one half from the cost of the manure as left in the land, the account stands even and Jake has his potatoes for his labor. They are all eaten in the family, and they cost in labor eighty cents a bushel. This kind of potato-raising does not pay much, as any one can see, and if the question is between raising this crop in this way and abandoning it, we had better abandon it at once; the farmer makes nothing, and the land is not improved. As most Eastern farmers raise corn, it pays no better; the crop costs more than the price of Western corn brought a thousand miles, and put down at their doors.

"Lost twelve dollars, did ye say, Squire?" asked Jake, when I showed him the figures. "I guess it's true as preachin'. Ye see, every tater in that swale rotted. I've been gwine to drain it ever sense you knocked the bottom out of that hoss-pond lot, but somehow I didn't git up to it. Ef them had been sound, I should have had 100 bushels strong. But that's jest my luck. When taters are high I ha'n't none to sell."

I got into the way of ciphering on my crops quite early, and I do believe the tallow candles and the slate and pencils that I have spent in this business, have been about as good a crop as I ever raised in Hookertown. It don't take a great while for a common-sense farmer to tell whether a crop pays or not. I raised last year a crop of rye, on a little less than three acres of land. The cost was: Plowing, six dollars; seed, three dollars; harrowing, two dollars; harvesting, three dollars; threshing, four dollars and fifty cents; total, eighteen dollars and fifty cents. Sales, forty-five bushels of rye, forty-five dollars; straw, forty-eight dollars and fifty cents; total, ninety-three dollars and fifty cents. Deduct eighteen dollars and fifty cents, cost of crop, and we have seventy five dollars as the profit. This is about twenty-five dollars an acre profit. Now, if I can get 15 bushels of rye to the acre without manure, and can add ten bushels to the yield by putting on five dollars' worth of bone-dust, or fish guano, to the acre, I can afford to buy the manure. The bone-dust will not only help the present crop, but will add to the yield of grass for several years to come. It is a safe business operation for me to enlarge the rye crop on the old pasture. I can kill the briers, sweet-fern, bay-berries, and other brush, and increase the grass crop and get paid for the job. If I take up twenty acres, and get only twenty bushels to the acre, I shall have 400 bushels of rye, worth as many dollars to sell, or to consume upon the farm; and the straw will be worth as much as the grain, at the present market prices. It can be done with the present working force of the farm, and eight hundred dollars is an item worth looking at in the year's receipts of any small farm. Rye pays in Hookertown; it might not pay where the grain was worth only fifty cents a bushel, and the straw was considered worthless.

Then there is another little crop that I have found out pays better than rye. In some districts there is a great outcry against sheep, and the farmers sell them for a song. Last February I bought ten ewes of a mongrel sort, having some South-Down blood in them. They brought ten lambs, and the sheep sheared thirty pounds of wool. My principal object in getting them was to help keep down the brush and briers in an old pasture. They ate before they went to pasture about half a ton of good hay. Their pasturing I do not count, for it has not interfered with the other stock, and almost any pasture improves where well-fed sheep graze. The cost of the sheep was forty dollars; feed, ten dollars and fifty cents. The lambs average six dollars each, sixty dollars, and the wool sold for fifteen dollars—seventy-five dollars; and the ten sheep are in better condition than when they were purchased. Here, then, is a return of seventy-five dollars from an investment of fifty dollars. The labor of taking care of them I think was fully paid for in the manure they dropped. The grubbing they do among the briers will be clear gain. One of the lambs weighed 31 lbs., and sold for twenty cents a pound dressed, and the pelt sold for fifty cents. A business that pays as well as this ought to be extended. Now, suppose I go a little out of Hookertown, where the people think sheep a drug, and buy in the fall a hundred ewes at, say, two dollars apiece—two hundred dollars; add two hundred dollars more for cost of wintering—four hundred dollars. If I put a Cotswold ram with them in November I secure lambs that will weigh 40 lbs. each and average eight dollars a piece by next July. I shall then have with good care, which is the

secret of good luck, 100 lambs sold for eight hundred dollars; and 300 lbs. of wool for one hundred and fifty dollars, or nine hundred and fifty dollars as the gross return for my investment of four hundred dollars. There can't be much discount on this ciphering, for the calculation is based on the actual results attained this year. You see it makes a great deal of difference whether you sell a sheep as lamb or as mutton. If the animal is worth six dollars at four months old, and only four at eighteen months old, why should I keep it? In the one case, I make fifty per cent profit; in the other I am in Jake Frink's quandary about the thing's paying at all. It is a clear case that keeping sheep pays in Hookertown. I want the old pasture grubbed at cheap rates. I have a good market for lambs right at my door. My neighbors like lamb with their green peas, and are ready to take all I can raise. If the butcher's price don't suit me, I can slaughter the animals myself, undersell him in market, and make money by it. He knows that, and has his choice, just as I have mine. The competition, if it comes to that, is rather a benefit to the public, as it tends to cheapen food. There is a good market for wool and for pelts. I have plenty of old pasture not worth over twenty dollars an acre. It might not pay if the land were worth two hundred dollars an acre, if lamb was not in demand, and if nobody wanted the wool, and if the Whiteoakers did not keep sheep that they were willing to sell, after shearing, at two dollars a head. We must cipher more if we want to get out of Jake Frink's quandary, and find out what crops pay.

Hookertown, Conn., July 15, 1871. Yours to command, TIMOTHY BUNKER, Esq.

Ogden Farm Papers.—No. 20.

I intimated in my last, that I should have something to say in the future about the newly recommended method of setting milk for cream in very deep vessels. The result is so manifest, that it does not seem worth while to wait longer, before stating it. Taking it all in all, I regard it as the most important improvement in butter-making, that has come up in my time. I have just completed the plans and specifications for building an elaborate milk-house for a client in Massachusetts, with water-piping for shelves, having a flow of warm water through them in winter, and cold water in summer; and I have advised that the plan be abandoned, and that a much cheaper one be adopted, suitable for the new, or "Swedish," system. To begin at the beginning, I will refer the reader to an article on "Swedish Dairy Farming," on pages 178 and 179 (May No., 1871). This was the first intimation I had that such a system was practicable. I was brought up on the shallow-pan system, and rarely set my milk more than an inch deep. Having confidence in the source from which I obtained the information given in the above-named article, I had a half-dozen cans made of three sheets of 12-inch by 17½-inch tin, measuring, when finished, about 17 inches deep, and 11½ inches in diameter. I then moved into my summer milk-room (underground) an unused horse-trough, about 18 inches deep, and large enough to hold five of the cans. Three cans hold most of the milk of each milking, but we are obliged to set some of the milk in shallow pans yet, and this affords an opportunity for comparison. In the morning we set three of the cans, filled to within an inch of the top, in the trough. At evening, only two cans can be put in, the third being put on the floor outside of the trough. My self-regulating windmill, which works in the lightest winds and is rarely still, keeps an almost constant flow of water, from a deep well, nearly a quarter of a mile away, pouring into the trough, and flowing out at its other end. This keeps the temperature at about 58° or 59°. I have not ice enough to keep it as cold as Mr. Swartz does his, and I doubt whether that is necessary. Neither do I skim until the milk has stood nearly 24 hours (just before the second milking), and I have not even tried to see whether it would do as well to skim at the end of 12 hours. At five o'clock on the second morning, the three cans of the previous morning are skimmed; the two of the evening before are moved up to the head of the trough, and the third, which has stood outside, is put in the water. Then two of the morning cans are put in, and the third is set outside. Thus, at each milking, two cans are put at once in the water, and one is left outside for 12 hours, and is then taken inside. The following are the results:

1. In ordinary weather, the milk that is set in the old-fashioned pans yields all its cream, but turns a little sour within the 24 hours.

2. The two cans that are put at once in the water, remain entirely sweet, and they yield, as nearly as I can judge without accurate measurement, at least as much cream as we would get from the same amount of milk in shallow pans—possibly a little more.

3. The milk in the can that passes its first 12 hours out of the water—probably because it cools off much more slowly—gets more sour than the milk in the shallow pans, turning quite thick. I think it thickens before it gives up all its cream, as we seem to get rather less cream from this can than from the other two.

4. We make quite as much butter from a given quantity of milk as we did when using pans.

5. The skimming is done with a dipper, and is done much more expeditiously than under the old system, occupying the same time for one can that it did for one pan.

6. We use 6 cans in place of from 90 to 110 pans.

7. The cream is of a uniform consistency, and much more liquid than when so much of its surface is exposed to the air. The cream on a pan of Jersey milk that has stood 24 hours is so tough as to seem almost leathery, and can be taken off in a mass—almost rolled off. The cream on one of my cans—two inches thick—is liquid, and can not be taken up with a punctured strainer. I am thus far disposed to attribute to this the fact that the "marbling" of the color of the butter, which we scarcely ever avoided before, has entirely disappeared under the new method; the "O. F." butter being now a pure, solid gold color throughout. It is not unlikely that the exposure of so much of the cream to the air affected the color of parts of the butter. Then, again, the cream now mixes thoroughly, and at once, in the cream-pail, while that which was taken from the old pans was always more or less clotted. One of the old-fashioned preventives of "marbling" was to stir the cream thoroughly together whenever a new skimming was added. Hitherto, however thoroughly this was done, the cream was always quite lumpy when it was turned into the churn; it now pours like a smooth syrup.

8. This can not be called a *result;* it is, as yet, only a suggestion, and one that it will be difficult to prove. My butter, from the same cows and the same food, has never been so good as it now is. May not the present improved quality be due in part to the fact that so little of the cream is exposed to the air? Does not such exposure allow an oxidation or evaporation, or other action that destroys or wastes the aroma?

A month is not long to study the operation of any improvement, but I have studied this one closely, and I am satisfied that my conclusion, as described under the foregoing heads, is a sound one, and I shall do away with all of my old utensils, have a permanent trough made large enough to hold the necessary cans for all my milk, and follow the example of Mr. Swartz, until I find some better way.

I advise all who are so situated that they can keep up a supply of cold water, either with ice or by the aid of naturally or artificially running spring water, and who care for the least work and best results, to do likewise.

Concerning the farm in general, there is not much to say. June is a month of full promise and little result. Every thing looks well, better than I had hoped; and if it will only stop raining long enough to let me put in my turnips by the end of the month, I shall have nothing to complain of. The young stock comes on well; of my eighteen thorough-bred calves thus far dropped, nine are heifers (good ones), and the bull-calves are selling much more readily now than they did a few years ago. In fact, the value of the Jersey blood to cross with the common cows of any butter-making farm, is becoming better understood every year, and where we used to have to sell our bull-calves to the butcher, we now get from twenty-five to fifty dollars each for them for cross-breeding, keeping the best to sell as yearlings to the breeders of herd-book animals, at higher prices.

"Dallas" is slowly making his way to prosperity. When I brought him here three years ago, it was the fashion to laugh at me for charging twenty-five dollars for the services of a stallion, when from three to five dollars was the price asked for those already here. It was of no use to say that "Dallas" was a thorough-bred horse, and had the best blood of the English Stud-book in his veins; that his colts from good mares ought to be worth twice as much as those of any cold-blooded stallion. "So-and-so has got a pretty likely looking horse, I guess he is good enough for me;" and with a very knowing, smart-looking sneer, Mr. Neighbor would betake himself to the cheaper shop. The next year I had two colts by him, the next four, and this year two, and more to come. "By their fruits shall ye know them." It is now confessed that Dallas's colts are "extra good," and the older they are, the more they show their superiority. And, naturally, the more they show their superiority, the more people send their mares to their sire, until he is now an object of respect. As I shall drive a pair of his three-year-olds next year, I think he is bound to become popular in his old age (he is eighteen years old now, and seems good for ten years to come). One thing is certain: There will be more good, sound, well-bred horses on this island for the next twenty years for Dallas's having come here; and some day I shall be thanked, as well as paid, for having brought him here.

Will you, Mr. Editor, excuse me if I kick out of the traces a little, and protest mildly against the tone of your article in the July number, entitled "How to get Thorough-bred Stock"? What I object to is rather your omission than your direct expression. Your correspondent

complains that when he wrote to known breeders for the price of a bull, he was charged a higher price than he could afford to pay ($400 to $500). I do not think you do full justice to the breeders in your reply. Those who are known to be first-rate breeders of Shorthorns are few. They have paid thousands for their foundation stock, where they ask hundreds for the choicest progeny; they have taken enormous risks, and they have but a limited market. The price that common farmers, with limited capital, think they can afford to pay, would not remunerate them, and no one has a right to get vexed that they should ask all they think their stock will command. I never knew a breeder of thorough-bred stock to make a large fortune, and this fact alone shows that what you call "fancy" prices are none too high, in view of the capital invested and the hazard incurred. Then, again, what do we mean by "fancy prices"? If the $400 to which your correspondent objects, is fancy, why is not the $200 that you suggest? It is more than the value of an equal weight of common stock, and if the surplus is fancy in one case it must be in another. Where shall we draw the line? There is one safe rule for us all to follow; that is, for each party to a negotiation to fix his own standard of value. If Mr. Smith objects to paying $500 for a calf, Mr. Jones has no right to compel him to pay it, or to get angry because he won't. On the other hand, if Mr. Jones will not sell his calf for less than $500, Mr. Smith has no right to grumble thereanent. Each is a free agent; the one has a right to ask, and the other to pay just what he pleases; if they don't agree, they needn't trade—that is the whole story. For my part, I do not believe at all in the idea of "fancy prices." I stand ready to pay for just such a Jersey bull as I want (if he exists—which is doubtful), several times $500; but I should not be, in any sense, paying a fancy price. Fancy would have nothing to do with it. It would be a purely business transaction, and I should be actuated solely by a desire to add to the value (not for sale only, but for the purposes of my buttery) of every calf that will henceforth be born on the farm. There is no end to the influence of a good bull; every calf he gets carries the impress of his quality in its own person, and transmits it through countless generations. Suppose I were to pay $5,000 for a bull, and should use him for four years on all my thirty cows and heifers, and on all their female progeny.

With only ordinary luck, I would have in all about 150 calves by him, each one of which would cost about $30 more than if from a $500 bull. And this is only the beginning; I should have laid a foundation for future improvement that by judicious selection I could keep up indefinitely, and if I had succeeded in adding on the average five per cent to the dairy value of every calf that would ever be born to any descendant of my present herd, I should have attained a result of priceless value. Of course, I would be a fool to pay $5,000 for a bull no better than I could get for $500, but if I really had a chance to buy the very best bull in existence, I would be a fool not to buy him at any price I could possibly afford to pay, providing I could not get him for less.

The bull is the key-note of the whole tune. If you intend to breed thorough-breds, go the full length of your tether, if you must, to get the the very best. If you only mean to raise butcher's meat, get a thorough-bred of good quality, and at a price you can afford to pay. The better he is, the better for you, but don't growl because you can't buy the best at half-price. I am a breeder of the kind of stock you would call "fancy," but I never bought an animal with any other motive than a desire to make money by it, and though I have both paid and received high prices for my animals, I think their actual value as progenitors of future herds, if rightly estimated *by butter-making capacity alone*, would in every case exceed the price. There is no "fancy" in 225 lbs. of good butter in a year from a small cow.

An Egg Farm.

BY H. H. STODDARD.—*Fourth Article.*

When it is attempted to raise a few eggs and chickens for home use, the form, proportions, and fixtures of the fowl-house are of small consequence, so long as the proprietor has invented something a little different from what has ever been made before, and is satisfied. But business upon a large scale demands buildings that shall conduce in the highest degree to the thrift of their inmates, and to the convenience of the attendant, while the outlay in both material and construction should be the lowest possible. The buildings generally put up cost $2 or $3 for each fowl provided for, while amateurs sometimes expend $5 or more per head for the housing of their poultry. There are three classes of adult fowls necessary under our plan, which we designate breeders, sitters, and layers; and the latter, which are most numerous, are housed at a cost of materials not exceeding 40c. for each bird; estimates being based on hemlock lumber at $23 per thousand. The accommodations for the breeding and sitting stock are necessarily more expensive, and there is, in addition, the cost of coops and fixtures for raising chickens enough to replace two thirds of the adults yearly.

In a practical and economical fowl-house, we expect nothing ornamental nor complicated. There are no ingenious ventilators cheap at $3 each, or patent nests to beguile hens into laying more or bigger eggs, or rat-proof feeding hoppers opening by clock-work, but the utmost simplicity is sought throughout.

The illustration shows upon the right the house used at the stations, for the layers. It is not too large to be moved with convenience, and nothing smaller would accommodate a flock of fifty, the number to be kept at each station, with perches, nests, and sufficient ground room in stormy weather, and at the same time afford hight enough to give a circulation of air over the perches, and a proper pitch of roof. It is 15 ft. long, 8½ ft. wide, and 4½ ft. high at the peak. Let it be noted that any attempt to build so that the attendant may enter, either makes a stooping, slow job of every operation, from year's end to year's end, or if the house is carried high enough to allow standing upright, the weight interferes with moving, and the lumber costs too much. It is as easy to reach into a building designed for the keeper to stand outside, as to reach into a handy cupboard. To give sufficient air, the room is as lofty in proportion to the size of the birds or their breathing capacity, as a stable twenty feet high would be for cattle. It is just about as necessary for the poulterer to have a roof over his head for protection in all weathers while at work, as in the plan the National Poultry Co. carried out at Bromley, Kent, in England, as it is for a farmer to make a shed over his land to defend his complexion from the sun while haying, and the rain while transplanting cabbages. The part of the roof on the south side at A, A, A, and nearly all on the north, consists of hinged doors opening to the right or left, and overlapping when closed, to shed rain. When it is desired to whitewash, throw open all the doors, thus turning the house inside out, take out the perches and nests, all built movable, and there will be no nook or cranny of the woodwork that the brush can not be made to reach with ease, and no lack of elbow-room. This arrangement of doors makes it convenient also to catch fowls upon the perches by night. The doors should shut as snugly as may be in coarse joiner work, and the cracks unavoidably left around them will afford all the ventilation needed in winter, while in summer they may be opened more or less widely, according to the weather. When it is warm, yet wet, they may be partly opened and propped up, and a board put across their edges to shed rain. It is very desirable, under any plan for henneries, to build so that while moderately tight in winter, they may be thrown open on every side in hot weather; for fowls are warmly clad, and suffer much from the heat when in buildings made, as is too frequently the case, only with reference to the cold. The doors which form the north roof project 6 inches at the ridge to keep out rain, as there is no ridge-cap. The two windows in the south roof are glazed greenhouse fashion, that is, with overlapping panes, that snow may slide from them readily as soon as loosened by the warmth inside. They are 2 ft. high and 3 ft. wide, and set 18 inches from the peak of the roof. A strip of tin is fastened over the upper part of the sash, and the sides and bottom of the sash overlap the roof, to be rain-proof. The shutters, B, B, used to darken the building on certain necessary occasions, elsewhere referred to, are hinged to the lower part of the sash, and when opened, as in the illustration, rest upon the roof below the windows. The side sills project at both ends of the building, are beveled runner fashion, and strengthened with iron where holes are bored to attach chains; thus it may be drawn by either end. The sills, which receive the principal strain during moving, should be so well braced as to keep the whole building in shape. The end sills, of 2-inch plank, should be spiked upon the top of the others, flatwise, so as not to touch the ground while moving, and the side-sills, 4 inches square, should be of chestnut or oak, to be as durable as possible, for they rest on the ground during a good part of the year. The spruce rafters, 2 × 3 inches, which answer for studs and rafters both, should be set at such distances apart as will correspond with the width of the doors and windows which are fastened to them. A stout ridge-pole, sawn of a triangular shape, runs the length of the building underneath the rafters, and two sticks are fastened to this ridge-pole, one 5 ft. from each end, and braced upon the center of the end sills to give firmness, for the covering, consisting chiefly of doors, does not strengthen the building, as in ordinary cases, where the covering is nailed to the frame. C C are doors, each 3 ft. × 1 ft., opening outwards and downwards, to give the keeper access to the nests, which are 1 ft. square, and the same in depth, and so contrived that the hens enter them at one side from a passage 6 inches wide and 1 ft. high, boarded at side and top, running the length of the row of nests, and are thus indulged in their liking for privacy while laying. The nests are tight upon the top, the outside door should fit closely, and the opening admitting the fowls to the passage be made so small that the nests will be rather dark. It is found that when nests are

open to view from the main apartment, hens will, in stormy weather, for lack of other employment, sometimes enter them to scratch for food, and thus by chance break eggs and learn to eat them, and acquire the habit of pecking at and devouring eggs as fast as laid. But a darkened nest will deter them from entering, except to lay, for which purpose they prefer a dark, low corner. There is a row of six nests running across the building at each end, making twelve, which will be sufficient, as it will not happen that more than that number out of a flock will need them at once. The passages are made so that they may be taken out with the nests for whitewashing. The end sills, of plank 18 inches wide, serve as a tight floor for the nests and passage. The perches, two in number, are 18 inches apart, and each is 18 inches from the roof, and 2 ft. higher than the sills. Perches should be of $2^1|_2 \times 3^1|_2$-inch sawed stuff, the widest part up, with the upper corners rounded off a very little. When fowls not fully grown roost upon narrow perches, their breast-bones sometimes become deformed. From four to five average-sized fowls will occupy 2 feet of perch. The perches, being each 12 ft. long, will accommodate a flock of fifty, and are to be placed so as not to extend over the part occupied by the nests. The drinking vessel stands upon one of the platforms formed by the nests, and upon these platforms are also shallow boxes containing gravel, pounded charcoal, and a mixture of loam, sand, and oyster-shell lime, made into an easily crumbled mortar. The boxes are 10 inches wide, and, being placed next the end wall, leave a space 8 inches wide upon the platform, for the fowls to stand upon. The drinking pail and gravel boxes are protected by their elevation from the dirt that would otherwise be thrown into them by the fowls when scratching and dusting, and are fronted by slats with openings $6 \times 2^3/_4$ inches between them. An opening is made in the end wall over the pail that is just large enough to admit the spout of a large watering-pot without the sprinkler, to afford the most convenient arrangement for watering. The door, D, 1 ft. wide, opening downwards, is for removing the pail and gravel boxes when desired, and when fastened ajar will be found more convenient for ventilation than the roof doors, when the weather is only moderately warm. Both ends of the building alike are furnished with doors.

During the severest weather, generally about three or three and a half months of the year, this building does not stand with sills upon the ground, but for winter it rests, as in the figure, upon the edges of a box or bin of dimensions corresponding with the center of the sills of the building, made of planks 9 inches wide and 2 thick, like a mortar-bed with no bottom, filled with dry earth. This should be set upon ridges thrown up by the plow, as previously described, and it will be found that, by starting with the earth dry in the fall, it will not absorb moisture from the ground beneath during winter, any faster than it dries away from the surface where the fowls keep it in motion. There need be no cleaning of the house while thus arranged for winter, but about once a month an inch or two of dry earth may be added. There will be no accumulations under the perches if the birds are kept not too profusely supplied with gravel at that season, as they should be to induce them to thoroughly pulverize every portion of the manure and mix it with the dry earth, in search of the gravel which is very frequently voided. There can be no objection to saving labor by inducing the birds to perform the work of seavengers, which will give them salutary exercise, for it is not intended that they shall be deprived of as much gravel as they need, but only forced to use the same many times over. The bin, as it may be called, should be strengthened with braces across the corners, and kept from spreading by the pressure of its contents by strips nailed from side to side. After the building has been moved in spring to a new station, the bin is to be pried up until the earth drops through, it having no bottom, and when empty it may be readily hauled by team, like a sled, to the place where it is to be used, as will be explained, in connection with chicken raising. The building is hauled on and off this bin yearly by taking the wedge-shaped platform for drying earth, previously figured, for a skid, and attaching the team to a rope 20 ft. or more long, and using small rollers. It is a quick and not over-troublesome operation, for it must be recollected that the house is not large nor heavy.

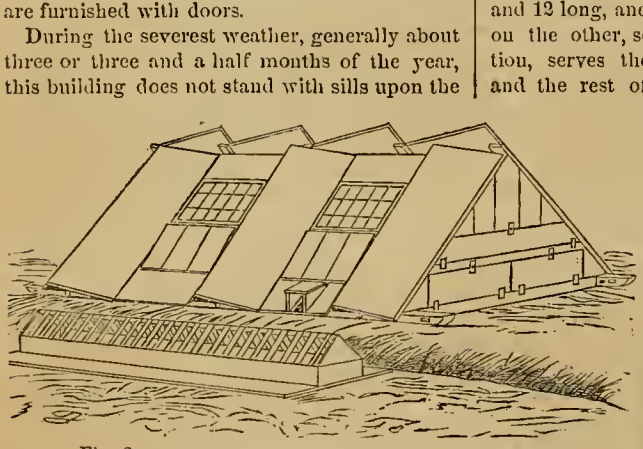


Fig. 2.—HOUSE FOR LAYERS—SUMMER ARRANGEMENT.

During the winter, a low structure, 6 ft. wide and 12 long, and $1^1/_2$ high on one side, and $3^1/_2$ on the other, seen at the left in the illustration, serves the purpose of a feeding room, and the rest of the year is used as a shelter for chickens. Its winter location is about 4 ft. from the larger building. E, E, E, E, represent doors which overlap each other to shed rain, and when closed rest upon the highest or north wall, and open upwards and to the south, resting upon a rail attached to posts set in the ground. In each door is a window 3 ft. square, glazed, as are all the windows in the various fowl-houses, greenhouse style. This feed-house is movable, being furnished with planks set edgewise, with runner-shaped ends for side sills. Inside, a feed-box, slatted on both sides, rests on cleats attached to the end walls, 20 inches from the north wall, and near the top of the room, so that dirt can not be scratched into it. It has a shelf 7 inches wide on both sides in front of the slats, on which the birds stand while feeding, and contains a trough made by nailing boards 3 inches wide to each edge of a board 5 inches wide. A door, F, in one end of the feed-room, large enough to admit a fowl, communicates with a similar door, G, in the south side of the main building, by a movable covered passage, $5^1/_2$ ft. long, $1^1/_4$ high, and 1 wide, it being like a box with a lid, and but one end, and with an opening on one side. This passage is not shown in the illustration. Every night in winter, after the fowls are at roost, the door G should be closed, and the window-shutters of the main building likewise. In the morning a mixture of vegetables boiled and mashed, scalded meal, and a little meat boiled and chopped fine, is placed in the feed-trough, and the daily rations of hard grain buried underneath straw which covers the ground of the feeding apartment to the depth of 8 or 10 inches. The fowls are prevented by the shutters from looking on. Next open the passage and in a minute the fowls will all be at the feed-box. After finishing the soft feed, the grain, consisting in part of buckwheat or cracked corn or wheat screenings, so as to make as much work as possible to find it, will be scratched for at intervals all day long. A little practice will enable the attendant to give just enough, and have none left over night.

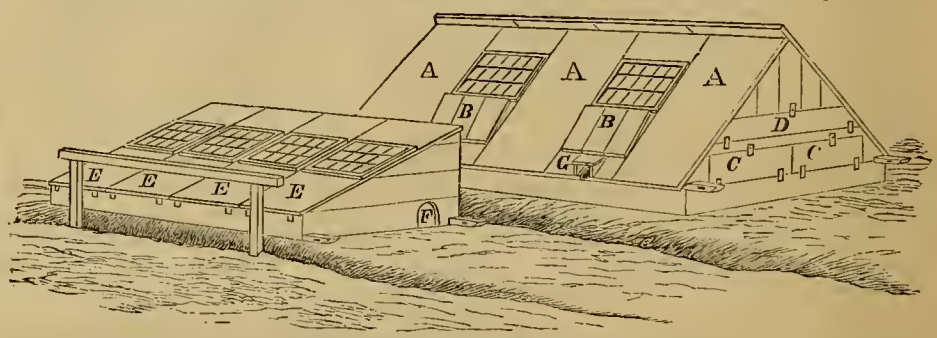


Fig 1.—HOUSE FOR LAYERS—WINTER ARRANGEMENT.

During a few of the coldest spells, such as usually occur three or four times in the winter, and last three to seven days, and during storms, fowls prefer to remain in doors all day, but they should never, except in the morning, before feeding, be prevented from going out if they choose. Altogether there are not usually twenty days in a year during which fowls will voluntarily keep inside all day. Snow should be cleared from a plat of ground at each station, with the aid of the team, and the scraper and shovel previously described. If the winter is open and mild, have a pile of straw out of doors with grain buried under it. As soon as the buildings are moved to the new stations in spring, and the feeding-rooms are also drawn off to be used in housing young chickens, the feed-boxes are taken out, they merely resting on cleats, without being fastened, and carried to the stations, where they stand on the ground out of doors during summer, for use each morning, feed being placed in them, out of sight of the birds, as before.

In the illustration of the summer arrangement the feed-box is seen in the foreground, and the doors in both roofs of the house are propped up a little, as in cases of extremely hot weather. It will be found that the birds will seek the protection of a building thus arranged, for shade, when the heat is severe, in preference to any other place. In summer the grain is buried under a profuse allowance of straw, by the use of a horse-rake and hay tedder, or under the soil, by means of the fine and short-toothed harrow used in pulverizing earth for gathering, as mentioned in a former paper.

The Alewife.

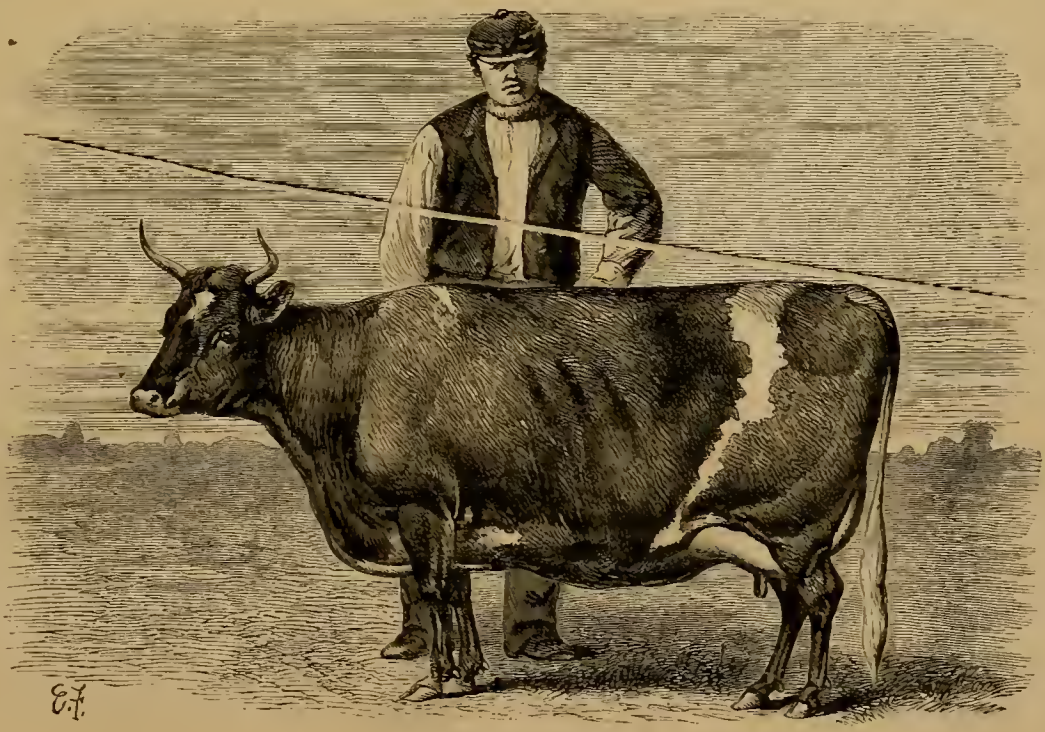
The Alewife (*Alosa tyrannus*) belongs to the great family of herrings (Clupeidæ), so numerous, and furnishing so large an amount of wholesome food as to be almost indispensable to man. It bears the name of Gaspereau in Canada, Buckie and Alewife in New England, and Herring in the Middle and Southern States. It generally keeps company with the shad, and by reason of its habit of breeding in brackish water, it is found in the estuaries of many small streams from which the shad long since disappeared. The same causes which have destroyed the salmon and shad are operating to diminish the numbers of alewives, and in many streams once swarming with them, they are seldom or never seen. They are much more abundant along the coast of the Southern and Middle States, because there are fewer dams at the mouths of the streams. In New England, almost every small stream, large enough to carry a mill of any kind, is dammed near its mouth, and very early these fish were cut off from their breeding-ground. They are still taken, however, in nearly all the streams where shad are found, and in some brackish ponds where the shad were never known. In the South they are still so abundant that no thought of scarcity has ever been entertained. Farmers from the back country come down to the fishing-houses and carry away immense numbers every season. In the East they have disappeared from a very large number of streams, and are only taken occasionally in seines drawn for other fish. They are so prolific, and a few still remain in so many of the streams, that they might be restored with much more facility than either shad or salmon; and they have probably such a connection with the food supply of the young fry of these better kinds of fish, that they may be regarded as their forerunners.

There are several runs of the alewives, the earlier being the larger fish. They are from six inches to a foot in length, depending somewhat upon their age, and the streams that they frequent. The average weight is about six ounces. They come on to the coast early in the spring, and only visit fresh water for the purpose of spawning. The most of them disappear in June. The fry remain in the waters where they are hatched until November, or later, and then go to sea. At this time they are three or four inches long. If from any cause their exit is shut off and they are detained in fresh water, they do not grow much after this period.

The Mode of Capture.—Although the alewife will take a bait, they are almost always captured in nets, pounds, or seines. Immense numbers are taken in the pounds set for larger fish near the mouths of large rivers, and in small streams and ponds the seine is used. Where there is a fish-way around a dam they are easily taken in scoop nets, at the foot of the rapid. Near Cross's Mills, in Charlestown, R. I., there is a valuable alewife fishery that has not been much affected by the causes which have destroyed them in other places. The Charlestown ponds communicate with the sea only by a narrow passage, which is frequently closed by the action of the waves, and has to be artificially opened. There are no large streams running into them, and the fish come in to shoot their spawn in the brackish water made by springs near the shore. The menhaden as well as the alewives come into these ponds to spawn, and if the ponds are closed in winter, as sometimes happens, the menhaden are all killed while the other fish survive. A seine is used near the breach for the capture of the alewives. It is about one hundred fathoms long, and the mesh is 1⅛ inches in the bunt or middle part. They are also taken in other parts of the pond, as the shoals make their appearance upon the surface of the water. About 100,000 fish are taken at all the fisheries, and the numbers are said not to be materially diminished. Owing to the better implements of capture more are probably taken than in the early days. They begin to come in as early as the 1st of March, but the main run is from the middle of April to the middle of May.

ALEWIFE.—(*Alosa tyrannus.*)

Curing of the Fish. — In some places they are simply pickled, packed in barrels, and sent to market. At the Charlestown ponds they are salted, smoked, and, to a considerable extent, sent to merchants in the villages of Rhode Island and Connecticut. Immediately after capture they are taken from the boats, washed clean, and salted whole in casks. The rule in salting is two quarts of Turk's Island salt to one hundred fish. They remain in the pickle from three to five days, and are then removed to the smoke-house. To prepare them for smoking, a wand two feet long is thrust through the eyes of ten fish. These wands are suspended upon the ends on poles arranged for the purpose in the smoke-house. The smoke-house is purposely made small, say 8 or 10 feet square, and is built over a walled pit about 4 feet deep. It is about 8 feet between the joints, and accommodates six or seven tiers of fish, which are arranged upon the poles about as close as they can hang. About ten thousand can be smoked at a time in one of these houses. The smoking continues two days. The fish are then ready for market, and are sent off as fast as they can be sold. Green wood of oak or hickory is preferred for making the smoke, and the fire must be very gentle, so as not to heat the fish.



BRITTANY COW.—(*See page* 299.)

Economical Results. — The first fish sent to market are of the best quality, and bring about three dollars a hundred. They are full of spawn, and quite fat, and are considered of better flavor than the late fish, which are sometimes taken after spawning and are very poor. The price falls off until it reaches about a dollar a hundred, wholesale. They are retailed from one to three cents a piece by the village dealers. The fresh fish are retailed to the farmers, and to all who come for them, at fifty cents a hundred. Rarely, they are so abundant that

they are caught and sold for manure. The cured fish are much used by the laboring classes in the cities and large manufacturing towns. It is one of the cheapest forms of animal food, costing the consumer only about three cents a pound. To those who live in the vicinity of a fishery and cure their own fish, the cost is much less. In some places the fishery is owned by the town, and is sold annually to the highest bidder. The Agawam, at East Wareham, Mass., is rented thus at $600 to $900 a year. The yield is about 1,500 barrels of alewives.

The Restocking of Streams with this fish is very easily accomplished. In many streams where there are few still left about the estuary, nothing more would be needed than to put up a fish-way over two or three of the dams. In others, fish would have to be brought from other quarters. In either case the cost is so small, and the results are so promising, that the work ought not to be delayed. This work is going on at many places on the New England coast. The Poquonoc Fish Company have had a large run of fish this season, as a consequence of the spawning of a few alewives in the first pond above tide-water, two years ago. The fish-way costs less than $40, and may answer for shad and salmon as well as alewives.

Walks and Talks on the Farm—No. 92.

A few days ago, I had a letter from our friend John Johnston. "I want to show you my apple-orchard," he wrote, "planted eight years ago, last May. The trees had an immense quantity of fruit on last year, and I had a great many picked off when quite small, thinking they would break down the branches. All who see them say they are the finest trees they ever saw. They were only two years old when planted. If you will come, I will tell you what I did for them, that makes them look so splendid. Come and see, and *then you will believe.*" It is hardly complimentary to suppose that I would not believe without seeing. Almost any man will believe a thing when he sees it. But it requires a certain amount of training to enable one to believe without seeing. It is a very low order of intellect that will not yield implicit assent to a statement that rests on satisfactory evidence. Many farmers rather pride themselves on this mental characteristic. "You can't fool me!" is one of their ever-recurring phrases; while it is a matter of observation that, of all men, these incredulous people are most easily duped. I should despair of ever amounting to anything, if I could not believe without seeing.

But I am very glad I went to Geneva. Mr. Johnston's trees are, by far, the handsomest and healthiest I have ever seen; and I came back with a determination to at once carry out his recommendation. I have gained this much, at any rate, by *seeing* the trees. The plan is simply to make a lye, just as you would for soap, and wash the trunk and larger branches of the trees with it. "If the lye was *very* strong," Mr. J. said, "and made from hickory ashes, it might, perhaps, need to be diluted with a little water; but the lye from ordinary ashes is not too strong." He applies it with a swab tied to a stick. A man went over an orchard of a hundred trees in an afternoon. He has done this once every two years. There is not a particle of moss, lichen, or fungus, on any of the trees. The stumps are as smooth as the standard of a mahogany table. And I do not wonder that Mr. Johnston feels proud of them.

Still, I do not think that this splendid result is due merely to this biennial washing with lye. The land is thoroughly underdrained. It is a rich, clay loam. The trees were only two years old when set out—and a well-grown two-year-old apple-tree is better than a poor-grown one four years old. Then, great pains were taken to prepare the land, and to set out the trees. Wide holes were dug, two feet deep; and some decomposed swamp-muck put in the holes, and covered with good soil. The trees were then set out and staked, and *the land has been kept in hoed crops ever since*, and I presume has been liberally manured. And you must recollect that Mr. Johnston's manure *is* manure—not rotted straw. And the coal-ashes from the house have been put round the trunks of the trees. In short, it is quite evident that Mr. J. has petted his trees almost as much as, during his long life, he has been in the habit of petting his cows and his sheep. He is constitutionally incapable of neglecting any thing he undertakes. Thoroughness is an essential characteristic of the man, and accounts for much of his great success.

I was telling Mr. Johnston about the red-root, or "pigeon weed," as he calls it, that came up in such immense quantities in my two-year-old clover-field, this spring. "It is a terrible pest," he said, "and cost me a great deal of trouble to get rid of it. I thought, at one time, it would ruin me." He studied the habits of the plant, and thus ascertained how best to attack it. He sowed some red-root seed in flower-pots each month, commencing in February, and kept them well watered. The seed sown in February, March, April, May, and June, did not germinate any earlier than that sown in July. That sown in August germinated more freely, while that sown in September came up at once, and in great numbers. Here he got an explanation of the fact that red-root rarely proves of any damage to any crop except winter wheat. It shows, too, that a summer-fallow for wheat will not kill it. The seed mainly lies dormant in the ground during the whole summer; and the thorough cultivation causes it to start up the more freely in the wheat. But if you fallow the land, and then do not sow it to wheat, the red-root will spring up and can be easily killed.

The red-root seed gets into the manure from clover-hay and wheat-straw; and when the manure is applied to wheat, it springs up, and there is no chance of killing the plants except by weeding and hand-hoeing. It was for this reason that Mr. Johnston adopted the plan of spreading his manure on grass land in September. The red-root seed then germinates, and when the land is plowed over next spring, the plants are turned under and killed.

He advises me to treat my clover-field, where so much red-root has gone to seed this summer, as follows: Pasture it with sheep, and eat it down close. Then, during the latter part of August, or early in September, harrow the ground and tear up as much of the soil as possible. Then draw out all the manure that can be found on the premises, and spread it evenly over the land, and take great pains to break up all the lumps. Thomas' smoothing harrow is just the implement for this purpose. In this way, he thinks, I shall cause all the red-root seed that has fallen on the surface of the land this summer, to germinate; as well as that contained in the manure. Plow up the land in the spring and plant corn. I propose to carry out this plan, except that I think I shall sow peas instead of corn; and then, after the peas are off, sow winter wheat and seed down with clover.

A correspondent of the *American Agriculturist*, at Alton, Illinois, incloses a letter he has recently received from his brother, "containing," he says, "a fair and just criticism, mainly of what he has read in the *Agriculturist*," and which he would like to see published. Here it is: "I gather from the *Agriculturist* a great many items of interest to me as a farmer; *first* among which is 'Walks and Talks.' The writer lives in a part of the country that I never saw, and has Essex pigs and South-Down sheep, manuring and draining, smartly on the brain; still, I find, beyond controversy, that *thorough cultivation*, manure, and draining, are the main springs of successful farming. I mean such manure as a poor man can make, or save; and drainage by open ditches. Tiles are too expensive for the mass of farmers. Most farmers in the Middle and Western States are poor; or, more correctly, they commenced poor and on a small scale. * * They cannot live on prospective profits. They *can not wait.* The profit must come yearly, from one crop or another, and no dodging. * * My notion is, that *thorough cultivation* is the poor man's way to high farming; as in it he gets much of his manure from the air and rain, and his drainage from deep and frequent stirring of the soil."

I do not object to such "criticism." I have felt all the difficulties he alludes to, and have spoken of them time and again. No one realizes more fully than I have done, the fact that a poor man must have something to live on. I have, for this very reason, frequently sown a crop, when I knew that if I could only afford to wait I should have made more money in the end by summer-fallowing the land. The *principles* I have endeavored to teach, are believed to be correct. But a farmer must judge for himself how far he can adopt them.

"Thorough cultivation *is* the poor man's way to high farming"—and the rich man's too, on the great portion of land in the United States. And this is precisely the doctrine I have always taught. And I am more and more convinced of its truth, as I see its effect on my own farm. Stirring the land hastens the decomposition of the organic matter in the soil, and otherwise renders the latent plant-food available. To some extent, too, it enables the soil to absorb ammonia from the atmosphere.

"That is all very well," says the Deacon, "but what have you to say about having 'Essex pigs and South-Down sheep on the brain'?" Simply that no matter how impartially a man may write, he is very apt to be suspected of interested motives. I have been accused of having Berkshires and Yorkshires on the brain, and yet I have not a single pig of either of these breeds; and so with sheep. I like South-Down and Leicester sheep because of their intrinsic merits. But I have not a sheep of either breed. I have written a good deal in favor of Shorthorn and Ayrshire cattle. But I do not breed them. This is what I have "on the brain:" *that farmers should use thorough-bred male animals to cross with their common stock.* If, among cattle, they prefer Shorthorns, or Devons, or Herefords, or, for milk, Ayrshire or Jerseys, I have no objection; if they like Cotswolds or Leicesters or Lincolns, for long-wool and mutton sheep, or if they prefer the South-Down, I say go ahead and prosper; if they prefer Yorkshire or Berkshire or Essex pigs, I still say all right. You can hardly go wrong. It will make *comparatively* little difference which breed of pigs is selected, *provided* the animal is thorough-bred and is a good specimen of the breed. This is

what I have "on the brain," and I could wish that all the good farmers in the United States were affected with the same disease. I say *good* farmers, because a poor, careless feeder and manager can never have good stock, no matter what breed he selects. Of course there is a great difference in the different breeds of animals, some are adapted for one purpose and some for another; and it is here that the farmer should call to his aid all the information he can obtain. No breed is best everywhere and in all circumstances, and he is a "quack" who claims any thing of the sort.

"Again," the same writer continues, "Walks and Talks sometimes nauseates me a little in his rotation system. He generally commences with turning down a clover sod. Now this is all right, if said farmer lives where clover does well, and does not freeze out, as clover and winter wheat frequently do, in a large portion of the country, and if all farming could commence on old land, fenced off in five or six fields ready to his hand; but such is not the case. When a farmer commences with breaking prairie sod or clearing timber land, making his own rails to fence, you see such rotation is absurd, and seems in many cases to create a distaste for agricultural information from such writers."

This is rather severe, and I hope unjust. I should be exceedingly glad to adopt the suggestion of the gentleman, and commence my rotation with a prairie sod, were it not for the fact that there is not a bit of prairie sod within hundreds of miles of me. This may be my misfortune, but can hardly be considered my fault. I have to begin my rotation with what I happen to have. I have talked and written a good deal about rotation, simply because it is an exceedingly important matter, and one which necessarily largely occupies my thoughts, especially with reference to the question of killing weeds. I bought a wet, weedy, run-down (but not exhausted) farm, and I am trying to drain it, to clear it, and to make it productive. If it was in Illinois, I should have adopted different methods from what I thought best here.

When I lived in the city I had a garden; I wrote a number of articles called "Walks and Talks in the Garden," and when I sold the garden and bought a farm, I commenced to write "Walks and Talks on the Farm." I little thought that they would attract half the attention they seem to have done, or I most certainly never should have written them. I have told what I have done and suffered, what I have hoped and feared. I have given a faithful record of my farm life; its pleasures and drawbacks, its successes and failures. I have received complimentary letters from hundreds of farmers whom I have never seen, in all parts of the country. They have been a source of much encouragement and pleasure, and, on the whole, I am *not* sorry that I have written them. But it should be understood that these "Walks and Talks" are not editorial articles, designed to give directions for the management of farms in all parts of the country where the *American Agriculturist* circulates. They are merely a record of what I am doing on my own farm, with such reflections as may seem pertinent. I never supposed that a cotton-planter in South Carolina, or a sugar-planter in Louisiana, or a corn-grower on the rich bottoms of the Southwest, would adopt the same rotation that I find best on the wheat-growing land of Western New York. The truth is, practical agriculture can never be taught by book and papers, or by agricultural colleges. They can only teach general principles. The application must be left to the good sense of the individual farmer. If he has got good sense, a good agricultural paper will be a great help to him; if he has not, he had better turn his attention to something else than farming. A farmer, of all men, must learn to think for himself, and that book or paper is best that furnishes food for thought, and stimulates him to persevering efforts in improving himself and his land.

The principles of agriculture are the same in Illinois as in New York; but the mode of applying them differs with the soil and climate. For my part, I read the Prairie Farmer and the Western Rural with as much interest as I do the New England Farmer and the Albany Cultivator. They furnish me as much useful information as the excellent agricultural journal published in my own county. And yet the mode of farming practiced in these different sections of the country is very different from that adopted here. If a man will honestly tell what he is doing on his farm, and what the result is, I do not care where he resides. I should read his statement with interest.

What I have on the brain is *weeds*. Some people think that with modern agricultural implements, and the vast extent of fertile land in the United States, we shall produce so much more grain, and meat, and wool, than can possibly be consumed by our population, that prices will fall so low that there will be no profit in farming. Were it not for weeds and insects, such probably would be the case. My own farm and the Deacon's are overrun with weeds. We are fighting them to the extent of our ability, and are meeting with gratifying success. Our farms are becoming cleaner and cleaner every year, but even yet the weeds cost us more than all other taxes—town, county, State, and national—direct and indirect, combined. I do not mean that the labor of destroying them costs so much, but the weeds that escape, damage our crops to such an extent, that we lose half our profits. You must recollect that the actual profits of farming, after deducting the interest on capital, the cost of labor (our own or others'), the wear and tear of implements, etc., are exceedingly small. I know of comparatively few farms where, after making these deductions, the actual profits are more than five dollars per acre. On the other hand, I know of scores of farms where, at least on some fields, the weeds damage the crops ten dollars per acre. And, depend upon it, no farmer can be really successful until he makes an earnest, persevering effort to clean his land. It is fortunate for us, that the means used to accomplish this object will do much towards enriching the soil.

I was in Genesee the other day, looking at Mr. Wadsworth's fine herd of Shorthorns. The pastures on these celebrated Genesee flats are overrun with weeds, and I saw in one field six men with scythes, cutting thistles. The soil is very rich, and, although it is flooded nearly every spring, there is abundant opportunity for draining. I saw one field of six acres, that yielded over 80 bushels of shelled corn per acre last year. And yet the pastures adjoining do not carry more than one steer to three acres. The more experienced feeders say that the great point is to stock so light that the steers have abundance of feed throughout the season.

They go to Buffalo in the spring, and buy in the market three and four year old steers, weighing about 800 lbs., at, say, 5½ cents per lb. They are turned on to these rich pastures, and kept until the grass fails in the fall. The average gain on a fair lot is about 350 lbs. If they get a cent a lb. more for them when fat than they paid for them, they think they are doing well. They make about $30 per head, or say $10 per acre. Canada steers are preferred. They do not care how thin they are, provided they are thrifty. As one of the graziers expressed it, they like to "buy bones to put flesh on." I was a little disappointed in these meadows and pastures. There are too many weeds, and much of the grass is coarse. A little draining, and judicious management, would render them capable of carrying much more stock.

It would seem as though this splendid section would become the head-quarters of the State for Shorthorn cattle. The time will surely come, when it will be more profitable to raise and fatten good cattle that mature early, than to depend on buying "bags of bones," for the purpose of putting a little flesh on them during the summer, and selling them in the fall, at a time when beef brings a comparatively low price. The English farmers find it highly profitable to feed their cattle and sheep some grain or oilcake while at pasture. This improves the land almost as much as it improves the stock. But it is necessary to have well-bred animals, that grow rapidly and mature early. Shorthorns are being gradually introduced among the enterprising young farmers up the valley, and the general stock of the district shows a marked improvement over that in this neighborhood. I found, however, that the opinion was not uncommon, among even good, sensible, successful farmers, that there was more money to be made from the so-called native stock than from Shorthorns and their grades. And I have no doubt they are right, *unless a system of higher feeding is adopted.*

A good many long-wooled Canada sheep are kept, and seem to be gradually displacing the Merinoes. Some of the farmers, however, seem to give these sheep no more attention than they have been in the habit of bestowing on their Merinoes. They let them have plenty of food when they have it to spare, and when they are short the sheep have to pick up a living as best they may. "There is no profit in sheep," they say; and they are right, when the sheep are half-starved, and compelled to eke out their subsistence from their own accumulated flesh and fat. But I am inclined to think that a properly managed flock of sheep will pay better in this section, to-day, than any other farm stock. This is John Johnston's opinion, and I know of no farmer who has had greater experience, or whose judgment is more to be depended upon.

"If you ever have footrot break out among your sheep" said Mr. Johnston, "let me know, and, if I am well enough, I will come and show you how to cure it. You can do it yourself; but I have told a good many people how to do it, but I scarcely ever knew one of them who succeeded. They don't follow the directions."

"I thought at one time," he continued, "it would ruin me. I had over a thousand sheep, and the footrot broke out among them. We could cure the sheep affected, but it kept breaking out among the others. I went to bed one night greatly distressed about it. I kept thinking and thinking the matter all over. Finally I exclaimed, 'I have it!' 'Have what?' asked my wife. 'I have found out how to cure the footrot.' 'I am afraid you'll never do that, John,' she replied. 'Yes, I can, I am sure of it.' In the morning I told the man to get up the sheep, and we went at it. We dressed *every*

sheep, and those that were affected we drew out, and put in a field by themselves. These we dressed again the next day, and the others in two or three days. We cured every sheep, and banished footrot from the flock."

"What did you dress them with?" I asked, "though I suppose that is not the essential point." "No," he replied, "the point is to dress the whole flock, whether they have the footrot or not, and another essential point is to pare off the hoof, so as to lay bare all the affected parts. Nothing can cure the footrot without this being done. I used blue vitriol ground into powder, and made into a salve with tallow; and if the weather is very hot, use beeswax instead of tallow. Rub this salve between the claws with your finger, and all over the foot, being careful that no part escapes. Those affected are treated in the same way, only that more pains are necessary to get the salve in direct contact with all the diseased parts. Two, or at most three, dressings will effect a cure."

How to Replace a Horse's Shoe.

Much time is often lost at inconvenient seasons because a shoe needs replacing, and every thing must stop while a journey is made to the blacksmith's. If one of the boys could nail on a shoe, without endangering the safety of the horse's foot, this loss of time might be avoided.

To replace or fasten a shoe that has just been cast, or is about to be, the following tools are required: A light hammer, a piece of iron on which to trim the nails, or clinch them (an old hammer-head of two or three pounds' weight is good), a pair of pincers, a thin, long punch, and some horseshoe nails. These nails should be kept ready prepared; the preparation consists in beating out the point sharp enough to penetrate easily, and giving it a little bend; also trimming the head. Figure 1 shows the common nail, and fig. 2 the same made ready for use. The hammer must be only a little heavier than a tack hammer, or it will bend, and not drive the nail, and it must be used with light, sharp blows.

Figs. 1 and 2.

Let us commence now to put on a shoe. The old one is to be removed, if not already off, and the old nails drawn out; if any fragments remain, drive them out with the punch. This is important; a piece left in might work through the crust into the foot, and lame the horse, and he would then have the founder, or a sprain, or be lamed in the stifle, and it might be recommended to blister him, or to fire him, or to

Fig. 3.—RIGHT.

Fig. 4.—WRONG.

torture him in many ways; all of which may be avoided, if care be taken not to leave pieces of nails in his hoof. Then take the horse's foot between the knees; place the shoe, and set a nail so that the turned point will pass outwardly, an inch and a half at least, above the edge of the shoe; hold the fingers on the hoof, where the nail should come through, and if it does not come out just right, draw it and try again; don't drive it too far before stopping. There is no danger of hurting the horse, if you stop in time; and after one or two trials, you will hit the exact spot; practice will soon teach. Avoid driving any nail too low down; they should all come out evenly. If one is driven too low, a piece of the hoof will either split off at once, or it will break off soon. Figure 3 shows how the nails ought to be placed, while figure 4 shows them badly placed, but as they may very often be seen. As the nails are driven through, turn them down until all are in; then, with the pincers, nip them off an eighth of an inch from the hoof. Put the iron block under the head of a nail (first turning round and taking the horse's foot in the lap over one thigh), turn the point downwards, and clinch it into the hoof; proceed thus all around, and the job is finished. The horse may now go to work, and that shoe will last until there is an opportunity for the blacksmith.

A Fruit Ladder.

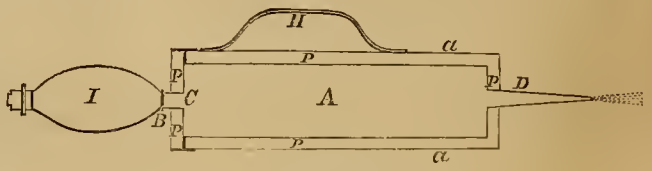
In previous numbers we have given designs for ladders which are self-supporting, and allow

ORCHARD-LADDER.

one to gather the fruit without resting at all upon the tree. We now illustrate a very simple ladder, which may be used upon old trees, and is much to be preferred to the ordinary form, as it may be set among the limbs without injuring the branches, or knocking off the fruit spurs. It is light and portable, and so simple, that the engraving does not need any explanation. All choice fruit should be hand-picked, and it is best to use a deep fruit basket, with a hook attached to the handle, to allow it to be suspended from a limb, in a convenient position. A deep basket is not liable to be upset by being unequally balanced.

A Fumigator for Plants and Poultry.

Mr. A. M. Halstead brings us a drawing of an implement, which he finds very convenient where tobacco fumigation is to be applied locally: *A* is a cylinder, made of tin, 7½ inches long, by 1½ in diameter; *a a*, is another cylinder, 2 inches diameter, 8 inches long, placed outside the first, and the space *p p* between the two filled with plaster. *B* is a cap, or cover, fitting over the open end of the cylinder, likewise having ½ inch thickness of plaster, kept in place by an inner disk of tin. Through this passes a tube (*C*), connecting with *I*, which



FUMIGATOR.

is an India-rubber bulb, such as is used for syringes. *D* is a spout, extending 4 inches beyond the outside of the cylinder, the outer orifice being about ⅛ inch in diameter. *H* is the handle.

The inner cylinder, *A*, is filled, or partially so, with tobacco; a coal of fire dropped in, and the cap put on. This cap must fit tight. The bulb *I* is then worked with the hand, and forces the smoke from the spout in a dense jet. In smoking house-plants I take a large-sized paper bag, inflate it, and place it over one or more plants; fill the bag with smoke, and let it remain so for a few minutes. Insect life is by this treatment speedily and thoroughly extinguished.

For poultry, visit the hen-house, after the fowls have gone to roost, and, inserting the nose, or spout, of the fumigator under the feathers, in all parts of the body, puff the smoke through them, only being careful not to let the fowl inhale it, as it may produce insensibility. For sitting hens—inject the smoke into the feathers, and also into the straw or hay, and the cracks of the nests. I have cleansed nests by this mode, that were fairly alive with lice, either killing them, or driving them away.

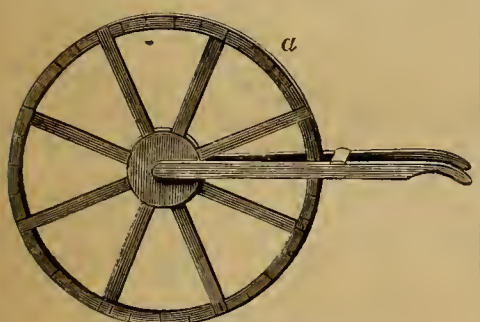
Salt-Marsh Mud as a Fertilizer.

The application of salt-marsh mud as a top-dressing for grass land, undertaken by J. D. Fish, of Stonington, Connecticut, has proved so satisfactory, that it is to be renewed again the present season. A steam-digger was used in the fall of 1869, and a large quantity was removed from the bottom of a salt-marsh pond to the adjoining meadows. It was dumped directly from the bucket of the digger into the cart, and drawn off by teams, and dropped in heaps where it was to be spread. It cost about 60 cents a load of a ton and a half. Beneficial results soon appeared upon the grass where it was spread. The first crop, it was estimated, was increased a third, or more, by the application. This May the effect was still more marked, and the contrast between this meadow, and the adjoining lands not treated with this fertilizer, is very striking. The line where the dressing stopped, is very distinct. All over the meadow the grasses are well set; the white and red clover have come in abundantly, and the herd's-grass is well rooted. A few acres of better land and grass were treated the same season with a dressing of rock-weed, which is considered one of the best fertilizers drawn from the sea. About the same value in money per acre was put in the rock-weed as in the salt-marsh mud. The yield of the land dressed with the weed was much less the first season, and this spring there is four times the grass upon the land dressed with the mud. It is estimated that a heavy dressing of stable manure, costing twice as much, would not have put the land in so good condition as it now is. If the season is

favorable, the yield will not be less than two tons of hay to the acre. There can be no doubt, that these salt-water ditches and ponds, full of decayed sea-weed and marine deposits, are one of the cheapest sources of manure to the shore farmer. It is by no means necessary to have a steam-digger to procure it. In many places the teams can be driven to the edge of the ditches and loaded. Even where planks and wheelbarrows are necessary at low tide, it will pay well to get it. It is much richer in ammonia than common yard manure, and will help all farm crops. The shore farmer has no occasion to invest in guano or superphosphate, if he will liberally use this neglected fertilizer. If the mud is to be carted a half-mile or more, the extra expense of removing it from the ditch with the wheelbarrow will be compensated in part by the lighter cartage, as it will lose half its weight in the water that drains from it. This fertilizer is accessible at all seasons of the year, at every low tide, and the experiments upon Mr. Fish's farm show that it pays better than sea-weed. CONNECTICUT.

An Odometer, or Measuring-Wheel

Wm. H. Barnes, Oakwood, Kansas, sends a drawing of a wheel, for measuring the boundaries of fields. It is exactly one rod (16½ feet) in circumference, and at one point a pin is



ODOMETER, OR MEASURING-WHEEL.

placed, which every time it comes round indicates that one rod of ground has been passed over. This instrument can be made useful in laying out fields, and we would suggest the advantage of arranging farms into such divisions, that the size can be easily calculated and remembered. For instance, a field 40 rods square contains 10 acres; 80 rods square contains 40 acres. Where the original division of the land has been made in squares, as in the Western States, this is easily done; but even in the Eastern States, where boundaries are often very irregular, fields may be made to approach the square form more commonly than they now are. To ascertain the contents of a square field, multiply the length of one side, in rods, by that of the next side to it, and divide by 160; this will give the number of acres.

How to Build a Boat.

Rivers and lakes being so plentifully interspersed over our territory, boats become articles of great convenience, or absolute necessity, and the ability to construct one, however rude it may be, is a useful accomplishment.

We aim in this article to give directions for constructing a boat, capacious enough to carry two good-sized men and a fat buck, if they should ever be so lucky as to be compelled to carry one home, and at the same time sufficiently light to enable it to be carried about easily, when required to be removed from one piece of water to another, overland.

The boat is flat-bottomed, and the keel or bottom is of board three quarters of an inch in thickness, of white pine, or other light wood that will not readily split. The length of the boat represented is nine feet, width two to three feet, depth eighteen inches. These proportions may be varied to suit circumstances.

Fig. 1.—THE BOAT IN USE.

To shape the bottom or keel, take two boards of the character before mentioned, and twelve inches wide, join them together by a tongue-and-groove joint, make the joint water-tight by means of pitch, and fasten a cleat across with clinch-nails or screws, to prevent its spreading. Mark out with a pencil the shape represented in figure 2. Cut this out very accurately, and plane very smoothly to line, with a slight bevel upwards. The more carefully this is done, the closer the joint and the dryer the boat will be.

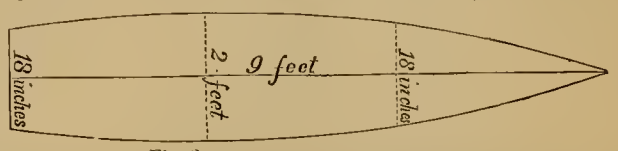


Fig. 2.—THE BOTTOM OF THE BOAT.

The stem is made, preferably, of a tamarack "knee;" if this can not be readily procured, cut out of soft maple a "knee" one inch thick, as a substitute. This should represent an angle of something over 90 degrees, so as to give a forward rake, as in figure 3. The front of the upright portion should be beveled to a fine edge, the bottom dressed square, and fitted to the keel in its place with screws, or wrought nails riveted over burrs. The stern (figure 4) is of similar stuff to the keel, cut 6 inches wider at the top than at the bottom. The side boards should be of quarter-inch spruce stuff, well seasoned, and dressed, at least on the outside, to present the least resistance to the water. To give the boat the proper shape, cut out patterns representing the cross section of it at those parts crossed by the dotted lines. The sides should spread a little, that is, should be wider at the gunwale than at the keel, say 6 to 12 inches. The patterns should be cut accordingly, and be tacked lightly to the keel-board, to hold them in their place until done with. The dotted lines which cross the boat are drawn at equal distances, and show the width at those places which is greatest a little back of the center (figure 2). It is a great point in hunting to have a boat that will make no ripple, and this gradual decrease of width towards the stern avoids all noise as the boat passes along. A boat of this pattern will do this perfectly, and will be found easier to row or paddle. When the molds are properly placed, take the boards—which should have been previously soaked at the ends in water—and fit them to their places, holding them with a clamp, until securely nailed to the stem and stern; all nails which pass through the boards where they lap, should be clinched on the inside; boat nails should be used. When the first board, which is the bottom one, is put on, fit the next, allowing three quarters of an inch to lap. Between the boards, at the lap, place a piece of thick cotton cloth, dipped in tar, which will make the joint water-tight, or nearly so, and calking will be unnecessary; then fit on the top board, taking care the upper edge has a proper sweep; when the boards are fastened, put in two ribs, which should be of white oak, half an inch thick, and one and a half wide; soak them thoroughly, until they are pliable enough to bend into their places, and secure them by nails clinched on the inside. These should be placed midway between the molds, and not only strengthen the frame, but give a bearing for the feet of the rower. A piece of tin should be bent over the stem, and nailed from bottom to top, for a cut-water. Before putting this piece of tin on, fill in well with pitch and tallow.

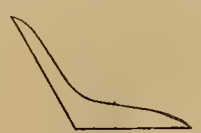


Fig. 3.—THE STEM.

The molds may now be removed; a strip two inches wide and one half thick should then be nailed all around on the inside; cleats are to be nailed on, for the thwarts (or seats), which should be placed six inches below the gunwale or edge; the hinder seat may be made of the lid of a locker or box, in which tools, nails, lines, a supply of putty, tallow, pieces of tarred canvas and tin, should be stowed away, as resources in case of damage or leaking. The bow of the boat should have a similar place made, to hold a supply of eatables when necessary. A baling dipper should be stowed away in one of these lockers. The bottoms of these lockers must be elevated two or three inches above the keel, to keep the contents dry. Fig. 5 shows the arrangement of the lockers and seat.

Fig. 4.—BOAT TURNED TO SHOW BOTTOM AND STERN.

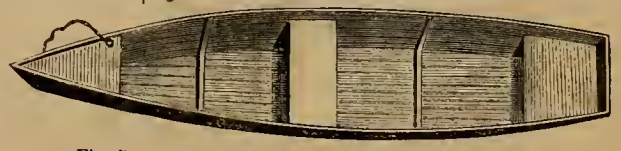


Fig. 5.—BOAT, SHOWING RIBS, LOCKERS, AND SEAT.

A ring-bolt and cord, sufficiently long, should be attached to the bow, for the purpose of tying up. To finish up the job, the seams must be

gone over carefully, and putty and white lead be applied to every crack; then two coats of paint ought to be laid on, the name painted on the stern, and she is ready for the launch.

A pair of oars may be made of ash, or, what is preferable, a pair of paddles, like the one shown in figure 6. When properly made and used, paddles are much more convenient and efficient than oars. In using a paddle, one has his face to the front, and can see all ahead of him; in rowing, it is necessarily the opposite to this. If oars are used, rowlocks must be fitted on to the sides. To make a paddle, take a piece of inch board (cedar is the lightest and best, but an oak paddle is very durable), six inches wide; dress out the blade quarter of an inch thick at the edges, half inch at the center, gradually increasing the thickness towards the handle. The handle may be whittled down until it fits the hand comfortably, then dress it with sand-paper perfectly smooth, and rub with oil; a smooth handle will not blister the hands. A boat thus made will look very nicely, but if means and time are wanting to finish it as here described, a rough one may be put together very quickly and cheaply by using the same or lighter materials in a rougher fashion. In place of three side boards, one wide board (12 inches) may be used, and the seats laid across flush with the top.

Fig. 6.

Brooms for the Stable and Barn-yard.

A cleanly horse or cow stable is very desirable, and will be appreciated, especially by the women folks, who often are troubled to find a clean spot whereon to place their milking-stool, to say nothing of their spreading robes. If cleanliness is next to godliness, in the house or person, very surely it is equally so in the stable or barn-yard; many highly improper feelings and expressions arise through contact with dirt or filth, in places where it ought not to be. The want of brooms, or scrapers, is made an excuse for dirt lying about where it is not wanted, and this excuse is valid to a great extent, as a stable-broom, fit to use, is rarely seen. The broom represented in figure 1, is made of twigs; birch being the best, as it is long and straight. Any stiff brush, however, will answer. Cut the twigs of a proper length—30 inches will make a good broom—lay them in a box, made

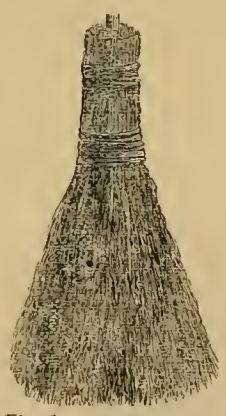


Fig. 1.—STABLE BROOM.

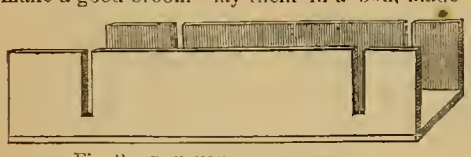


Fig. 2.—BOX FOR MAKING BROOMS.

like that shown in figure 2, draw them tightly together with the binders (fig. 3), which are stout sticks placed through eyes at the end of a short rope, wound once around the bundle; when pressed apart, they draw the twigs together with great force. Tie two pieces of cord (which should have been already laid across the box in the slots) around the broom; when it may be taken out and well bound with several rounds of strong tarred twine. For a handle take a stick long and stout enough, sharpen the point, and drive it into the center of the broom, until it has a good hold. The broom is then ready for use. It is hardly necessary to say that this is not a lady's broom; and yet we have seen a lady handle one with vigor, rather than not have a clean place to milk in.

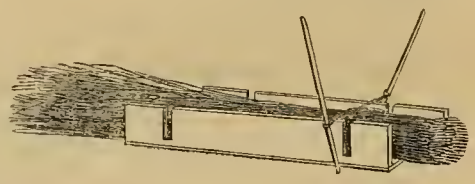


Fig. 3.—BINDER FOR BROOMS.

Will it Pay to Cook Corn for Hogs?

Mr. J. M. Martin, of Louisiana, writes to the *American Agriculturist* as follows: "In the Agricultural Report of Missouri for 1870, Mr. A. E. Trabue asserts, after making very careful experiments, that Indian corn in the crude state is better for fattening hogs than when boiled or steamed. His report is so positive, that, having had no experience myself, I am in doubt whether I shall make certain preparations for cooking the grain. I am desirous to make my own pork, and had concluded to place several sugar-kettles in a convenient position for boiling and steaming food, but desisted after reading this report. I would be pleased to hear from you on this subject."

REMARKS.—There are breeds or sorts of hogs that grow so slowly, that they can eat and digest more food than they can assimilate or turn into flesh and fat. For such hogs cooking the food would do no good, and probably by deranging the digestive organs and bowels would do positive injury.

On the other hand, we have breeds of pigs that are capable of assimilating more food than they can digest. They have little offal, are exceedingly quiet, have been bred for generation after generation to simply eat, sleep, and grow fat. With such pigs, the main object of the feeder is to get them to eat and digest as much food as they are capable of assimilating or turning into flesh and fat. Grinding and cooking the corn, unquestionably renders it much more easily masticated and digested, and there can not be a doubt that such well-bred pigs as we have alluded to, will gain much faster on cooked grain than on uncooked. They will eat more food, or at any rate *digest* more, and will grow faster in *proportion to the food consumed*, than those pigs which eat and digest less. We have frequently shown why this result must follow, and can at this time only say that our correspondent will find the whole subject thoroughly discussed in "Harris on the Pig."

Whether to cook or not to cook, then, depends a good deal on the kind of hogs, their age, breed, and condition. If we were going to fatten a lot of common hogs that had been picking up their own living for eighteen months or two years, and their ancestors for generations had been accustomed to this kind of treatment; in other words, if they were slow-growing hogs, with a voracious appetite, and a stomach that could digest shoe-leather, we can see no use in cooking the corn for them. But if we intended to produce choice pork from pigs that mature early and fatten rapidly, we should, if going into the business on an extensive scale, certainly cook their food.—EDS.

Harrowing for Different Effects.

The operation of harrowing is next in importance to that of plowing. The ends to be attained are threefold, viz.: to reduce the soil to a fine, mellow condition, to kill weeds, and to cover seeds. Now these three operations are widely different, and yet the same implement is in many cases used to effect them all. To reduce the soil, a heavy harrow, driven with a rapid motion, is required; if sod ground is to be reduced, a different style of tooth from the ordinary straight one is necessary; to kill weeds, a light, wide-spreading harrow, with sharp, straight teeth is wanted, that will tear up, and leave on the surface, every root and sprout. The teeth of such a harrow should be long, sharp, and run closely. To cover seeds, a harrow that will draw the soil along the surface without penetrating deeply is needed, and for economy of time and labor it should cover a wide space.

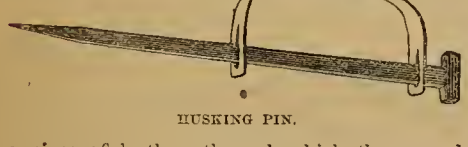
In making or procuring a harrow, the purposes to be served should be considered, and that one chosen which is best fitted to perform the work desired. The variety of harrows offered to farmers is so great, that one is almost bewildered in making a choice. For pulverizing the soil, the Nishwitz harrow is, probably, not excelled; for dressing sod-ground, the Shares coulter-harrow is very effective; for destroying weeds on ordinary fallows, the common, straight-tooth harrow (with sharp teeth) has not yet been superseded; while for finishing a surface, and covering grass or clover seeds, or harrowing grain in spring, the Thomas Smoothing-harrow is the best that we have used.

Don't Sell the Best Calves.

A really choice cow will readily bring eighty to one hundred dollars. A cow that will make one pound of butter per day during six months, and half a pound per day during two or three months more, is cheaper at one hundred dollars, than a cow that will do half as much, would be at fifty dollars. Poor cows are more plentiful than good ones; and where little or no attention is given to improving the stock, good cows are fast becoming scarcer. If one wants to find good cows, he has to follow the track of a drover, who is constantly raking over the country places to supply the demand of the large towns and great cities. Thus the farming localities are being constantly depleted. But this would be of no damage, if the supply was kept up, and this constant draft replaced with young stock. Here lies the trouble. Not only are cows in demand, but calves are equally sought after. The farmer is constantly tempted by drovers and butchers, from far and near, to dispose of his calves. The majority of them can not withstand the flutter of a greenback ornamented with a large X. The choicest calves are, of course, selected, and these are generally from the best cows. Ten dollars is thought to be a good price for a calf four weeks old, and pays better than fifteen for a year-old animal. So would five dollars a bushel be a high price for potato sets; but few farmers would be tempted to tear them out of newly planted hills for that money. But does he not

sell the seed of a valuable crop, when he parts with his best calves? Many men say it costs more to raise a cow than to buy one. This is palpably wrong, as will be seen if they sit down and figure it out. But if it were true now, it could not long remain so; for cows must be raised; and those who raise them must be paid profitably, or they will not do it. We confess that there is some ground for the idea that it does not pay to raise cows, wrong as it may be, and it lies just here: The poorest calves are selected for rearing; and as it costs as much, and sometimes more, to feed a poor calf from a poor cow, until maturity, when it probably is worth twenty-five to thirty dollars only, as it does to feed a good calf, that would make a cow worth double that money at two years old. There is actually a loss in the operation, and the farmer is out of pocket, not only indirectly, but directly, in having spent more than he can get back again. A merchant doing business thus, would soon find work for an assignee or the bankrupt court; but such are the advantages of the farmer's occupation, that he is able to live, and often do well, in spite of his unbusinesslike methods. Let him make farming a business; let him calculate and figure out results, as other men are obliged to do; and it will be found that there is no operation on the farm, but pays fair interest over and above a good remuneration for labor and attention, if such labor and attention are only well directed; and most surely will he find that there is more money in a good heifer-calf, than any butcher could afford to give him, if he will only give the animal time to show it. So with a bull-calf; if one is to be raised, select the best. It is by a course of selection, that the present races of blooded stock have been built up; as it is by a contrary course, that the native stock has been run down. Our "native" stock has sprung from good sources, and if the best calves are retained on the farm, there will soon be a better supply of good cows.

A Husking Pin, which will be found very durable and worth preserving from one season to another, may be made out of a twenty-penny nail, ground sharp at the point and fitted with



HUSKING PIN.

a piece of leather, through which the second and third fingers are passed. Very neat and handsome ones may be cut out of bone.

The Pig Question again.

The author of "Walks and Talks" says: "C. D. E.," of Muncy, Pa., writes us a letter on the breeds of pigs. He says: "I have just read 'Walks and Talks,' and the article on 'Berkshire vs. Chester Whites,' in the *American Agriculturist* for May, and have come to the conclusion that the hog breeders of this country must submit to the inevitable decree of *fashion*, and for the future go in for *small* instead of large porkers! * * Well, let us reject the Chester hogs. They grow too large and 'coarse,' and are too heavy to handle. Let us try the Berkshire and the Essex, and if the fashion shall still tend downward, why not fall back upon the guinea-pig? What pot-pies they would make! Will our friend 'Walks and Talks' consider this proposition seriously, and if he fails to indorse it, give us a reason for his refusal?"—I cannot indorse this proposed cross, for the simple reason that the guinea-pig is not a pig at all! And another objection is, even if he were a pig, he is too long in coming to maturity, in proportion to his size. What I want in a thorough-bred pig, designed for crossing with common sows, is smallness of bone, little offal, rapid growth, fine quality of meat, and *early maturity*. I have no objection to size; but, so far as the efforts of breeders have yet gone, early maturity is always accompanied with a reduction of ultimate growth. If I were going to raise pigs to work in tread-powers, I should go in for large size and slow growth. But where pigs are required simply for converting corn into pork, I want such as will do this, and nothing else. The less corn is expended in producing bristles, bones, ears, legs, snout, and other offal, the more will there be left to produce good hams, pork, and lard. I do not want any more corn used to produce heat, motion, and the various functions of animal life than is necessary for health. I want the pig to eat all it can digest and assimilate, and the less of this digested food is used for any purpose, except the production of meat and fat, the more profit will there be in the business. Now, all this means rapid growth and early maturity; and early maturity is necessarily accompanied by a reduction in size.

Where cattle are kept solely for beef, breeders aim at early maturity; and such is also the case when sheep are bred for mutton. On high-priced land, a farmer can not afford to raise an ox *for beef*, that does not mature till he is six years old. He must keep one that will mature in two or three years. Such an animal will not be quite as large as the slow-growing one, but the beef will be produced at far less cost. The only objection to the system is, that richer and more costly food has to be used; and furthermore, it is desirable to get an ox that attains a pretty good weight before he matures, for the reason that it costs considerable to produce the calf. It is a slow process. We get but one calf a year. But in the case of pigs, we not unfrequently get twenty in a year. They can be multiplied with immense rapidity, and at small cost, and there is far less necessity for aiming at large size. The cost of this pork-producing machine is so small, that if twenty of them will produce more and better pork, at less cost for food, than one big machine, I prefer the twenty little ones—and so will the consumers.

I am well aware that a good deal can be said on the other side. In my own case, I want my pigs to live on clover during the summer; and if we pushed early maturity and small size to its utmost limits, the pigs would not thrive on clover. They would need much more concentrated food. But at present we are in no danger of getting our breeds of pigs too small.

The Brittany Cow Bessie.

Upon page 293 we give an engraving of a very interesting Brittany Cow, which is now the property of R. H. Allen, Esq., Summit, N. J., and, if we mistake not, was imported by him. Bessie is of a very dark, silver-gray color, with some white. When fresh she yields, upon ordinary good feed, from twelve to fourteen quarts of milk, and keeps up the supply well. Her hight at the fore-shoulders is three feet and four inches. She has a broad, heavy body, very small bones, a fine head and horns, and delicate limbs. This cow is as gentle and familiar as a pet lamb. This breed is quite rare in this country, dark colors being the favorites. Since the dispersion of Mr. Maitland's herd, we know of no one engaged in breeding these useful animals.

Drainage in Scotland.

There was published last year, under the auspices of the Highland and Agricultural Society of Scotland, an essay on Agricultural Drainage, for which the society's gold medal had been awarded to Mr. Hozier, its author. It has been said of another book, "What is good in it is not new, and what is new in it is not good." This would not be exactly a fair criticism of Mr. Hozier's essay, yet, at the same time, it would be more uncourteous than unfair to make it.

Land-drainage is not one of the exact sciences, it is true; still a good deal is known about it, and it is not to be expected that any new essay upon it should avoid repeating the fundamental principles that have been determined by long experience; consequently, we must expect to find in every new book much that is to be found in all of the old ones, and we may be well satisfied if, in addition to this, we find new and valuable principles set forth, or new and improved processes described. Mr. Hozier, while he proceeds systematically and well in giving directions for the laying out and execution of drainage works, advances some ideas which would be important if true, but which experience has led us to judge not to be true.

For instance, he insists on a fall of 1 foot in 200 feet, as the very least that can be allowed. Now, it is quite true that it is highly desirable to get this much fall when it is practicable, or even more; but there is an enormous amount of nearly level land that could not be drained at all, without the extensive use of open ditches, if this rule must be adhered to. It often happens that a main drain must be made 1,000 feet in length. If the fall of 1 in 200 is insisted upon, then the drain must be *five feet* higher at the head than at the outlet. If the land has this fall, well and good; but suppose it is a dead level on which we are to work, and that five feet is the utmost depth we can get at the outlet, then, if we follow the rule, the drain will run quite to the surface at its upper end. Now, it is possible to lay a drain so accurately that a fall of 1 in 1,000 ($^1/_{10}$ foot in 100 feet) will give a free and perfect current. There is a long main drain under the upper meadow in the Central Park that has only this fall. It was laid in 1860, and has always worked perfectly from that time until now. It is much easier to make a good drain on a fall of 1 in 600, and this would leave the upper end of the 1,000-foot drain in question, nearly $3^1/_2$ feet below the surface. We are strong advocates for all the fall it is practicable to get, but we also advocate the underdraining of land, in which the least practicable fall is all it is possible to get. If the work is properly done, very little fall will answer, but in such cases the grading of the bottom must be very carefully done, so that no fall shall be lost in one place by giving too much in another.

Mr. Hozier recommends that in heavy clay soils, drains should not be less than 2 feet 9 inches, nor more than 3 ft. 3 in. deep, and that the intervals between the drains be not more than 15 feet. This advice will not hold in many sections of America; for we rarely have such obdurate clays as he has in mind. Indeed, with a varied experience in drainage works in America, the writer has not found a soil that was not completely drained at 4 ft. depth, and

WATERING THE HERD.—DRAWN BY WILLIAM M. CARY.—*Engraved for the American Agriculturist.*

35 to 40 ft. intervals. These measurements have, however, often been found insufficient in England.

The point on which our author's ideas are most at variance with our own, is the *size of tiles* that it is best to use. He insists on the use of large tiles; nothing less than $2^1/_2$ inches diameter for lateral drains, and from 3-inch to 6-inch tiles for mains, 6-inch for the outlet of 12 acres. Our experience goes to show that $1^1/_4$-inch tiles for laterals answer not only as good, but a much better purpose than the large ones, while their cost, both for manufacture and for transportation, is less than half that of the $2^1/_2$-inch; we would use 4-inch tiles for the outlet of 12 acres.

Mr. Hozier thinks a drain should never be filled full by the hardest rain; we think it an advantage to have them flushed several times during the season, insuring their thorough cleansing. Considerable experience in the practice of both systems seems very clearly to sustain our idea, and the experiments instituted for the purpose by the sewerage engineers of cities show ample reason for its soundness.

Any reader who will use due caution about accepting what seems to us to be the heresies of this essay, will find it replete with practical suggestions, and with sound arguments in favor of underdraining, and will be well repaid for all the time and care he may give it. There is given in it an instance of the complete stoppage of a stone culvert, not less than 15 inches square in the water way, by the roots of a tree, "and, though the drain was opened and cleared at considerable trouble and expense, hardly a year elapsed before the mass inside was as impenetrable as ever."

Watering the Herd.

A scarcity of water is something with which the majority of our readers are fortunately not familiar. We do not refer to the failure of streams and wells, which occurs in all sections in an unusually dry season, but a perennial scarcity of water, where miles and miles must be crossed before one can supply his own wants and those of his animals. Some excellent grazing regions in the far West and South-west, where the most nutritious grasses abound, are often discouragingly dry, and the droves and herds must be driven a long distance from their feeding-grounds to water. To the traveler across these plains the occurrence of water is a matter of the greatest interest. The other two requisites of a camping-ground, grass and fuel, he generally feels sure of finding by searching for them, but water occurs only in certain localities. The day's travel, whether of a few persons or a large train, is governed by the distance between watering-places. The writer has, upon several occasions, found these from fifty to seventy-five miles apart—distances somewhat appalling to one having charge of a slow-moving train. After the forced abstinence from water that attends a long march, the animals become almost frantic when they reach camp, and rush for the pool or stream in the wildest manner. In traveling in a country where Indians are troublesome, and the camp, as is frequently the case, is at some distance from the water, it requires no little circumspection on the part of those in charge of the animals to prevent a surprise on the part of the enemy. Many an emigrant train has been left without means of transportation by allowing the animals to be driven to water without a guard sufficiently strong to repel an attack.

Rustic Bridges.

Where there is a stream of water in public or private grounds, an opportunity is offered for introducing a pleasing ornamental feature in the shape of a bridge. A structure of this kind may be very simple and cheap, or highly elaborate and expensive, according to the tastes and means of the proprietor. It is only in places which are highly embellished that an expensive structure will be in keeping with its surroundings, while in most all situations a rustic bridge is in good taste. A rustic bridge may be made very elaborate in its workmanship, or it may be exceedingly simple. Some examples of costly structures of this kind may be seen at Central Park. We present an engraving of a very simple one, which is not only pleasing in its appearance, but its construction is such as to render it substantial and permanent. The engraving shows the structure so plainly that no description is needed. It will be seen that it is self-supporting. In bridges of all kinds every care should be taken to make the abutments secure and the approaches laid in a substantial manner. The railing in the bridge here given is exceedingly plain. It can be made much more ornamental by the introduction of rustic panels, and some vines trained along it would add greatly to the rustic effect.

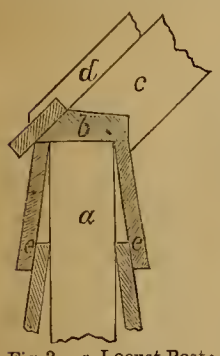
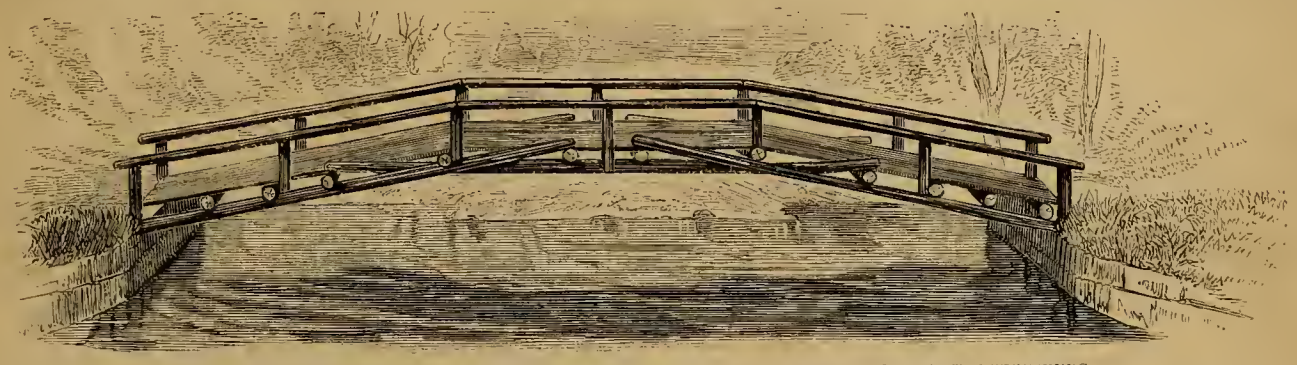


Fig. 3.—*a*, Locust Post; *b*, Plate; *c*, Rafter; *d*, Sash; *e*, Weather-boarding.

The bridge we have figured was exhibited at the International Exposition of Horticulture, that was held at St. Petersburgh, Russia, in 1869, and attracted much attention; it was first engraved in L'Illustration Horticole.



RUSTIC BRIDGE, SHOWN AT THE INTERNATIONAL HORTICULTURAL EXHIBITION AT ST. PETERSBURG.

How to Build a Cheap Greenhouse.

BY JAMES HOGG.

The plans which we give are intended for a small greenhouse suitable for an ordinary country residence where no regular gardener is kept, and where the care of such an appendage to the house would devolve upon the family. Such a greenhouse can be built separate from the dwelling, and a shed attached to the northerly end for the purposes of a potting shed, the storage of tools, etc., but as drawn it is intended to be attached to the dwelling, and entered therefrom by means of a door from one of the rooms. This we consider preferable to having it detached, as it is accessible and enjoyable in all weathers, and if the entrance door from the house is glazed it renders the room to which it adjoins remarkably cheerful and elegant. We prefer a double-pitched roof for such a greenhouse, to a lean-to, or single pitch, as it gets the benefit of the early morning and latest evening sun, an item of much importance in growing plants, and escapes the intenser heat of the noon-day sun (which in March and April is very great), as the end is perpendicular, the side of the roof being at an angle of forty-five degrees. Besides these benefits, plants grow better in such houses, because they have more light on every side, and consequently are not liable to become so drawn and one-sided as they are in a lean-to.

The proper exposure is southerly, that is, with the end facing any of the southerly points of the compass, from W.S.W. to S.E.; if any preference can be given in locating it, it should be given to the easterly points, as it enables it to receive more of the early sun during the shortest days of winter.

Our drawings, with the descriptions which we proceed to give, will enable any carpenter of ordinary intelligence to construct it. Many of them will no doubt object to the dimensions of the rafters, thickness of the sashes, etc., as it is a besetting fault with these men generally to make the rafters and other woodwork of such structures entirely too heavy. A plant structure cannot be made too light, provided due strength is maintained. It will be noticed that we do away entirely with all plates and sills, and also tenoned and mortised joints, as these are only so many places for the admission of water and subsequent decay, and also involve much outlay for material and labor.

Fig. 1.—END VIEW OF GREENHOUSE.

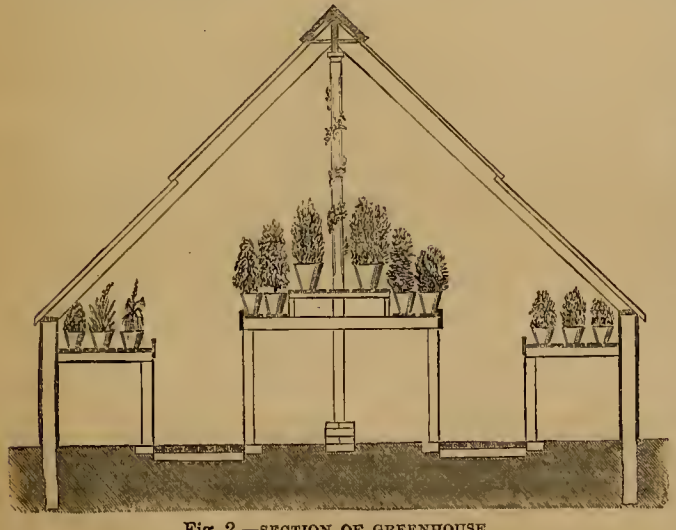


Fig. 2.—SECTION OF GREENHOUSE.

The sashes measure 6 feet 3 inches long, by 3 feet one inch wide, and one and a half inch thick, made of the best quality of white pine.

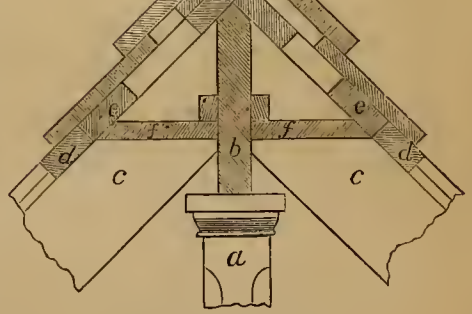


Fig. 4.—DETAILS OF ROOF.

a, Pillar; *b*, Ridge-pole; *c*, Rafters; *d*, Sash; *e*, Stop-piece; *f*, Ceiling.

The side rails should be $2^1|_2$ inches wide, the top rail 3 inches, and the bottom rail 4 inches wide. The sash bars should be one inch and an eighth wide, rabbeted out five eighths of an inch deep, and $^5|_{16}$ of an inch wide, leaving the parting strip half an inch wide; this should over-

lap the bottom rail 2½ inches. The top rail should not be grooved out to receive the upper edge of the upper pane of glass, as in case of breakage it is almost impossible to clean it out; it should, therefore, be rabbeted to correspond with the sash-bars. A cross-bar of iron one quarter of an inch thick by half an inch wide, should be

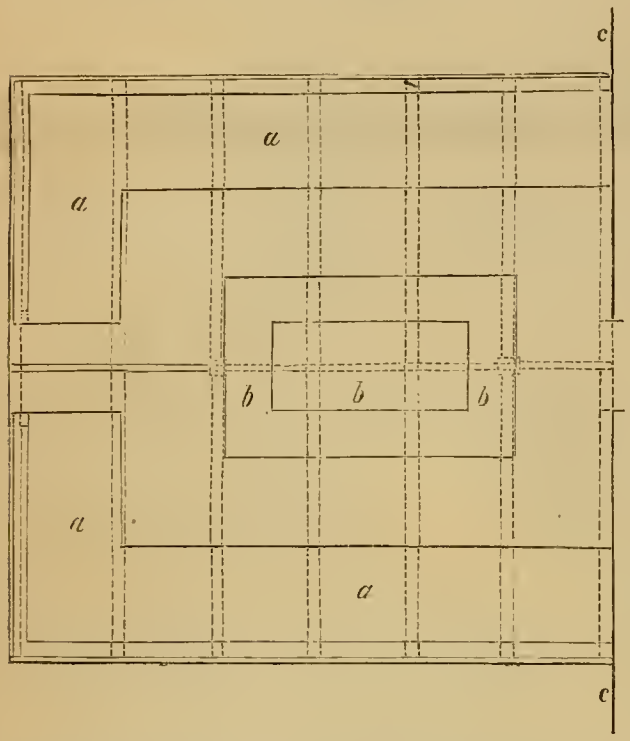


Fig. 5.—GROUND PLAN OF GREENHOUSE.

a, a. Front Platform for Plants; *b, b,* Center Platform; *c, c,* Side of Dwelling. The dotted lines show the position of the Rafters and Ridge-pole.

put across the middle of each sash, only lapping one inch on each side rail, or a cross-bar of ash or some similar wood may be used: it should be about five eighths of an inch thick and three quarters of an inch wide, and notched out half its depth to receive the sash bars; these last should not be notched out on any account, as it weakens the sash very materially. The screws used in putting on these cross-bars should be dipped in boiled linseed oil, to prevent them rusting in the sash bars, which would weaken them. The joints should all be put together with strong glue and not with white or red lead and oil; the glue makes a much stronger joint, and when the sash is kept well painted, will hold as long as the wood lasts, as it does not evaporate or dry out, as the oil does.

The glass should be 6×8 French seconds, each pane to overlap the other about three eighths of an inch; the lower panes should overlap the bottom rail at least half an inch. They should not be bedded in putty when put in, as they cannot be so evenly laid when that is done; after being puttied on the face, they should be back-puttied, that is, the angular spaces formed by the overlaps should be filled up with putty; this makes a much neater job than any other way. Each pane should be fastened down at the overlap with a half-inch copper or zinc sparable on each side.

The outside measure of the house is 18 feet 9 inches wide (from east to west), and 19 feet long, from north to south; over all, from the ground level to the top of the ridge-pole, is 14 feet. In constructing it, locust posts 7 or 8 feet long, squared on two sides to 4 inches thick, are set in the ground 3 feet 1 inch apart from center to center, leaving 4 feet above the ground level. These are weather-boarded inside and outside; on the top of these posts, after being sawed off level and square, a strip of white pine 2 inches thick and 6 inches wide is nailed down, which answers the purpose of a plate. It is beveled on the front to the angle of the rafters (45 degrees), and from where the upper edge of the lower rail of the sash touches it, it is beveled back to the thickness of an inch, the object of this being to prevent the water-drip lying on it and rotting it. The space between the weather-boarding is left vacant, as the still, inclosed air is a better non-conductor of cold than any filling would be. The rafters are 6 inches deep by 3 inches wide, an inch and a half of thickness being cut away for the lower sash, so that for the lower half of their length they are only 4½ inches deep. They may be made of uniform depth through their whole length, and a thickness strip planted on under the upper sash. The toe of the lower end of each rafter rests upon the plate strip, and is nailed through it to the head of the post immediately beneath it. A ridge-pole, 2 inches by 12 inches, is carried the whole length of the house; the end next the dwelling is supported by a bracket; two intermediate posts to carry it are placed one at each end of the center plant-stage, and the outer end is supported by a small strip carried up from the door-head. We sometimes see houses constructed without a ridge-pole, but the roof in such cases is always very weak and continually spreading, sometimes causing them to fall in. The upper end of the rafters is nailed to this ridge-pole. No parting strip is necessary between the sashes, nor is it necessary to have the rafter grooved out under each sash, as is sometimes done, to carry off the water. Such channels soon become choked up by dust and dirt, and are the favorite resort of all sorts of insects; they are, indeed, worse than useless.

A stop piece 1½ by 4 inches, is nailed along the rafters at the head of the upper sashes, and a similar strip is carried along the peak of the rafters; these two strips carry the weather-boarding of the cap; this weather-boarding should cover the upper rail of the sash about 2 inches. Inside, a narrow ceiling is carried across; this gives a neater appearance to the inside than if the peak above the sashes is left open.

The Egyptian Beet.

BY PETER HENDERSON.

I send you six specimens of early Beets; the larger is the "Egyptian," the other the "Short-top Round." You will observe that the Egyptian is more than double the size of the other, the average circumference being 17 inches, while that of the Short-top Round is only 8 inches. Both these varieties were sown under exactly similar conditions of soil and manuring, on April 15th. The Egyptian was first marketed on June 5th, and brought ten dollars per 100 bunches—about two cents each; the other was first sent in on June 17th, and sold for four dollars per 100 bunches, or less than one cent each. And even at this date, July 1st, when the market is flooded, the superior size of the Egyptian gives it a freer sale, at 25 per cent higher rates, than the old variety. From the smallness of the tops of the Egyptian, at least one fourth greater number can be grown on the same space than we have been in the habit of raising, so that it must take the place of all other varieties, either for market or private gardens. Last year I tried the new beet, very carelessly indeed, but even in that way saw that in earliness it was in advance of the other; but this season, when grown by the acre, side by side with our old varieties, the difference is greater than I have ever yet seen in any other vegetable. It is fully twelve days ahead of the other round varieties in earliness, and that means that the profit per acre will at least be doubled, when grown in competition with the old sorts. In other words, if the old Short-top Round, or Bassano, gave us a profit of three hundred dollars per acre, the Egyptian is certain to give six hundred dollars. This advantage, of course, will only be temporary, for just as soon as its cultivation becomes general, the profits will come down to the old level. Those growing the Egyptian for the next year or two, will most likely reap the benefit; for we all know, that no matter what merit any article may have, it takes years before all the people find it out.

[From our experiments this year with several kinds of early beets, we are confident that Mr. Henderson does not overstate the superiority of the Egyptian. With us it was far ahead of any of some half-dozen varieties. If other results are obtained, we shall be inclined to attribute them to false seed, as one of our dealers, in ordering the Egyptian from an English house, received some seed with the word that they were out of the Egyptian, but had sent some "just as good," and which they were selling for Egyptian.—Ed.]

Notes from the Pines.

GRAPES.—The moral influence of gardening in general has formed the theme of more than one essayist. The subject might be treated with special reference to grape culture, though I don't propose to do it any further than to say that a small vineyard affords an abundant field for the exercise of patience and many other virtues. Last year I planted a little vineyard of some fifty vines, in about half that number of varieties. The vines were partly one year old, others two and three, and included old and well-known as well as new and untested sorts. The vines all made a fair first year's growth; in fall, were cut back to near the ground, and left during the winter without any protection. Their behavior this year, now that they are well established, allows me to form a fair opinion as to which

VARIETIES are adapted to my soil. There are some which, like the Concord, succeed almost anywhere, and others, like the Iona, that succeed almost nowhere. What a magnificent fruit the Iona is when it will grow as it does in some localities in Ohio and elsewhere! Here a young vine will make a fair growth the first year, a smaller one the second, and by the third it will have dwindled away to a stick with a few curled and half-developed leaves upon it, and only fit to be cast out. The South Carolina Hybrids of Dr. Wylie, from which much was expected, may be considered as failures here. I have had them for three and five years, and do not care to bother with them any longer. The Rogers' grapes and the Martha seem to

flourish with great vigor, and if one wishes fruit without looking for high quality, it can be had from these and the Concord. The Eumelan makes an excellent growth and is a precocious bearer. Salem, though one of the Rogers set, does miserably, while the new varieties, Croton and Senasqua, are thus far the pets of my collection. But it is hardly worth while to go through the list. Suffice it to say that, as a general thing, the higher qualities of grapes will not do well on light soils.

Mildew appeared remarkably early this year; so much sooner than usual, that it had made some headway before I noticed it. The fungus of the mildew is very freaky in its selection of subjects. Some of Rogers' grapes, such as Agawam, with leaves so large and leathery that they would seem able to defy any thing, are badly scorched, while the comparatively delicate foliage of the Croton—which is, moreover, largely foreign—is entirely untouched. Eumelan has mildewed badly this year. Mildew is easily kept in subjection if sulphur be used in time, and it is only through inattention that any serious damage need occur.

Insects.—Some one has said that horticulture is merely "a fight with weeds and insects." That man must have had a vineyard, for the fight must be kept up, with insects at least, from before the opening of the buds until the ripe clusters are gathered. The unopened buds are bored by a Flea-beetle; the leaves of the infant shoot, before it is an inch long, are the home of the larva of a Plume. At flowering come the Rose-bugs, which feed away upon the embryo clusters, and between whiles doing a little amateur "pinching" wherever they can find a shoot that you are particularly desirous should be prolonged. Along with the Rose-bugs come other beetles, from as small as they up to the Spotted Pelidnota, which is larger than a May-bug. Some of these beetles attack the leaf just where its ribs join the leaf-stalk—the very place of all where the most injury can be done—and in a few days your broad and vigorous leaf flaps in the wind like a tattered banner. Then the caterpillars, from the beautiful great fellows that travel singly, to the diminutive Procris, that passes in military order over the surface of the leaf like a well-drilled platoon—keeping "a light touch of the elbows," so close are they. Then the little gall-flies, seldom seen, save by their work, puncture the leaves, and the resulting excrescences make the vine look as if it had some unpleasant cutaneous disease, while other gall insects attack the young shoots, giving them a dissipated, gouty look. The pulp of the berry is infested by the larva of a curculio, and a troublesome brother of his makes its home in the very grape-seed itself. I have not mentioned the root-borers and stem-borers, as these have not troubled me. Indeed, a work upon the insects injurious to the grape-vine would make a handsome volume. The trouble with insects is so serious, and the desire of the grower to avoid it is so great, that quackery has a fine chance for the sale of its nostrums. I place no reliance upon any thing except actual slaughter. Hand-picking, and shaking off and killing, will do much to keep insects in check, while natural foes, in the shape of parasitic insects, sooner or later come to our aid.

Training.—A visitor called while I was at work among my trellises, and asked what "system" I followed in training. "None at all, sir!" I can not imagine any thing more monotonous than to go over a vineyard and try to make each vine look like the next, and all like a picture in a book. When a doctor talks about treating the sick according to some "system," I set him down as a quack. A physician treats his patient according to his individual peculiarities and needs, and this is what a vine-dresser should do with his vines. His object should be to procure the greatest amount of fruit, with proper regard to the future well-being of the vines. If he understands enough about the vine to do this, he need not bother himself about anybody's system.

Tendrils.—I have noticed in both my specimens of Rogers' 39, a strong tendency to produce leaves upon the tendrils. I have observed this now and then in other varieties, but never saw more than a single instance or so on a vine. I would like to know if this is a constant peculiarity of this variety?

Evergreens.—It is the general custom to plant evergreens later than we do deciduous trees, it being thought that they succeed better if moved just as the new growth is starting. My experience with planting at this time is not such as to induce me to commend it to others, and another year I shall try putting them out earlier. The success of the evergreens set out last fall in City Hall Park is strong evidence in favor of fall planting. A large number of trees, of unusual size, were put out, and we have not noticed a single failure. The autumn last year was very mild, and the trees had time to become well established before cold weather came on.

Pruning Evergreens is best done after the season's growth is made, and when the new wood is hardening. A badly-shaped tree may be made comely by the proper use of the knife. By all means, preserve the lower branches, as the great beauty of an evergreen is in its being well furnished to the ground. If upper branches overhang the lower tiers, these last will die out for want of light and air. A little judicious pruning will prevent this.

Peas.—Among a half-dozen of early varieties tried this spring, Carter's First Crop were decidedly the earliest—a full week ahead of the popular Dan O'Rourke. I think peas are the most unsatisfactory crop in the garden. In our climate they come forward too rapidly, and one gets but two pickings at most from the early sorts before they have become too hard for the table. What we need for the family garden is a pea that will mature gradually and prolong the season. Until we can get a variety of this kind, perhaps the best way is to plant a succession of dwarf sorts. The Little Gem is the best dwarf sort, but the trouble is that the seed, for some reason, is very uncertain. I have grown it for three years, and have never succeeded in getting an even stand.

Spiræa Callosa is one of the best of the late-blooming spiræas, and I find this and its white variety valuable for blooming at midsummer, when we have so few shrubs in bloom. I find that the white variety, like the White Wiegela, keeps in bloom much longer than the regular rose-colored sort.

Hardy Cactuses.—I have now four species of the cactus family that I know to be hardy, and have a half-dozen or more from the mountains of Utah, on trial. If we can get a set of these grotesque plants that will endure our winters, it will allow us to introduce an interesting feature into our gardens. A small bed of these, and another of succulents, prove a great attraction to visitors, as their forms are so different from the plants commonly met with.

A New Tuberose.

Some years ago one of our most observing florists noticed among his tuberoses one that produced much larger flowers than the rest, and at the same time was of low growth. This particular bulb was saved and quietly propagated from, until quite a stock was accumulated, which he sold at a round price to two of our florists. We are not informed when this novelty will be offered for sale, but florists and amateurs will be glad to know that there is in store for them a tuberose which grows only about eighteen inches high, and produces flowers of double the size of the ordinary kind. This variety will be a favorite with those who force tuberoses for cut-flowers, as the long stems of the common kinds are always troublesome.

The Yellow Asphodel.

The Asphodel is mentioned by the early Greek and Latin poets as a plant which was placed in tombs, or planted around them, that its roots might furnish food for the dead. There is some doubt if the plant we now know as Asphodel, is the one alluded to by the ancient writers. At all events, the Asphodel (*Asphodelus luteus*) is one of the oldest of garden-plants, it having been introduced into England from the south of Europe nearly three hundred years ago. It is one of those old-fashioned things rarely to be met with, and we have long cherished a clump of it mainly on account of its antiquity. It is not without claims as an ornamental plant, and if it were brought out as a new discovery, it would have glowing descriptions in the catalogues. The Asphodel is perfectly hardy; early in spring it throws up from its fleshy roots a tuft of narrow leaves of a pale green, and later a flower-stalk clothed with similar leaves, and about three feet high. The flower-spike is some eight inches long, and as the flowers open gradually from below upwards, it remains for some time in bloom. The engraving on the next page is much reduced in size. The flowers are bright yellow, and are followed by a nearly globular seed-pod about the size of a cherry. The plant forms an abundant supply of offsets which allow of its ready multiplication. Having a rather stately appearance, and being perfectly able to take care of itself when once established, the Yellow Asphodel is a plant well adapted to the "wild garden." There is a double variety which we have not seen, and several other species are known in cultivation.

The Cabbage Maggot and Caterpillar.

BY PETER HENDERSON.

Quite a number of the readers of the *Agriculturist* have applied to me for a remedy to destroy the maggot that attacks the roots of cabbage and cauliflower, and also for the caterpillar that attacks the leaves. I regret to say I know of no certain remedy. Nothing is more difficult and unsatisfactory than the attempt to defeat the ravages of insects in the open field, and I have yet to know of any being entirely successful. In the long-cultivated gardens of New Jersey and Long Island we do not suffer much from the ravages of either of the above pests. The soil is so repeatedly turned over and disturbed that I presume the maggot is not

left long enough at rest to develop itself in sufficient numbers to produce any great injury; and the luxurious growth resulting from the continued and heavy manuring seems to be less inviting to the butterfly to deposit her eggs than the feebler growth of less fertile soils. Or it may be that the increase of English sparrows is helping us in both these cases, by destroying the fly that produces the maggot, or the small white butterfly that produces the caterpillar, or it may be that they feed on the caterpillar itself, as I know they do with the rose-slug. At all events, the farmer will gain by encouraging and caring for the sparrows. A few years ago the street trees of New York, Brooklyn, and Jersey City were festooned by myriads of the "measuring worm;" now, since the advent of the sparrows, they are scarcely ever seen. The sparrows will live in any section of the country if properly housed and fed in winter, and if such care was general, we would hear fewer complaints of insect ravages. True, they might exact wages for their services in requiring a little grain, but of the two evils, better submit to that done by the birds than to the insects.

I will relate an experiment to destroy the cabbage caterpillar, which occurred during this month, in my immediate neighborhood. One of my neighbors, no less a man than the noted John Reilly, found that the pest was attacking his cabbages; he came to me, and asked what I thought of his using slaked lime to dust over them. I told him I had but little faith in it. But he was resolved to try it, and put it on at the rate of four or five barrels to the acre, carefully dusting it on each plant. This was about the 1st of June; on the 17th he came to me in triumph, saying that the remedy had been effectual, and that there was hardly a caterpillar to be seen. But, unfortunately for the experiment, but fortunately for truth, Patrick Smith's cabbage patch, that had been also attacked when Reilly's was, but had received no lime, was also entirely clear of the caterpillar! The cure was traceable to another cause: we had had a deluging rain, that swept off the caterpillars and started the cabbages into luxuriant growth at the same time. Had the insect come in the legions it comes in some places, had there been no rain, and had the dry, hot weather continued, the lime dust would have failed.

YELLOW ASPHODEL.

Last summer I had with great care nursed along in my greenhouses for many weeks a collection of rare varieties of German Stock Gilly-flowers, a plant belonging to the same natural order (*Cruciferæ*) as the cabbage. Upwards of two thousand plants were set out in June, on rather poor soil; by the middle of July they had made splendid plants, one foot in diameter, and just as they were bursting into bloom we observed the little white butterfly moving amongst them, and knew what might be expected to follow. Lime dust, solutions of carbolic soap, whale-oil soap, and sundry other things were used, all to no effect, and by middle of August the plants were literally eaten up by the caterpillar. There is nothing more unpleasant than to tell any one suffering under a calamity that there is no tangible remedy; but it is infinitely better to do so than to delude them with a false one. I have been a worker of the soil since my boyhood, and every year's experience convinces me of the helplessness of remedies against insects or other blighting plagues that attack vegetation in the open field. It is true that the amateur gardener may save his dozen or two of cabbages or roses by daily picking off or destroying; but when it comes to broad acres, I much doubt if ever any remedy will be found to be practicable. We have one consolation in knowing that these pests are only periodical, and never continue so as to permanently destroy.

[The views of an experienced cultivator, like Mr. Henderson, are always worthy of consideration. While his attempts to destroy insects may not have proved successful, we think effort in that direction should not be discouraged.—ED.]

The Fraxinella.—(*Dictamnus Fraxinella.*)

A well-known horticulturist and a great lover of herbaceous plants once said to us that if he could have but one herbaceous plant it would be the Fraxinella. While we can not place so high an estimate as this upon it, we regard it as a valuable occupant of our border. It has been for a long time in cultivation, and in antiquity it is worthy to stand by the side of the Asphodel. In good soil the Fraxinella grows to the hight of two or three feet. The leaves are pinnate, and from their resemblance to those of the Ash (*Fraxinus*), the plant has received its common name. The flowers are produced in a terminal raceme, and have five petals, four of which are erect, while one is bent downward, giving the flower an irregular appearance. The stamens, which are long and conspicuous, are bent downwards and curved. The flowers are white, and there is a variety with the petals pale purple, marked with darker veins. All parts of the plant are highly aromatic; the stem, leaves, and the flower-stalks, particularly, are furnished with glands which secrete a volatile oil, having an odor something like lemons, or rather between that of oil of lemon and turpentine. This aroma is very agreeable to some persons, while to others it is offensive. At flowering time this secretion is produced in such abundance and is so freely diffused in the air around the plant, that it will burn with a flash when light is applied. We have never thought to try this experiment when our plants were in flower, but it is stated by so many reliable persons that we have no doubt of its truth. It is said to be most successful upon a mild, warm evening, when the air is perfectly still. The Fraxinella does not produce seed very abundantly, and the plants are several years in coming into flower. It is generally multiplied by division of the roots, which are very large and tough, and require care in dividing them in order to secure a bud to each piece of root. Formerly the roots of the Fraxinella were used in medicine, but like many other things of the kind, they have been dropped from the list of *Materia Medica*.

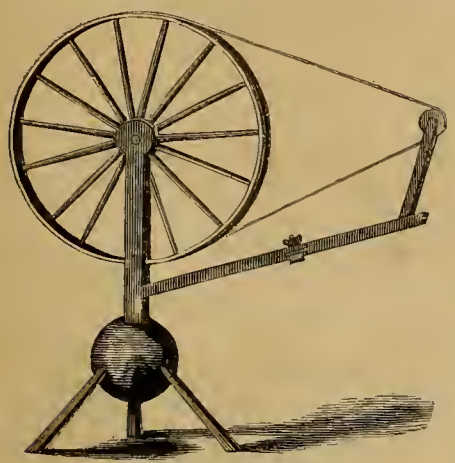
FRAXINELLA.—(*Dictamnus Fraxinella.*)

THE HOUSEHOLD.

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

An Improved Spinning-Wheel.

One of the effects of the late war was to revive the almost forgotten accomplishment of spinning. It is to be hoped that spinning may not become one of the "lost arts," though we trust it will not require an occasional war to prevent it from passing out of knowledge. W. H. Swearingen, West Plains, Mo., sends us a sketch of a frame for a spinning-wheel, invented by a neighbor of his.



AN IMPROVED SPINNING-WHEEL.

The improvement consists in the arrangement of the projecting arm, which is furnished with a joint that enables it to be folded when not in use; also, in the foundation for the post, which is a large ball, instead of a bench. The improvement seems to be a substantial one, providing for economy of space, which, in the majority of Western houses, is exceedingly limited.

Home Topics.

BY FAITH ROCHESTER.

PRACTICAL STUDIES FOR A YOUNG WOMAN AT SCHOOL.—Educational matters may surely have some place in the Household Department. I hope I shall not push them too far. But this letter from Annette K—— appeared to me as expressing one of the strongest wants of my own girlhood, and possibly of other young women. I do not feel competent to turn adviser, but I make public Annette's letter, and reply through the *Agriculturist*.

DEAR MADAM: I want to ask advice of some one, and my mother suggests that perhaps you will let me come to you. I am sixteen years old, but have never been to any school except our public school, and only during the winter sessions for a few years past, because mother has needed my help at home. Father has just promised me that I may go to B—— Academy next fall, and stay a year. I cannot tell you how glad I am, but I do not know what I had better study, and there is no one to tell me. There is a regular course of study at the Academy, but I probably could not stay long enough to complete it, and father is very anxious that I should study only *practical* things. He does not tell me what he means, and I suppose he really thinks I know enough now for a woman, if I am not going to be a teacher, and I suppose I am not. I have as good a knowledge of the common English branches as I can get at our public school, but I feel very ignorant. I want to *understand* things better, and I want to be as useful as I can wherever I go. I feel as though there is a great deal that I could learn at school if I had the chance, that it would make me happier and more useful to know. I cannot say what I shall do after I leave school. Mother is very glad to have me go, but I know she can hardly spare me, for there are seven children younger than I am.

If I am not intruding, please give me your idea of "*practical*" studies for a girl in my situation. With great respect, ANNETTE K——.

The desire to be a good and useful woman, whatever one's lot in life may be, is far nobler than the aim, primarily, to be "successful" as a merchant, milliner, doctor, or dressmaker. It is degrading to dwarf the man or woman to the limits of any calling or profession; for one's business vocation is an outside matter pertaining to the material interests that must be left behind at the close of our earthly life. The proper education of the immortal part, the mind, is an everlasting advantage. And if the mind be properly educated, it is also a daily advantage in all the labors of this life. Every study is really practical that strengthens the mind or helps to build up the character.

Annette wants "to understand things." I like that. She wants to be able to do her own thinking. She wants to get her mental faculties sharpened, and ready for use all the way through life. To accomplish this, it does not matter so much *what* she studies as *how* she studies. Many students fail to get any real *education* from their lessons at school, because the aim before them is simply success in the recitation class, or at the examination. They soon forget the lessons memorized simply to repeat, and as the memory was the only faculty particularly exercised, no especial benefit remains. If Annette will apply her own judgment to every lesson, bringing all her experience and observation to bear upon the facts she finds in her books, trying to understand the reason for every step she takes, she will get mental discipline rapidly.

But it is of considerable importance what studies one's time is devoted to. The natural sciences seem to me first in importance—none more so than physiology, especially for women who may be housekeepers or mothers. We ought to do our best to understand the mechanism of our bodies, and how they may be kept in good running order. Chemistry is a science of constant daily application in all our cooking and cleansing affairs. Some knowledge of it is necessary to a clear understanding of physiology, botany, or geology. Good teachers of this science are rarely found, but some study of it alone, without teacher or apparatus, is better than none. Botany, geology, astronomy, natural philosophy, United States history, and rhetoric ought all to come in, and Annette will find them all "practical" in making her a more intelligent woman, a better helper for her younger brothers and sisters, and a more reasonable companion for educated men and women. If she ever has her bread to earn, she will find that intelligence and culture pay in dollars and cents.

In mathematics, I should let the taste decide, beyond a good, practical knowledge of arithmetic. For those to whom such studies are positively distasteful, I do not think them very useful; but as discipline of the reasoning powers, and as delight to the mind willingly exercised with them, they can hardly be too highly praised.

Annette evidently loves to learn, and I am almost afraid of wronging her if I do not recommend some study of "the languages." But she cannot afford to let them crowd out the natural sciences. I am glad of all that I have learned in that line, at school, or since. Scarcely a day passes in which I am not conscious of some obligation to my little knowledge of Latin and Greek, in helping me to a better understanding of my own language, and it is very pleasant to have even a slight idea of the meaning of the French words and phrases with which our own literature is so profusely sprinkled. But here I only give my personal testimony without venturing to advise. I realize more and more how helpful and precious would be to me a thorough collegiate education, even in these busy days when I am confined almost entirely to the society of my little children. One year of schooling is not long, but a great deal may be done, and there is no reason why Annette should drop her studies at the end of that time.

MISTAKEN ECONOMY.—One mistake is, to make sheets short and narrow. They should never be less than two and a half yards in length, and three yards is hardly too long. Short sheets either pull up from the bottom of the bed, leaving the mattress and blankets to get soiled by the uncomfortable feet of tall persons, or they do not turn over at the top enough to preserve the bed-clothes from soiling by the breath and perspiration of sleepers.

It does not pay to make comfortables of old dresses worn so much as to be tender in the threads. Strong materials should be used for the covering of thick comfortables.

I have learned better than to put much work upon garments made over from other garments partially worn out.

CHILDREN'S SHOULDER-STRAPS, ETC.—I remember perfectly how uncomfortable were the narrow straps that slipped off from my sloping shoulders and let the weight of my skirts fall upon my arms. I often see little children tormented in like manner in these days. It is barbarous. A waist with the straps cut on, and so cut as to go over the shoulders securely, is much better. Such comfortable straps may interfere with very low-necked dresses, and little girls' shoulders *are* very pretty—but so are their whole bodies lovely! No style of dress is really beautiful that is decidedly uncomfortable or unhealthful. Let us mothers rejoice together that the fashions for children's dresses are more sensible than they used to be.

The garters that encircle the leg are uncomfortable, if close enough to keep the stockings smooth, and they are unhealthy to the degree that they interfere with the circulation of the blood by their tightness. It is a better way to have a strong elastic strap with a button at one end and a button-hole at the other. The button should connect with a firmly made button-hole in the stocking top (on the outside of the leg), and the button-hole at the other end may fasten over a strong button on the waist of the drawers. With close drawers buttoned to a good waist, no chemise is needed by a small child in very warm weather.

FROEBEL'S GIFTS FOR THE KINDERGARTEN.—1. Six rubber balls—the primary colors, red, blue, and yellow, and the secondary colors, purple, green, and orange.

2. A box containing a wooden sphere, cube, and cylinder, with wire loops for fastening strings.

3. A cube made up of eight small cubes.

4. A cube consisting of eight oblong parts.

5. A large cube made of small cubes, half-cubes, and quarter-cubes—an extension of the third gift.

6. A large cube made of oblong blocks, which are variously divided—an extension of the fourth gift.

7. Bright-colored square and triangular tablets for laying figures.

8. Slender staffs for laying figures.

9. Whole and half rings for laying figures.

10. Material for drawing—paper ruled in small checks.

11. Material for perforating—checked paper, with a needle fixed in a handle.

12. Material for embroidery—the paper of the eleventh gift already perforated, with colored silk in addition.

13. Paper for cutting into various beautiful forms, with blunt-pointed scissors.

14. Material for braiding or weaving—strips of paper of bright colors, with a braiding-needle.

15. Slats for interlacing.

16. The slat with many links.

17. Material for intertwining.

18. Material for paper-folding.

19. Material for peas-work.

20. Material for modeling—wax or clay, with a modeling knife.

It is impossible to describe all these gifts and the occupations to be conducted with them, so that one can get a clear idea, without many illustrations. The first and second gifts belong to the nursery even more than to the kindergarten. The blocks are for building purposes, and you would be surprised to see how many forms of life or use can be made from them. Weibe's Guide gives forty models that can be made with the eight cubes of the third gift alone, and a bright child will invent others. All these designs are made with exactness on a table ruled in squares of an inch, and most chil-

dren soon learn the value and beauty of precision in their work.

It is the same with the tablets and staffs and rings. These flat designs, following the solid forms, lead the way to drawing, which, in the kindergarten, is very elementary, but excellent training for young eyes and little fingers. The training of the kindergarten meets the common wants of children, or is adapted to the harmonious development of *all* children.

At the same time it affords an opportunity for genius of any kind to show itself and get the first steps of training. Besides the exercises with the gifts mentioned above, there are class exercises and games set to music, and it was the design of Froebel that each child should have a little garden bed to cultivate, for the sake of its religious education among other things—more agreeable to some children than the catechism! It is claimed that kindergarten training has the most happy effect upon a child's disposition. I am sure it must be so.

A mother who is relieved from the cares of the kitchen and of fashion, may be able to give her children a good deal of the kindergarten culture at home, but where there are no two pupils of the same age, there will probably be some friction, and *no untrained teacher* can *half* do justice to the work. One child alone does not make a "garten," but it needs culture nevertheless.

Canning, Pickling, and Using Fruit.

BY ESTELLE EDGERTON.

PICKLED PLUMS.—Last summer plums were very plentiful in our neighborhood, and of course a large quantity were bottled and pickled. A lady from Geneva, N. Y., gave me a recipe for pickling blue plums, which she thought a good one. I tried it, and we all pronounced it excellent. To 7 pounds of plums allow 3 pounds of brown sugar, and a quart of good vinegar. Boil the sugar and vinegar together with an ounce of cloves and nearly as much cinnamon, and pour it boiling hot over the fruit, which, of course, has been picked over and all stems and partly decayed fruit removed. Cover the jar and let it stand 24 hours, or over night. Pour off the juice, boil up again, and pour it boiling hot over them. Do this again on the next day, and close for winter use. They ought to keep perfectly, but if they do not, the juice should be drained from them, boiled up again, and poured hot over the plums.

PLUMS, TO BOTTLE.—Weigh the fruit, and allow a half pound of sugar to a pound of plums; less than this quantity for very ripe and sweet Green Gage varieties. Put the sugar in the kettle and moisten it well with water. Let it come to a sirup, boiling and skimming if brown sugar (which is the kind I use); now add the right proportion of plums. Let them come to a boil, and then bottle. I like them whole, with the juice clear, and to insure this, I let them stand on the back of the stove until they are heated through, and the juice running before I bring them to a boil. I think it is a shame to make a strong jam of good, handsome blue plums; whole, they are of a delightful purple color—the *jam* is brown and ugly. I have seen a method in your paper where the plums are put in jars, covered closely, and allowed to remain over night in a warm oven. It is a very good way.

PLUM PIE.—An English recipe. Take a deep, earthen dish. Invert a cup in the center. Place plums all around the cup until the dish is heaping full, adding what sugar you think best. Make a rather plain pastry. Moisten the edge of the dish with a little water. Cut a strip of pastry half an inch wide, and as thin or thick as you like. Place all around the rim. Moisten this pastry with your finger dipped in water, or, better, with white of egg. Now cover the whole with the remaining pastry, trim around, and bake. This pie is delicious, eaten cold, with white sugar and cream. In helping guests, do not forget to give a generous portion of the juice.

PEACHES.—I used to consider the work half done when the peaches were peeled, but that is the simplest part of the process now. I believe that under proper management a bushel of peaches might be skinned in five minutes or less, and I have no doubt that it *is* done in well-regulated canning factories. A few years since you gave a recipe for skinning peaches with ashes and water. It was excellent, but I have discovered that it is not necessary to have the ashes themselves (as said the recipe) in the kettle—a strong lye is all that is required. Sal-soda and water will do the business, but I do not know the exact proportion, or if it needs to be exact. Make a strong lye of fresh wood ashes, pour off the clear lye into a kettle, bring to a boil. Put in as many peaches as desired, stir them round gently, and when you see any bare places take them out and throw them into a pail of cold water; remove the skin, and pass them into another vessel of cold water, and from thence to the kettle on the stove. They should not remain in the boiling lye more than twelve or fifteen seconds. I think white peaches are the nicest kinds to bottle; they are more delicate in color and flavor, but of course I always put up a large quantity of yellow varieties. A quarter of a pound of good white sugar is sufficient to a pound of the fruit; you may use less if you like, or even more; but the sugar penetrates the fruit while in the bottle, and very much improves the flavor. A few of the pits improves the flavor; where bottle room is not an object, the stones may be left in. It will take ten ordinary-sized peaches to fill a quart bottle, if whole. The same bottle would have held fourteen if halved and the stones removed. You will need to use a little water. The sugar and water should be brought to a sirup, when the peaches may be put in, and as soon as they boil well they should be bottled and sealed immediately.

PEACH PIE.—I think a peach pie is much better made without an under crust, the peaches whole. Eaten cold, with sugar and cream, it is delicious.

PEACHES FOR TEA are much nicer and look better when cut up just before going to table.

PEACH PICKLE.—Take any quantity of fine peaches just before they ripen; stick into each one four or five cloves; make a sirup of three pints of vinegar and three pounds of brown sugar to every seven pounds of peaches; add cinnamon if you like, I like them better without. Bring the sirup to a boil, and pour hot over them; repeat the process for three days or until they are shrunk on the pit. After the last scald, they should be well covered and put away in a very cool cellar until cold weather sets in. They will be ready to use, however, in a few days after they are pickled. Pears pickled in the same way as the blue plums, are excellent, to my thinking.

LAYING DOWN CUCUMBERS.—The best way to lay down cucumbers is to sprinkle salt over and let them form their own brine. A board and stone should be laid over them, in order to keep them under the brine. If in three days there is not enough brine formed to cover the cucumbers, there is not salt enough on them and more should be added. They should never be allowed to protrude above the brine, as a white mold will form and they will soon soften. In cutting the cucumbers from the vine, leave a small stem on the pickles. They keep better and appear better on the table.

Eating Green Corn.

Last autumn persons who wished to observe "the proprieties," inquired of us whether it was according to good usage to gnaw the corn from the cob, or if it should be cut into the plate. Generally, though not always, matters of table etiquette are founded in common sense. A bird can only be properly enjoyed by picking it, hence good usage sanctions the use of the fingers in removing the flesh from the bones of a bird, while one who should take the bone of a beefsteak, or a mutton-chop, in his fingers, would be looked upon as ill-bred. The only way to get the full satisfaction out of green corn is to gnaw it from the cob, and though the operation, especially to a foreigner who knows not corn, is not an elegant one to witness, it is performed at the best-ordered tables. So generally is it conceded that corn should be eaten from the cob, that silversmiths now make silver green-corn handles; these are thrust into the large end of the cob, and allow it to be held without soiling the fingers. It is rather an awkward matter to cut the corn from the ear at table, especially if the knives are not sharp. If it is to be eaten in this way, it should be prepared before it is sent to the table. The operation of eating from the cob is much facilitated by drawing a sharp knife lengthwise of each row, in such a manner that the hull of each kernel will be split. When this is done, the digestible, nutritious contents of the kernels will slip out, and the often tough hull be left upon the cob. Those whose teeth are sensitive or defective will find this a great help.

Questions about Canning.

Canning or bottling fruit is an operation of so much importance in the household, that, although we have an article upon the subject from a correspondent, we answer here a letter which will allow us to make some explanations that may be of interest to many. H. T. Sweeney, Springfield (no State), writes as follows:

"In the June number of the *Agriculturist* is an article on the canning of berries, etc. The writer says: 'Put the fruit in hot, and seal at once.' I have been informed that canning-houses let the steam and hot air escape before sealing. (1) Will you inform me if there is any work giving the particulars concerning the canning of meats, fruits, and vegetables, as practiced by canning establishments? (2) Will tomatoes put up in glass jars keep as well as in tin cans? My impression is that the action of light through the glass impairs the tomatoes." (3)

Reply. (1) This question arises from confounding the two terms canning and bottling. We have used these terms as meaning the same thing, but, properly, canning should be applied only to the process of putting up fruit in tin cans. Our people first became acquainted with fruit preserved at the factories in cans, and afterwards, when in domestic operations glass vessels were used for fruits, they were still called canned fruits, though put up in bottles. When a word gets into common use, it is very difficult to change it, though its application, as in this case, may not be precisely accurate. In factories the fruit is put into the cans, which have the covers sealed on; these are then heated in a vat of water, or by steam, and the fruit cooked in the cans. A small hole is then punched in the tin—not so much to let out the steam as to let out the air; this hole is then closed by a drop of solder. When bottles are used, the case is entirely different; the fruit is first cooked, and put hot into the bottles with its sirup. If the fruit is filled in carefully, and the sirup fills all the spaces among the fruit, and if the bottle is well filled, there is no chance for air and no steam to be let off.

(2) We know of no treatise on the subject, except an old French one, now useless. Factory experience would be of but little use in the family, and if one wishes to go into canning as a business, he could easily obtain a competent foreman by advertising. We know of no information upon preserving fruits so full as is contained in the back volumes of the *Agriculturist*.

(3) We have never seen tomatoes put up in glass that kept as well as those in tin. We attribute this not to the action of light, for the bottles can be kept in a dark place, but to the fact that the fermenting principle is destroyed by the long boiling, with the exclusion of air, that is possible in tin vessels.

Heading off Mosquitoes.—"J. A. W." writes: Not having the convenience of a cistern, I catch rainwater in barrels. To avoid breeding my own mosquitoes, I elevate my barrels so I can draw the water from the bottom, then pour upon the surface of the water a little *thin oil*, which soon is diffused over the water; and if it has "wigglers"—undeveloped mosquitoes—in it, they will die, and no more will accumulate while the oil is on the water.

BOYS & GIRLS' COLUMNS.

Insects as Musicians.

We frequently hear people speak of the singing of crickets and grasshoppers. These insects are very noisy, it is true, but they are not vocalists; they are instrumental performers. Each one is furnished with a sort of violin upon which it plays without any instruction. In the crickets, a portion or rib of each wing is furnished with teeth, which serves as the bow, and a hard, smooth rib answers for the strings of the fiddle. The insect rubs one wing over the other, and then reverses the movement, and by the scraping of these two parts together the sound is produced. The grasshoppers manage somewhat differently. The long hind legs are the fiddle-bows. The inner surface of the broad upper part of these legs is furnished with over eighty small lancet-shaped elastic teeth, and these the insect scrapes against the sharp ribs upon the wing cover—or outer wing—first one and then the other. The loudest instrumental performer among our insects is the Katydid. In a still night the constantly repeated "katy-did-she-did" may be heard for the distance of a quarter of a mile. The katydid produces its note by means of its wings, which are peculiarly fitted for the purpose. In each wing-cover there is a little tambourine formed of a thin transparent membrane or skin, stretched in a strong, half-oval frame. As the wing-covers are opened and shut these little tambourines rub against one another, and produce the sounds which give the insect its name. These notes are supposed to be useful to the insects in enabling them to find their mates. From the constancy with which some of them keep up the sounds, we think that they must be pleased with their own music. Boys just learning to whistle make a noise that, whatever it may be to others, seems very pleasing to themselves, and they keep it up for their own gratification. It may be that insects do the same.

Farmer or Doctor—Which?

Sammie B. Wells, Jr., writes us the following: "I take the *American Agriculturist*, and as I see that you advise boys, please give me a little advice. Had I better be a doctor or a farmer? My father wishes me to be a farmer, and my oldest brother, who is a doctor, wishes me to be a doctor. Which is the best business? I think I prefer farming. Please answer me in the next *Agriculturist*."——Answer you—why, you have answered yourself. Your own preferences are in accordance with your father's wishes, and what can be better? The only point to be answered is—which is the best business, that of the doctor or farmer? There is no doubt that a successful physician may accumulate money more rapidly than most farmers are able to, but his is a hard life, and, as far as comfort goes, that of the farmer is much to be preferred. But a small share of those who are educated as physicians are successful. Their reward, when it comes, if it come at all, is only after a long struggle. Then no one should become a physician unless he feels a strong inclination towards the profession. It should not be taken up as a mere business. With all respect to the "oldest brother," we say, if your inclinations are to be a farmer, follow them. It is a calling in which you can invest all the talent you may possess, and be at least sure of a good living, without the inconveniences that attend the physician's life. Of course, these remarks are made on general principles, and without knowing any thing of the persons. There are too many poor doctors, and not near enough good farmers, and we always look upon it as a fortunate thing when a farmer's son himself desires to be a farmer.

Aunt Sue's Puzzle-Box.

PUZZLE.

1.

X

O	S	S	U	
T	B	P	E	
L	A	E	N	
U	Z	Z	U	

CLINTON FEROUSON.

RIDDLE.

2. All alone upon the sea,
Seldom any visit me,
Yet thousands see me every year,
And many an anxious heart I cheer. HARRIS.

ADOLPH M. NAGEL sends the following

OPPOSITES,

which promise considerable amusement in their solution. For those not familiar with this style of puzzle, let me give a hint or two. "N take," might make a good opposite for "Ocean" (O shun): "Gentile cup them"—"Judicious" (Jew dish us): and so on. Now let us see what you will make out of the following:

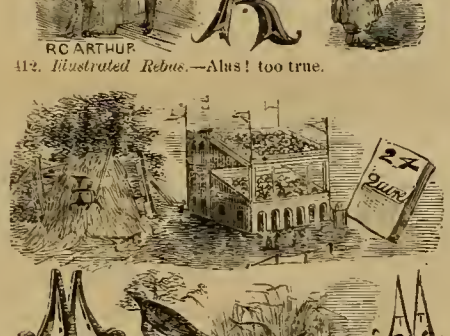
3. Man's boot.
4. English nose
5. Out unseen.
6. Dollar more.
7. Heavy barn.
8. Savage woman.
9. Hit given.
10. Coward out.

TRANSPOSITIONS.

(Fill the following blanks with the italicized words transposed.)

11. In some —— the girls *scream on*.
12. The wagon in which usually *he drives*, is ——
13. Would it be far-fetched to call —— "*coal ovens*"?
14. *Annie toiled* to give a true ——
15. She was —— in some *tender lies*.
16. They —— between *tart and eel*.
17. *She slings Gus* sky-high because of his ——
18. That music from *her cats? Lor!* that is ——

412. *Illustrated Rebus.*—Alas! too true.



413. *Illustrated Rebus.*—Good advice.

414. *Illustrated Conundrum.*—What are the men in the above picture doing?

DIAMOND PUZZLE.

19. 1. A close consonant. 2. A plural verb. 3. Part of the human frame. 4. To turn from the truth. 5. An emigrant. 6. Often a pitiable result. 7. A passage. 8. A mineral. 9. A liquid consonant. The perpendicular letters are the same as the 5th item. H. H. CLARK.

NUMERICAL ENIGMA.

20. I am composed of 64 letters:
My 25, 2, 4, 12, 23, 21, 51, 59, 47, is a bad quality to have.
My 49, 42, 13, 37, 27, 45, 24, 52, 58, 20, 62, 61, 7, 56, 2, 38, is a singer.
My 1, 41, 19, 8, 40, 53, 23, is part of the robin.
My 29, 63, 48, 21, 34, 61, was a musical composer.
My 40, 60, 17, 64, 5, 46, is a joyous interjection.
My 59, 61, 11, 2, 57, 44, 22, 3, 30, was a queen.
My 50, 11, 32, 11, 29, 43, 17, is a plant.
My 28, 19, 49, 26, is much used by upholsterers.
My 39, 10, 6, is a Scottish river.
My 36, 33, 18, is described in Genesis.
My 35, 54, 64, 15, 55, wrote an opera.
My 14, 16, 13, 31, 9, is a planet.
My whole is a quotation from a "poem of the period."
AUNT MOLL

PI.

21. Serpence fo dimn si cenrayses ta lal items.

CROSS-WORD ENIGMA.

22. My first is in Christmas but not in May,
My next is in sunshine but not in day,
My third is in ocean but not in wave,
My fourth is in tombstone but not in grave,
My fifth is in "coming" but not in "went,"
My sixth is in Easter but not in Lent.
My whole is a Trojan; tell his name,
For many a schoolboy knows his fame.
R. T. ISVESTES.

ANSWERS TO PUZZLES IN THE JUNE NUMBER.

ANAGRAMS.

1. Rihounds.
2. Domesticated.
3. Foreheads.
4. Diagnosis.
5. Aboriginal.
6. Doctrines.
7. Appliances.
8. Interwoven.
9. Foregoing.
10. Hereafter.

WORDS ENIGMATICALLY EXPRESSED.

11. Witchcraft. 12. Hotel. 13. Father. 14. Seesaw. 15. Simpleton.

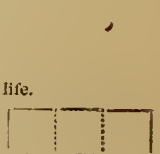
MULTUM IN PARVO.

16. Theirs: I, it, its, he, her, hers, his, their.

DIAMOND CROSS PUZZLE. New York.

17.
N
E E L
H E W E R
N E W Y O R K
B R O W N
I R E
K

18. Dandelion.
19. Hope, fear, peace, and strife,
Make up this tangled web of life.
20. Take away the eight matches corresponding with the dotted lines.



21. 281)90257(321. (*Key.* Peg, Tom and I.)
22. Wainscot. 23. Esophagus. 24. Grandmother.
410. He sleeps well who has naught to gain or lose on the morrow.
411. A rainbow at night is the sailor's delight.

AUNT SUE'S NOTICES TO CORRESPONDENTS.

ARTHUR W. K. Did you hope your answers would reach me "before the 1st of April," when you did not post them until the 31st of March?

WILLIE S. ON. Yes, you were just half an hour "too late." I would rather be an hour too soon than a minute too late, any time.

S. L. D. The "inclosed" was forwarded "to the Publisher" as requested.

STAR AND CRESCENT. You *deserved* "honorable mention" if you didn't get it.

E. A. SWAIN. I wish all my nieces and nephews could see the arrangement of your answers: it was perfect.

ADDIE L. P. I am very glad that "we" enjoy the puzzles, etc.

J. H. BIRD. Are you going so far away that the *Agriculturist* cannot reach you? Good by. May God be with you upon the deep!

JENNIE FOSTER. You will soon "understand," if you examine the answers.

ROBBIE. When you make a labyrinth you should have an entrance into every path.

NEALIE C. I am glad you made a beginning if you "never tried before."

THOS. C. COOPER (*Santa Cruz, Cal.*) is much interested in natural history, and would like a correspondent of similar tastes, with a view to mutual improvement.

HATTIE E. PECK.—I have put that little geranium leaf with my treasures.

LILLIE STREEPER. Did you receive your package safely? I directed it to "Newtown Square, Delaware Co., Pa.

TEMPTING GOOD NATURE.—*Drawn and Engraved for the American Agriculturist.*

Boys and dogs are much alike in some respects. There are some boys whom you know you will like without ever having spoken to them, or knowing any thing about them. When a new boy comes into the neighborhood, he very soon gets his measure taken by the other boys. You at once say, "That is a good fellow; I am glad he has come;" or, "I don't like the looks of that chap, and I shouldn't be surprised if he would turn out a sneak." These boys carry their characters in their faces and whole general bearing. We think we could pick out a brave, generous, and trusty boy from his photograph. Among the dumb animals, we think that dogs show their characters in their looks more distinctly than any others, and it is about as easy to distinguish between a noble and a mean dog, as it is between a noble and a mean boy. Some dogs, by their look and manner, invite confidence, and others you know at sight to be suspicious and untrustworthy. How admirably the artist has shown dog character in the above picture! With what a quiet dignity the larger dog rests, and how cowardly the one looks that is stealing up to get the coveted bone! He looks as if he were conscious of being engaged in doing something mean and sneaking, and we feel that he deserves the pat of the heavy paw that he will get when he has imposed too far upon good nature. It may be, after all, that dogs have their dispositions much influenced by those of their owners. It would not be at all surprising that the dog belonging to a passionate boy, who beat him without cause, and was unreasonable in all his demands, should be quite different from an animal brought up by a gentle and affectionate boy. We can make dogs, by careful training, learn a great many tricks. It may be that we teach them unconsciously, and that our example is not without its effect upon even our brute companions.

Boys' and Girls' Letters.

It is an excellent thing for boys and girls to begin to write letters while they are quite young. The mere writing of the words and sentences is easily learned; but there are several other things about letter-writing than this, and are quite as important to be learned early in life. There are three or four letters from young folks now before us, and in many respects they are much like the letters of older people. Perhaps some hints may be gathered from these letters that will be of use to those who are just practicing writing. The first letter that we take up has the town, but no State. This is a very common mistake in our business letters from grown-up people, and often makes much trouble. Next, here is a boy who asks twelve questions, one right after another, making all sorts of inquiries about the prices of various things in New York. To answer this we should be obliged to employ a person for perhaps a whole day to go around and find out about the things, and then it would probably be of no other use than to gratify a boy's curiosity. When older people write such letters, we do not answer them. The boy will be served the same. Here is a boy who lives in Columbus, Ohio, who sends a letter without any name signed to it. Must we infer that the poor fellow has no name? Never write any thing that you are ashamed to sign. It is one of the rudest things any one, old or young, can do, to send another a letter without a name. Anonymous (nameless) letters are so much used by cowardly people as a means of saying that to a person which they would not dare say to his face, that the custom is associated with too much that is disreputable to allow any boy who expects to do only the fair thing to practice it. Of course, well-meaning people sometimes thoughtlessly do it; but they would not if they considered how impolite it is. Begin your letter-writing with the determination never to write any thing that you will regret to see again, and sign your name openly and above board. One boy wishes us to write out "what every thing costs on a farm of 100 acres." If he will tell us how many gray squirrels there are in his State, and what would be the length of their tails placed end to end, we will think of his question. "Answer this right off" appears at the bottom of one of these letters. That is not a polite way of making a useless request, as there was nothing in the letter requiring an answer.

You must not judge from this that we are not glad to get letters from boys and girls, for we sometimes receive much pleasure from them. We only wish to point out some things to be avoided. 1st. Do not write unless you have something to tell or something to ask. 2d. We like to have you tell us of what you *see* that is curious, strange, or interesting. 3d. We like to have you ask questions that can not be readily answered in your own family, or by your neighbors. Don't ask questions merely for the sake of asking. We are always glad if we can instruct, but have no time to give to finding out prices, and such things. 4th. When you have determined to write, and decided what you will write, put down Town (or Post-office), County, and State, before you write a word of the letter proper. 5th. Say what you have to say as plainly as you can, and when you have done so—stop! Do not say "I must stop now, for it is getting late," or make any other excuse for stopping, but stop simply because you have got through. 6th, and most important, *Sign your name.* 7th. If your letter is one requiring an answer by mail, it is always polite to send a stamp, whether to a private person or an editor, to pay for the return letter.

PARSONS ON THE ROSE.

A TREATISE ON THE PROPAGATION, CULTURE, AND HISTORY OF THE ROSE.

By SAMUEL B. PARSONS.

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ILLUSTRATED.

The Rose is the only flower that can be said to have a history. It is popular now and was so centuries ago. In his work upon the Rose, Mr. Parsons has gathered up the curious legends concerning the flower, and gives us an idea of the esteem in which it was held in former times. A simple garden classification has been adopted, and the leading varieties under each class enumerated and briefly described. The chapters on multiplication, cultivation, and training, are very full, and the work is altogether the most complete of any before the public.

The following is from the author's Preface:—

"In offering a new edition of this work, the preparation of which gave us pleasure more than twenty years ago, we have not only carefully revised the garden classification, but have stricken out much of the poetry, which to the cultivator may have seemed irrelevant, if not worthless. For the interest of the classical scholar we have retained much of the early history of the Rose, and its connection with the manners and customs of the two great nations of a former age.

"The amateur will, we think, find the labor of selection much diminished by the increased simplicity of the mode we have adopted, while the commercial gardener will in nowise be injured by the change.

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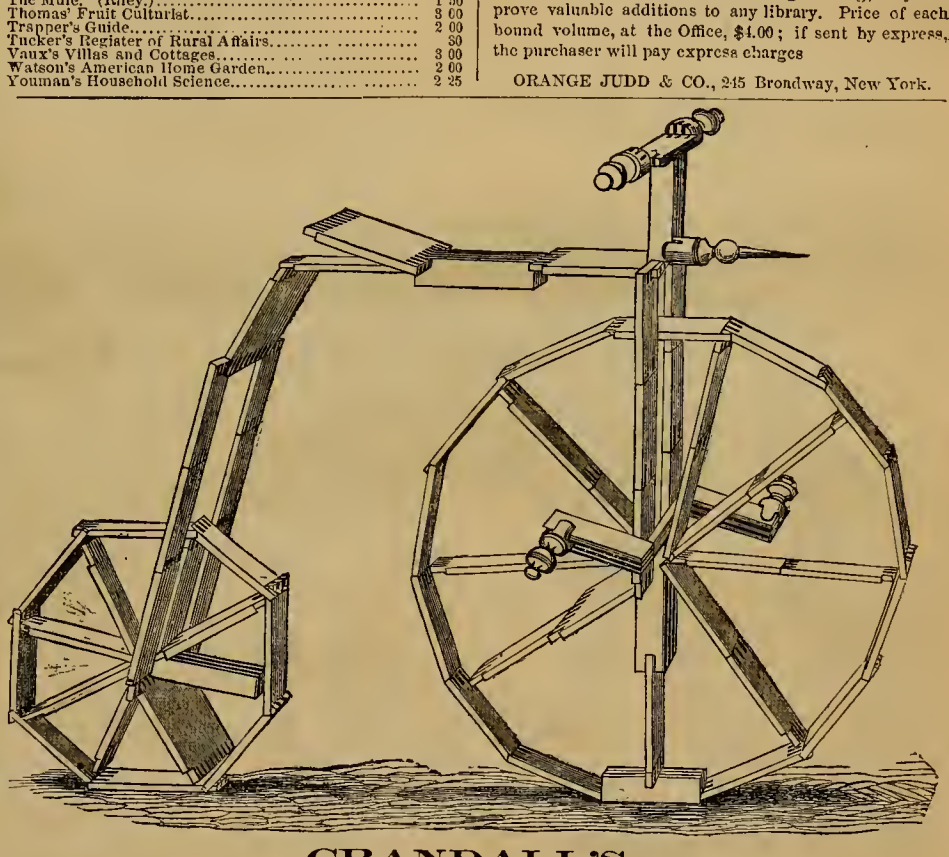

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VOLUME XXX.—No. 9. NEW YORK, SEPTEMBER, 1871. NEW SERIES—No. 296.

THE THOROUGH-BRED STALLION LEXINGTON.—FROM A PAINTING BY TROYE.—*Drawn and Engraved for the American Agriculturist.*

Whatever may be thought of horse-racing, there is no doubt of the great utility of the race-horse. By race-horse, we do not refer to the modern trotter, but to the thorough-bred animal whose pedigree can be traced back in an unbroken line to its British ancestry and to the Arabian horse. The thorough-bred stallion is of the greatest value in breeding, whether we raise roadsters, coach-horses, or farm horses, as it possesses in a wonderful degree strength, endurance, activity, and intelligence, all of which qualities it imparts to its offspring. When farmers learn that it costs as much to raise a poor colt as a good one, and that the good animal will sell for several times more than the inferior one, thorough-bred stallions will be more in request. As a typical specimen, we present a portrait of Lexington, considered by judges as the best race-horse and sire this country has ever produced. Lexington was foaled in 1850; was by Boston, dam Alice Corneal by Sarpedon. See the *Turf Register*. The performances of his sire, Boston, were unparalleled in the annals of the turf, and his numerous offspring were all notables, though their fame was eclipsed by that of Lexington. Lexington is a blood bay, fifteen hands three inches high, with fore and hind feet and pasterns white. In all points, his body is considered absolute perfection, and in action he is unsurpassed. The remarkable performances of Lexington upon the turf are matters of record, the most noteworthy of these being his race against time, over the Metairie course at New Orleans, in June, 1854, when he ran four miles in 7 minutes 19½ seconds, which is believed to be the fastest ever made. Lexington was sold in 1856 to the late R. A. Alexander, for $15,000, and is now owned by A. J. Alexander, Spring St'n, Ky.

Contents for September, 1871.

INDEX TO "BASKET," OR SHORTER ARTICLES.

Ashes Leached and Unleached.—

"R. G. L."—The relative value of ashes will depend upon the thoroughness of the leaching as well as the character of the wood from which they are obtained.

Calendar for September.

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

PHASES OF THE MOON.

MOON.	D.	BOSTON. H. M.	N. YORK. H. M.	WASH'N. H. M.	CHA'STON H. M.	CHICAGO. H. M.
3d Quart...	6	5 26 ev.	5 14 ev.	5 2 ev.	4 50 ev.	4 20 ev.
New Moon	14	2 25 ev.	2 13 ev.	2 1 ev.	1 49 ev.	1 19 ev.
1st Quart.	21	0 28 ev.	0 16 ev.	0 4 ev.	11 52 m.	11 22 m.
Full.....	28	1 0 ev.	0 48 ev.	0 36 ev.	0 24 ev.	11 54 m.

AMERICAN AGRICULTURIST.

NEW YORK, SEPTEMBER, 1871.

September should be a comparatively leisure month on the farm. Wheat, barley, and, this year, oats are all harvested, and corn is not yet ready to cut. The principal steady work of the month for the teams is to put in the winter wheat. With us, October and November are the two busiest months of the year, and during September it should be our aim not only to get every thing ready, but to anticipate the work as much as possible. Of all the summer and autumn months, the farmer is inexcusable who does not drive his work. Next month it will drive him. We doubt the economy of a farmer taking a team and going to plow all day. A hired man, or a good boy, with a little instruction and occasional assistance, will do this kind of work, while there are a score of important things to be done that no one can do as well as the farmer himself. Much of the success of a farmer depends on the good judgment exercised on this point. It is where two farmers out of three fail. They would rather work than think—rather plow all day than keep things in order, and attend to the details as well as the general direction of the farm. *They do things that they like to do*, and leave undone those things which they do not like to do—or, what is about the same thing, they leave them to the hired men. No man can succeed who habitually adopts this course, for the simple reason that, no matter how industrious he may think himself to be, or appear to others, he does not in fact *work*. Work is doing something that his judgment or his conscience tells him he ought to do. If a farmer has a particular fondness for feeding a thrashing machine, and does not like to attend to the details of thrashing, such as seeing that no grain is left in the straw, or goes over in the chaff; that the horses are properly fed and watered, and that the outside horse, which has to travel farther than the inside one, is allowed a longer half of the evener; that the straw stack is properly built; that the boys are not put to do the hardest part of the work, and required to do all the running about and wait on the men besides; the farmer, in short, who shuns all thought, care, and responsibility, and devotes his time to feeding the machine simply because he likes to do so, while he knows, or might know, that he ought to be attending to other things, is merely wasting his time and strength. He is playing, not working. In agriculture, as in religion, feeling is no rule of duty. Happy he who, against his inclinations, does what he knows ought to be done; happier still he who feels like doing it.

Hints about Work.

Clover Seed will be a light crop this year. The spring of 1870 was so dry, that thousands of acres seeded down with clover failed entirely, and thousands more would not have been worth resowing for meadow or pasture had it not been for the timothy sown on the land the fall previous. We can not expect a heavy crop of clover seed from such land. Those who have any clover that will yield even a bushel of seed per acre would do well to gather it. With a mowing machine and a reaper platform, cutting clover seed is expeditiously and cheaply performed. Those who have only a mowing machine, can cut and gather a light crop of clover seed by making a sheet-iron platform, and attaching it to the cutter-bar of the mower, and letting it drag on the ground. A man walks behind the machine with a rake, and keeps the clover on the platform until he has got all it will carry, when he pulls it off into windrows. On a wood mower, the sheet-iron can be attached in a few minutes. When there is a large growth of clover, and comparatively little seed in it, it should be cured in such a way as to preserve as much nutriment in the clover as possible. We shall then get seed and hay. In this case, the clover seed should be cured in the same way we cure clover hay. But when the fodder is of no value, clover seed may be allowed to lie exposed to the sun and rain for days or weeks without injury. In fact, it will thrash all the easier for such repeated wettings and dryings. When drawn in, however, it should be quite dry, and if there is no barn room it is better to thrash it out at once, as it is almost impossible to make a stack of clover seed that will shed the rain. If put in a stack, it *must* be thatched.

Sowing Winter Wheat.—Some hints were given on this subject in the last *Agriculturist*. On a good summer fallow that is mellow and moist, it will make comparatively little difference whether the seed is sown broadcast or put in with a drill. But after spring crops, on dry, cloddy land, a drill frequently makes the difference between a good crop and a poor one. If sown broadcast, the seed lies among the dry clods, and much of it will not germinate until we have rain; while a drill can be set deep enough to deposit the seed in the moist earth beneath the clods. And if the drill is followed by a roller to break the clods, the moisture beneath will be retained, and the seed will germinate and grow, even should no rain fall for weeks. Late-sown wheat requires more seed than when sown early—say 1¼ bushels per acre if sown the first week in September, and two bushels the last week. Much, however, depends on the condition of the soil. On good, rich land, in fine order, the wheat tillers so much that less seed is required. A change of seed is always desirable. As a rule, it is believed to be better to get it from a somewhat more southern latitude, and from poorer soil.

Top-Draining the Wheat Fields where needed is of great importance, and it is better to do it as soon as the wheat is sown than to wait until the rains come. There are fields where it is necessary to plow out every dead furrow, but ordinarily all that need be done is to make furrows from the lower parts of the field where water accumulates. Secure a good outlet from these, and the upper portions, unless there are hollows, will not need furrowing.

Artificial Manure for Wheat will not pay unless we get $1.50 to $1.75 per bushel for the wheat. Nitrate of soda at four cents per pound is the cheapest source of nitrogen in the market at the present time, and with wheat at $1.75 it might be used with fair profit. Sow 100 pounds per acre when the wheat is sown, and another 100 pounds if need be in the spring. On poor, sandy land, it would be better to sow 100 pounds of guano and 100 pounds nitrate of soda per acre in the fall.

Timothy Seed catches better when sown with the wheat in the fall, than when sown in the spring. A peck of seed per acre is none too much, unless clover is to be sown in the spring; in this case, we prefer to sow four quarts of timothy in the fall, and six quarts of clover in the spring.

Manure may be drawn out on grass land when other work is not pressing. Spread it evenly as fast as it is drawn, and harrow to break lumps.

Thrashing.—See hints for last month. When grain is safe in the barn, and the space is not wanted for clover seed, the straw and the grain will be all the better if not thrashed until they are wanted. There is little prospect of a decline in prices, and many reasons for anticipating an advance. The straw is generally of good quality, and as the hay crop is short, it will be unusually valuable for fodder. See that it is carefully preserved. An extra man in topping off the stack will be good economy.

Peas, when affected with the "bug," should be fed out early. When fed in September and October, the bugs cause little or no loss of nutriment. The pigs will eat bugs and peas together, and enjoy it.

Sheep.—With good feed, sheep will grow rapidly this month and the next, and lay up a store of fat and strength for the winter. We are sorry to say, however, that too many farmers leave their sheep to pick up a living as best they may. Instead of allowing all the food they can eat and assimilate, they are content if they find enough to keep them alive. They thus lose all that the sheep ate, while a little additional food would enable the sheep to produce considerable wool, mutton, and fat. Better, if need be, give a little hay, than let the sheep go without all the food they need. Lambs especially should be well fed. If they scour, there is nothing better than a pint each of milk porridge, made from fresh skim-milk and wheat flour. In severe cases, ten or fifteen drops of laudanum may be given, and repeated every five hours until the diarrhœa is arrested. Ewes intended for raising early lambs for the butcher must have extra good feed, and the ram put with them. There can no longer be any doubt that good, strong, common Merino ewes, crossed with a Cotswold or Leicester ram, will produce excellent lambs for the butcher. But it is equally certain that both ewes and lambs must be well fed. That is to say, the ewes should have good pasture in the fall, and good hay in the winter; or if straw is fed, which is the more profitable plan on wheat-growing farms, a little grain must be given in addition. The ram should have a pint of grain every day. A long-wooled lamb ram should not be allowed to serve more than forty ewes. A yearling or two-year-old will serve from sixty to one hundred, according to the length of time, food, and condition.

Milch Cows should have good pasture, and, if need be, a little extra food to prevent them falling off too rapidly in their milk. Contrary to general opinion, we find in our own experience that two quarts of corn-meal per day, instead of drying up the cow, will greatly increase the quantity of the milk and the richness of the cream.

Swine.—Pork is low, and it is a good time to pay extra attention to raising good pigs, as thousands of farmers will neglect their stock or abandon the business. Fall pigs need extra food to get them strong for the winter. Fattening pigs should be pushed forward rapidly this month. If there is not much profit in fattening pork at present prices, there will be still less if we feed the pigs little more than enough to keep them alive. That farmer will make the most money, or, at any rate, lose the least, who feeds the most liberally.

Do not be Discouraged.—If farmers are not making as much money as they have a right to expect—and, as a rule, such is the case—it may be well to recollect that we all anticipated "hard times" after the war. We have certainly suffered far less than we feared. Let us be thankful, and take heart for the future. The farmers are the mainstay of the nation. If the farmers prosper, the nation prospers. If farmers suffer, all classes suffer also.

We must Farm Better.—We must aim to make our land cleaner every year. Weeds are the most oppressive tax we have. We can not get rid of them at once. Keep fighting, and especially should it be recollected that we must make thorough work as far as we go. If not entirely dead, they will grow again, and we lose what work we have performed.

Killing Weeds Enriches the Soil.—This is the key-note to good farming. Most of our soils abound in latent plant-food. Stirring the soil, and exposing it to the atmosphere, favors decomposition, and renders the plant-food available—in other words, makes the land rich. The fall of the year is the best time to do much of this work. And the earlier we can get at it, the better.

Harrowing Grass Land causes a good many weed seeds to germinate, and when the land is plowed next spring the plants will be destroyed. In some cases, especially on light land, this is a better plan than fall plowing.

Keep the Teams at Work.—This is our own rule. We must aim to distribute the work so as not to be crowded too much at any one time. It is not always best to do work at what may be absolutely the best time, but to do it when you can best afford the time—provided always that it is never done too late. Any thing that we have time to do now that will lessen work in the spring should be done, even though we gain nothing except being so much ahead with our work.

A Dry September affords an excellent opportunity for digging ditches in low land, and for cleaning out and deepening those already cut. It is also a capital time to throw up muck, and get it ready for hauling in the winter. Any of our readers who have some land they think too low to drain, if they will commence at the stream, and dig a ditch through their land, *making the water follow them*, they will probably be astonished at the result.

Work in the Horticultural Departments.

September is a month for planting, as well as a month for harvesting. Many seeds can now be sown to advantage for early crops next spring. The horticulturist should always be on the track of progress. In order to do this, he needs to visit the exhibitions of fruits, flowers, etc., nearest to him, and as many more as practicable. One evening a week can be improved in visiting the farmers' club, if there is one in the neighborhood, and profiting by the experience of others. Standard works upon different branches of horticulture are valuable for study or reference, even if one is pretty well versed in the practical operations of the garden.

Orchard and Nursery.

In marketing fruit of all kinds, it will pay to take care not to injure it by careless handling, for the price paid for a good quality of fruit is much above that given for a poorly assorted and bruised article. If fruit is to be sent to a distant market, it must be picked while it is firm, but still fully developed.

Dried Fruit.—Commence to dry fruit as soon as it is fully matured. It will be of use when the season for fresh fruit is over, and when it is difficult to procure a variety of food.

Trees set last spring without any mulch around them, will often show signs of failing during the warm weather of autumn. If the soil around them is removed to the depth of three or four inches, and then watered thoroughly, and a heavy mulch applied, it will often save them.

Seed-Beds are to be shaded as directed last month, and kept free from weeds.

Evergreens may be removed now as well as in spring, if care is only used in taking up plenty of earth with the roots. Be sure that the roots are not exposed to the sun or to drying winds, and select, if possible, a damp, cloudy day. Large stones placed around the trees are better than stakes to prevent them from being disturbed by heavy winds.

Labels.—Provide new labels for fruit trees, where the old ones have become useless from long exposure to the weather. Have a plan of the orchard and nursery, so that in case the labels are lost, the different varieties may be readily known.

Seeds.—Save peach and plum pits from healthy trees, and bury them for planting next spring.

Plowing.—If new orchards are to be set this fall, the land ought to be plowed and manured, in order to provide the young trees with a good soil, in which they can make a rapid and healthy growth.

Kitchen Garden.

It is a good time now to make preparations for underdraining the garden. In a well-drained and deeply-worked soil, the crops rarely suffer from drouth, and the ground can always be worked much earlier in the spring. Harvest all crops as soon as they are in perfection, and clear the ground of all weeds and rubbish.

Asparagus.—If the beds did not receive a dressing of manure last month, apply it as soon as possible.

Beans.—Shell Limas, and dry for use next winter; and string-beans, prepared as for cooking, may be packed in jars with alternate layers of salt.

Cabbages and Cauliflowers.—In order to have these early next spring, sow the seeds in the open ground about the middle of this month, and, when large enough, prick out into cold-frames. Keep the late crop well hoed, and dust with lime if the slug makes its appearance.

Corn.—As soon as the ears have been taken from the early sorts, cut the stalks and feed them to the cattle; they make excellent food, and serve as a change of diet. Dry a supply of corn for winter use. Save a few ears of the earliest and best for seed.

Cucumbers.—Go over the vines every day, and pick all fruit of the proper size for pickling. Sweet pickles may be made of those which are too large for salting down.

Celery.—As soon as the nights begin to be cool, commence to earth up. Select a time when the plant is dry, for if the leaves are wet the stalks will be likely to rust. Use care in earthing up, not to allow any particles of soil to enter the center or heart of the plant.

Endive.—When the plants are a foot across, tie the leaves together at the top, or cover the plant with a flower-pot or a mat, to blanch it so as to destroy the bitter taste which it otherwise has.

Kale.—Sow the variety known as the German Green, which will stand our winters.

Manure.—Every thing in and around the garden that can be converted into manure must be saved and composted with stable manure. Where there is peat near by, dig out for the compost heap. Land for early spring crops is better if manured in the fall.

Melons.—Turn the fruit so as to ripen both sides; when ripe, the stem parts readily. Place the fruit on ice a few hours before eating.

Onions.—Harvest as soon as the tops fall down, dry thoroughly, and spread them in a dry, cool place.

Radish.—Sow the Chinese Rose-colored this month; it will keep all winter.

Spinach.—Sow in 15-inch drills; thin and weed as soon as the plants are large enough.

Sweet Potatoes.—Move the vines occasionally, to prevent their rooting. The larger tubers may be carefully removed, and the others allowed to grow.

Squashes.—Destroy all insects as fast as they appear. Remove the old vines of the early summer sorts. Allow the vines of the winter varieties to root freely at the joints.

Tomatoes.—Keep the superfluous growth cut away, and give the vines a support of some kind, if nothing more than a heap of brush. Destroy the large green "worm" which is found upon the vines abundantly this month.

Turnips.—Hoe the Ruta-bagas often. Sow the round early sorts early this month.

Fruit Garden.

Blackberries.—After the fruit has been picked, remove the old canes, and cut out all but two or three of the new ones. Never allow the new canes

to grow more than six feet high, and keep the side branches cut back to eighteen inches.

Currants.—Remove all suckers, and keep the rows free from weeds.

Grapes.—The prospects of the grape crop this year are, in most localities, very good, and plenty of boxes and baskets must be provided for marketing the fruit. Five-pound boxes are preferable.

Pears.—Gather the early varieties as soon as they are matured, and, if intended for home use, allow them to ripen upon shelves in the fruit-room; this greatly increases their flavor and juiciness.

Raspberries.—Tie up the new canes to stakes, after cutting out all but three or four, and shorten the laterals. Give the plants a dressing of stable manure, spaded under.

Strawberries.—Plants started in pots may be set out at any time during this month, but it is better to wait until spring for general planting. Keep all runners cut where the plants are grown in hills, and give the plants a good mulch of hay, after a dressing of manure has been applied.

Flower-Garden and Lawn.

If a good collection of annuals were planted, they will be making a good show now. Asters, Balsams, Double Zinnias, etc., are very fine autumn bloomers. All weeds must be destroyed as soon as they appear.

Bulbs.—Set the spring and early summer flowering bulbs late this month or early next month. If new varieties are to be purchased, order early, as it often happens that a dealer's stock runs low later in the season.

Chrysanthemums.—Pot a few plants for flowering in the house; place in the shade for a few days; thin out the weaker shoots, and stimulate with a little manure water.

Dahlias.—If not kept tied to stakes, the stalks are easily broken by winds. Remove all flowers as soon as they have passed their prime, and all imperfect buds.

Gladioluses.—Keep tied to stakes, and when they have done flowering, cut away the flower-stalks.

Lawns.—Remove all weeds, as recommended last month, and mow occasionally. Where there are bare places, sow grass-seed in time to receive the benefit of the autumn rains.

Perennials and Biennials.—Sow seeds this month in well-prepared beds, and keep free from weeds.

Potted Plants.—As soon as the nights begin to be cold, remove to the house, after washing the pots and pulling out all weeds.

Seeds.—Continue to gather seeds as fast as they ripen, and before the wind has scattered them.

Greenhouse and Window Plants.

All alterations and additions should be finished by this time, as a sudden frost is liable to injure many of the plants which have been set out in the flower-garden and ornamental grounds. See that there is a good supply of coal, potting earth, and other articles needed during the winter. Remove all tender plants to the greenhouse as soon as the nights become cool.

Annuals.—Sow seeds in boxes or pans for winter flowering.

Bulbs.—Pot all tender greenhouse bulbs like the Cyclamen, Oxalis, etc., the latter part of the month.

Callas.—Re-pot Callas after dividing them, and give them a rich, turfy soil, which is particularly adapted to their growth.

Potting.—Commence potting the tender plants which were bedded out during the summer, and plants which are to be used for propagating from.

Cuttings.—Prepare a quantity of cuttings for a supply of early plants in the spring.

A Remedy for a Hard-milking Cow.

—Ed. Skinner, Middletown, Orange Co., N. Y., gives a remedy for a hard-milking cow, as follows: He makes four wooden pegs about an inch and a quarter long, of a proper shape and thickness to enter the orifice of the teat and distend it somewhat. These are greased, and when the cow has been milked, the pegs are inserted carefully, and allowed to remain. The constant distension of the teat enlarges the orifice gradually, and the cow will be more easily milked. When the teat is so obstructed that the milk spatters about, a small quill is inserted in that teat at milking time, and the milk is drawn in a regular stream.—These suggestions seem practicable, and we should be glad to hear if on trial they are found to accomplish the results aimed at.

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. 16, 1871, 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.	312,000	2,736,000	4,117,000	37,000	16,100	941,000
27 days *last* m'th.	330,000	2,911,000	3,415,000	51,000	321,000	815,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days *this* m'th.	304,000	3,128,000	4,037,000	178,000	11,100	1,319,000
27 days *last* m'th.	343,000	3,436,000	2,225,000	59,000	6,800	1,371,000

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

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days 1871	312,000	2,736,000	4,117,000	37,000	16,100	941,000
27 days 1870	296,000	2,869,000	1,574,000	9,000	59,000	3,191,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days 1871	304,000	3,128,000	4,037,000	178,000	11,100	1,319,000
27 days 1870	468,000	4,143,000	1,831,000	38,500	5,100	1,573,000

3. *Exports from New York, Jan. 1 to Aug. 10.*

	Flour.	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
1871	1,095,059	10,556,653	6,341,031	71,399	81,797	16,764
1870	1,069,227	10,236,257	220,647	65,734	——	11,205
1869	812,764	9,099,803	1,557,077	72,811	——	43,737
1868	575,091	3,209,204	4,903,872	153,093	——	40,643

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

1871.	*Wheat,* bush.	*Corn,* bush.	*Rye,* bush.	*Barley,* bush.	*Oats,* bush.	*Malt,* bush.
Aug. 14	397,516	2,403,350	34,593	——	34,405	177,484
July 10	386,163	634,954	96,945	——	274,099	199,541
June 12	230,350	292,188	114,783	3,480	334,159	142,572
May 9	283,700	259,215	160,734	50,725	376,226	171,933
April 10	811,871	180,047	150,964	164,593	709,363	171 897
March 13	1,523,785	204,388	150,514	329,349	1,133,897	218,231
Feb. 13	2,203,677	311,471	143,198	481,863	1,409,995	215,124
Jan. 16	3,685,116	272,618	157,730	554,491	1,736,936	216,394
1870.						
Dec. 15	3,069,762	208,319	148,069	560,397	2,085,137	231,120
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	237,483
Sept. 12	1,387,487	761,894	50,869	107,174	1,053,679	130,881
Aug. 8	1,438,876	589,973	25,137	106,101	691,766	119,046

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.
1871	123,500	6,409,000	9,895,000	57,900	40,400	1,404,800
1870	170,100	7,097,600	1,151,000	279,100	90,900	1,572,500
1869	189,000	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	64,700	316,400	5,683,700	126,200	35,100	1,646,200

CURRENT WHOLESALE PRICES.

	July 17.	Aug. 16.
PRICE OF GOLD	112⅛	112⅝
FLOUR—Super to Extra State	$4 60 @ 6 50	$4 40 @ 6 25
Super to Extra Southern	5 15 @10 25	4 90 @ 9 50
Extra Western	5 40 @ 9 75	5 00 @ 9 00
Extra Genesee	6 50 @ 8 75	6 30 @ 8 25
Superfine Western	4 60 @ 5 15	4 40 @ 5 00
RYE FLOUR	4 00 @ 5 50	3 85 @ 5 00
CORN-MEAL	3 40 @ 4 15	3 30 @ 4 15
WHEAT—All Kinds of White	1 45 @ 1 70	1 45 @ 1 65
All kinds of Red and Amber	1 30 @ 1 52	1 30 @ 1 51
CORN—Yellow	72 @ 74	71 @ 82
Mixed	67 @ 72	67 @ 69½
OATS—Western	64½@ 70	35 @ 51
State	65½@ 67½	Nominal.
RYE	85 @ 1 12	75 @ 85
BARLEY	Nominal.	Nominal.
HAY—Bale ₱ 100 lbs	1 05 @ 1 45	1 15 @ 1 65
STRAW, ₱ 100 lbs	65 @ 1 65	60 @ 1 20
COTTON—Middlings, ₱ lb	21 @ 21¾	18¾@ 19¾
HOPS—Crop of 1870, ₱ lb	7 @ 13	15 @ 25
FEATHERS—Live Geese, ₱ lb	65 @ 75	65 @ 75
SEED—Clover, ₱ lb	10¼@ 11	10¾@ 11
Timothy, ₱ bushel	3 75 @ 4 50	4 00 @ 4 50
Flax, ₱ bushel	2 40 @ 2 50	2 05 @ —
SUGAR—Brown, ₱ lb	8½@ 10¾	8¾@ 10¾
MOLASSES, Cuba, ₱ gal	20 @ 45	20 @ 45
COFFEE—Rio (Gold, in bond)	10¼@ 13¾	10¾@ 13¾
TOBACCO, Kentucky, &c., ₱ lb	6 @ 12	6 @ 12
Seed Leaf, ₱ lb	12 @ 70	12 @ 70
WOOL—Domestic Fleece, ₱ lb	50 @ 70	50 @ 70
Domestic, pulled, ₱ lb	37 @ 55	38 @ 65
California, unwashed	23 @ 40	23 @ 40
TALLOW, ₱ lb	9 @ 9¾	8¾@ 9¼
OIL-CAKE—₱ ton	40 00 @42 50	39 00 @42 50
PORK—Mess, ₱ barrel	14 75 @15 00	13 50 @13 62½
Prime, ₱ barrel	12 00 @13 00	10 75 @11 00
BEEF—Plain mess	8 00 @12 50	8 00 @12 50
LARD, in tres. & barrels, ₱ lb	9¾@ 11	8¾@ 9¾
BUTTER—State, ₱ lb	13 @ 32	13 @ 32
Western, ₱ lb	13 @ 27	10 @ 25
CHEESE	6 @ 12	6 @ 11
BEANS—₱ bushel	1 00 @ 3 75	62 @ 3 80
PEAS—Canada, free, ₱ bu	1 25 @ 1 35	1 30 @ 1 35
EGGS—Fresh, ₱ dozen	16 @ 21	19 @ 23
POULTRY—Live Fowls	18 @ 19	17 @ 20
Turkeys, ₱ lb	18 @ 19	18 @ 20
Geese, ₱ pair	1 50 @ 2 00	1 75 @ 3 00
Ducks, ₱ pair	75 @ 90	75 @ 1 12
POTATOES, ₱ bbl	2 50 @ 3 00	1 00 @ 2 00
SWEET POTATOES, ₱ bbl	— @ —	— @ —
CABBAGES—₱ 100	3 00 @ 5 00	4 50 @ 8 50
BROOM-CORN—₱ lb	4 @ 8	4 @ 8
APPLES—₱ barrel	2 50 @ 4 50	1 75 @ 3 00
PEACHES—₱ basket	— @ —	50 @ 1 50
PEARS—₱ crate	— @ —	1 00 @ 5 50

Gold has been moderately active since our last, with 111½@112⅝ as the extreme quotations, closing, August 15, at 112⅝....The arrivals of Breadstuffs have been very liberal during the month, and as receivers have been free sellers, prices have generally declined, influenced, to some extent, by higher rates on ocean freight. Toward the close, Flour, Corn, and Rye showed more firmness, with a livelier inquiry reported. Wheat left off heavily; Oats unusually depressed and unsettled, influenced by the large offerings of new, which are not coming to market in very desirable order. Rye closed strong, on a good export call for new-crop Western, of which considerable sales have been made for forward delivery. Barley has been altogether nominal....Provisions have been quoted lower, on a more extensive offering of stock and a comparatively moderate demand... Cotton has been less active and quoted cheaper....A moderate inquiry has been noted for Domestic Fleece Wool, mostly for the lower grades, at previous quotations. Domestic Pulled has been scarce and wanted at decidedly firmer rates. Texas and California Wool has been selling moderately at former figures. Foreign Wool, especially Cape, has attracted much more attention, chiefly from buyers for manufacturing purposes, at strong and buoyant prices. Holders of most kinds of stock have been very confident in their views....Hops have been in better request and quoted decidedly higher, influenced, in part, by the less favorable English, as well as home, crop reports....Tobacco has attracted less attention within our previous range of prices.

New York Live-Stock Markets.

WEEK ENDING	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	*Total.*
July 17th	7,435	74	3,180	28,565	26,792	66,046
July 24th	8,266	91	2,495	30,229	23,979	65,060
July 31st	8,125	56	2,563	30,000	23,685	64,430
August 7th	5,978	93	2,583	27,861	21,386	57,906
August 14th	7,498	92	3,662	28,558	18,983	58,793
Total in 5 Weeks	37,302	406	14,483	145,213	114,825	312,235
do. *for prev. 4 Weeks*	32,198	326	12,301	110,163	108,428	263,716

	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per Week	7,460	81	2,898	29,043	22,965
do. do. *last Month*	8,049	81	3,075	27,616	27,107
do. do. *prev's Month*	6,779	84	2,988	19,801	20,890
Average per Week, 1870.	6,847	97	2,240	28,151	17,108
do. do. do. 1869.	6,275	92	1,752	28,886	15,345
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	1,260	20,000	13,000
do. do. do. 1865.	5,255	118	1,500	16,691	11,023
Total in 1869	326,280	4,827	91,083	1,499,500	798,199
Total in 1868	298,128	5,466	82,577	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	270,271	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 has been quite large during the past five weeks, though less than for the previous month. With many people out of town during midsummer, and peaches and other fruits abundant, less beef is consumed. Texan cattle have not come forward as freely as anticipated, the first shipments losing money. They are now increasing in quantity. The average quality of the receipts is fair, and trade has been somewhat uniform, the close being marked with some firmness, though the average decline for the month is nearly ½c. ₱ lb. As a general thing, the business of late has been unsatisfactory to shippers.

Below we give the range of prices, average price, and figures at which large lots were sold:

July 17th, ranged 6 @12½c. Large sales 10¾@11½c. Av. 11¼
July 24th, do. 8 @13 c. do. do. 11 @12 c. do. 11¾
July 31st, do. 6¼@13 c. do. do. 10 @11 c. do. 10¾
August 7th, do. 8 @12½c. do. do. 10¼@11¼c. do. 11
Aug. 14th, do. 8¾@12¾c. do. do. 11 @12 c. do. 11¾

Milch Cows.—With a fair supply of cows coming forward to keep up the flow of milk at a time when it is in most request, the market has ruled heavy, and low rates have generally obtained. Some miserably poor cows have been sent in for sale. They only brought $30 @ $35 each, what are generally termed common selling at $40 @ $55, fair to good at $60 @ $70, and prime to extras at $75 @ $80.....**Calves.**—Receips continue quite liberal; but many of these now sent in are known as "grass calves," generally sold by the head, at $8 @ $9 each, or 4½c. @ 5½c. ₱ lb. Prices have latterly advanced about 1c. ₱ lb., and the demand is good. Ordinary milk veals are quoted at 6½c.@7½c; fair to prime, 8c.@9c.; and only extras reach 9½c. @ 10c.....**Sheep and Lambs.**—Arrivals are increasing, as is usual at this season of the year. The greatest increase is in lambs. Fat sheep are scarce and wanted. Butchers are accustomed to use a portion of the loose fat of old sheep in setting off thin lambs upon the hooks. This makes the former in special request, and 6c. is readily obtained for those weighing 85@90 lbs. Some of 100 lbs. and upwards are selling at 6¼c.@6¾c. Thin sheep and poor lambs go slowly. The bulk of the sheep are now coming from Ohio, with many lambs from Canada. Poor sheep sell at 4½c.@5¼c.; fair to good, 5¼c.@6c., and prime to extras, 6¼c.@6½c. Lambs sell at 6c.@7¼c.; few choice, 8c.....**Swine.**—There has been a little falling off in receipts, and some fluctuation in prices—first a decline, then an advance....now an easier feeling again. Live hogs are quoted at 5½c.@5⅝c.; dressed, at 6¼c.@7¼c. The market closes heavy.

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.

Special Notice.—Communications giving or asking for information are always acceptable. These should always be accompanied by the name of the writer. The name will not be published whenever there is indicated a desire that it be withheld. Writers may choose any signature they please, but we must be furnished with the real name. We are under no obligation to return rejected manuscripts. Where stamps are sent for their return, we, as a matter of courtesy, try to send them back. Writers should retain copies of articles which they consider valuable, as, with the best intentions in the world, we may not be able to return them if called for after the lapse of considerable time.

"Will Gas Lime Drive away Insects?"—We fear not. But it is worth trying. An Illinois farmer writes us: "A person near Chicago has been experimenting with different substances on potato-bugs, and claims to have found in gas lime a specific that will not only banish the potato-bug, but all other insects. I propose to try it next year on my spring wheat as a preventive to chinch-bugs." We would spread it on the land this fall, and either plow and harrow it in; or, if necessary, let it lie exposed to the atmosphere all winter. In this way, if not applied in excessive quantity, there will be no danger of its injuring the wheat.

Manure a Remedy for the Chinch-Bug in Wheat.—Mr. John T. Lawrence, of Lee Co., Ill., writes that he hears many complaints of the damage done by chinch-bugs this season to the spring wheat. "My own wheat," he says, "has escaped, and is a better crop in quality than I have raised for many years, which I attribute to a liberal application of manure plowed in last fall. Seed sown March 11th. The land is a sandy bluff, sloping to Rock River, the ridge being crowned by a row of Indian mounds, from which we have taken bones, arrow-heads, pottery, etc. Such soil, being dry and light, is just suited to the chinch-bug. Some years ago I sowed a piece in wheat which had been heavily manured for corn, and it was the only wheat in the neighborhood which escaped. A small portion not manured was destroyed by them, the line of their ravages being distinctly marked." This is an interesting experiment, and well worthy the consideration of our Western readers. When the midge made such havoc with the wheat crop of Western New York fifteen years ago, similar effects of an application of manure on dry land were frequently observed. It *may* be that the insects do as much damage on the manured crop as on that unmanured; but if we had a piece of land rich enough to produce 35 bushels of wheat per acre, and another piece adjoining only rich enough to produce 10 bushels, and the insects destroyed 5 bushels per acre from both crops, we should get 30 bushels per acre from one piece, and only 5 bushels from the other. Practically, the insects might be said to have nearly destroyed one crop, and to have done little damage to the other, while, in point of fact, they destroyed just as much wheat on the rich land as on the poor land.

Common Sense in the Household is the title of a work by Marion Harland, which is publish by Charles Scribner & Co., N. Y. Price $2. Mrs. Harland is widely known as a writer of fiction, and one might expect to find her quite out of her sphere as the author of a work upon such a matter-of-fact subject as domestic economy. Whoever prejudges the work in this way will make a great mistake, for a more practical, "common-sense" household book than this we do not remember to have seen. The recipes, so far as we have had occasion to test them, are excellent; and the whole work bears the evidence of having been written by one who has "been there." The chapters about "Servants," "Company," "The Sick-Room," and others, are full of sound sense, capitally put. It is not often that we meet with a work that we can commend so heartily.

Drilling Seed.—A new subscriber, Clarkston, U. T., is a novice at farming, and wants information about drills and drilling seed.—Drills are of great variety, but yet nearly all are constructed on the same principle. They can be drawn by a two-horse team, and will sow about ten acres of grain in a day, depositing the seed at a depth of three inches beneath the surface, more or less, as desired. Economy of seed and a better stand of grain are among the advantages gained by the use of drills. Our advertising columns contain the names of makers of drills who would gladly send a descriptive circular to our correspondent on being asked for one.

Wire Fences.—W. H. Barnes, Anderson Co., Kansas, says a two-wire fence would be of doubtful value. He makes a three-wire fence, the lowest wire 18 to 20 inches from the ground, the others placed at intervals of 12 to 14 inches. Thus the fence will be four feet high or something less, but sufficient to turn stock of any kind. Posts need to be one rod apart, and between the posts stakes to prevent the wires from spreading.

Management of Timber Lands in Illinois.—A subscriber (Iroquois Co., Ill.) has 150 acres of timber land which he wants to make the most of, and asks how he must manage it. All brush and undergrowth must be kept down. If the trees are small, they may be permitted to stand six feet apart until they begin to get too tall, then one half may be cut out and disposed of and the rest will increase in size. In a few years another thinning will be necessary, to be continued until each tree occupies a square rod of space. In twenty-five years each of these trees will probably contain half a cord of wood, or from six to eight posts, so that their value will be considerable. During these years the ground may be sown with orchard grass and some white clover, and pastured.

Clover with Corn.—A. G. Kirk, Dickinson Co., Kansas, says he saw in Columbus County, Ohio, last April, a fine stand of clover in a corn stubble, and on inquiry found the owner of the land was in the habit of sowing clover seed when he worked the corn the last time, for the purpose of supplying manure for the crop of oats, or barley, or wheat, which was to follow. This farmer evidently was one of the progressive sort, who believes in putting all he can on the land. We have done the same, pasturing the clover with sheep, and had a good crop of wheat after it.

Grass for Mountain Land in New Jersey.—A subscriber asks which is the best grass for mountain land in the north-west part of New Jersey. We have seen in Sussex and Warren Counties (which comprise the district referred to) as fine timothy and clover as we have seen anywhere, and we do not think these could be changed with any benefit. Where timothy and clover will thrive, we do not know of any more valuable substitute, though we might propose to add some blue-grass, which also thrives in that locality, as a help to the pasture.

The Extensive Roofing Works of H. W. Johns, which were burned July 26th, are being rebuilt of iron, on a larger scale than before, and will be completed by the time this paper goes to press. His business of manufacturing Asbestos Roofing has increased very rapidly, the demand this season having exceeded the manufacturing facilities. The enlargement of his factory will enable him to meet the requirements of his customers.

Farm Gate.—Asa Hartshorn, Ashtabula Co., O., sends us a model of a farm gate very neatly gotten up, but unfortunately the patent-right men have a claim on that gate. There is a patent on it for the right to manufacture and use, for which parties have been to our knowledge charged two dollars. It is hardly safe to make or use any gate that operates by means of rollers, as they are all subject to one or more patents.

Stopping a Hen from Sitting.—J. E. Smith, Durham, N. H., writes: "I was quite amused some days since by an old sitting hen. Having tried all the usual ways to induce her to leave her nest, I concluded to use 'moral suasion.' I placed two lumps of ice in the nest after taking her off. The 'old critter,' as usual in such cases, soon returned and took a seat, which seemed to disagree with her, and after a few hours Mrs. Hen concluded to associate with her fellows."

A Model Letter.—Wm. Johnston, Brookside, Mich., sends us a rare specimen of brevity and pertinence, which we print in full, as an example to others. "Hill, forty feet high; pitch of hill, 45°; spring at bottom, house at the top; what is the cheapest fixture you know of to raise water to the house?"——One thing is lacking, the fall of the spring from source to outlet, and this is important, as on it depends whether a ram can be used or not. If a fall of three feet can be got in a length of forty feet, a ram would work, and would elevate water through a half-inch pipe to the hight required. The pipe supplying the ram should be 1½ inches in diameter. If there is not sufficient fall, a windmill is the best thing.

Soft Butter.—H. S. Dutch, Johnson Co., Iowa, has his butter come soft. His cellar is a "Western" one, not walled, well ventilated. Cows have good pasture, water, shade, and salt twice a week. What is the matter?——August probably is the matter. There is a good deal of soft butter comes in July and August. "Western" cellars are generally rather warm in the hottest part of summer, and ventilation does not mend it much. We have got good hard butter by putting a muslin bag filled with pounded ice in the churn just before the butter came. But generally, if the cellar is sufficiently cool, the butter will harden by the time it is ready to work over. Butter-making in summer is attended with many difficulties, unless all the accessories are well arranged, and even then the cows themselves will sometimes fail of coming up to the mark.

Norway Oats.—W. D. Krohn, of Bergen, Norway, sends us, by steamer, a sample of his oats. He states the native Norway oats had been cultivated for some years with great care, but without improvement; he therefore procured seed from Scotland, and now has a really good oat. The men consume all the crop; the animals get but little of it. The climate of Norway is damp, and the oats, having a heavy straw, are apt to lodge. We think, as has been generally the case, these oats would deteriorate in our hot, dry climate, though the appearance of the sample before us is very different from the Norway oats sent out by Ramsdell & Co.; they are plump, heavy oats, and would weigh 40 pounds to the bushel.

Bone Manure.—N. C. Boutelle asks if ground bone is profitable to use at $45 a ton, where barn-yard manure is worth $10 a cord, delivered on land. We think it is, if got pure. A dressing of 250 pounds per acre on grass land, especially if it is occasionally pastured, would undoubtedly pay. It must be remembered that the principal mineral substance carried off from grass land, in the shape of fed cattle, is the bone, and if this is returned to the land exhaustion is prevented, more especially when occasional dressings of barn-yard manure are applied. As a dressing for grape-vines, pear-trees, and for general garden use, it may be used at the rate of 300 to 500 pounds per acre profitably.

Making Cheese—Saving Rennet.—Julius F. Bingham, Greensville Co., Va., is making cheese in a region where nobody saves the rennet, and can not procure it. Can it be purchased in New York? Is also a novice in making cheese, and has made some errors, and wants advice. One cheese leaked badly, and is now dry and hard; some are hard and tough. Sometimes the curd comes in thirty minutes, and sometimes in an hour.——Rennet should be saved by all cheese-makers. It is very easily prepared, nothing more being required than to take the stomach of an unweaned calf and empty it of its contents without rinsing it; rub it with salt until it is perfectly cured; then the loose salt may be turned out, and a hoop of light twig be inserted, to keep it distended, when it may be dried and hung up for use. We have purchased rennet, when commencing to make cheese, at a seed store in Philadelphia. We have not seen them in New York. The failures spoken of are undoubtedly due to irregularities in the making of the curd, which practice will enable our correspondent to overcome. The temperature of the milk when the rennet is added should be always equal. 95 degrees is the proper heat. If this is exceeded, it will make a hard, tough cheese. The curd should not stand too long, or the same effect will be produced.

Clipping Sheep into Shape. — The proverb says that there are tricks in all trades. This is probably true, for we regret to say that farmers, who are by the very nature of their employment removed beyond the temptation to practice "ways that are dark," do sometimes allow themselves to fall into temptation. And here we relate a case in point. At an agricultural exhibition we were examining some long-wooled sheep, and it was whispered in our ear that the exhibitor of a prize ram had at the previous shearing made up the fleece by leaving the wool on the shoulders and breast and the rump, so as to give a squareness to the body of the animal which was fictitious. As our informant who thus let us into the secret of making up sheep for exhibition, was the son of the owner, and had a hand in it, and represented it as commonly done, and that the best hand at it was sure to have the best-looking sheep, we had faith in the truth of it and accept it as a fact. We find further that this same trick is practiced at English exhibitions, and has led to some sheep thus "gotten up" being set aside and not allowed to compete for the prizes. We doubt not that this practice is already in vogue in the United States, for we are apt to learn, and invent, and it is said sheep thus clipped were exhibited at the last New York State Fair (the instance we refer to occurred in Canada), and judges at fairs should take notice of it, and not allow any sheep to get ahead of its proper position by the practice of such an easily discovered trick.

Lest any person should suppose that the issuing of the Weekly *Hearth and Home* will lead the Publishers to any less attention to the *American Agriculturist*, it is proper to say, that this is not the case in any way. The two papers are entirely distinct from each other in matter, engraving, etc., as much so as if published a thousand miles apart. But the enlarged field and the increased facilities brought in by the Weekly, add to the resources and facilities for keeping up the old *American Agriculturist* to all its former excellence, and increasing its value.

Grass in Summer Fallows.—An inquirer has a summer fallow now bad with Quack and June grass, and asks about sowing timothy on it. This fallow can not have been properly managed, or there would be no grass in it. The purpose of a summer fallow is to destroy all vegetation by plowing it down or harrowing it out as soon as it appears, and thus keeping the ground quite clean. We would not put seed on such foul ground; we would rather sow oats or buckwheat next season, and seed down then. We have seeded timothy and clover successfully with a crop of buckwheat sown on the 12th of July; also with oats sown thin (2 bushels per acre) in April.

Sowing Timothy on Stubble.—I. McC. asks if timothy could be sown on wheat stubble without harrowing, this fall. It would be a risky experiment, unless the soil is in good heart, or it can be top-dressed with a little fine manure, or the fall rains should be copious enough to give the seeds some covering of soil. The seed should be sown liberally, say 10 quarts per acre, as much of it would fail to catch from want of covering.

Musty Cellar.—Fred. K. Gates, Cazenovia, N. Y., has a musty cellar which spoils the milk and other things in a few hours, and he wants a cure. This cellar wants ventilation. If ordinary ventilation by a window is not sufficient, open a communication with the chimney if possible, or put a wooden spout, eight or ten feet high, against the back or side of the house, and make the bottom of it open into the top of the cellar. Fix another tube from the outside, near the ground, which shall open at the bottom of the cellar. Thus a circulation of air will take place from the bottom to the top. Wash the cellar walls and ceiling with lime whitewash in which a little carbolic acid has been mixed; this will destroy the mold on the walls, and the ventilation will prevent its future formation.

Sawdust, Bone-Meal, and Ashes.—A. E. Phillips, Spottsylvania Court-House, Va., asks about the value of sawdust as a manure; also as to the propriety of mixing bone-meal, ashes and lime.—Sawdust is not of itself considered valuable, but we do not indorse much that is said of its worthlessness. We once saw very promising potatoes growing on a patch of old sawdust, mostly pine, but it was well rotted. It will soon rot if in a heap, and wet; but we would not advise it to be plowed in fresh. Better to use it for bedding for horses or cattle and allow it to ferment, which it will readily do, and then makes excellent manure, especially if of hard wood. Bone-meal should not be mixed with lime and water. They would set free the ammonia, which is one special virtue of bone-meal. Ashes may be mixed with bone-meal without loss, used dry, and immediately; any ammonia set free would be appropriated by the soil. Lime should not be mixed with manure.

Fattening Hogs.—Hogs that are intended for pork this year should now commence fattening. They should be put by themselves in a grain or clover stubble, where they will have exercise sufficient to keep them healthy and in good appetite, and be fed so as to keep them gaining rapidly. They will make a healthy growth during August and September, and, put up in November, will be ready for the butcher on one half the feed they would require if delayed one month later. In cold weather, a great portion of the feed is used up to maintain the animal heat, all of which is saved by commencing so as to forestall the cold, stormy weather of December. Plenty of fresh drinking water, and a trough in which to roll and bathe, will be needed and should be supplied. Pork, at the best, is not the most wholesome food, and the filthy manner in which some is fatted, is far from making it less disagreeable. A proper attention to cleanliness, to which a hog naturally is not disinclined, will not only improve the quality of the pork, but will prevent absolutely poisonous conditions of the meat.

To Prevent Sows Eating their Young.—"S. L. P." has tried the following plan and found it effective: "Take an old, coarse boot, and cut off the top above the instep; then cut a slit in the back, commencing at the top of the boot leg, so as to leave the bottom one or two inches below her snout. Thrust in the snout, and then take a rope and run through the finger straps and tie it back of the ears. This will prevent her from biting her pigs, while allowing her an opportunity to drink her food."

Value of Apple Pomace for Manure.—"W. H. C." We think it is worth a little more per ton than ordinary barn-yard manure. Allow it to thoroughly ferment and decompose before applying it. It would be better to compost it with manure.

Shade as a Fertilizer.—A gentleman in Maryland, who has recently become a farmer, asks our opinion of an experiment he proposes to make. He has a field of limestone land, naturally good, but "run down." He has great faith in "shade" as a fertilizer. The field is now in oats—sown more for the benefit of shading the land than for any other object. As soon as the crop is off he proposes "to cover the field over with straw, and then sow a bushel of plaster per acre on the same, for the purpose of holding what little ammonia may be in this poor soil, and also to hasten the early decay of the straw." We have no personal experience on this point, but think that where a farmer has more straw than he knows what to do with, the plan proposed is well worth trying. Shade, or, more properly, mulching the ground, checks evaporation and keeps the land moist, and thus during hot weather favors the fermentation or decomposition of the organic matter in the soil, and probably leads to the formation of nitrates, which have great fertilizing value. A growing crop, though it shades the land, does not have the same effect, as the growing plants pump up moisture and make the soil drier than it would be if kept clean and free from vegetation by summer-fallowing.

Will it Pay to Use Lime for Manure at 25 cents per Bushel?—C. A. Baker, of Chautauqua Co., N. Y., writes us that he has a farm of 230 acres, 100 of which is bottom land, subject to overflow. The balance is upland, originally timbered with pine and oak, with some hemlock knolls near the bottom land. The latter he has drained to some extent with hemlock boards. "And now," he writes, "the question is whether it will pay to use lime upon the upland at 25 cents per bushel. I have 40 acres that I want to break up and summer-fallow next year for wheat, as there are some white daisies on it. It is a pasture now, and will be used for that purpose as soon as seeded down again. Will it pay to dress it with lime? I keep 50 cows and make butter, also some young stock, and seven horses, and have 22 acres in Diehl wheat."——This is a sensible letter, as it gives us all the facts. We think Mr. B. is adopting the right course. Drain the rich bottom land and summer-fallow the upland. We should expect lime to have a good influence on such land, not merely for the wheat but also on the grass for many years. If lime could be had for 15 or 20 cents per bushel, we think few things would pay better than an application of one hundred bushels per acre, and lime for manure ought to be afforded at this price.

What is the Best Variety of White Winter Wheat?—We know of no better variety for good, rich, dry land, than the Diehl. It has short, stiff straw, and plump, well-filled ears. It is an agreeably deceptive variety, as, on good land, it turns out better on thrashing than it looks at harvest-time. The great trouble about it is that it varies a good deal in quality even when pure; and furthermore, it is almost impossible to find seed unmixed with other varieties.

Cultivating Corn.—H. I. Rosenberger, Clover Dale Farm, Va. The two articles in the June *Agriculturist* on cultivating corn are not contradictory, as our correspondent seems to think; they are in "Hints about Work." The deep cultivation there recommended will be seen to apply only to the exceptional case of sod land plowed early, which was not in good condition, being full of hard spots, needing deep cultivation to break them up. Further, this deep culture was recommended to be confined to the middle of the rows where there would be, at that early season, no roots to disturb.

To Kill Dew-Berry Bushes.—"I. G. B.," Woodland, Pa. The best plan you can adopt will be to plow the field infested with these bushes, twice in this month, harrow thoroughly after each plowing, and pick up and burn the roots.

To Prevent Butchers' and other Blocks from Splitting.—Geo. W. Walker, Lowell, Mass., has discovered that the round blocks used by butchers, glove and shoe cutters, and other tradesmen, can be prevented from splitting by boring a two-inch augur-hole in one side, and nearly through the block, half way between top and bottom. The hole is kept filled with water; a pine plug is driven in when the hole is filled, and taken out and replaced as may be necessary.

Potatoes on Sod.—"W. C. W.," Canaseraga, N. Y., has a piece of gravelly loam that has been five years in pasture, which he wishes to plant with potatoes next spring; and wants to know the best method of preparing the ground and manuring it. Sod ground is excellent for potatoes, and gravelly loam is a congenial soil. We would plow it this fall early enough to have the sod rotted before the ground freezes up. What manure is to be applied we would prepare during the winter by piling it as it comes from the stables, letting it heat, and turning it over twice or thrice; giving it occasionally a dose of plaster, say a bushel or two, spread over it when it steams. Worked in this way it will be pretty well rotted by the time the snow is disappearing. Then, while there is sufficient sledding, draw it out and spread at once from the sled. When the ground is sufficiently dry, we would turn the manure under and harrow it well just before planting.

Docks and Elders.—A correspondent who gives no name or address, asks how to kill docks, elders, and plantains (also, other questions which we can not answer for want of name and address). Docks and elders must be grubbed out by the roots. Plow the fence rows where they grow, during this month, and gather the roots and burn them, and use the ashes in the orchard or garden. Plantains may be dug up with a stout knife; if they are in a lawn or grass-plat, manure it and encourage the growth of grass, which will smother them out in time.

A Kansas Farm that seems to be Worn out.—"Cocklebur," of Leavenworth Co., Kan., has a farm that has been in cultivation 12 years, growing corn and wheat, soil a sandy loam, and it now seems to be worn out. This is the text that has been preached over and over again, and now one might say, "We told you so," and the old croak would not be devoid of truth. But "Cocklebur" is not past redemption—he has 2,000 large loads of manure in his feeding pens. Then let him forthwith get it out of his pens and put it where it ought to have been years ago, on his land. It will give 30 loads to the acre on his 70 acres of hardly used land, which will fit it to bear a crop of wheat and take to grass and clover; this plowed in, after two or three years will bring a crop of corn, which ought to be fed to some of those Texan steers he writes about, and a quantity of manure made and saved which will put the land through another course; and so proceed.

A Fly-proof Smoke-House.—E. B. Steers, Bull Creek, W. Va., wants a plan of a smoke-house that will keep meat clear of flies. It is necessary, to secure this, to build the house of brick, or of boards battened tightly together and lathed and plastered inside. The roof should be of tin, and the cornice should be tightly fitted together. The door should not be more than five feet high, and just above it a screen of fine wire gauze fitted on a frame hung on hinges and fitting closely to the sides of the house, so as to divide the upper part of the house, where the meat is hung, from the lower part, where the fire is made. This screen should not be removed or opened while the outer door is open, and flies should be carefully excluded during this time. A window fitted with a fine wire screen may be set in the house, both for light and ventilation, when required. For greater convenience in opening, the cross screen may be made in two parts, but care must be taken that no spaces be left where a fly or insect could crawl through.

We call attention to the liberal offer of the publishers on page 328, under the head of "Money Saved." There are thousands who could be greatly benefited, if led to read more of the usefid; and if the extra offers made stimulate such persons to read and think more, they will doubtless be benefited, and the Publishers' end will be gained.

Cost of those Boats.—H. Moses, Exeter, N. H., wants to know the cost of one of the boats described in the *American Agriculturist* of August. The materials will cost about ten dollars, including two coats of paint and wrought boat nails. If common nails are used and only a coat of pitch outside, which will answer for hunting purposes, $4 or $5 will cover the cost.

List of Fairs.—On pages 353 and 354 will be found a very full list of fairs to be held in September and October, to which attention is directed.

Corn-Husks.—The husks of corn are very well worth the trouble of saving. When dried and torn into strips they make excellent mattresses, clean and sweet, and very soft and elastic. Plaited into a rope and wound round a central point, they make serviceable doormats, the manufacture of which will furnish pleasing and useful fireside employment for many a stormy day when outside work is impossible, or for the long evenings of winter. They are worth saving for these purposes alone.

Salt and Muck.—J. E. Larmer, North Haven, Ct., ask how much salt is sufficient for an acre of sod ground to be plowed this fall, or whether he may expect a good crop from well-pulverized muck, without other manure. We would not advise salt to be applied in the fall. Top-dressings of all soluble manures are more efficient when applied in the spring, more especially of those so very soluble as salt. If the sod ground is to be sown with wheat, we would apply two bushels per acre next April. As regards the muck, if it is rotted it will be of benefit, but if salt or lime is applied along with it, the benefit will be considerably increased. We would advise the muck to be composted with four bushels of lime and one peck of salt to the cord of muck, and after lying through the winter spread it early in spring.

More about the Little Pigs.—John Miller, Slackwater, Pa., recommends that the little orphan pigs be fed with milk and lukewarm water, with a teaspoon, taking them on the knees wrapped in a cloth. In the course of one or two days they will learn to drink the milk and water out of a pan. The water should be gradually decreased until pure milk is given. Another correspondent, who forgets to append his name to his letter, says the pigs will thrive better on sour milk (but not thick), fed a little and often.

Cure for Rot in Sheep.—J. Miller says that turpentine is a preventive of rot in sheep. To administer it, for every twelve head mix a tablespoonful with two quarts of wheat bran and one quart of salt; give this once a week.

Harvesting Peas.—Wm. Koeing & Co., St. Louis, Mo., ask how to harvest peas on ground too uneven for the mower. A horse rake may be used, which will gather them into rows, from which they may be forked up, when cured, into the wagon. Peas, when ripe, leave the ground very easily; in small quantities they may be "hooked" up with a scythe, but when the field is large the rake may be made available.

Horse Potato-Digger.—I. C. M., East Toledo, O., asks which is the best horse potato-digger. R. H. Allen & Co., 189 Water street, New York, have a very good potato-digger. We can not tell the price of it. They claim that it will dig the potatoes and separate them from the earth, leaving them in the row on the surface of the ground. Any mode of successfully digging potatoes by horse-power must necessarily be a great improvement on the old-fashioned hoe or fork.

Sweet Pork.—It is beyond a doubt that cleanliness has much to do with the flavor of pork. The filthy state in which many fattening hogs are kept has a tendency not only to give a rank taste to the meat, but to render it positively unwholesome. A very common mode of penning hogs at this season is in a rail pen, without protection from the weather. The consequence is that such pens are not fit to keep a living animal in; wet and filthy, cold and uncomfortable as they are, hogs will not take on fat, and a great proportion of the food is wasted while they are kept in them, while the filth, a considerable amount of which the hogs will consume, must be detrimental to their health and to the health of those who eat their flesh. It is not only safer but more economical to give fattening animals good shelter and dry beds and litter, and keep them quite clean. The labor will be well repaid.

How to get rid of Sorrel.—L. Horning, Montgomery Co., Pa., asks if some of our numerous readers can give him a plan to get rid of red sorrel—will lime do it?—Lime, of itself, will not destroy sorrel; we have seen it flourishing on the very verge of a lime-kiln. Cultivation will destroy it, and lime will encourage the growth of clover and grass, which will tend to smother it out. Direct applications of ashes or lime seem to encourage its growth, and we know of no plan but to plow it under before its seed is ripe. The seeds ripen very early in summer. Then keep the soil in good condition, producing good crops, and sorrel will be of no trouble.

Cleansing Milk Pans.—S. Owens, Malaga, N. J., asks how she can get her milk pans perfectly sweet. Wash with hot soapsuds, and rinse well in clean cold water, and if still sour, rinse with water in which soda or lime has been dissolved. Either lime or soda water will destroy any acid or sour smell which the pans may have, and will render them perfectly sweet.

Wire and Board Fence.—I. T. Smith, Cedar Rapids, Iowa, sends us estimates of the cost of wire and board fences as follows:

9 lbs. wire, @ 7½c.	67½c.
1 post, @ 20c.	20c.
7 stays, @ 1c.	7c.
1 lb. staples	12½c.
Per rod	$1.07
5 boards, 8 ft. each, @ 2c. per foot	80c.
2 posts, @ 20c.	40c.
1 lb. nails	8c.
Per rod	$1.28

Thus, he considers a board fence to be the more expensive of the two. As the fence question is one of the most important ones a farmer can study, we shall be glad to hear from our correspondent, as he intimates.

Temperature of a Spring-House for keeping Milk.—I. Wilson, Monroe Co., Iowa, has some springs which run from a bank, the temperature of which is 62°. He asks if they could be made available for a milk-house. These springs must receive warmth from the upper soil before they escape, as this is a very high temperature for spring-water and would not be sufficiently cool to keep milk well. There is no doubt that cooler water could be found by digging into the bank and forming a cave; if a spring could thus be found of a temperature of 50° or less, a very good milk-house might be made. The floor should be paved with stone and a channel dug out all round the inside, through which the water should be made to flow. In this stream the milk-pans should be set.

Bee Notes for September.—*By M. Quinby.*

Any old hive, weak or otherwise, should be examined now. Unless in sections where buckwheat is in blossom, weak hives will in all probability be plundered, unless they are protected. Contract the entrance or remove them at once. Refuse honey may be carefully fed to light hives, but leave none near the apiary. Diseased stocks should be removed now, that they may not be robbed, to the detriment of the robber. Such bees can be given to queenless stocks; but to guard against infection, confine them for forty-eight hours in an empty box or hive. The honey, such as is not fit for table, can be scalded, skimmed, and used for feeding. Other parts of the comb, mixed with brood, should be buried in the ground, to prevent the possibility of contagion. With Italians, there is usually but little disease. There need be no particular hurry about removing condemned healthy hives, that are strong enough to defend themselves, as it is well to allow the young bees to mature and leave the combs clean for another year. It is quite common to find in the apiary a hive with plenty of stores, few bees, and no queen; this occurs especially with box hives. If such hives are not infested with worms, they may be saved by supplying a queen and bees from one or more other hives. They will unite more readily if removed a mile or so from the old stand. A swarm that has filled up without a queen will have so much drone comb that it will not be worth while to try to winter it. Few bees and no sealed brood indicate a queenless hive. It is sometimes desired to winter light stocks, which is doubtful economy. In such a case the bees must be fed freely to induce them to build comb and rear brood. Now is the time to do this, if it is done at all. If it is necessary to feed a strong hive, October is the best time. Remove all surplus boxes. Honey that is now unsealed will be removed into the hive. It is reported that the prairie flowers of the Western States furnish abundant honey in September, and that colonies often get enough to carry them through the winter, and that they frequently gather a surplus. But we of New England and the central States need not expect any thing of this kind. It is presumed that most of the readers of the *Agriculturist* are sufficiently advanced to use movable combs in some form, and with them comes the necessity for a closer intimacy with our bees; of studying their nature, and learning what they will bear, etc. It will be found that their mood or temper varies with the weather, and that they may be trained to allow all our manipulations without resentment.

Sundry Humbugs.—Several subscribers, while writing very laudatory of these humbug exposures, say they come too late in many cases. That can not be helped. The ingenious swindlers usually send their documents only to distant points. Some of them watch this office, and, after getting a new scheme all ready, time their mailing so as to operate just after a number of the *American Agriculturist* has gone to press, so as to have a month to work in. Most of them pretend to limit the time in which their specious proposals can be responded to, so as to hurry up their victims before they are themselves checked by exposure. The only preventive is to give the cold shoulder to *all* these grand schemes for enriching you, and to promptly mail to us any new circulars received which have not already been mentioned in these columns. While gratified to know that few of the vast multitude of our readers are now liable to be caught by the swindling fraternity, we are sorry to learn that some were taken in by "S. C. Thompson & Co.," who obtained confidence by filling small orders very satisfactorily, and then failed to fill a great many large cash orders, and pocketed the cash sent. The concern has vanished out of sight or finding; the successful operators are probably now engaged in some new scheme under other names, and the sufferers have only dear-bought experience in return for their good cash. The only treatment for all these splendid circular or letter schemes offering large returns for little money is that recommended by Cuffee to Pompey in "cholera times," viz.: "De safust way is to eat nothing 't all, and den you no 'spose yousef." One who lost $60 by S. C. T. & Co. writes that he sent the money because he saw the advertisement in such papers as the *New York Tribune*, *Toledo Blade*, *Western Home*, and others like them—papers which *ought* to reject all advertisements of unreliable or unknown character.....The following letter, received by one of our subscribers, who is a dealer in groceries and also postmaster, exhibits one of the shrewd schemes of 688 Broadway swindlers to get men into the meshes of their nets. Mr. A., being an honest man, sends the letter to us to hang in our rogues' gallery. Others who have bitten at the tempting bait, and involved themselves in aiding and abetting (as they suppose) a swindling scheme, will be glad to get out by paying a heavy blackmail assessment! This letter has a printed heading, with the 241 partly crossed by a pen-mark:

[COPY.]

THOMAS B. THAYER,

DEALER IN

GROCERIES, LIQUORS, TOBACCO, ETC.

No. 241 SIXTH AVENUE.

NEW YORK, July 8th, 1871.

JOHN AQUE, ESQ.—

DEAR SIR: I have been in the Grocery business since 1869. About three months since, I was compelled to fail. I succeeded in saving between six and seven thousand dollars worth of Sugars, Coffees, Teas, Tobaccos, and Segars. My creditors got all the balance. They suspected me of taking these goods, but were unable to prove it; so I have the goods safe. Now, sir, I have a confidential proposition to make to you in reference to the disposal of these goods. In the first place, your name was given to me by a young man that was engaged in a house you bought goods from, although he does not know of this matter, or me writing to you. If you will sell these goods for me, I will give you one (⅓) third of what they bring, with the understanding that you send me every two weeks my two (⅔) thirds of the money. The goods are assorted just right for a Retail Store, and suitable for your market.

I am anxious to have these goods turned into Cash as soon as possible, so I can have the money to go into some other business.

If you accept the proposition, let me know how to ship the goods, and I will do so at once.

Respectfully,

THOMAS B. THAYER,
688 Broadway.

N. B.—This matter must be confidential, whether you accept the proposition or not. If my creditors find out about these goods, they would have them seized, and perhaps cause considerable trouble. T. B. T.

Address me at 688 Broadway.

.....C. E. Weldon, to be addressed "Miss Jenny Everett, 688 Broadway," for a "blind," sends a letter very similar to C. Emerson's, printed last month, and is from the same party. Mr. Gayler will have to give special attention to ladies' letters hereafter, as the swindlers are quite generally donning the crinoline [ad]dress for a "blind."... ... One of the "Queer" operators, who mails circulars, ap-

parently from Newport, Ky., professes to dip his counterfeits in an acid that causes them to rot and fall into powder in 25 to 30 days, so that they can not be used as evidence against any one detected in passing them, if he gets his trial put off for that time. He, of course, wants $5 in advance, which he pockets, which $5 is all there is in this affair.....About as "cheeky" a circular as we ever saw, is that of a Yankee, who offers advice and information on every conceivable topic in medicine and law, in patent-rights and religion, in science and art, etc., etc., etc., and after enumerating about every thing and every man on earth, and some things under the earth, offers "information on any other subject that can be thought of." He offers an unlimited number of receipts [*recipes*, we suppose, he means] "for any thing you wish" for 25 cents to $1. No letters answered, unless accompanied with a stamped envelope, and 25 cents required in advance as a first fee. The circular may be considered as next door to blasphemy, simply because no being short of Omnipotence could know and *do* all he professes to do. Our curiosity is a *leetle* excited to know what Col. *G. I. F. A.* means.....Omaha, Neb., has the credit of a lottery, dubbed a "Legal Enterprise," in which 90,000 persons are asked to give $2 each, or $180,000, for which a chance at $100,000 is offered—$80,000 of their money not going into the pool. Of said 90,000 ticket-buyers, 2,000 can draw prizes of $5 to $10 each; 200 prizes of $25 to $30; 70 of $50 to $100; 30 of $100 to $250; 15 of $500; 10 of $1,000; and 1 each of $2,000, $3,000, $5,000, $10,000, $15,000, and $20,000, and **87,690** persons out of 90,000 can't get any thing—all this, if every thing is done just as represented. We don't know what is to be done if all the tickets are not sold—and we don't see where 90,000 persons can be found to invest in *such* an enterprise, even though all the projectors be highly indorsed, and though something is said about aiding a Public Library..... Louisville, Ky., has another just such an enterprise, calling for a million dollars, of which a trifle over half is promised in "gifts." Is there no law to squelch these lotteries?—for they are nothing else.....Curing disease by smoking in medicines with tobacco!! Whew! Puff!! Puff!!! A nice thing to ease the consciences of the smokers! Said to be a French discovery, etc., etc. Well, what *next?* (See notes on medicines last month and in July number.).....An active agent of the Evil One, we should say of his meanest imp, has located at Hanover, Pa., or at least adopts that P. O. address, under the name of Mrs. H. Metzger, lock-box No. —. The real operator is doubtless of the masculine gender—we can not imagine a woman so desperately wicked for lucre's sake alone. The circular sent is entitled: "Fifteen Minutes' Private Conversation with Married Ladies." The 1st, 2d, 3d, and 5th paragraphs of this vile sheet, or any one of them, is sufficient to show the Satanic character of the swindler. We warn all who receive this circular, or others like it, to heed not a moment its lying premises, as they value their lives, health, or souls, to say nothing of the money which it is attempted to filch from them. Even granting it possible for any person, even in the most desperate case, to need one of the articles, we warn them that, should they get any return for their money sent, the articles will not do what is promised for them, and, if at all effective, can not be used without the most imminent risk of life, and the *certainty* of destroying health. Those who receive the circulars, as many are doing, will understand us; others will need no explanations. This being one of the most ingenious and plausible of this class of dangerous circulars, we deemed it best to give space for a reference to it, in as delicate language as the case will admit of. The good people of Hanover should drive out, or better lock up, the vile being, by legal means, if possible, but do it at any rate, and speedily....It seems almost impossible that in this country, noted for its intelligence, there should be ignorant and gullible people enough to furnish a profitable patronage to such nonsense and trash as is sent out by J. W. Stephens, Newark, N. J. (His numerous circulars don't tell us *where* he is to be found in that large city.) For example, he offers the "Oriental Charm," which, among a hundred other things, will *make* a woman love you, whether she will or no, and "make any one act just as you desire." Whoever has it will be healthy, successful, and prosperous, and "there is no power on earth that can prevent it"—all for $3!! His "Marriage Guide" he promises will teach how to cure all diseases, to manufacture diamonds, superphosphate of lime equal to guano, at one quarter the usual price, genuine Turkish Love Powders, lightning, fire, and water-proof paint, and to do a thousand other things absurd and otherwise. Said Stephens will also send (for $1) a secret that will surely make you rich. Why don't he keep and use the secret, and not bother himself and other people with nonsensical things that bring in only a dollar or two each? A glance at what he promises is enough to enlighten the greenest man or woman, yet he returns "thanks to our 10,000 customers and hosts of agents....for their liberal patronage."

High Prices for Shorthorns.

The great demand for beef in the cities and large towns in this country, keeps up the prices of Shorthorns beyond all other breeds of cattle. Though they have been very extensively cultivated both at the East and in the luxuriant pastures of the West, prices are still rising. We have probably quite as good Shorthorns as can be found in the world. Breeders from Great Britain are now found among the purchasers at our annual sales. At a sale of Shorthorns in Woodford Co., Kentucky, June 27th, eight bulls brought an average price of $190.62½, and twenty-five cows brought an average of $305. The highest bull was $440, and the highest cow $1,025. At a sale at Paris, Kentucky, June 29th, the bulls averaged $181.50, and the cows $230. At a public sale in Clark Co., Ky., June 30th, the bulls averaged $400, and the cows $277. These are great prices to pay for cattle, but they are cheaper to the purchasers who make a business of breeding than inferior animals at any price. The services of good bulls are a source of revenue. A. J. Alexander, of Woodburn Farm, Ky., charges $200 for service by 10th Duke of Thorndale, and, in England, Mr. McIntosh charges 50 guineas for service by 3d Duke of Geneva. Mr. King, the distinguished breeder of Minnesota, has recently offered Mr. Sheldon $36,000 for three heifers, and did not get them. On the same day Mr. Sheldon was offered $63,000 for five of his heifers. These offers for first-class stock, by men who best know the market, indicate good times ahead for Shorthorn breeders. This breed is likely to take the lead of all others in the new States west of the Mississippi, where beef-making is to be a leading business for many years to come. No investment will pay better than a Shorthorn bull to run with a herd of Texas or common cows.

The Register of the American Jersey Cattle Club.

This long-looked for volume has at length made its appearance, after many vexatious delays. It does great credit to the indefatigable Secretary, upon whom the principal labor of compiling has fallen. This labor had been much less, if correct pedigrees had always been furnished to his hands. But these have often been defective in dates, or minor points, where there was no doubt as to sire and dam, and the desire to make the work as perfect as possible has made the delay necessary. It will save much labor in the future to breeders who own registered animals. The contents of the volume are: constitution and list of members of the club; an elaborate essay on Jersey cattle, by the Secretary; the scale of points as adopted by the Royal Jersey Society; notes and rules as to the preparation of pedigrees; the Herd Register itself, compriaing the names of 539 bulls and 1,427 cows and heifers, and 21 photographs of good specimens of the breed. The names of 93 members are enrolled, embracing a large portion of the breeders of Jersey cattle in this country. The appearance of this volume indicates an increasing interest in this breed of cattle, and will lead to a wider distribution of the stock. It can not fail to secure more careful breeding, and the improvement of the Jersey stock. It has already raised the price of registered animals, as it has depreciated those which can not trace their pedigree to importation. The volume will be almost a necessity for all Jersey breeders in this country. It can be had of the Treasurer, Thomas J. Hand, Box 802, New York City.

Stump Puller.—J. B. Sydner & Co., of Lynchburg, ask which is the best machine for pulling stumps. In this number of *American Agriculturist* we give a drawing and description of a machine that can be made for a few dollars. It will take out stumps 24 inches in diameter. If any heavier machine with greater power is required, the same principle can be applied, but the strength of the parts must be proportionately increased.

To Destroy Ants.—A. J. Miller, Alleghany City, mixes a teaspoonful of "cobalt" in three tablespoonfuls of warm water, and sweetens it. This he places in their haunts, and in a short time none are left to say how much they liked it. What is sold in the stores as "cobalt" is metallic arsenic, and none should use it without being fully aware of its deadly qualities.

Draining for Gardens.—J. M. Graham, Pine Wood, Tenn., has a piece of land that has a heavy clay subsoil which he is obliged to use as a garden. He finds it difficult to work, and asks if sand would improve it. Sanding would be found too expensive. The most satisfactory remedy would be to cut drains four feet deep, four rods apart, put in either tile, plank, or stone, and then trench the ground with the spade eighteen inches or two feet deep. With sufficient manure there would be no further trouble about that garden.

A Pleasant Announcement.

All our readers will be gratified to learn that EDWARD EGGLESTON has joined our editorial corps, and that hereafter his entire time and talent will be exclusively devoted to the publications issued by ORANGE JUDD & Co. His attention will be given mainly to *Hearth and Home*, for the editorial work of which he has peculiar natural qualifications, and the benefit of much previous experience, as editor of the *Little Corporal*, the *National Sunday-School Teacher*, etc., and also for some time past as Superintending Editor of the *New York Independent*. The multitudes who have enjoyed his pleasant, instructive, and widely popular contributions to *Scribner's Monthly*, and other magazines and periodicals, will be glad to know that he has found a congenial home, where he can concentrate all his energies, and they will gladly follow him to this his new field of labor.

We are glad to announce further, that JOSEPH H. RICHARDS, long known to the newspaper world as publisher—for several years last past as Business Manager of the *New York Evening Post*—has joined the publishing force of ORANGE JUDD & Co., where his aid will doubtless be especially valuable.

A Working Capital of $200 per Acre.

The suggestion made on another page that $200 per acre might be used with profit, will bear explanation. It is susceptible of demonstration that even this large sum may, on a small farm, if not on a large one, be used to advantage.

Let us take, as an example, a fair farm of fifty acres, in the condition in which hundreds of small places now exist—good, but not remarkable, with tolerable buildings, a good but rather wet soil in fair condition, fences good, and live-stock neither good nor bad (just middling, as the live-stock on such a farm usually is). The farm is worth, with its improvements, $6,000; stock and implements, including six cows, one yoke of oxen, and a pair of horses, not less than than $1,500. Here is a capital of $7,500, on which taxes, interest, insurance, repairs, and renewals can not be covered by less than $600 a year. Add to this, for the farmer's own services, $600 more. Here is an outlay of $1,200. The income of the place may be set down as follows, which is an average case:

Milk from six ordinary cows, 12,000 quarts, @ 5½c.		$660
Potatoes and other vegetables		500
Hay		400
Grain		200
Pork		100
Poultry and eggs		100
Supplies for family (from the farm)		300
House rent		140
Total income		$2,400
Deduct: interest and services as above	$1,200	
Hired man (wages and board)	500	
Seeds, store bills, blacksmith, harness-maker, etc., etc	300	2,000
Profit		$400

or $8 per acre.

This is a very fair showing of much of the "good farming" on Eastern farms. Now, let us see what might be done on the same land, with a cash capital of $10,000 ($200 per acre).

In the first place, the land that needs draining may be drained for (say forty acres at $70 per acre) $2,800. The buildings may be enlarged and made convenient for work for $1,500. The six ordinary cows can be sold off for $300, and twelve first-class ones can be bought for $1,200—making a difference of $900. Five hundred pounds of good superphosphate per acre, or its equivalent in other manure, can be applied to the whole of the available land (say forty-five acres) for $600. New implements, including a steam-engine, cutting machine, etc., will cost $1,500. Placing fences so as to make the fields more convenient, the removal of old headlands, etc., may cost $400; and it will pay to spend $300 in subsoil plowing, etc.

We have now made a permanent investment of $8,000 of our capital, where its value will depend very largely on the manner in which it is used; and for its successful management we must be very careful in the handling of the $2,000 remaining. Of this sum, $1,000 had better be put in the bank against a time of need.

With this outfit, and a good business man to manage it, let us see what we may accomplish. The income of the place may be thus stated:

Milk from twelve extra good cows, 30,000 quarts, @ 5½c.		$1,980
Potatoes and other vegetables sold		1,500
Grain sold		500
Pork		500
Poultry and eggs		200
Supplies for family from farm		300
House rent		140
Interest on cash for use		80
Total income		$5,200
Deduct: Interest and services as above	$1,200	
Interest on $10,000	700	
Hired man and boy	750	
Extra man in summer	250	
Seeds, store bills, etc	500	3,400
Profit		$1,800

or $36 per acre.

Nor is this the whole story. It is hardly the half of it. In the first instance, what with the sale of hay and the keeping of a small stock of cattle and swine, the farm is sure to run down, so that in a few years its balance will show on the wrong side of the account, and its owner will emigrate or go into trade. In the latter instance, where we have understated the early possibilities, the future improvement of the farm may be set down as absolutely secure. Every year the number of cows may be increased, and the product of the land will grow larger every year. It is not too much to say that at the end of ten years the borrowed capital may all be paid off, and the yearly profit per acre may be doubled.

With $100 per acre, more than one half as much may be accomplished as with $200, and perhaps more in proportion with $50; but, whatever the amount, and whatever the farm, let it be distinctly understood that *the man himself* is the true measure of his success. An idler, a dolt, or a novice attempting to carry out our suggestions, would run through his capital and swamp his whole farm—"as sure as eggs is eggs."

Country Roads and Bridges.

BY W. J. CHAMBERLAIN, HUDSON, O.

In an article published in July, there were given the location and the proper angle for bridges and sluices. I now propose to give some of the best methods of constructing them.

Where white oak or other durable timber is plenty and sandstone is not, the cheapest and best bridge is made as represented in figure 1. Suppose we want a bridge 2 by 10 feet inside measure. Such a bridge will discharge 56,000 barrels per hour, or over a million in a day.

The oak logs, *b b*, figure 1, 14 feet by 30 inches, have their ends resting on oak plank, *a a*, each about 15 feet long by 15 inches wide. The ends of the logs are hewn down so as to rest firmly on the planks. The stringers, *c, c*, etc., four in number, rest on the logs in the ordinary manner, then the planks, and then the wheel-guards, *e, e*. Then holes are bored, and long ⅞-inch bolts, *f, f*, are passed from wheel-guard to foundation plank, through the hearts of the logs, about six inches from their ends, and short bolts, *g, g*, are put through stringers, planks, and wheel-guards. Still shorter ones, not seen in the figure, bolt the middle stringers to the planks. The long bolts have a nut *on each end*, for convenience, instead of a nut on one and a head on the other. If there were a head on the lower end, the bolt must be driven up from beneath in building the bridge, which would be very difficult. If there were one at the top, the bolts would have to be drawn out to renew the planks, which would be almost impossible after they had rusted in for ten years.

A bridge so built will last twenty years by renewing the planks once. The abutments can never be *pressed in*, for the long bolts hold them in place. No freshet can wash away the bridge, unless it sweeps away the whole thing at once. If sandstone can be obtained within five miles, at a dollar a perch, it will not cost much more on the spot than oak logs, and make more durable abutments; but in this case the whole bottom of the bridge should be covered with plank running lengthwise of the road and extending under the stone-work; and the bridge should be bolted as when built with logs.

A bridge built of the size and in the manner described, with log abutments, will cost from

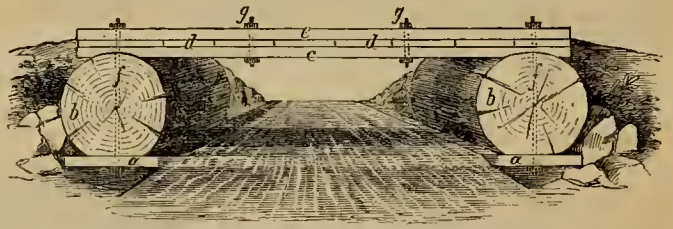


Fig. 1.—CHEAP AND SUBSTANTIAL BRIDGE.

$25 to $30; built with stone abutments and full plank bottom, from $35 to $45.

The best small sluice is made by spiking firmly together four 2-inch planks, as represented in figure 2. The sides should be 4 inches narrower than the top and bottom, and the latter should be spiked on to the former. Then we have a box, square inside. It can not *cave in*, and never *will choke up*, and will last as long as oak fence-posts, and is really cheaper than the old-fashioned sluice made with two logs and a plank. Sewer-pipes are expensive, and are apt

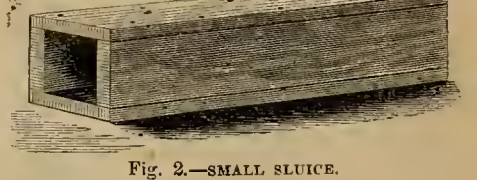


Fig. 2.—SMALL SLUICE.

to tip and heave, and then clog; or to become exposed and broken by heavy wagons.

The July article spoke at some length of Rule 1st. The present article must speak more briefly of the remaining ones.

Rule 2d.—Don't let the water have its own way. Not many miles from my house is a hill half a mile long, and some 200 feet high. Last spring the water from one gutter near the top worked its way into the middle of the road, and followed a rut to the bottom of the hill. In six

weeks there was a huge gully there, and dirt enough at the bottom of the hill to cost $50 to replace it. One dollar spent *at first*, in using plow and hoe, would have prevented all this waste. The supervisor of that district fairly owed the traveling public or the county treasury $49. "A stitch in time saves nine." It is his business to take the stitch.

Rule 3d.—Dig out all stones that stick up in the track. Of course throw out all loose ones. "It's surprisin'," said my shrewd old neighbor before mentioned, "how much cussin' a few small stuns in the track will cause. Th' use t'be an ugly one stickin' up front of my house, and it spoilt my front porch for noonin's. You see, I found the swearin' done over that stun was corruptin' my morals, say nothin' of spoilin' my noonin' naps. So I dug the thing up, and since then the teamsters have been more pious in front of my house. I b'lieve I stopped more swearin' than the parson could by preachin' on the hull ten commandments." Nothing tries the temper of a driver and the stuff of his wagon worse than stones in the wheel-track, and loose stones often seriously lame a horse. A supervisor can not do a better deed than to clear them all out of the road.

Rule 4th.—Clean and fill all mud-holes, as a dentist would a tooth, *so they will stay filled.*

It does no good to pile in dirt while they are full of mud and water. That merely enlarges the hole and makes it muddier. A few such "fillings" will spread it clear across the road. The water should be drained or dipped off, and the hole filled and rounded up so the dirt can not settle there again. If it is deep, small stones picked out of the track may be filled in at the bottom, if they are then well covered with gravel or dirt.

When a supervisor has observed these four rules and acted on them, his roads will be in a passable condition, and not liable to be rendered impassable by the first heavy rain. He can then use the rest of his funds in *turnpiking* and in improving the appearance of the highways.

How They Make Roads in Quiddletown.

BY ONE WHO HAS BEEN THERE.

MR. EDITOR: I don't want you to flatter yourself that you are doing such a mighty sight of good by your paper. It is all very well for you to tell folks how to do all sorts of things, and then, for fear they won't know what you mean, to rub it in with pictures. Your new-fangled notions may be good enough, and your pictures are awful taking; but you don't know every thing, or if you do, you can't teach it to the Quiddletown folks—you can't teach them any thing, they learned it all from their fathers.

To say nothing about high farming, and saving manure, and soiling, and all that, just take the matter of making roads for an example. Now, you think you know something about making country roads, don't you? Well, may be you do, but if you do the Quiddletown folks don't, and what they don't know a'n't worth knowing—as any one of them will tell you. I don't know much about such things myself, but I am going to tell you how *they* do it, and if you get my "illustrations" up in good style, I'll bet that a dozen people will follow this plan to one that will follow yours.

In the first place, Quiddletown is an old town, and they don't make any new roads; they only make the old ones over, and this is how they do it. Figure 1 is what you call a cross-section of a road, as it looks after corn-planting time. The black part is top soil and sods; the light part is blue clay, and the lumps are stones.

Figure 2 is the way the road looks after they have "made" it. In a little while, as the season is dry, it gets to look like fig. 3, where the spotted part shows the dust. It keeps this way

Fig. 1.—THE WAY THE ROAD IS AFTER CORN-PLANTING.

most of the summer; except for a rain now and then, but in the fall it gets pretty bad, as in fig. 4. Then the committee gets mad and puts on some stone, like fig. 5, with sods on top of them, so as to make the road hard in the middle any

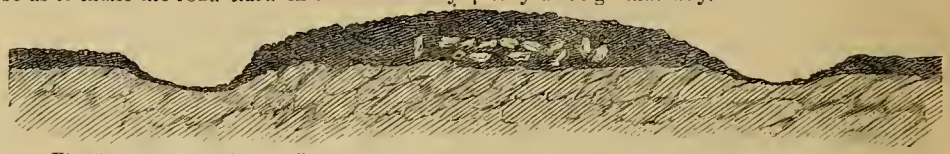


Fig. 2.—THE ROAD "MADE"—ALL THE SURFACE SOIL OF THE GUTTERS BEING PILED ON IT.

how. It makes it so hard that folks drive at the sides all winter, when the road looks as in fig. 6. It is only in the spring, when the frost is coming out, that they go on the stones, because they can't help themselves, and this is just enough to make it look like fig. 1, again.

Fig. 3.—DUSTY TIMES, ALONG IN JULY.

Then they appoint a new committee, and they go over the same course again, only they pick off some of the stones to make the road smooth for summer. They have to put them back again in the fall though.

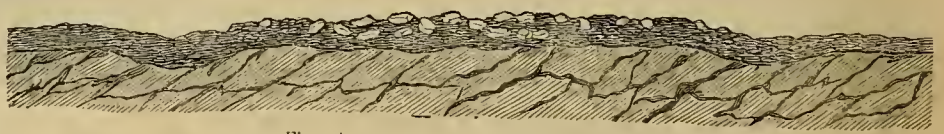


Fig. 4.—MUD AND SLUSH—ALL AFLOAT.

Now this is most pictures enough for one letter, but I would like to show you how they manage a springy place in the spring of the year. They don't make a drain and tap the spring, the way you tell them to; they just put

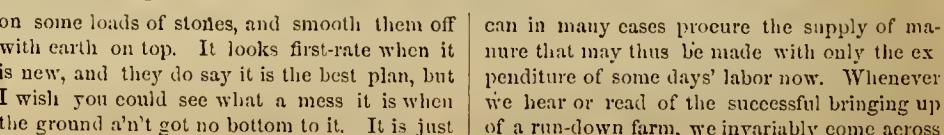


Fig. 5.—THE MUD CURED BY A RIDGE OF STONE AND SOD IN THE MIDDLE.

on some loads of stones, and smooth them off with earth on top. It looks first-rate when it is new, and they do say it is the best plan, but I wish you could see what a mess it is when the ground a'n't got no bottom to it. It is just

Fig. 6.—WINTER WEATHER ROADS.

like driving over a rotten corduroy in a swamp, and if it wasn't for these spots they could carry twice the load they do. Seems to me if water makes the trouble, they had ought to put in a drain and keep the water out of the way; but I suppose they know best—they say they do. Another funny thing is the way they manage when two road districts join. They say every district must take care of its own water; so instead of turning the gutter down alongside of the road where they branch, they make the other people keep the stream in their own district, and every man of them has to drive through the mud or over the ice every time he goes to town. The other people don't care—they don't go that way.

Swamp Muck.

No farmer who has a supply of this valuable material, should permit the opportunities presented during this month, to pass away without digging out a supply, to be hauled during the winter. After this month has passed away, the fall rains may be expected, which will flood all the low grounds, and prevent digging, or make it so uncomfortable that any excuse will be found to avoid it. No more valuable addition to the manure heap can be procured, and a supply that will last all winter, to absorb all liquid waste from stables, cow-houses, kitchen, and hog-pens, and keep hen-roosts well provided, should be procured without fail. Next spring no money can in many cases procure the supply of manure that may thus be made with only the expenditure of some days' labor now. Whenever we hear or read of the successful bringing up of a run-down farm, we invariably come across this fact, viz.: "He hauled some swamp muck." Now, whatever chemists may say about the composition of this or that material, we farmers know that we must have a certain amount of bulk in our manure. The soil needs the mechau-

ical effect of the addition of a large amount of decomposing vegetable matter, and in swamp muck we have it, finely divided, and capable of absorbing much concentrated matter. Therefore, as a basis of compost heaps, it is most excellent. It should be taken out during the present month, and put in heaps to drain. The heaps should be made high and narrow, in which shape the rain falling on them will be shed, and the muck kept dry, at least sufficiently so as to absorb large quantities of the liquids of the barn-yard. Two or three hundred loads of swamp muck would make a handsome pile of compost, when mixed with the manure of a pair of horses, four or five cows, a few hogs, sheep, etc.; and, spread on ten acres of grass land during winter and plowed in in spring, would bring a handsome crop of corn to commence with. That field might be considered out of leading strings, and able to stand alone until corn-time came around again, when it would be thankful for just such another supply.

More Labor and Manure, and Less Land.

It is a first-rate rule for farmers to take the world as they find it. There has been, for long years past, a disposition on the part of farmers at the East not "to bear the ills they have," but to "fly to others that they know not of."

How large a proportion of those who have gone to people the far West have succeeded there, it is hardly worth while to inquire, for we can not know how many of the successful ones would have been successful here. They have certainly accomplished great good for the country by their emigration. It is time now for those who are left behind to consider very carefully what course their best interests indicate. It is fair to assume that no man moves West from motives of philanthropy. Whatever may be the effect of each one's going, his own motive is self-advancement—the sort of advancement that is represented by the accumulation of money, or money's worth. They find land is dear and poor at the East, and that under the old system of farming it is difficult to make a living, and almost impossible to accumulate wealth. Disregarding the fact that they can get abundant labor, abundant manure, and cheap implements, and that they have a good market at their doors, they are apt to stop short at the fact that, farming it as they do, their only chance lies in their getting more and richer land, no matter where it may be. In our opinion, the time is past when an average, old-fashioned farmer, with his two or three sons, can make a satisfactory business of the cultivation of a large farm in New England, in the old-fashioned way. His own opinion, too, is apt to be the same, and he sends his sons to farm at the West, or to some other occupation than farming, nearer home. Instead of taking the world as he finds it, and making the best of it, he tries to find a new world, hoping it may prove a better one.

The writer of this article has had a long experience in farming, and he has seen a great deal of the West as well as the East. He believes that the radical fault of Eastern agriculture is that we try to do a great deal too much, and so fail to do any thing well. And if, with his present conviction, he had to commence a life-long career, or to lay one out for his son, he would take a farm, chosen more with reference to its nearness to a good market and to manure than for its soil, and only so large that after putting the buildings and permanent improvements in order, he would have an available working capital, in ready money, of $200 for every acre. Having this money, he would use it all in his business. Not one cent of it should be invested in stocks, or on bond and mortgage. There might, under this plan, be only enough to work 5 acres, or 10, or 20. No matter; what acres he has should be well stocked, well manured, and well cultivated, and it would certainly pay. It is demonstrated by the experience of hundreds of our farmers that it is only the *good* farming that pays. There is a point (varying according to the quality of the land and local circumstances) where the production pays less than the interest on the value of the land and the cost of labor, manure, and superintendence. *The secret of successful farming lies in turning this point on every field of the farm.* Every acre the produce of which falls below it, is a tax on every acre the produce of which exceeds it, and, too often, farmers who raise splendid and most profitable crops on a part of their land, find their profits eaten up by the interest and expenses of the rest. Now, there is no land anywhere that may not, by the expenditure of money, be made fertile. There is little land that any practical man would think of cultivating at all, that might not *profitably* be made fertile by judicious expenditure; and probably the wise use of $200 per acre on a farm where the buildings, etc., are in good condition, even in rocky Connecticut, would make it a profitable one to cultivate. Consequently, if one has a well appointed farm of 100 acres with good buildings, but no money, he would do well to sell 65 acres for $6,500, and use all the money in working the 35 acres that he retained. No two cases would be exactly alike, but it may be stated as a general proposition, that while he is now struggling to make both ends meet, and wasting interest money, labor, and manure on his whole poorly-worked farm, he might get rich from the thorough cultivation of the well-worked part of it.

Every place has some advantages, and the true plan is to appreciate and to make the most of these. The advantages of those who live at the East lie not in the land, but in the facilities for working it; consequently, their chance for profit lies not in the land, but in the facilities. They need only so much land as will enable them to turn these to the best account. If one acre will bring the largest net profit from all the facilities for cultivation and sale that they can command, then one acre is enough for them—better than two acres.

This idea might be indefinitely enlarged upon, but it is sufficient to indicate it, and to allow each man to apply it to his own condition. If we are sure of any thing connected with farming, it is that we are absolutely right in our opinions as above expressed, and that whoever adopts them and follows them judiciously, will make money.

An Egg Farm.

BY H. H. STODDARD.—*Fifth Article.*

The stock used for hatching purposes is managed differently from the layers, and needs different accommodations. The houses for sitters, fig. 1, are near the center of the farm where the granary and cook-room are located. They accommodate 100 fowls each, are not movable, and are set upon a stone or brick underpinning, 10 inches high. They are 10 feet 4 inches from the ground to the peak, and 20 feet long by way of the ridge, and 16 feet wide. The roofs are shingled, and the ends of the buildings covered with boards nailed upright and battened. The form of these houses, like that of all in the establishment with eaves near the ground, is adapted to afford as much ground room as possible in proportion to the lumber used. The roof of each house is crossed outside by a picket fence running at right angles with the ridge. This fence forms one side of the yard with which each house is furnished, and though it extends only 18 inches above the ridge of the building, the sitters, not being of a high-flying breed, will not get over it. By this arrangement exit is afforded to the fowls and to their keeper at either end of the building, into a yard which is located at either end on alternate years. The two ends of the house, one fronting east and the other west, are both provided exactly alike with doors and windows. The large doors are $6\frac{1}{2} \times 3$ feet, opening outwards, and the smaller ones attached to them are 7×9 inches. The windows are 2×3 feet, and are hinged, opening upwards for ventilation. In hot weather the windows and doors in both ends of the building are opened wide, and to prevent the fowls escaping at the end where there is no yard, wire netting is fastened across the window casings inside, and there is an inside door of the same material hung to the stud to which the outside door is hinged. Fig. 2 gives an interior view of the house. There are four perches, each 15 feet long, and of the width and thickness of those for layers. They are placed 18 inches higher than the top of the underpinning, those nearest the nests being $3\frac{1}{2}$ feet, and those nearest the eaves $5\frac{1}{4}$ feet from the center of the building. A space $2\frac{1}{2}$ feet wide at each end of the room is left unoccupied by the perches. Three tiers of nests occupy the center of the room, each tier consisting of two rows placed back to back, and running in the same direction as the perches. There are 12 nests in each row, or 72 in all, and as each nest is 1 foot square and 1 foot high, they occupy 12 feet in length. This allows a space of 4 feet at each end of the building between the nests and the doors, and as the latter are planned of a sufficient width to admit a wheelbarrow, and the perches are made so as to be easily moved, opportunity is afforded to wheel in or out the dry earth which fills the bottom of the room nearly

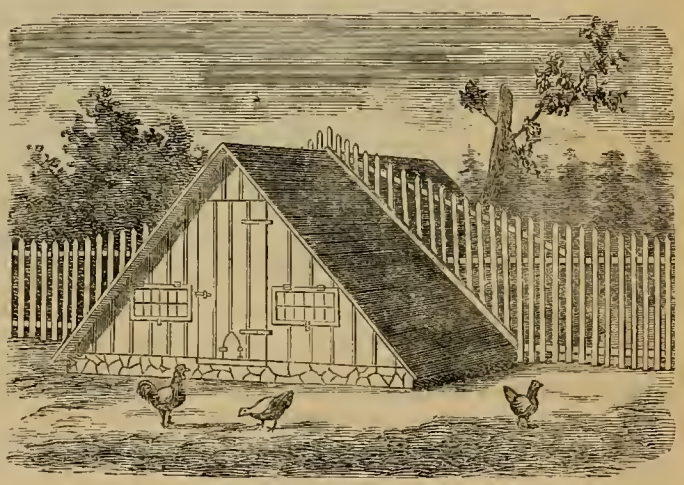


Fig. 1.—HOUSE FOR SITTERS.

up to the top of the underpinning. There are nests enough so that forty or fifty hens may be set at once, and leave room for fowls that are

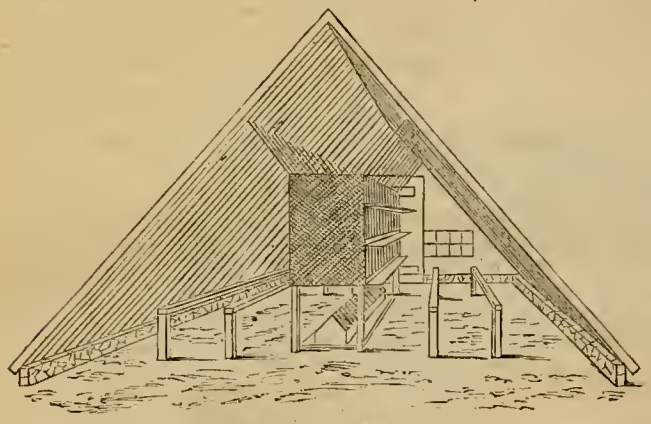


Fig. 2.—HOUSE FOR SITTERS—INTERIOR.

laying. The nests are placed so that the bottom of the lower ones is 6 inches higher than the perches, this hight enabling the attendant to avoid stooping, as there is much work to be done about the nests of sitting hens; while they are not so high as to prevent the fowls reaching them by flying upon the nearest perch, or as to render a ladder necessary. The nests are made so that the hens enter them at the front, where a 2-inch strip set edgewise prevents the eggs from tumbling out. An alighting-board projects $2^1/_2$ inches in front of each row of nests. The partitions at the backs of the nests are made of wire-cloth of a mesh fine enough to keep out rats, those at the sides of the same and of a coarse wire netting, alternately, for

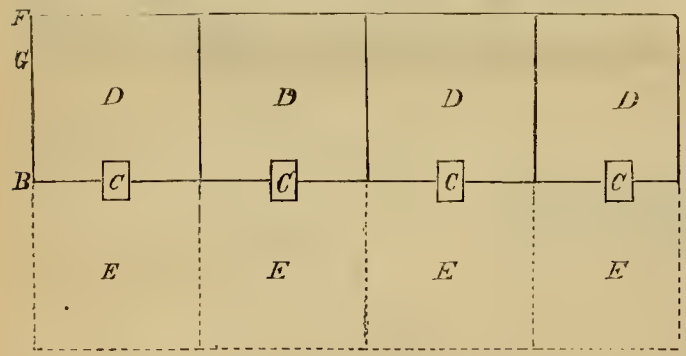


Fig. 3.—PLAN OF YARDS FOR SITTERS.

purposes described in another place. In this way the circulation of air is allowed for the health of the sitters. Sufficient attention is not generally given to this point. Fowls in a state of nature being accustomed to scratch holes in the ground under bushes, to form their nests and incubate where there is plenty of air, pant and show distress in hot weather when forced to occupy close boxes. Large doors of wire netting, with coarse meshes, not shown in the

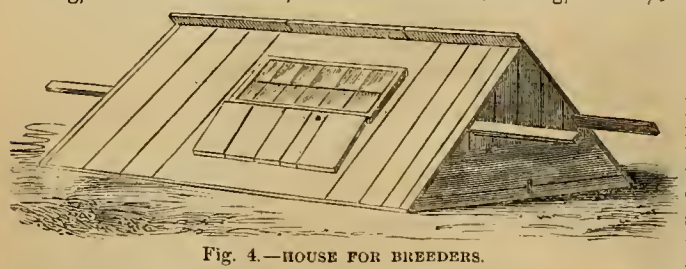


Fig. 4.—HOUSE FOR BREEDERS.

illustration, prevent the fowls roosting at the entrance to the nests at night. These doors are closed after gathering the eggs towards evening, and opened again the first thing in the morning, and are made in two parts, folding together, so that there may be room for them overhead, when raised. A piece of rat-proof wire-cloth is placed in front of a nest occupied by a hen engaged in hatching, and fastened by buttons, to keep out laying fowls by day and rats by night. To keep the fowls from using the upper part of the room as a roosting place, lath-work, a part of which is shown in the figure, extends from the top of the upper nests to the roof. Underneath the lower tier of nests is placed a feed-box, made like those with which the houses for layers are furnished, and others of the same construction should be placed on the ground at the ends of the perches, and at right angles with the latter. Five houses for sitters, each with its yard, will be required for an establishment of the size we are describing. The arrangement of the yards is shown by fig. 3. The fence, A B, is made like the buildings C, non-movable. The fences on the remaining three sides of the yards are moved yearly. Suppose that last year the yards were located at E; then this year they are at D, and E is devoted to crops. A strip of ground is left untilled near the doors of the buildings for a wagon path. To keep the yards free from taint and afford scratching ground, a part of each is plowed occasionally during the season when they are occupied by the fowls. All the fences running east and west, as F B, are composed of gates, so that by opening, for instance, at F, G, through the whole range of yards, a strip of each may be plowed, and in a few days the operation may be repeated at another part of the yards. The quarters for the breeding stock combine houses very much like those for layers, and yards like those for sitters, only both are smaller. The houses for layers are movable, with no yards; the houses for sitters are stationary, with movable yards; and the houses and yards for breeders are both movable. The breeders are kept in fives and tens, no flock ever to exceed the latter number. The buildings are of two sizes, one $3^1/_2$ feet wide, 4 long, and $2^1/_2$ high, and the other of the same width and hight, and $7^1/_2$ feet long. There are no runners, and the doors are few in number, though comprising the whole roof; each house is furnished with but one window, and but two or three nests are necessary, and one perch. Otherwise the houses are like those for layers on a reduced scale. They are designed to be moved by two persons, adjustable handles being attached at either end for this purpose. In this way, being without floors, they are shifted to different parts of the yards, and set on ridges of earth raised by the plow. In winter each stands upon the edges of a dust-bin of 2×8-inch plank. The arrangement of gates to admit the team for plowing, the stationary fence at one side of the yards, and the shifting of the latter to allow tillage, are the same as for sitters, with the exception that the stationary fence is entirely detached from the houses. The movable fences for the yards of both sitters and breeders are made as follows: Pickets 2 inches wide, $^1/_2$ inch thick, and 6 feet long, are nailed to two rails 3 inches square, and 12 feet long. At both ends of every rail, U-shaped pieces of stout, hogshead hoop-iron are fastened by screws so as to form staples through which round posts, $7^1/_2$ feet long, and $2^1/_2$ inches in diameter, pointed at both ends, are thrust, and set in the ground. The rails in the alternate sections are at such distances apart that the tops of the pickets shall be in line, and the staples not interfere with those of the adjoining sections. Each post is supported so as to resist the winds to which the fences expose so much surface, by a brace upon the outside of the yard (fig. 5). This brace is

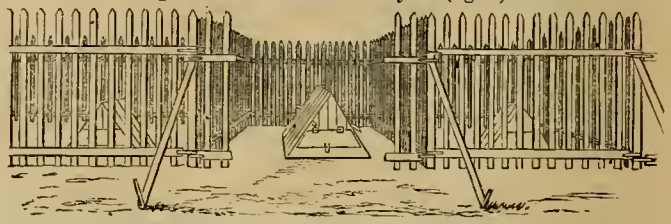


Fig. 5.—YARDS AND HOUSES FOR BREEDERS.

made by sawing a rail stick in two, and furnishing each end with a staple like those upon the rails. The staples are fastened upon the braces in an obtuse angle, and the ends of the braces are beveled, the better to fit the posts. One of these staples passes around the post between the two staples of the upper rails, and through the lower one, which reaches to the ground, a short stake is driven into the earth, with its top inclining away from the fence (fig. 6). The gates which compose the entire sides of the yards where the team passes in plowing, are hinged to stout posts, which are braced in a similar way. The stationary fence represented in fig. 1, and the corresponding one which forms a part of the breeding yards, are made substantially with posts of good size, deeply set in the ground, so as to stand without braces. The gates occupy a space of 12 feet each, the same as a section of the movable fence. The smaller breeding yards for five birds are 12 feet square (fig. 4); the larger ones for ten birds are 24 feet square, and the yards for sitters are 48 feet, or in each case a fraction over these figures, to allow for the room occupied by the posts; the design being to use one, two, or four gates, or movable sections, to make one side of a yard. The openings between the pickets are $2^1/_2$ inches wide for breeders; for sitters which are of larger breed, 3 inches are allowed. The pickets are nailed on the yard side of the rails, to prevent fowls alighting on the latter. The gates which divide the breeding-yards are boarded for 2 feet at the bottom, to keep neighboring cocks from fighting.

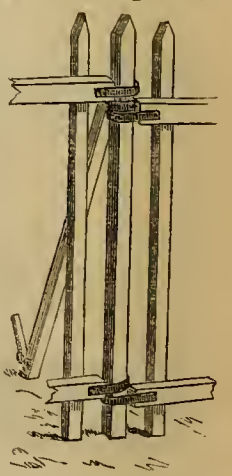


Fig. 6.—MOVABLE FENCE.

Gathering Sea-Weed for Manure.

Those who live inland can hardly appreciate the value a shore farmer attaches to a sea-weed privilege. Many of the shore farms are naturally sterile, and were not their owners able to draw fertilizing material of various kinds from the sea, their cultivation would, in many cases, be abandoned. Their fertilizers are fish, shell-fish of various kinds, salt-marsh mud, and the sea-weeds proper, all of which furnish valuable plant-food. Fish guano and cancerine, made from king-crabs, are now articles of commerce, and are used at great distances from the coast; but sea-weed is of so bulky a nature that it is only available to those farms that are within hauling distance of the shore. Two very distinct things are popularly known as sea-weed. First, the sea-weeds proper, or algæ, those flowerless plants which, having no true root, draw their sustenance from the water which surrounds them. These are usually found on rocky coasts, and are thrown up by the sea, or are torn from the rocks to which they are attached. Kelp and Rock-weed are familiar examples of these. Secondly, a flowering plant, Sea-wrack, or Eel-grass, which roots in the muddy bottoms along the creeks and bays of the coast. This sea-weed is largely used upon the East End of Long Island, and in other localities, and an account of the manner of collecting and using it is sent us by Mr. S. T. Ferry, of Southold, from which we extract as follows: The sea-weed principally used on the East End, known as Eel-grass, is distinguished into "Bay sea-weed" and "Creek sea-weed," or, as it is generally called, "Creek-mud."

Fig. 1.—GATHERING SEA-WEED—USING THE TONGS.

BAY SEA-WEED grows in shallow water, upon a sandy bottom, and is torn up by the roots, or, more properly, broken off just above the roots by violent winds, and cast upon the shore in large quantities. It is generally hauled to the barn-yard and hog-pen, where it absorbs the waste and makes a valuable manure. It is also dried, and used for littering stables to some extent. Few, comparatively, enjoy the benefits of the use of bay sea-weed, as only those who control the shores or beaches have the privilege of taking it away. It is true all may remove it from the bed where it grows, but that is a slow and laborious operation, and pays but poorly.

CREEK SEA-WEED grows usually on very muddy bottoms, and ripens about the first of August, when the harvest generally commences, although in creeks where landing-places can be secured, the anxious ones commence harvesting early in July, thereby "killing the goose that lays the golden egg," for the material taken in such an immature state not only shrinks badly, thereby causing loss, but the roots are weakened, and the crop inevitably grows smaller each year, or, as the farmers say, "it grows thinner." This would seem to be a subject worthy the attention of our State Legislature. Creek sea-weed is taken by persons in boats, or, more generally, on flats, as the labor of haling is thereby saved. The implements used are a pair of tongs made of two pieces of tough wood, from six to eight feet in length, according to the depth of water or the size of the person who uses them, and riveted at about one third of the distance from the ends held in the hand. The tongs are thrust into the water wide open, and closed upon as much of the weed as possible, when two or three twists or turns are made, by which the roots are broken, and then sea-weed, mud, small eels, round clams, crabs, etc., the more of these the better, are all lifted on board. Some prefer a large amount of mud, and such use heavy, five-pronged rakes.

The sea-weed is piled in large heaps, and after heating a few weeks is hauled directly to the field, where it is left in small piles until late in the autumn or a thaw in winter, when it is spread and allowed to remain upon the surface until spring, and is then plowed under for corn. It is almost invariably used upon sod ground, and if not applied too frequently it will commonly produce on our shore farms as good a crop of corn (for which crop it appears to be the best adapted) as an equal quantity of barn-yard manure.

A moderate estimate of the number of loads of Creek sea-weed used annually, in the town of Southold, can not certainly be less than ten thousand two-horse wagon loads. It sells green, that is, before it is seasoned or dries up, at fifty cents per load, and is worth when upon the field, $1.25 to $1.50 a load, according to the distance hauled. From twelve to sixteen loads is the quantity that generally applied to the acre, although a larger quantity may be safely used.

Fig. 2.—GATHERING SEA-WEED—UNLOADING IN SHALLOW WATER.

CLOVER FOR PLOWING UNDER.—"An acquaintance of mine," writes a correspondent in Connecticut, "who has greatly improved his farm by plowing in clover, says he would not give anything for the common small variety of red clover for a fertilizer—that only the large Northern variety that grows but once in a season, is of any value for that purpose. Is he correct?"—We think not. In fact, we are sure he is not. A *given quantity* of the ordinary early red clover is worth as much to plow under for manure as the late variety, and probably a little more, as it has more leaves and less woody stalk. The late variety grows longer and larger, and where clover is grown merely for the purpose of plowing under for manure, it may be better to sow it than the ordinary so-called

"medium clover." This is the opinion of many experienced farmers in Western New York, while others who have tried both, prefer the ordinary variety. But the truth is that the old practice of sowing clover *merely* for the purpose of plowing under, is almost entirely abandoned in that section. The land is kept in clover two and sometimes three years, and then as much of it plowed under as can be spared. Nine farmers out of ten prefer the medium variety.

Walks and Talks on the Farm—No. 93.

The sharp advance in the price of wool will be of great benefit to our agriculture. It will save the sheep interest. I have done all I could, during the depression, to persuade farmers not to sacrifice their sheep, but rather to weed out the poor ones and retain their best ewes, take good care of them, and breed to the best rams they could find. Those who have done so will now get their reward for their perseverance and common sense. There is nothing more certain than that a great leading product like wool, or wheat, corn, oats, pork, or beef, can not long remain below the cost of production. And a farmer can not make a greater mistake than to abandon wool-growing, or wheat-growing, or beef or pork growing, during a period of temporary depression, and of engaging in something that for the moment happens to be paying unusually well. Every body will now rush into wool-growing. Pork and beef are low, and thousands of farmers who have been endeavoring to improve their stock of hogs or cattle, will now neglect or sacrifice them; whereas the wise farmer will hold on to his stock and continue to improve it, and by the time the tide turns, as turn it must, he will be ready to avail himself of the increased demand for his products. A year ago this spring I bought potatoes to feed pigs at ten cents a bushel. This spring they were worth $1.50, and yet we had a better yield last year than the year before. The price was so low in the spring of 1870 that farmers planted far less than usual.

Take one year with another, that farmer makes the most money who pursues the even tenor of his way uninfluenced by the fluctuations in the price of his products. It may be said that this is plodding work, calling for little intelligence and no enterprise. But this is a mistake. There are abundant opportunities for the exercise of skill, intelligence, patience, perseverance, industry, enterprise, and every thing that makes a man. A farmer had far better occupy his thoughts and his energies in determining the best method of enriching and preparing his land for potatoes, and how to plant, cultivate, dig, and market them, rather than in worrying, unsatisfactory, and uncertain speculations as to whether the crop will or will not be largely grown and command a low or a high price. Like other men, a farmer has only a certain amount of energy, and his success depends very much on its judicious and economical employment. The less of it there is wasted in useless anxiety and worry, the more will there be left to manage the farm. And let me tell you, it requires more brains, more energy, more thoughtful discrimination and good judgment, greater activity, tempered with prudence and common sense, to manage a farm properly at the present day, with American machinery and old-country help, than it does to manage a church choir or run the Union Pacific Railroad. You have to work yourself and keep others at work, to lay plans and change them half a dozen times to suit the weather; to keep all your tools, implements, and machines in working order and in their proper place, ready for use at any moment. You must be diligent to know the state of the flocks and look well to the herds, to see that they are in good health and are fed regularly, to give them an occasional change of pasture and a constant supply of water, and (to give a bit of my own experience) to see that the fences are in repair, and that the cows do not get into the Deacon's corn.

I think the Deacon will beat me this year in corn. He drew out his manure from the yard this spring, and plowed it under for corn. He put on only a very light dressing, and it was rather coarse and strawy, but it seems to have done considerable good. At any rate, his corn looks better than mine. The Deacon thinks that long, coarse manure is of great benefit to corn from its mechanical effect in lightening the soil and making it warm and porous. He did not put enough on, and it was not sufficiently decomposed to do much in furnishing plant-food to so vigorous and rapid-growing a crop as Indian corn. I think the Deacon, too, for once cultivated his corn better than I did, and I am inclined to believe that this is the main reason why his crop is better than mine. We both planted in hills this year, so that the manner of planting could not make the difference.

If I had the time I would try to raise a superior variety of Diehl wheat. All things considered, it is, for this section and on dry, rich, clean land, the best kind of white wheat yet tried. But it varies greatly in character. In the first place it is almost impossible to get it pure, and even the pure Diehl wheat itself, and, in fact, the different kernels in the same head, vary greatly in quality. The plan to adopt is to take a number of the finest heads of Diehl wheat that can be found, and from these select the best kernels—such kernels as an experienced miller wants, to make the choicest flour. Sow these kernels, and next year repeat the process, selecting out the best, and continuing the practice until the desired quality is fully established. I would myself give five dollars a bushel this year for absolutely pure Diehl wheat, but my plan contemplates far more than this. I want it not only pure, but the best specimens of the breed. Halleck's pedigree wheat has proved a failure, but this was due to the fact that he aimed at quantity rather than quality. What we want is not so much a wheat that *is capable* of producing a large yield per acre. We already have varieties that are capable of producing more wheat per acre than the available plant-food in the soil will support. In other words, so far as quantity is concerned, our varieties are better than our soil. It is no use getting a variety capable of yielding 50 bushels per acre, and sowing it on land not rich enough to grow twenty-five bushels. Our climate is better than our farming. The person, therefore, who proposes to improve a variety of wheat had better aim at superior quality rather than at great productiveness. If he can secure the former, the latter will depend principally on the condition of the soil.

One of my neighbors had a field of low land that has been little better than a swamp ever since it was cleared. He cut an open ditch on one side of it, and then laid a few stone drains across the field, which discharge into the open ditch. It was not by any means thorough drainage; so far from it, indeed, that it was deemed desirable to plow the field into lands only about four yards wide, and leave very deep, dead furrows to carry off the water. Last fall he sowed the field with Diehl wheat, and he had the heaviest crop of wheat I have seen this year. The straw was about five feet high, and stood up stiff and straight, and was as bright as could be desired; and, notwithstanding the mucky character of the land, the clover had taken finely. I have rarely seen so great an improvement at so small an expense. But the truth is, these low, swampy lands, abounding in organic matter, are of such a porous nature that an underdrain will dry the soil to a far greater distance than it will on ordinary upland. If a good outlet can be secured, one or two open ditches, three or four feet deep, with a few underdrains, would render many of these swampy fields the best land on our farms.

Mr. John S. Bowles, of Ohio, writes me as follows: "I see that you advocate a peculiar system of raising swine, which entirely meets my approval, only that I do not see how it is possible for a farmer to follow it for more than one year. You say, get good, coarse brood sows, Chester White or Magie, put them to an Essex boar, and the pigs will be splendid, even superior to thorough-bred Essex. So far, all right; but what am I to do next?" Do the same thing over again, or, better still, select a few of the largest, healthiest, and most vigorous sow pigs, obtained from the first cross, and put them to a thorough-bred Essex. You will, judging from my own experience and observation, get as good pigs for common purposes as a man can hope to see. If sows from this second cross are bred to an Essex boar, the pigs would make splendid "jointers" at four months old, or might be profitably kept nine or ten months and fattened for pork. For the latter purpose I do not think I should want a larger infusion of Essex blood. But for what the London butchers call "jointers," that is, pigs three or four months old that dress from 60 to 70 lbs., another cross or two of Essex blood might be desirable.

I do not happen to know of any really thorough-bred animals of any kind, cattle, sheep, or swine, that I should consider as profitable to raise solely for the butcher as animals having a dash of common blood in them. And the reason is that the perfection of an animal that is kept solely for the purpose of putting on flesh and fat in the shortest possible time is not the perfection of a breeding animal. Early maturity is obtained at the expense of ultimate size and longevity. Bakewell's Leicester sheep, which, so far as early maturity, lightness of offal, and fattening qualities are concerned, have never been excelled, and which have done so much for English sheep and English farmers, have themselves become extinct. They did their work and did it well, and then disappeared as a distinct breed. It will be so with Essex swine. They will, if pure-bred, refine every breed they are crossed with, and in time they will cease to be needed. For my part I am willing to avail myself of them so long as they will improve our common race of hogs, without speculating as to their fate in the future. There are over thirty million pigs in the United States, and it will take some years to bring them to perfection. There is room enough, and work enough, and occasion enough for all good breeds of cattle, sheep, and swine in this country. They are all needed. There is no breed that is absolutely best everywhere. There is plenty of room for the so-called China, Poland, or Magie hogs, as well as for the Ches-

ter Whites, Yorkshire, Berkshire, or Essex. I have never said that I thought the Essex were the best breed. All I have ever claimed for them is that, when pure-bred, they will *at once* greatly improve our common stock. What the result will be of continuing to breed from these crosses does not particularly trouble me. One thing is certain, however, it will not do to breed cross-bred animals together. We must *always* use thorough-bred males. I think Mr. Bowles and all other experienced breeders will agree on this point.

Mr. Bowles says the wheat crop in his section is poor, and will average only 8 bushels per acre. "Fall barley pretty good; spring barley, none at all. Oats, a little. Hay very poor on poor land, but pretty good on good land. I think I raised," he says, "two tons per acre all round. One little patch of clover of an acre and a half had six good two-horse loads on it; I presume equal to 3½ tons per acre. You seem to think," he adds, "that clover can not add to the fertility of a soil by being mown and hauled away. I say it *does* add to the fertility. I account for it in this manner: The atmosphere always contains a vast amount of fertilizing matter. Clover is a plant that draws a great deal of its support from the atmosphere." This is precisely the point that is not proved. "Clover," he continues, "is a vehicle for conveying fertilizing elements from the atmosphere to the soil. The greater the growth of clover the greater the size of the vehicle, and the greater its work. So convinced am I of the truth of this theory that I apply all my manure as a top-dressing to grain on which clover is sown. The manure makes a large growth of clover, and the clover roots make still more manure. What clover hay I feed (which is all I grow) goes on the land again, or if I pasture it with hogs it then returns to the land. The point that I wish to impress upon you, however, is that after a crop of clover hay is hauled away, even then the ground is richer than before the clover was sown."

I should be glad to be impressed with the truth of such a pleasant doctrine, but, unfortunately, it has no sound basis of facts to rest on. Mr. Bowles' practice is much better than his theory, for he seems to be careful not to sell any of his clover, but to consume the whole on the farm, and also applies manure in order to make the clover grow more luxuriantly. This treatment will make his land richer year after year; but if he should sell the clover, the probabilities are that the land would sooner or later become too poor to grow profitable crops of clover at all. But even then it might still be rich enough, with the aid of a summer fallow, to produce a fair crop of wheat. The truth is that clover, turnips, and other renovating crops require a richer soil than wheat. If a soil is rich enough to produce a heavy crop of clover, it is rich enough, even after the clover is grown and removed from the land, to produce a fair crop of wheat. But continue the practice of raising and *selling* clover, and the yield of clover will gradually and perhaps rapidly diminish, followed by a decreased yield of wheat.

We can not raise too much clover, but it must either be plowed under or fed out on the farm, and the manure carefully saved and returned to the land. Any other doctrine is unsound in theory and detrimental in practice.

American farmers can not be too often reminded that what we should aim at is, fewer crops, cleaner culture, and a larger yield per acre. We are a great beef-eating people, and are taking kindly to good mutton when it can be found. Already a large proportion of the beef consumed in the Atlantic cities is raised west of the Mississippi. The price for the moment happens to be low, but it will not remain so long. The farmer who raises good beef or mutton in New England, New York, Pennsylvania, Ohio, Indiana, Illinois, Iowa, or any of the older settled States, need not fear that the half-wild cattle of Texas or elsewhere are going to drive him to the wall. There is no sort of danger. Unaided, nature can not compete with agriculture any better than the Indian can compete with the Anglo-Saxon. Our population is rapidly increasing, and the demand for meat will continue to increase from year to year. The causes which lead to an over-supply for a few months are only temporary. The demand is unceasing, and he is a wise farmer who looks ahead and quietly and perseveringly improves his farm and his stock. He is certain of his reward. Wool, mutton, beef, pork, cheese, butter, milk, poultry, and all other animal products will be wanted more and more as the condition of the world improves. There are millions of people, even in Europe, who seldom taste fresh meat. An Irishman eats double the meat and does double the work here that he did at home. Even the Chinese in this country eat meat as soon as they can earn money enough to buy it.

The point I want to get at is this: We have a large country. Land is comparatively cheap, and labor comparatively high. Crops are great in extent but small in yield, and many of our farms are getting more weedy and less productive. Now, what we must aim at is to make them cleaner and richer. We must devote less land to the production of wheat and other grain that is sold, and more to the production of such crops as are fed out to animals on the farm. We all know that it is far better to raise 300 bushels of wheat from ten acres than to plow, seed, and reap twenty or thirty acres to get the same amount. We obtain no more money for the crop in the one case than the other, but the profits are quadrupled. The market is not glutted with grain, and there will be more meat and wool to sell, and more manure to use. To bring this about, we must summer-fallow when necessary; sow clover more frequently, and not sell a pound; let our land lie longer in grass; and when it is broken up and planted to corn, cultivate it very thoroughly, and not overcrop it before it is seeded down again. In some cases it will pay to summer-fallow, and then seed the land down to grass without a grain crop. We must aim to save labor, enrich our land, reduce the area under tillage, and, when it is plowed, cultivate thoroughly to kill weeds and develop the latent plant-food in the soil.

Plant-food is the farmer's capital. It is present in large quantities in most of our soils, but a great proportion of it lies idle. Our profits will be in proportion to the amount of this plant-food that we can render available and keep in active circulation without allowing it to diminish faster than fresh quantities are developed from the soil by the decomposing and disintegrating action of the atmosphere.

How Much Seed, and How should it be Sown?—A bushel of wheat contains 660,000 grains. If this quantity should be spread equally over an acre of ground, it would give nearly 10 square inches of space for each plant; each plant would be a little more than 3 inches from the next, and there would be 15 plants to each square foot. If the seed were sown in drills 9 inches apart, there would be a plant to each inch in the drill. It is well known that in broadcast sowing much of the seed is covered too deeply, and some not sufficiently, and thus possibly a half of the seed sown is wasted. In drill-sowing a much greater proportion of the seed produces returns, because of its even covering and more regular germination. If each seed should produce but one perfect ear, the yield would be over 30 fold, but it is safe to say that every healthy wheat-plant will produce at least three stalks, so that, should the whole of the seed sown mature, a crop of 90 bushels would be the result. There is no doubt but drill-sowing will produce a better yield than broadcast sowing, as much more of the seed will successfully germinate, and the expense of drill-sowing being less than hand-sowing and harrowing afterwards, we would advise all those who can buy or hire a drill, to abandon broadcast sowing.

Lime and Lime-Kilns.

The use of lime in agriculture dates back many centuries in the Eastern world. From the commencement of the Christian era the farmers of the most civilized parts of Europe were in the habit of spreading it upon their fields, and at the present day the custom is so thoroughly established that no rotation, whatever course it may consist of, is complete without a liming. In Europe, farmers have been for hundreds of years working to increase the fertility of their farms, while during the short time our lands have been under cultivation, they have been subjected to a process of exhaustion. This operation is now at an end, the process can go no further, and it is absolutely necessary that every possible effort be exerted to restore our land without delay, or impoverishment must be the result. Large tracts of land, more especially in the Southern States, are abandoned so far as agriculture is concerned, and it needs no prophetic eye to see in advance many Western lands in the same predicament. No fertilizer exists in such abundance, or can be produced in condition fit for use so inexpensively, as lime. Protruding almost everywhere above the earth's surface, it can be procured in almost every locality without great expense of carriage; in fact, we doubt whether there are so many as one fourth of the farmers of the United States or Canada that can not procure limestone within half a dozen miles of them.

The mode of preparing lime is so simple, that farmers who live in those districts where it is regular employed, commonly prepare it for themselves. The eastern part of Pennsylvania, and the adjoining parts of New Jersey and New York, comprise within their limits a large majority of the kilns in which lime is burnt for agricultural purposes. Almost every farm has a lime-kiln as part of its establishment, and lime-burning takes place regularly each year. The kilns are structures of stone, for convenience erected in a bank, so that limestone and fuel can readily be brought to the top. They are built about 16 to 20 feet square and 12 feet high (fig. 1). The inside is built up round, gradually widening until half up; then it is drawn in again, so as to make it something of the shape of an egg. Smooth stone, that will stand fire, needs to be used for the inside. An arch is made in the front, from which the lime is drawn when ready. The kiln is charged by alternate layers of limestone and fuel until filled;

the archway is then built up so as to regulate the draft, and fire is set. A regular, steady heat is kept up until the stone is well ignited, when

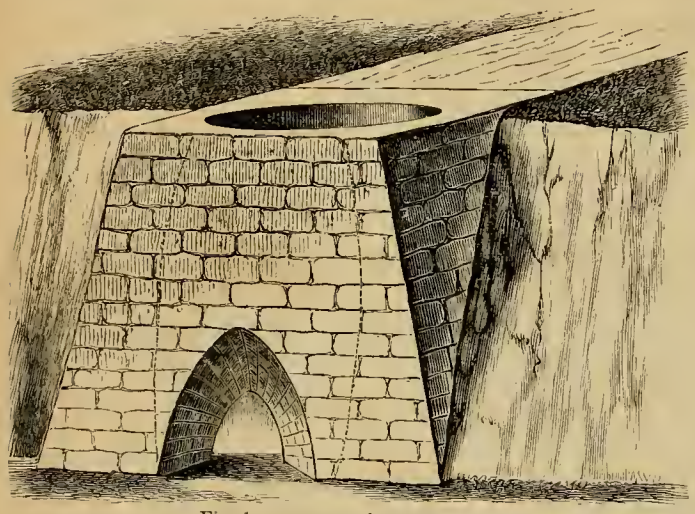


Fig. 1.—A FARMER'S LIME-KILN.

the drafts may be closed and the fire moderated. Ten days will suffice to calcine the lime, and it may then be drawn off for use. Many farmers, however, who find it difficult to build a kiln, avoid the expense by putting up pits. These are piles of stone and fuel, properly arranged, around which are loose blocks of stone laid up with earth or clay to close the interstices; a few rough boards are then put up around, and held by stakes, and clay rammed down between them and the pit, to confine the heat. As the fuel and stone burn down and the upper part falls in, fresh wood and stone are put in, and the heap kept covered. The top needs a covering of sods, damp grass, and clay, to retain the heat. This needs constant attention, but where lime and wood can be procured, no money outlay is necessary. Where labor and material are plentiful, these are all that is required. Three cords of wood will burn a pit of five to seven hundred bushels of lime, if used economically, and the fire not allowed to blaze out. Figure 2 shows a draw-kiln, or one that is always burning and yields lime twice a day. It is charged regularly with limestone and coal at the top, and every twelve hours the lime is drawn out at the bottom. These are used where lime is burnt to supply a large demand, and in some localities in Pennsylvania the demand is so great as to keep large numbers of these kilns continually working. Some companies employ a capital of two to three hundred thousand dollars, and ship their lime by schooners to Delaware, Maryland, and Virginia. These establishments are on the Schuylkill river, and hundreds of vessels load there each year to supply the farms of those States, a great many of which can be reached by the waters of the bays and large rivers. Lime is now produced at these kilns for eight cents per bushel.

Fig. 2.—PERPETUAL LIME-KILN.

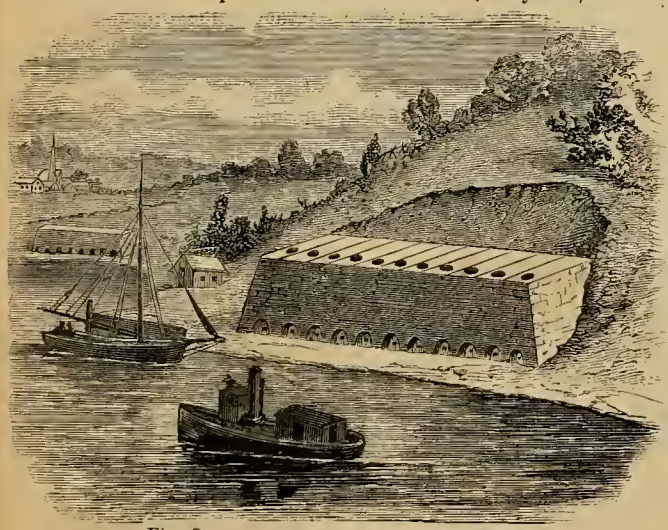
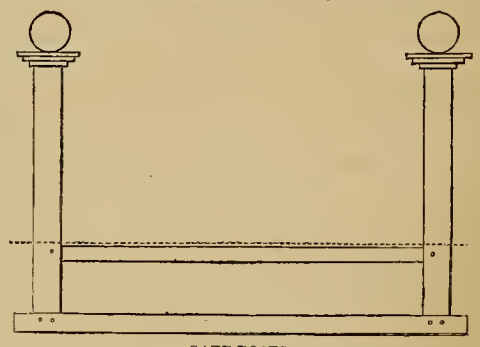


Fig. 3.—LIME-KILNS ON THE SCHUYLKILL.

MUTTON SHEEP.—Rhode Island is famous for its fine mutton, the South-Down of the islands of Narragansett Bay rivaling that of England. On Conanicut, Mr. Tucker makes it pay reasonably well, and has the satisfaction of serving the public with a prime article of meat and wool. He had 160 sheep last fall, raised from them 192 lambs, which he sold for $5 each, and sheared from the sheep 3½ pounds of wool each, worth fifty cents a pound. The sales from his flock, then, are 192 lambs, $5=$960; 480 lbs. of wool, at 50 cts.=$280; whole amount, $1,240, or $7.75 for each sheep. A Pennsylvania farmer bought last fall eleven sheep for $20.90, and sold wool this spring for $12.90, and lambs for $36=$48.90, or $4.44 for each sheep. They do these things a little better in Connecticut. A farmer there bought ten sheep in February, for $40. Sold from them ten lambs at $7 each=$70, and wool $15=$85 for the whole, or $8.50 for each sheep, realized in six months from purchase. The capital is still unimpaired, and good for another year. CONNECTICUT.

Gate-Posts.

Notwithstanding all the improvements in gates, the old-fashioned swing-gate still remains master of the situation. If only the chief defect inherent in it—that of sagging—could be prevented, we prefer it to any of the new-fangled ones. We have, for several years past, arranged our gate-posts in such a manner that sagging and heaving by the frost are both impossible. The posts are framed in a stout sill; about two feet above this a girt is framed in; this acts as a brace in such a manner that the posts are rigidly kept in place. A trench three feet deep is dug, the frame and posts are set up therein, and the earth is well tamped and compacted around the sill. The upper girt need not be sunk more than a few inches beneath the surface, but the earth should be well tamped and forced under it, that it may not suffer from loaded wagons being driven over it. These posts may be guaranteed to stay where they are placed until inevitable decay overtakes them. This may be put off by using seasoned timber well soaked in crude petroleum.



GATE-POSTS.

Harvesting Corn.

Corn should not be left until the frost has injured the fodder, before it is cut. The value of corn fodder is becoming better appreciated every year, and more care is taken in curing and preserving it. The first care, then, should be in cutting it before it is damaged by frost or over-ripening. As soon as the corn is glazed, it may be cut. This is a tedious operation, but a division of labor will lighten it. The usual plan is to cut a few hills and set the stalks around a hill not cut off, which helps hold them up; then twist the top of one of the stalks round the bundle to hold it together, and make this the foundation for a shock, which is built up by bringing several armfuls and placing them around the foundation, already set up, until the shock is sufficiently large, or a certain number of hills are cut up. Then the workman lays down

CORN BINDER.

his knife, and ties the shock, selecting a pliable stalk for this purpose, and passes on to make another. Instead of this, let the men pass along the rows, each man taking three rows, and, pushing the hills from him, cut off each hill with a single blow, laying the stalks down with the tops towards the next row, the next man laying his stalks with the tops towards those cut by the first one. Thus the stalks will lie in double rows, the tops towards each other. When a few rows have been cut, one can turn in, and set up and bind. When the shock is set up, it may be readily tied by using the binder figured on the preceding page. It consists simply of a stout wooden pin, with a crank on the end of it; a small pin is passed through it, to which is fastened a cord with a loop on the end. The pin is thrust through the loose stalks, the cord is passed around it, and the loop passed over the small pin. The crank is turned until the shock is drawn sufficiently together, when it can be easily bound with a stalk, without danger of its breaking.

With the labor divided in this manner, one cutting and one setting up and binding, much more corn can be cut in a day, than on the old plan, by which much time is lost.

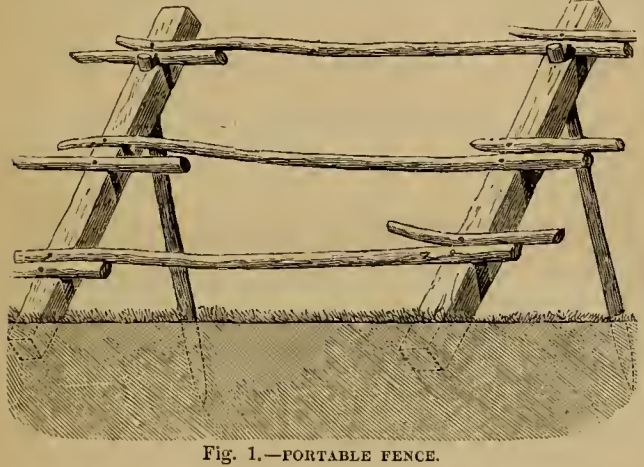


Fig. 1.—PORTABLE FENCE.

Portable Fences.

A subscriber from Kansas sends us drawings of some fences, which we here illustrate. That shown in figure 2 is similar to one in common use; the chief difference, which seems to be an improvement, is that a pin is inserted in one stake to support the lower rails, instead of a separate stake, or a stone, or a block, as is generally used. The stakes are driven into the ground, as shown by the dotted lines. Figure 1 represents a fence which has been found sufficient to turn Texan cattle, which are largely pastured in Kansas, and which are supposed to have little respect for fences. The principal post is placed in a leaning position, and is supported by a stake, which is driven into the ground. In removing this fence, it is necessary to remove the rails of each alternate panel only; the other panels then can be moved whole.

Fig. 2.—FENCE.

WEIGHING STOCK.—It would be a profitable investment for almost every farmer to have in his barn a platform-scale capable of weighing at least 600 lbs. As it is, most farmers are at the mercy of every one they trade with—millers, butchers, and merchants. It is a good business fashion for a man to know exactly how many pounds of grain or pork he has in his wagon when he starts out to deliver it, and he will then know beforehand just how much cash he should bring back home. A farmer, as a rule, can not estimate as accurately as he should, the live weights of stock; it is the consequence of not using the scales sufficiently often. He should know the weight of his shoats monthly, and the weight of each hog when put up to fatten, and its dressed weight when made into pork. Then, if he weighs his feed as used, he can tell what profit he makes. In the mean time he will learn to judge of the value of a live hog, and if an occasion occur, as it often does, when he has a chance to buy a few head, he will be able to tell pretty nearly what he can afford to give for them. The fact is, the scales are one of the most valuable implements a farmer can possess, and he should not, if he can help it, be without them.

Working Oxen.

The patient endurance of neglect, and the heavy work performed by oxen, make them valuable on many rough or partially cleared or broken-up farms. On smooth land in fair condition, that has been well tilled or where machinery is in use, their gait is too slow to be profitable. Their drivers seem to become inoculated with the same deliberateness of motion, and on farms where vigor or promptitude of labor is required, their use becomes intolerable. Where there is a diversity of labor to be undertaken, however, they have advantages over horses. Where a furrow, on account of stumps, rocks, or fast stones, can not be plowed through without often stopping, where logs are to be hauled, where ditching has to be done, or where work is unsteady and many intervals of idleness come in between working spells, there they will be found more useful than horses. There is no harness to be broken by sudden jerks; when a heavy pull is needed, they will throw all their weight in with steadiness, and try and try again, without floundering around, or seesawing, as many horse teams will do in the hands of injudicious drivers. They will work anywhere with safety, and if hopelessly stuck in a soft place, will remain with patience until extricated; and when labor is over for a time, they can be turned out anywhere to graze or browse around in the woods, to be brought home when wanted, and hitched up for work again in a few minutes. They will exist under treatment that would ruin any horse; never have heaves, colics, or bots, or ringbones, or splints, or the numerous ailments that render horses unsound; and if by any accident they become disabled, if they have been kept in good condition, the butcher is always ready to take their carcass. These, to many men, are valuable considerations, and yet, though our advice

Fig. 1.—CANADIAN MODE OF SHOEING OXEN.

has often been sought on the subject of using oxen in preference to horses in certain conditions, we have been very cautious about recommending their employment to some men, mainly for the reason that few have the tact and patience necessary to use them satisfactorily. Great gentleness and patience are necessary, and a hasty-tempered person would never get out of a yoke of oxen half the work they would be capable of performing. Oxen should in all cases be kept shod, more especially on the front feet, which often become so tender as to almost cause lameness, before it is suspected. There is no difficulty in shoeing oxen if a proper frame is provided. As they will not permit their feet to be handled like horses, it becomes necessary to sling them up, so that the feet can not touch the ground; they will then remain tractable. The want of such a frame is often a source of expense to the owner of a pair of oxen, who is sometimes compelled to send them many miles to be shod, occupying a whole day on the journey. A few such trips would pay for a frame, when the shoes might be nailed on at home. We give in fig. 1 a sketch of the necessary frame, which speaks for itself, so far as its general construction is concerned. The ropes are arranged over the rollers so that the turning of the center one draws up the ropes over each of the others, and so lift equally. The hoisting part needs to be made sufficiently strong to bear the ox. Fig. 2 shows a rough-and-ready

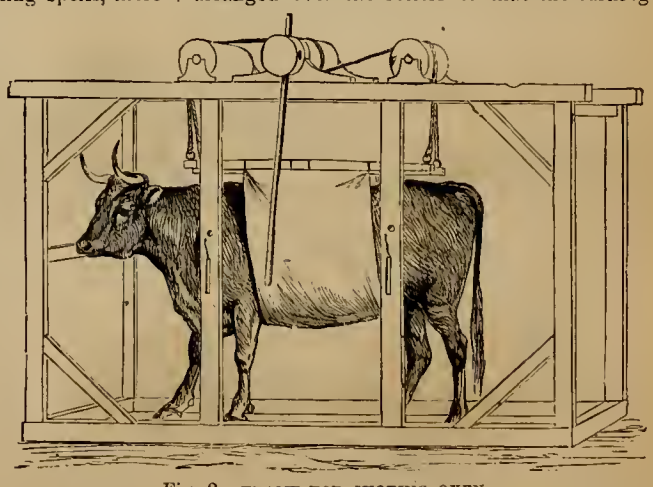


Fig. 2.—FRAME FOR SHOEING OXEN.

plan of shoeing oxen which we have seen among the lumberers of Canada. The ox is thrown and held down while the shoes are fixed, the feet being kept drawn up tightly together. The animals seem to understand it and keep comparatively quiet. Ox shoes (fig. 3) need to be made much lighter than horse shoes and are differently shaped. Most blacksmiths know

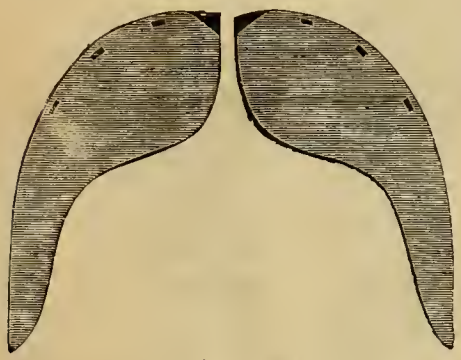


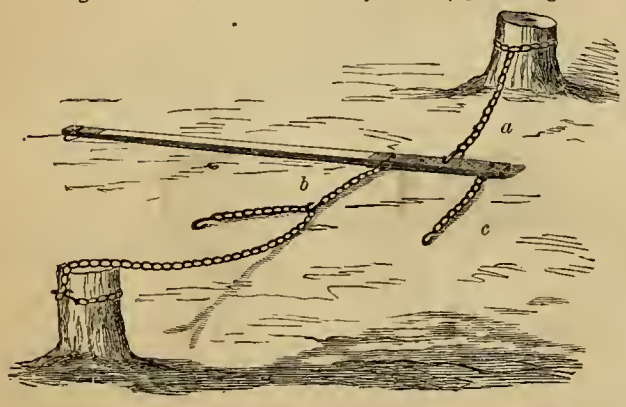
Fig. 3.—OXSHOES.

how to make them, yet we have found some that did not; we therefore give a representation of the shape of the shoe, two of which are required for each foot, a left and a right one. Any one that can nail on a horse shoe can fix an ox shoe. The Devon cattle make by far the best working oxen. They are active, strong, and tractable, easily kept and fattened, and make first-class beef when slaughtered.

PICKLING SEED WHEAT.—The results of experiments have fully substantiated the benefit, as a preventive of smut, of pickling the seed preparatory to sowing it. The pickle may be either common salt dissolved in water, strong enough to bear up an egg, or sulphate of copper, at the rate of one pound dissolved in eight gallons of water. The pickle should be placed in a tub, the seed poured slowly into it, so that the light grains will float; these are to be removed, as they should not be sown. The seed may soak for a few minutes, then take it out and put it in a heap on the barn-floor to drain; after draining, mix it with some fresh-slaked lime, until it is dry, then sow it immediately.

A Simple Stump Puller.

W. S. Ramsey, Butler Co., Pa., wants a stump puller. In reply we give an illustration of a simple but yet very efficient one, which has done us some good service. It is worked by a lever,



A STUMP PULLER.

moved preferably by a stout yoke of oxen. The end of the lever is supplied with a strong clevis, sufficiently long to pass around so as to be used on either side. The fulcrum of the lever consists of a chain which is to be fastened to the largest stump near (*a*); on each side of this is a clevis with a short chain and hook attached. To work the machine, fix a chain to the stump to be pulled, hook on to one of the short chains of the machine (*b*), draw up the oxen until that chain is tight; hook on the other chain (*c*), turn the team, and draw up as far as they can go; hook the chain (*b*), turn and draw again, and so repeat until the stump is drawn out. Then fasten on to another, and repeat the process until all the stumps are out within reach of the one the machine is anchored to. The machine will then have to be moved to another anchoring place, and so on until the field is cleared. The last stump left must be grubbed out. It will be necessary to remember that the power of this lever is very great, and stump pulling requires stout implements and chains. A breakage may not only cause delay, but a blow from a snapping chain may very easily be fatal; it is therefore absolutely necessary for safety that the chains be made of the best iron, with the best workmanship, and strong enough to hold against all the resistance they may meet. The lever should be strengthened with iron plates in those parts where the holes are bored for the clevis bolts.

The Mother's Milk for Calves.

I visited one of my neighbors yesterday, who has a reputation for raising good stock. He showed me a Jersey heifer, as he called her, one year old. The sire was Joe Hooker, No. 465, Am. J. C. C. Register, a fawn-and-white bull of high reputation. The dam was a large fawn-and-white cow, represented as purely bred, but without recorded pedigree. She looks enough like Sharpless Duchess, 101, Am. J. C. C. R., to be her sister. She had been bought by a former owner for $450, on account of her great excellence as a milker. This yearling heifer looked so much like the Guernsey stock, that good judges would call her a thorough-bred Guernsey. She was quite as large as common two-year-old Jerseys. But it was not good blood alone that had made this well-developed heifer. She had run with the mother all last season and was now in flush pasture. This told the story. A full year has been gained by good feeding, and she will be a well-grown cow with a calf at two years old. I have been trying this experiment on my farm the past two years, and am perfectly satisfied there is no substitute for the mother's milk in raising good milking stock. Milk is the natural food of calves, and on the plains of Texas and Kansas, where grass and milk are plenty, they suck the cows until they dry up. Milk is costly on Northern farms, especially Jersey milk, which is nearly half cream. It seems almost too good to give to a calf, however handsome. But the Jersey heifer, if a Herd-Book animal, and well raised, is also a very costly animal. With the mother's milk invested in the calf, she is likely to be graceful, and to gain some of the fancy points which command high prices. It is better to raise heifers worth $300 at two years old on the mother's milk than to raise them worth $100 on hay-tea and skim-milk. No more slops and pot-bellied yearlings for me.

CONNECTICUT.

Grain-Bins and Corn-Cribs.

Much inconvenience in handling grain is occasioned by a faulty construction of the bins in the granaries. Generally the grain has to be shoveled out over the top of the bin into a bag,

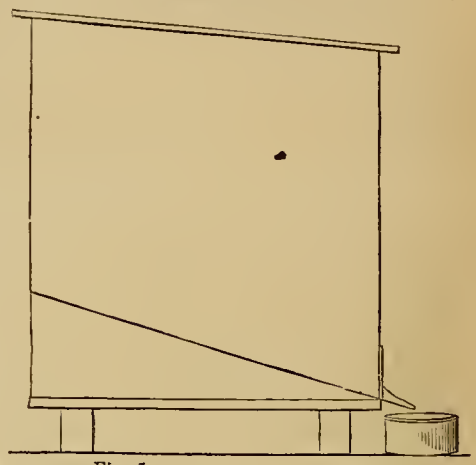


Fig. 1.—SECTION OF GRAIN-BIN.

requiring two persons to perform the work. We recommend an improvement illustrated in figure 1. The bin is raised on short posts a few inches from the floor. This prevents the tapping of the grain by rats and mice. These often cause great loss by gnawing holes through the corner of the bin, through which much grain escapes. A false bottom, with sufficient elevation to cause the grain to flow towards the front, is arranged, and a slide-door at the bottom permits it to run into a half-bushel standing on the floor; from whence it may be transferred to a bag, if desired. One man can now perform the job alone. If the door be placed at the center of the bin, the bottom may be arranged so that every grain will run out as it is wanted. To effect this, the bottom must slope every way towards the outlet. Many country millers who handle a good deal of grain might profitably have their bins made in this manner.

Corn-cribs might be improved in a double way

Fig. 2.—IMPROVED CORN-CRIB.

by a somewhat similar arrangement of the floor. Generally, if any mold occurs in a crib, it is on the floor, as here is found the first corn put in, which is generally dampest, and here the least ventilation takes place. A floor raised "roof-shaped" (fig. 2), and holes bored in it for ventilation, would effectually prevent dampness or mold in that part of the crib; and if slide-doors are put here and there at the bottom, at con-

venient places, the crib may be emptied, or nearly so, without taking a shovel or scoop into it. We have found that rats may be excluded from the crib by a peculiar form of post, turned smoothly in the lathe. The shape is somewhat like a mushroom, the stalk smallest at the bottom. The blocks (sunk in the ground) are of wood, with holes made to receive the posts, which enter four or five inches and fit tightly. This causes the crib to stand firmly. When the posts are made smooth with sand-paper, no rats or mice will mount them.

LARGE VS. SMALL PIGS.—Mr. Hinman, of Connecticut, writes: "Pigs with us this year sell at about six dollars each at weaning time. Last year my neighbor, who keeps a large breed, had pigs which weighed at nine months old, 424, 431, and 450 lbs., respectively, while mine at the same age weighed only about half as much, and were very nice pork indeed. I think I fattened two pigs as cheaply as my neighbor fattened one, but is it your opinion that I did so enough cheaper to make the difference in the first cost, my two pigs being worth twelve dollars, and his one only six dollars?"—If the two pigs ate as much as the one, and sell for no more per lb., evidently the man who bought the small pigs loses three dollars per head. In other words, he pays three dollars per head too much for them. In such circumstances the feeder had better buy the large breed. But how is it, with the man who *raises* the pigs to sell? *If* the large breed, as our correspondent asserts, eat twice as much as the small breed, it is evident that two sows of the latter could be kept as cheaply as one of the former, and consequently the little pigs could be sold at half-price. If they bring as much as the others when ready to wean, the small breed is the most profitable to the farmer who raises them for this purpose. If he both raises and *fattens* them, there would be, according to the statement of our correspondent, no difference. One breed would be as profitable as the other.

Pumps for Liquid Manure.

A reader of the *American Agriculturist* in Kossuth, Ind., asks information about square or box pumps for liquid manure—one that he can construct for himself. We give an engraving of a pump (fig. 1) that has worked well in our hands, and one that can be readily made with such tools as a saw, hammer, and nails. The size may be made to suit any circumstances. The box must be fitted tightly together, so that it does not leak. The valves (fig. 2) are of wood, covered with sole-leather, which projects a quarter of an inch over the edge, so as to insure a tight fit. They are hinged with a pair of common butt hinges to the pump rod, so that they will open the full width, to permit any solid matter that may be in the manure to pass up without choking. The pump rod is a strip three or four inches wide; at the bottom of it is fastened a hemispherical piece of wood, which supports the valves, when working.


Fig. 1.


Fig. 2.

We also reproduce an engraving (fig. 3) of another kind of valve, which was figured in these columns several years ago. A valve of this kind may be used in any common box pump. It will work where much coarse matter is mixed in the liquid manure, as the sides of the valve are capable of being pressed closely together, affording room for the solid matter to pass beyond them, when, on being drawn up, they open again, and every thing is lifted and discharged. When it is necessary to use a long pump, as where the manure cistern is deep, and a pump of 12 feet or more is needed, we would put a stationary valve at a convenient distance, say four or five feet from the bottom. The pump rod need not then be so long, and the pump will work more easily. A discharge spout should be made in the pump, which renders the work more cleanly than when the manure is permitted to flow over the top, as is sometimes done, causing splashing that might be avoided.

Fig. 3.

Early Lambs for Market.

Where it is possible to get lambs to market early in the spring, a very profitable business may be made of raising them. Common native ewes put to a South-Down buck in August, will bring a lamb in the month of January that will fatten more readily (though it may not gain so great a size) than the Cotswold cross. A lamb dropped during the middle of winter sometimes requires attention during the first few hours of its existence to prevent its becoming chilled, after which it will need no extra care, and will thrive apace, if the ewe is properly fed. As the sale of fat lambs in May at 25 cents per pound is a profitable operation, it is worth while to give attention to producing them. Allow no old ewes to be coupled, as they can not raise a lamb so well as a young and hearty one. Select the best of the young ewes, and commence feeding them something extra from the day the buck is turned in with them. A little wheat bran is good, changed occasionally for a handful of rye, oats, or buckwheat. See that these ewes don't want water, and a trough containing a quart of salt with the fourth of a pint of sulphur mixed in, should be placed where they can get to it at any time. With good care most of the ewes will produce twin lambs. A good, full bite of aftermath, if it can be had, should be given; if not, rather than injure the meadows, turnips may be pulled, or a few green corn-stalks cut for them; and when these fail, clover hay should be supplied freely. Excellent care from the earliest periods of gestation will make the lamb, more than any after care could do, with neglect now. The sheep will also keep in good condition, and when the lamb is taken away in May or June, will fatten quickly, if desired, on the early grass, and can be turned off profitably as mutton. A small but well-selected flock of sheep may thus be made the most profitable investment of the farm, but it is undoubtedly true that the flock should be no larger than can be properly handled and cared for.

Putting in Wheat.

A crop of wheat is often only half as large as it should be, from the faulty preparation of the ground. Manure and lime are supplied as abundantly as may be, but the land is plowed in such a manner that the surface water is always about the roots of the wheat, and the first frost heaves out the plants. It is too commonly the case that fields are plowed from the outside to the center, leaving, as the consequence of a few years' plowing, a high bank around the fence, and a hollow in the center of the field, with four diagonal hollows meeting there. This gives no chance for the water to get away; it lies and saturates the surface. Now let the field be plowed in lands, say 11 paces or 22 feet wide; there will be a dead-furrow, causing drainage at least 6 inches deep at each of these spaces, which will bring the surface-water at least below the level of the roots of the wheat. Besides, there will be a number of watercourses which will carry off the surplus water, and by means of a connecting furrow it may be generally conducted away from the field altogether. However much it may be advantageous to underdrain land, in many cases, from want of the necessary capital, it can not be undertaken. Then the best possible substitute must be found. Surface-draining by means of ridges and open furrows is the best substitute, and if this style of plowing is properly performed, where the subsoil is not remarkably retentive, the ground may be kept dry enough to prevent throwing out during winter. Above all things, the fashion of plowing around fields should be abandoned when wheat is to be sown. It may answer for spring crops, but a better and neater plan of plowing, and one leaving the ground in a better condition, could be easily substituted. Generally, it may be concluded that the ridge and furrow system of plowing is in all cases better on undrained land than the flat system. Where the land is underdrained, a swivel plow makes handsome work, and entirely avoids the bad effects of plowing around the field.

Dry Earth in Veterinary Surgery

BY GEORGE E. WARING, JR., OGDEN FARM.

Perhaps I should say "Cow-Doctoring," for such a thing as Veterinary Surgery is unknown on this island of Rhode Island. I found, one afternoon late in May, that two of my men had been called to attend a sick cow belonging to a neighbor who was then absent. The animal had recently calved; had been allowed to stand on a sand floor in which her hind feet had worn a deep depression; and in "cleansing," the effort at expulsion, added to the low position of the hind-quarters, had forced out the entire uterus, and in frequent lying down and rising she had bruised and soiled the parts so that the whole was covered with sand, manure, and blood. When I arrived on the ground the parts had been only imperfectly washed, and had been returned by main force—so far as I could learn, with more clotted blood and filth than would have been left on them by a more skillful practitioner. The cow was in an extreme state of exhaustion, and we none of us thought it possible that she could live. The usual remedies were resorted to, and every thing that the very limited knowledge of the neighborhood could suggest, was done to make the animal more comfortable—all to no purpose. She grew worse from day to day, and finally her

INDIANS GATHERING COTTON-WOOD BARK.—DRAWN BY W. M. CARY.—*Engraved for the American Agriculturist.*

owner told me, "That cow is going to die—the most offensive mortification has set in, and I see no way on earth to help her. It's a pity; she is a very good animal"—and he evidently felt (in dollars and cents) the full weight of his misfortune. I told him, if he considered her already a lost cow, I would suggest another remedy that *might* succeed, but it was one which, as it was only an experiment, I would not advise in any but a desperate case. He said the cow was worth her hide, and no more, and he was ready to try any thing. I knew my prescription would lessen the poor animal's pain, and would remove the offensiveness of her mortifying wound, and so I gave it. "Take some of the finest earth of your garden (clay loam); make it *air*-dry; sift it finely, so as to get out all small stones, and fibres of roots; and fill the womb with it. When some of this is expelled, put in a fresh supply, so as to keep as much dry earth—or pure earth—in constant contact with the wounded parts, as you can. Abandon every other form of treatment, and give the earth a fair chance." He promised to follow the directions, and drove on. From that time until the middle of July, when I met him again on the road, I thought nothing of his cow, and probably should never have thought of her again. He accosted me with: "Well, that cow got well after all. I did exactly what you told me to, and it stopped the mortification right off. She is as well as ever now."

This is the whole story; but it is a story full of suggestiveness for all owners of live-stock. Fortunately such cases as this are of rare occurrence, but there are all manner of wounds and abscesses and ulcers—which give infinite trouble, and which, under ordinary treatment, give much pain to the animal—that may be successfully treated with dressings of dry, *clayey* earth, and with immediate relief from pain. This is a remedy which all who can procure suitable earth can readily use. The only caution necessary is to avoid making the application to any sore that it is best to keep open.

Gathering Cotton-wood Bark for Forage.

The inner bark of some trees is very rich in mucilaginous matter, sometimes in sufficient quantities to be available as an article of food. This is notably the case in our Slippery Elm, the inner bark of which readily yields to water a rich mucilage, and the flour made from it is used as a nutriment for invalids. The barks of some poplars and willows are nutritious, and in times of scarcity are used by the people of Northern Europe either as a substitute for grain, or to mix with their scanty supply of flour. Deer, rabbits, and other animals, both wild and domestic, in the absence of other food, frequently sustain themselves by eating the bark of trees, often to the annoyance of the cultivator. Some of the Indian tribes of the West rely upon the bark of the Cotton-wood (*Populus monilifera* and other species) as a forage for their hardy ponies, and gather stores of it for use in winter when other food is not to be obtained. The engraving is from a drawing by Mr. Cary, and represents a party of Indians laying in their winter stock of cotton-wood bark, and shows their rude means of transportation. The writer has, on more than one occasion, found the cotton-wood the only available forage for his animals. On reaching camp, trees were felled, and the animals allowed to browse upon the small branches and twigs, which were eaten with great avidity by the half-starved horses and mules.

The Southern Bush-Honeysuckle.

In the rocky woods at the North, there grows a small Bush-Honeysuckle, a small and not very showy species, with honey-yellow flowers, the *Diervilla trifida*. This species was called *Diervilla lutea* by some of the older botanists, and seeing that name on a catalogue we ordered the plant. When the shrub came in flower, we found to our gratification that instead of the plant of the Northern States we had one peculiar to the Southern Alleghanies, the *Diervilla sessilifolia*, which, besides being rare, is a much finer plant than the other. We give an engraving of a flower cluster of the natural size. Though this Southern Bush-Honeysuckle can not rank as a very showy shrub, it is an exceedingly neat one, and the modest color of its abundant flowers makes it an acceptable addition to a collection. The showy and very popular Wiegelas are now placed in the genus *Diervilla*, but they differ from our species in the size, shape, and color of the flowers.

SOUTHERN BUSH HONEYSUCKLE.

The Common or Scotch Broom.

The engraving shows plainly enough that the Broom belongs to the Pea or Pulse family. It is a shrub usually growing from three to six feet or more in hight, and is found throughout Europe. In the south of Europe it becomes a small tree, 20 or 30 feet high. Its tough and slender green branches are angled, and bear small leaves, the lower ones of three, and the upper ones of a single leaflet. The flowers are borne in the axils of the leaves, are of a golden-yellow color, showy and fragrant. When the flower first opens, the style and stamens are confined in the keel, but when touched or disturbed by an insect, they suddenly spring upward. As an ornamental shrub the Broom is not without beauty; the leaves are quite inconspicuous, but the long stems are of a dark green, and produce a pleasing variety when mingled with other shrubbery. The name indicates one of its most common uses, that of making brooms for sweeping, and it appears to have been used for that purpose in ancient times as well as in modern ones. In the domestic economy of some parts of Europe, the Broom is used for thatching, filling in hurdles for sheep and cattle shelters, and for fuel. Sheep are said to eat it readily at all seasons, and there have been times in Scotland, when the ground was long covered with snow, that it has furnished the only available food for the flocks. The branches, when rotted and beaten, afford a fiber from which a good coarse cloth may be made, and in those countries where it attains a large size, the wood is valued for ornamental work. Formerly the plant was in repute as a diuretic and purgative. It is most readily propagated by seeds which are produced abundantly. The botanical name is *Cytisus scoparius*, though some botanists put it in a separate genus, *Sarothamnus*.

COMMON OR SCOTCH BROOM.

How to Build a Cheap Greenhouse.

BY JAMES HOGG.

[In the article upon building a greenhouse, given last month, the portion descriptive of the internal arrangement was by accident omitted, and is given here.—ED.]

INTERIOR OF HOUSE.—Inside, the front platform for the plants is carried along the two sides and the end. It is 3 feet wide and 12 inches below the upper and inner edge of the plate strip. The walks are 3 feet wide, although they may be reduced to 2 feet 9 inches, and the extra 3 inches added to the center platform; the lower half of this platform is of the same hight as the front platform, and 18 inches wide; the center shelf is raised 10 inches, and is 3 feet wide.

All the lower sashes are screwed fast to the rafters, as is also every alternate upper sash, the intermediate ones sliding down to afford ventilation. A cap 3 inches wide is fastened to each side rail of the upper sashes that are fastened down; these cap pieces cover the side rails of the sliding sashes $1^{1}/_{2}$ inches, and prevent the wind from lifting them and blowing them off. For the purposes of ventilation it is not well to have the lower sashes loose, as the cold air admitted directly over the plants very frequently does injury to them, especially if there is the least neglect in watering them. All the ventilation required in a house of this size can be had by lowering the upper sashes and opening the door at the end of the house.

The sliding sashes should be hung with greenhouse sash pulleys, which are made in such a way that the cord can not slip off the sheave and jam between it and the jaws of the pulley. They can be had at any of the larger city hardware stores. The lower end of the sash-cord is fastened to belaying pins, or some similar contrivance, attached to the rafter over the front platform. The joints of the rafters should all be put together with thick white lead and oil, and care should be had that the joints are mitered true and square.

HEATING.—A really cheap method of heating greenhouses, that is, one relatively as cheap as the structure itself can be made, has not yet been devised, although it has occupied the minds of garden architects for many years. The objects to be attained are: first, cheap materials; secondly, quick diffusion of the heat throughout the house; and thirdly, the retention of heat in the apparatus, to be given out in the latter part of the night, when it is not convenient for one to attend to the firing. The cheapest materials are brick, built into the form of a flue; for giving out heat quickly, sheet-iron pipe, like ordinary stove-pipe, is the best; and for retaining heat nothing yet devised is

better than a good hot-water apparatus. The objection ordinarily urged against the brick flues, is the escape of the gases evolved by the combustion of the fuel through the pores of the bricks, and more especially through the joints, these gases being very detrimental to the health of the plants. With care in the construction of the flue, the escape through the joints can be almost altogether obviated, and if the draft is as it should be, no difficulty need be experienced from the escape of gases through the pores of the bricks. When any sort of cast-iron stoves is used, the objection generally made is the dryness of the atmosphere, superinduced by the hot iron, but this objection is founded upon a popular error. The dryness of the atmosphere is incidental to the winter season, as the moisture is all precipitated by congelation, and what moisture is artificially produced in the greenhouse is precipitated on the glass roof in the form of rime or hoar-frost, and this dryness will exist, if not counteracted artificially, under any mode of heating that may be adopted. Where the fire-pot of the stove is simply cast iron, injurious effects may result if it is allowed to become red-hot, but this is owing to the action of great heat upon the metal which appears to cause it to give out deleterious gases. What these gases are, has eluded the observation of investigators, as air passed over red-hot iron plates fails to show the presence of any specially deleterious gases, but yet is sufficiently deadly in its character to kill a cat in a few minutes, when inclosed in a receiver of such an atmosphere. This can be obviated by having the fire-pot lined with fire-brick or soapstone. Another objection to stoves is that they are

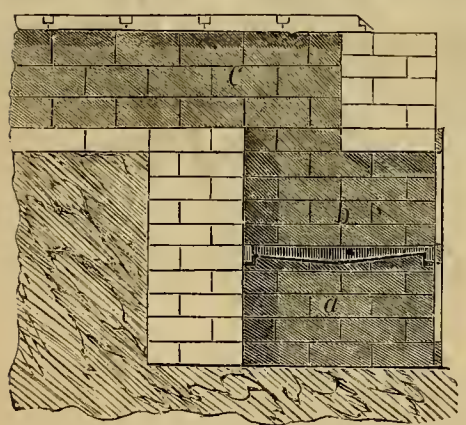


Fig. 1.—VERTICAL SECTION OF FURNACE AND FLUE.

either too hot or too cold, not giving out the heat regularly; but the invention of base-burning stoves has done away with this, as they are so constructed as to keep up an equable temperature when due attention is paid to the regulation and adjustment of the dampers.

The pipes, however, rapidly rust away, unless they are made of galvanized iron, especially those carried under the shelving of the front platform. The use of sheet-iron pipes has one great advantage in the rapidity with which they respond to the action of the fire and heat the house quickly; a matter of great importance in our climate, as it frequently happens that after a warm rainy day and evening in winter, when scarcely any fire is needed, the weather will suddenly clear up with high, cold winds from the westward, and before the fire can be got properly under way the temperature of the house will be so greatly reduced as to almost baffle all attempts to get it up to the proper point again before sunrise.

It is often urged in favor of the use of hot-water pipes that they give out a moist heat. A moment's consideration will show the fallacy of this notion. The boilers are air and water tight, as are also the iron pipes themselves, and no vapor or moisture can escape from them except from the receiver, an iron column of perhaps six, eight, or ten inches in diameter, the evaporation from which would not exceed two inches in twenty-four hours. The great advantages in

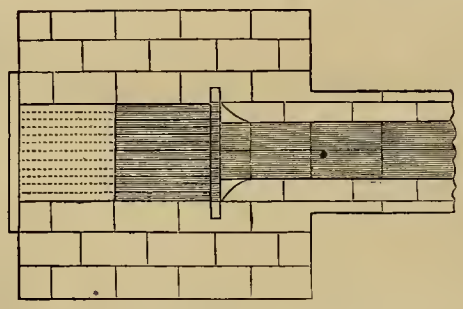


Fig. 2.—HORIZONTAL SECTION OF FURNACE AND FLUE.

the use of a hot-water heating apparatus are the equable distribution of the heat throughout the house, making the temperature almost the same at one end as at the other, and the slowness with which the water gives out the heat it has taken up from the fire, thus insuring an evenness of temperature during the whole night. Its disadvantages are its cost in the first instance, and the slowness with which it responds to the action of the fire. The latter can be obviated by adding to it sheet-iron pipes or flues for the carrying off the gases of combustion from the fire, an arrangement which in our climate should never be neglected, as a great saving of fuel results from it. This, however, is seldom done, as the arrangement and setting up of such apparatus is almost always intrusted to architects or mechanics who generally know little about the cultivation of plants.

In heating by brick flues the main point to be attended to is the construction of the furnace, which, for a greenhouse such as is described in our last number, should be 12 inches wide, 12 inches high, and two feet deep. These dimensions are somewhat larger than those usually employed, but we prefer, from long experience, to have plenty of room in the furnace, as the combustion of the fuel is more perfect, and when required is more rapid, as it gives an opportunity to use a thin, quick fire when necessity calls for it. The ash-pit should be of the same hight, if practicable, but it may be reduced to eight or nine inches in hight, if necessary. Both the ash-pit and furnace should be provided with cast-iron doors, both hung on one cast-iron frame, if they can be had made in this way; otherwise each door may have its own separate frame. The frame should be anchored into the brick-work. The furnace bars should be 24 inches long, one inch thick, and one inch wide at each end, three eighths of an inch thick in the body, and two inches deep in the center. They rest at each end on a cast-iron bearer, 15 inches long, and an inch square.

The furnace should be lined with fire brick laid flat, and backed up on the two sides and back and on top with eight or twelve inches of common brick. The top of the furnace should be laid with a three-inch fire tile, 12 × 15 inches. The flue starts from the top of the furnace; it is laid under the front shelf, on a foundation of brick, one brick thick, on the flat, and 14 or 15 inches wide; the sides are built up of three bricks on edge, the clear space between them being 7 inches, making the area 7 × 12, if tiles are used for the covering; but, if bricks are used for covering, the width must be reduced one or two inches. It is common to make the tiles with a rabbet on each end and to lay them with the rabbets overlapping each other, but as it is almost impossible to make them smoke-tight when thus laid, we always turn each alternate tile on its back and butt the edges of the rabbets together, which thus makes a groove or gutter half an inch deep and an inch wide, to be filled with mortar, and it is then perfectly tight.

In laying the tiles or bricks as covering, we do not generally lay them so as to cover the full width of the sides, but regulate the width of the flue in such a way as to have the covering (either bricks or tiles) short of the outside width of the flue, two or three inches, and lay the mortar on the edges in such a way as to make the flue appear as though its upper edges were chamfered. If the flue has to be carried under a doorway, it will be necessary to sink the furnace so far as to keep the bottom of the flue at its lowest part level with the top of the furnace; if it is carried lower than this, it will not draw. The bricks both for the furnace and flue should be damp when laid, and the mortar rather thin. Great care must be taken to lay all solid; every joint should be filled when laid, and so as not to require any "pointing up" afterwards, neither should the flue be "parged" or plastered on the inside, as it soon drops off

Fig. 3.—GRATE-BAR—SIDE VIEW.

and chokes the passage. If the flue is not carried into one of the chimneys of the house, it should be taken through the side of the green-

Fig. 4.—GRATE-BAR—TOP VIEW.

house and a separate chimney made for it. If there should be any danger of a bad draft when the chimney is carried up near the dwelling, the flue may be returned alongside of itself to a properly safe point, and then carried out.

If the greenhouse is to be heated by a base-burning stove, the stove-pipes should be five or six inches in diameter and made of galvanized iron. They may be suspended under the front shelves; but neither they nor the brick flue should come within 8 or 9 inches of any woodwork, for fear of fire.

A hot-water apparatus can only be set up by mechanics who are fully acquainted with the principles upon which it operates, and who have the mechanical skill necessary to put it together. There are several kinds of boilers in use, and if any of our readers should desire to heat their greenhouse by this method, we advise them to apply to some one of those who make it a specialty; their advertisements are to be found in almost any horticultural journal. For an ordinary greenhouse, especially if of small size, a brick flue or base-burning stove will answer every purpose, at less than one half what a hot-water apparatus would cost. Under any arrangement that may be adopted the fire end of the mode employed should be at the coldest side of the house when it can conveniently be placed there.

Fig. 5.—SECTION OF FLUE.

The Wakefield Cabbage — How to Select for Seed.

BY PETER HENDERSON.

After we had been growing the Early Wakefield cabbage in Jersey for a few years after its introduction from England, we found that it broke into over a dozen sub-varieties, of varying size of leaf and shape of head, and, worse than all, of varying earliness. No matter how carefully we selected the heads that we used for seed, the same difficulty occurred. A few miles inland, somewhere near the Orange Mountain, we found that an old German was always ahead of us in having the first Wakefields in New York, and these too of a uniformity in shape that none of us nearer the city could produce. All inducements to get him to sell seed were disregarded, and year after year he kept the lead. Several plans were laid to circumvent him, such as ordering a hundred of his cabbages with *roots* on. But old Carl was not to be caught so; he filled the order to the letter, making the buyer pay roundly for the roots, but took the liberty of first dipping them in boiling water! But one day he invited a friend and countryman to see his wonderful cabbages as they grew. This was a fatal day for Carl's monopoly, for his friend had his eyes about him, and observed that several of the stumps from which the earliest heads had been cut were marked with a stake, as were a few of the choicest shape, as yet uncut. The secret was out. Carl's success had been gained by persistently year after year selecting the earliest and finest heads; taking up the stumps from which they where cut, he planted them carefully, and taking the young shoots produced from the stumps, he treated them exactly as we treat cuttings of a flower, that is, by planting the slip in the soil, watering it freely, and shading it until it rooted. After these cuttings or shoots of the cabbage were rooted, they were planted in the usual cabbage-frame, covered with glass in winter, set out in spring, and next July ripened seed. This process is too expensive and slow to follow for raising cabbage seed in quantity, but it is now used by careful growers to produce pure and improved stock from which to raise seed.

Notes from the Pines.

Sweet Corn.—Much talk was made last spring about "Moore's Extra Early Concord." It came from Massachusetts, and that was in its favor, for Massachusetts is next door to Rhode Island, where sweet corn was invented. I can recollect when Rhode Island people used to send baskets of sweet corn, by stage—that was before railroads—to their friends in Boston who, in those days, knew not sweet corn. In adjoining rows, and upon the same day, I planted Crosby's Early, Moore's Concord, and a variety grown extensively about here known as Tom Thumb, Van Riper's, Cadmus', and by other local names. The varieties had the same care, and the last-named was fit for the table full *two weeks* before the others, Moore's leading Crosby's by a few days. But what stuff this Moore's proved! I never saw such a mixed lot, and in size and color there was the greatest lack of uniformity. Some stalks were three feet high and others ten. Then as to smut—I never saw any thing to equal it. In a row 150 feet in length I did not get three dozen ears, and of these not more than a dozen were of decent size, the rest being nubbins two and three inches long. I know that this variety does finely around Boston, but upon my light soil it has been the most provoking of failures. Still I shall try it again, as the unusually wet season may have had something to do with the untoward results. It is only by recording failures as well as successes that we can arrive at the value of varieties.

Subtropical.—I made an odd bed, which thus far is very pleasing. The bed is a long oval in the lawn, and I put out two plants of Ricinus (Castor Oil) and set around them a margin of *Colocasia* (*Coladium*) *esculenta*. The luxuriance of the foliage of these produces a striking effect. Another thing that has given me much satisfaction is a clump of

Arundo Donax.—This is a native of our Southern States, but is quite hardy here. My plant of it is now in its second year, and its stems form an immense clump ten or twelve feet high, of a bluish-green color. The leaves have a graceful curve, and are moved by every breeze. It is the "reed shaken in the wind" of Scripture, and if it were better known it would be very popular. It is not as graceful as the Pampas grass or Erianthus Ravennæ, but it requires no petting nor protection, and has a sturdy elegance of its own that is pleasing to look upon. Its variegated form is a poor grower in comparison, but it is a showy plant, and worth the trouble of protecting it in winter.

The Sorrel Tree. — This was formerly called Andromeda, but is now *Oxydendrum arboreum*. The leaves are sour to the taste, hence the common name. It grows in its native localities, the Southern and Middle States, to the hight of 40 or 50 feet. My specimen is about 15 feet high, and has been clothed for some weeks from "top to toe" with its long, one-sided clusters of white flowers, which in shape remind one of the Lily of the Valley. If you wish to plant a good thing and something out of the usual run of trees, try the Sorrel Tree. Near it is a specimen of another valuable tree,

The Kœlreuteria paniculata, than which nothing can be neater in its dark-green cut foliage. Its clusters of yellow blossoms are showy, and its bladdery pods still more so. The tree is remarkably clean, not liable to be troubled by insects, a good grower, and in all respects desirable. Yet nurserymen tell me that there is no sale for this and many other choice species. People confine their orders to maples, elms, and a half-dozen other well-known things, while really choice varieties remain as dead stock upon their hands.

Fall Planting of Hardy Plants.

BY PETER HENDERSON.

All hardy plants, that start early in spring, should be set out in autumn. The best time in this latitude is from October 15th to November 15th; if later than this, they should be covered with hay, straw, or some such material, to keep them from being severely frozen. The reason why such plants as Rhubarb and Asparagus do better by being planted in fall, rather than in spring, will be apparent when we consider their nature. Young or old plants of either Asparagus or Rhubarb, just as soon as the frost is out of the ground in spring, begin to develop the buds which form the stalks. Simultaneously with this starting of the buds, there is a development of rootlets. Now, when we lift these plants to transplant in spring, these minute fibers are destroyed—not only by breaking off, when dug up, but by exposure to the air. This does not seem materially to injure these roots, for either will grow and do well if the transplanting is delayed even late into the spring months. But what we contend for is, that they will do better, if planted so early in the fall—say during October—that these rootlets may be emitted, and be ready, if thus left undisturbed, to impart vigor to the plant in spring. I am convinced that, particularly in light, dry soils, Rhubarb or Asparagus roots planted in October will give (conditions of soil and manure being equal) a much better growth than when set in spring. Last fall I put out in October, for my own use, a dozen roots of Rhubarb. Not having enough plants then to complete the row, I delayed getting additional roots until April. The result was, that we were pulling the stalks from those planted in October before those set out in April were showing signs of starting. This fall planting is equally advantageous with hardy bulbs. Our stock of Lilies is usually planted in October, and if by any chance some are left over until spring, the growth is never so vigorous, and the later the operation of planting is delayed, the weaker the growth. This many of your lady readers, no doubt, have experienced with their Hyacinths and Tulips. When planted early in fall, they form roots before cold weather sets in, and are ready to start early in the spring; but if the planting has been delayed until December, it is then too cold for roots to form, and the consequence is, a feeble flower in spring; or, worse yet, if Hyacinths, Tulips, or Crocuses are not planted until spring, the *top starts before the roots*, and the result is complete disappointment, and if the bulbs flower at all, they are weak and feeble. This may be still further illustrated by plants of an entirely different nature, in any section of the country where the thermometer does not fall lower than 15 or 20 degrees below the freezing point. Cabbages or lettuce plants set out in October, will come to maturity 10 or 12 days quicker than if planted in February or March. In many parts of the Southern States this fall planting of cabbages, or sowing or planting of onions, for market purposes, may be followed very profitably. No doubt it is done in some places, but I do not believe it is generally practiced. In such localities the advantage of planting Rhubarb or Asparagus in fall would be even greater than in colder districts, for if delayed until spring, hot weather rapidly sets in, and, as in the case of Hyacinths or Tulips, above referred to, the tops start before the roots, and the growth for some time is feeble.

Our Native Loosestrifes.

There are many native plants which, while they possess neither a striking appearance nor any marked qualities, are yet of such frequent occurrence that most persons desire to know what they are and something about them. Our native Loosestrifes, though not of any great beauty, are of such frequent occurrence that specimens are often sent to us for a name, and we give engravings of two of our common species. The well-known Moneywort of the gardens, the long, trailing stems of which make it such a favorite plant for hanging baskets, is a European species of Loosestrife, which has become naturalized in some places. The Loosestrifes belong to the genus *Lysimachia*, the name supposed to be from Greek words meaning *a release from strife*; the common name in this instance being nearly a translation

of the botanical one. Pliny states that in his time it was a popular notion that if the plant be laid upon a yoke of oxen when they are quarreling, it will quiet them. It is not necessary to say any more about the botanical relations of these plants, than that they belong to the large Primrose family (*Primulaceæ*), and have the general characters of that order. They are leafy-stemmed, with opposite or whorled leaves, and our species all have yellow flowers. The specimen at the right hand in the engraving is the Four-leaved Loosestrife, *Lysimachia quadrifolia*, and is noticeable for its symmetrical arrangement, the leaves being in whorls of four (sometimes more or less), with the flowers upon long and very slender stalks from the axils of the leaves. The other species is the Upright Loosestrife, *L. stricta*, and has its flowers arranged in a long pyramidal raceme. This is the showiest of our species, of which there are five others, to be found in damp thickets.

UPRIGHT AND FOUR-LEAVED LOOSESTRIFE.

The Trilliums, or Wake-Robins.

In looking through the volumes of the past six or eight years, we find that we have figured a large number of native shrubs and herbaceous plants, and that together they make a collection not to be rivaled by any exotics. We have endeavored to point out such natives as were worthy of cultivation, and to show lovers of flowers whose means were limited that they might surround themselves with beautiful objects without other expense than the trouble of removing the plants from their native localities to the garden border. There are some exceptions to the statement, but we may say as a general thing that wild plants improve when transferred to the garden. The chief reason of this is that the plant has undisputed possession of a sufficient amount of soil to allow it to develop to its fullest extent, and is not, as in its wild locality, obliged to struggle with a host of aggressive neighbors. Each new work published abroad contains an increased number of our native plants, and we find in English catalogues very many more American plants than we find in those of our own florists and nurserymen. Among the beautiful native plants that are eminently worthy of a place in our borders, are the Trilliums, or Wake-Robins. We have eight species, all of which are interesting, and some of them very showy. They have a tuber-like root-stock, from which arises a stem bearing at its summit a whorl of three ample leaves, and a single terminal flower with its parts in threes. In the large White Wake-Robin (*Trillium grandiflorum*) the flower is from three to five inches across; white when it first opens, and when older changing to rose color. This is our showiest species, and a bed of it is truly beautiful. The Purple Wake-Robin, sometimes called Birthroot (*Trillium erectum*), is the species we have figured, and gives an idea of the general aspect of the others. The petals in this are dark purple or maroon color. These and other species are to be found in rich damp woods in the North and West. When transferred to the garden they require a year or two to become established, and then they will each spring give an abundance of bloom, and are almost unrivaled in beauty by any flowers of the season.

THE PURPLE WAKE-ROBIN, OR TRILLIUM.

LETTUCE FOR NEXT SPRING.—Those who have not frames for wintering their lettuce can get an early start by sowing about the middle of this month the seed of some hardy variety. The Brown Dutch and the Green Winter are among the hardiest sorts. Sow where water will not stand, and when cold weather comes give a covering of leaves and brush. Around New York the plants winter perfectly well, and as soon as a well-enriched spot of ground can be got ready in spring the lettuce may be transplanted and give a very early crop.

PLANTS FOR WINTER.—It is a very common thing to take up and pot, about the time frost comes, those Verbenas, Geraniums, Heliotropes, and other plants that have been in the borders all summer. As a general thing this is labor lost. The plants have grown quite out of shape, and they are very long in recovering from the shock caused by removal, if they do so at all. It is as a general thing much better to strike cuttings and get a stock of young plants, and the matter can not be attended to too soon. Verbenas, Geraniums, and the like root readily if they are put in sandy soil in a shady place, or they may be artificially shaded. Heliotropes succeed better if potted than do most others, but they should be lifted early, in order that they may be well established before cold weather. Cut back their straggling growth severely.

CURRANT AND GOOSEBERRY TREES.—The Gardeners' Magazine (Eng.) describes and figures some remarkable currant and gooseberry trees growing in the garden of Col. Fox, at Kensington. He has an avenue of gooseberries trained as pyramids and thirteen feet high, and standard currant-trees which are five feet from the ground to the commencement of the head. Our gardeners would find it difficult to afford the time to produce such specimens did not the destructive attacks of the borer render it quite impossible. Some years ago our horticultural books and journals advocated growing the currant and gooseberry in the form of a small tree, or upon a "single leg," as it was then called. Such specimens make handsome objects in the garden, but as a general thing, after they have grown to a good size, the borer finds its way into the stem and that is the end of it. Our cultivators have found, to their cost, that it is safer to have several stems than a single one.

THE HOUSEHOLD.

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

Drying Fruit, Corn, etc.

J. N. Nind, Du Page Co., Ill., reminds us of a drying-box, which we think we have already published, but it is well to call attention to it at this season, as it is a very convenient arrangement. It is a box like a hot-bed frame, covered with one or more sashes. Window-sashes, or those made especially for hot-beds, will answer equally well. The box should be higher at one side than at the other, to give a slope to carry off water, and the better to catch the sun's rays. It should be in all respects like a hot-bed, except that it must have a bottom, and be set up upon pieces of joist, or some other material, to keep it from contact with the earth. Several holes are to be bored in each side of the box, for ventilation; these are to be covered with gauze, to keep out insects. Fruit, etc., will dry rapidly in such a box, and be kept clean; besides, it need not be brought in at night or during a rain.

Home Topics.

BY FAITH ROCHESTER.

Accomplishments.—Kate G., who knows what I wrote for Annette's benefit last month, wants me to say something on the general subject of accomplishments for women. She wants to know what I would advise about studying music, painting, dancing, etc.

From the busy lives of most persons, some things, very desirable in themselves, must get crowded out. "Every thing depends upon *what* gets crowded out," dear Miss Craydock says, in Leslie Goldthwaite's "Summer." The accomplishments named above are not essential to the existence, or to the absolute comfort of any body. But bare existence is, by no means, *living;* and physical comfort is only essential as the necessary foundation for the healthful development of the higher faculties. The needs of the body are imperative, however, and you can not slight them without wronging the soul that inhabits the body. So it seems to me that every woman should be skilled in the preparation of wholesome food and comfortable clothing, whether she knows how to play the piano or not; but let her also learn to make music.

The best of all music is that of the human voice, well cultivated. It seems to me much better to learn to sing sweetly, than to learn to play on any musical instrument. Many voices, naturally good, are strained and spoiled very early by the effort to sing too loud. Some of the best professional singers were allowed to sing very little during childhood, or only with moderate power. "Louder! louder!" the leader of singing at the Sabbath-school exclaims, and the young voices of the poor little victims stretch to their utmost capacity to satisfy the unreasonable demand. Some leaders of children's singing seem to suppose that to keep time and sing loud are the chief requisites of good singing. Quality is sacrificed to quantity, and many a child suffers life-long injury from this cause. The ability to sing, even moderately well, is of great value to a mother. Most married women are obliged to give up their piano-practice while they have the care of young children, but there is a chance for some vocal music every day. You can not sing the little lullabys too sweetly. Every day I am thankful for my own poor little gift, which rarely comes into service anywhere except in the nursery. While one baby is lulled to happy rest by the singing of little rhymes from "Songs for the Little Ones at Home," a larger one sits near, or lies upon the floor, resting, too, and laying by hard questions to ask me at the first opportunity, about the meaning of what I sing.

Among accomplishments to be desired I would rank the ability to read aloud with clearness and proper expression. It is a very rare accomplishment, but one that may be made to add greatly to domestic happiness.

A great deal of time and money is fooled away in lessons on the piano, where there is little natural gift in that line, and where the motive is merely a desire to make a display. A young girl who wishes to study instrumental music had better satisfy herself first that nothing more important is likely to be crowded out by her music lessons, and that a real love and talent for music animates her, more than the wish to shine in society. The desire to dazzle others, or to be admired, is an unworthy motive; not so with the honest wish to contribute in every way we can to the rational pleasure and entertainment of society about us.

I think drawing—mechanical drawing, and sketching from nature—should be taught to every child, not merely as an accomplishment, but as a useful art, and as legitimate training for both eye and hand. I don't think much of learning to paint merely for the sake of getting a few "pretty" pictures for your walls. However, there is pleasure and some degree of culture even in that. But there is more real culture in the patient copying, with pencil, or charcoal, of a burdock plant, studying all its outlines, and lights, and shades, just as you see it growing in your back-yard—or in your neighbor's yard, for, of course, you don't allow burdocks to grow on your premises! Any other plant will do. Half a day's faithful study of nature, in the attempt to copy her beautiful shapes and shadows, will make all nature vastly more beautiful and wonderful to you ever afterward. There is no danger of carrying this study too far, if you keep it from monopolizing time that should be given to other duties. And when you come to use colors, the pleasure is increased.

Kate mentions dancing. There is no harm in knowing how, and there is no harm in dancing. It may be made good physical culture and healthful exercise. Usually, this is not the case, and there are so many evils associated with dancing that I don't feel ready to recommend dancing lessons very cordially. I wish we were all ready to take hold and free dancing from its evil associations, and consecrate it to good. It is a heavy task until the leavening influence of simple Christianity has spread farther and deeper through society, but we can at least try to speak frankly, and without prejudice, about it. Did you read what H. W. Beecher wrote lately about his memory of the single time when his sainted mother danced before her little flock of children and their father?

In my opinion, it is for the good of man, and, therefore, for the glory of God, to cultivate the love of the beautiful, and the ability to express it as perfectly as possible to all the senses—not for the sake of the senses, but for the sake of the soul, to which the senses may all be made to minister, by judicious cultivation and exercise.

Sunday Headaches.—They are a reality—a dreadful reality—as many weakly persons know to their sorrow. Why should they come just once a week, and on Sunday, too? I used to wonder about it when I was a little girl, and had to lie abed, or in my eldest sister's arms, enduring the misery of a sick or a nervous headache on a Sunday afternoon. The headaches used to begin to come on, or to suggest themselves somewhat, before I started for church; and when I begged to stay at home on the plea of sickness, after a whole week of exemption from such suffering, I do not wonder that the request was deemed absurd by stronger persons, and that I was sometimes obliged to choose between going to meeting or taking a dose if I stayed at home.

I can see now that the Sunday habits of many families are directly conducive to headache, stomach-ache, and other physical discomforts, with accompanying mental stupidity. When Sunday comes, overworked people are glad to sleep a little later than usual, and perhaps it is best that they should do so. But for people who are not overworked, such late rising is a bad beginning of a good day, and sets the stomach out of order at the outset, by breaking in upon the usual habit of breakfasting. Some feeble persons can not lounge in bed after the time of waking, without rising with a headache. The stomach is already out of tune before the late breakfast is ready, and the children are apt to be hungry and cross. In many families it is any thing but a pleasant and leisurely task to get all the members ready for church or Sunday-school; and it is not strange that the body calls for rest, when once seated in the church pew, more earnestly than the mind for instruction. Drowsiness is a natural result of the whole week's work and the whole morning's proceedings. Add to this the poor ventilation of the church, the crowd of changing colors and shifting scenes, and the misery of many of the fashions of women's head-gear, and it is not strange that many a mother, at least, feels as though she has done a hard day's work when she goes home from church to a late and perhaps a heavy dinner.

It would be more healthful, and so more religious in one sense, to have the hours for rising and eating vary as little as possible from those observed on other days. Extra Sunday naps ought not to be made necessary by the irreligious conduct of the whole week. Earlier hours for bed every night would give a more reasonable and comfortable day of rest on Sunday.

By Express or by Post.—A friend lately sent me a present of a package of books and picture-cards of wild animals, birds, and foreign people, for the children. She sent by express, paying the charges herself. So I need not hesitate to say that she might better have sent the parcel by mail, as printed matter. Large parcels, on which you must pay letter postage, cost heavily; but in this case the expense would not have been more than half what it cost to send the same so far by express. Had the distance been shorter, her way would have been the better one; but in sending by express, the expense constantly increases with the distance, as the parcel changes from one line to another. You can send a printed parcel by mail from Boston to Oregon as cheaply as from Boston to Springfield. But be careful not to send any thing as printed matter which does not properly come under that head. It is easy to find out the law on the subject, and silly, to say the least, to attempt to evade it. A friend once sent me a bouquet (much faded, of course, when I received it) in a newspaper, and I had to pay twenty-five cents for it when I took it from the office. A few words, thoughtlessly written on the margin of a newspaper by me when a school-girl, cost the friend so addressed twenty-eight cents, besides some shame on account of my folly.

Treatment for "Cross Children."—Mrs. Mann commends the good sense of a mother of her acquaintance who used to give her children medical treatment to cure their evil tempers. She acted under the advice of a good physician, and the children, as well as their mother, learned to observe the moral effects of an emetic! It seems quite reasonable. In such a case, as in all others, "prevention is better than cure." A simple, wholesome diet, free from rich and spicy and greasy combinations, plenty of quiet sleep and exercise in pure air, and a clean skin—these are the preventive measures, if we would escape peevishness and quarrelsome tempers in children. Even with the greatest care for their physical condition, we need not expect perfect dispositions, for the little creatures *will* inherit more or less of "the old Adam."

When young children cry much, the trouble is apt to be in the stomach. If we have reason to suspect that some undigested matter there causes the irritability, a warm-water emetic (sickishly warm) will sometimes bring speedy relief. Pieces of unripe fruit will sometimes be thrown up, and so cease to torment the little sufferer. I have seldom resorted to this; but a cool, wet compress, bound over the stomach and bowels, will often cause a marked change for the better in the temper of a child. When I find my child incapable of being pacified by playthings or fun, I sometimes think to ask, "Don't you want a compress on?" and often the suggestion is welcomed by the little one. Then I am glad enough that I did not punish for naughtiness, instead of trying to cure sickness. Sometimes hunger or cold makes a child peevish when we little suspect it.

Oatmeal Gruel.—This is a favorite dish with

us, and with many of our friends. I was glad to see that William Cullen Bryant knows its virtues, and mentions it in his letter describing his method of living at such a good old age. He uses it as a breakfast dish. We more frequently take it for our supper.

Oatmeal is very nutritious. It has an odd taste, that is not always agreeable just at first, but it is generally much relished after a little trial. Some like the gruel thinner than others do. We use about two level table-spoonfuls to a quart of water. Make a batter of the meal and a little water, and stir it into boiling water. Let it boil gently from fifteen to thirty minutes, stirring it most of the time. Of course most people will salt the water. I do myself, though not sure that it is necessary or best. Cream is all the seasoning we care for after it comes to the table, though some use sugar also. Stirred thicker, it makes an excellent pudding.

KNEE-BREECHES.—Mrs. B——, Holley, N. Y. The little "knee-breeches" are to be made, as you suppose, in two separate pieces, and fastened each to a button, or through a button-hole in the skirt, one on each side of the child's body. Make them a little longer than the pattern given in the *Agriculturist* shows. You will find no difficulty in arranging the diaper under it—bringing the corners through under the straps of the little breeches. In spring or fall weather I sometimes put these on over the cotton drawers of my two-year-old baby.

Hints on Making Pickles.

BY ESTELLE EDGERTON.

Care should be taken to procure unadulterated vinegar. It is very unsatisfactory to make pickles unless you are sure your vinegar is perfectly pure. It is better to go some distance from home to procure reliable vinegar than to use that which is not warranted free from foreign acid. The quantity of salt water used in scalding the vegetables will indicate the quantity of vinegar required. About a pound and a half of salt to a gallon of water is the usual allowance for this operation. All vegetables, excepting onions, make better pickles, if young and tender. I know a lady who pickled a peck of yellow butter-beans, full-grown, and bought at the grocery at a fancy price. They were highly and expensively spiced, but when brought to table were so tough and stringy that it was found impossible to eat them. Beans are not fit to pickle after the seed has commenced to absorb the juices of the pod. The smaller and greener bean-pods are, the nicer the pickle. When the conditions are right, they make as delicious a pickle as can be made.

Very early and green melons make a fine pickle. If they will not snap off, rind and all, without effort, they are unfit for use.

Most housekeepers differ in their methods of making pickles; but if good vinegar is used, the spices the same, and the vegetables tender, the results will be very nearly the same. It is only a question of time. What I mean is this: In the long run it does not matter so much what the salting process has been, whether they have been in salt three days, twenty-four hours, or only a few minutes. Very excellent pickles can be made without putting the vegetable in salt at all, but it will take a longer time for the vinegar to penetrate it. The object of putting vegetables designed for present vinegar-pickling in salt and water is to extract or reduce the natural juices of the fruit in order to make room for the vinegar to enter readily. A very little alum dissolved in the vinegar restores the crispness lost through the action of the salt. All young tender and green vegetables are adapted to acid pickling, to which sugar would be inappropriate; but ripe vegetables, which have lost their snap, such as yellow cucumbers, are better when the acid used receives a due proportion of sugar. Pickled fruits are better when the sugar predominates over the acid of the vinegar. Cloves, cinnamon, and cassia-buds are, in my opinion, only adapted to those pickles in which sugar is used. Mace, mustard-seed, capsicums or red peppers, green peppers, garlic, black peppercorns, ginger-root, and bay-leaves are best adapted to a purely acid pickle.

INDIA PICKLE.—After peeling and slicing a root of horseradish, chop it fine, also a half-dozen medium-sized onions, three or four green peppers, removing the seeds, and a cabbage. Pour over the whole, after mixing, a weak brine, and allow it to stand over night. Spice some vinegar with allspice and mace, adding cloves and cinnamon, if you like. Heat the vinegar and spice to boiling, with a small quantity of alum, and turn it over the pickle. It will be fit to eat in three weeks.

YOUNG BEANS.—Gather them when quite small and tender. Pour over them a brine made in the proportion of an ounce of salt to a quart of water. It should be scalded. Let them stand over night. Drain off the brine, and pour over hot spiced vinegar with a trifle of alum.

NASTURTIUMS.—Let them stand in salt and water a few days, when they should be well drained and scalding-hot vinegar poured over them. No spice. Put into a narrow-mouthed bottle and cork well.

PEPPERS, GREEN.—Take out the seeds. Soak them for a few days in salt and water. Then pour over them hot vinegar. They are good when opened carefully on the side, stuffed with cabbage, and then put into vinegar.

MANGOES are made of young and tender melons gathered late in the season. Cut out a small slice and remove the seedy portion. Stuff with small cucumbers, radish-pods, nasturtiums, young onions, and cauliflower, or any thing you like, using mustard-seed as a spice, about a teaspoonful put inside of each melon; replace the piece and tie it on. The melons and stuffing ingredients should be soaked in brine for two days before fixing them for the vinegar. Pour the vinegar over them scalding hot, with a piece of alum as large as a hickory nut to a gallon.

PEACHES, scalded in salt and water, thoroughly wiped, and hot spiced vinegar poured over them, make a good pickle.

PURPLE OR RED CABBAGE.—Take off all the tough outside leaves, slice them thinly and evenly, put them in layers, and sprinkle salt freely over each layer, and let them remain twenty-four hours. Drain the cabbage well. Boil up some vinegar and add alum, and spice to your taste, and pour hot over it. Repeat this process for three or four days.

GHERKINS.—Scald in salt and water. Drain and pour hot spiced vinegar over them.

CUCUMBERS.—There are many different methods for putting up this fine pickle; almost all are good. From two to four inches long, and as thick as the finger, is the best size. The quicker grown, the better. One way is to give them a good scald-up in brine, wipe, and pour over spiced hot vinegar. Another is to soak them in hot salt and water twenty-four hours, and then pickle them. You may put them in salt and water as you pick them, and finish them when they are all collected from the vines. Scalding several times will make them green and brittle. Peppers and onions improve the flavor. Horseradish and green grapes are excellent, added to cucumbers, and, in fact, improve pickles generally.

ARTICHOKES, JERUSALEM.—Soak in salt and water for a few days, or until the skin can be removed. Rub off the skin, and pour boiling spiced vinegar over them. Let them stand in the vinegar four or five days, scald up again, and repeat this until the artichokes are thoroughly pickled.

ONIONS.—The best time to pickle onions is in October. Small button onions are the best. Cut off the end smoothly with a sharp knife. Pour a strong, hot lye over them. Let them stand until the skin is loose. Pour off the lye, and wash them in clear water before putting in the hands. The skin may now be readily removed. When skinned pour over them a good brine, and let them stand a week, or until they are transparent. Drain and pour boiling vinegar over them. They need very little, if any spice. If not convenient to use lye, the roots and tops may be cut off smoothly, and the salt and water put over them before the skin is taken off. In that case they will not affect the eyes in the usual unpleasant manner.

CAULIFLOWERS should be parboiled, cut into small pieces, and allowed to stand in a brine a few days. They may then be drained, and spiced vinegar poured over. They may be colored with beet-root vinegar, or, if added to the red cabbage, they will turn of the same color as the cabbage.

PEACH MANGOES.—Cut off a slice from the stalk-end large enough to allow the stone to be removed. They may then be filled with a few eschalots, a little horseradish, or chillies, adding spice. Replace the piece, and pour over scalding-hot vinegar.

Salad Dressing.—"B. L. J.," Burlington, N. J., sends what he considers an improvement on the Salad Dressing given in July: "First are the necessary tools. There is now made and sold at most furnishing and country stores, a wire muddler (egg-beater), which is worked by a spring in the handle, and which makes what was formerly a task in mixing salad dressing, a mere pastime. With this take a large-sized tumbler, or a bowl, and put in the yolk of a fresh *raw* egg. Drop on it ten drops of vinegar; then pour in a steady stream of pure oil, about one eighth of an inch in diameter (keeping the muddler rapidly going by pressing the handle down, and allowing it to spring back), until a gill of oil is added to the egg. It will rapidly thicken, until the whole mass adheres to the muddler, and can be lifted by it from the glass. Now, in a cup, mix two mustard-spoonfuls of mustard, one full salt-spoon of salt, half that quantity (or less, according to taste) of cayenne paper (cayenne being more wholesome than black), and *one teaspoonful of pure cider-vinegar*. Mix well, and then add gradually to the oil and egg, stirring rapidly and well, until it is brought again to the original consistency.

"Sandwiches are excellent when the above dressing, minus the vinegar and plus more mustard, is used to spread over the bread instead of butter. No good salad dressing can be made unless the oil is not only pure, but also kept in a cool place, and it is improved by placing the oil bottle, for a short time before making, in ice-water. I presume you have heard the saying that 'it takes four men to make a good salad—a spendthrift for oil, a miser for vinegar, a judge for salt, and a madman to stir.'"

Recipes.

Sweet-Breads.—To cook, put a piece of butter into the pan you use; let it get rather hot. Now put in the sweet-breads. Do not blanch or scald, or wash them, if you want them prime. Do not season them now. Let them cook thoroughly. When a fine brown, sprinkle salt all over them. Put *no* pepper—pepper is too strong for them. Pour a *very little* water into the pan. Boil it up and pour on the dish. A little pork or ham or bacon fried, should be served with them. Butter improves them very much, and you may be generous in its use, when cooking for the table. For invalids, as little as possible should be used; and if butter is not allowed the patient, a *trifle* of bacon liquor or lard must be used instead.

"Patent Fly-brush." — "J. A. W.," Springfield, Ill., says: To avoid the necessity of using a fly-brush at the table during meals, when flies are troublesome, I pour a thin stream of molasses upon the rim of a plate, and set it on the side of the table, where the flies will get the least disturbance; and so many of them will gather on the plate, that those not thus gathered will cause little annoyance. When the plate is first set, it is well to wave the hand to drive them towards it. I call it my *patent fly-brush*.

Green Corn.—The following is going the rounds of the papers, and is sent us by a lady who says that she has tried it with success. We have not tried it. Dissolve 1½ oz. Tartaric Acid in ½ pint of water. Cut the corn from the cob and cook it. Add two tablespoonfuls of the acid solution to each quart of corn and can immediately. When used stir half a teaspoonful of soda in each two quarts of corn. Allow to stand 3 or 4 hours before cooking. Then cook as fresh corn. Here is a chance to experiment, but we have no great faith in it.

BOYS & GIRLS' COLUMNS.

Red River Trains.

BY "CARLETON."

I am writing to you this month, my young friends, from the Red River country. You say that the Red River is in Arkansas, and empties into the Mississippi. So it does, but there is another Red River away up in the North, which runs through a wonderful valley, where you can see some things that you can not see anywhere else in the world, and which soon will not be seen even there—I mean, the Red River trains and carts.

I have seen a great many of the rivers of the world, and many fertile fields, but I do not know of another valley like this one of the North. You will see by looking on the atlas that the river runs north into Lake Winnipeg, and from thence its waters go out into Hudson's Bay. The ground is very level. How would you like to plow a furrow fifty miles long? You can do it here. You might start your team in the morning on its eastern border and drive west all day until sunset, and you would have to whip up the oxen well to get to the center of the valley by sunset. Then, crossing the river, you might start the next morning and drive all day, still toward the west, and you would be leg-weary and tired out long before you reached the western border. And all the while you would be turning up rich black loam, and the oxen would be trampling through luxuriant grass. This would be plowing a furrow across the valley. Now let us turn one lengthwise this field. We will travel northward, from its southern border. We shall have here and there to cross a small stream, but were it not for these, we could plow a furrow straight as a line the entire length of the valley without turning the plow from the sod. It would be a long furrow—fully three hundred miles in length! Think of plowing from New York to Washington; or, from Boston to Philadelphia; or, from Chicago to St. Louis; or, from Albany to Buffalo! Fifteen miles a day is a good distance for an ox team to make. We should be 20 days then in plowing a single furrow, or six weeks in making one bout! We should have to carry our camp-kettle and stew-pan with us, and lay over two or three times to wash our clothes! We should want a telegraph constructed so that we could communicate once in a while with the folks at home. Three hundred miles! and not a stone, a hillock, or knoll to prevent us from turning an unbroken furrow. Wonderful!

But the Red River trains are almost as much of a curiosity as the valley itself. They come from Manitoba—the Winnipeg country—and are made up of carts, each drawn by a horse or a pony, or an ox or a cow. You would laugh to see one of the carts, with its broad wheels, seven or eight feet high; its wooden axle, so loose in the hub that the wheel wobbles in all directions, and squeaks, squeaks, squeaks at every turn. There are two great bungling, heavy shafts, and a little rack upon them. The concern is made wholly of wood and rawhide. There is not an ounce of iron about them. The bands to the hubs are of rawhide; the tires of the wheels are of hide; the rack is tied together with hide. Shake the concern, and it almost rattles itself to pieces, and with your jack-knife you could cut the thongs and let it fall apart in a minute or two. It is the craziest cart you ever saw. The people who drive these carts are half Indian and half French. They like to hunt buffalo, and race over the prairies on their ponies, and they had much rather smoke their pipes and tell stories than to hold the plow or hoe corn, and so they lead a shiftless life.

Every summer a long train of these carts—nearly three thousand of them in all—come from Winnipeg to Minnesota, bringing buffalo robes and fox and wolf skins, and carrying back goods.

You would like, I am sure, to see one of these trains—the men and boys on Indian ponies, and the women and black-haired girls riding in the carts, whipping up the oxen; or, when they stop at night, cooking supper in a stew-pan; milking the cows; then all gathering round the camp-fire in the evening, smoking their pipes, telling stories, and huddling together under the cart, or in it, wrapped in their blankets, and sleeping just as soundly and as sweetly as you in your bedrooms.

They always have a great number of spare horses and ponies that keep along with the train, nibbling the grass and kicking up their heels.

It is great fun to see them cross a river. They do not care to swim across, although they have no objection to wading in a little ways. At first they attempt to get away, run up the bank, and dart through the bushes, but the men and boys, mounted on the fastest ponies of the herd, head them off and turn them back into the current. The little colts, fearing nothing, give a leap and are head and ears under water, but they quickly come to the surface, and snort, and puff, and blow like a donkey-engine. First one, then another, and then the whole herd plunge in. It is very funny to see a hundred noses and ears, nothing else, pushing across the stream.

But what a shaking of manes when they are all across, and then they caper off and have a jolly run, as if they felt refreshed after their swim, as I have no doubt they do.

If you would see a Red River train you will have to be quick about it, for the iron horse that eats wood and spits fire, that is to run from Lake Superior to Puget Sound, will be thundering through the valley in a few days, and then the Red River trains will be seen no more.

Tobacco—A Speech for Boys.

BY "BLUE-MOUNTAIN" (13 years old).

I go against tobacco, because it goes against me. I eschew it. I will not chew it. I will tell you why. 1st. I do not like the taste of it; it tastes worse than any medicine you can put to my lips, it is such sickening stuff. 2d. I don't like the looks of it; when I see the tobacco I pity the mouth that chews it; and when I see the mouth which chews it I pity the tobacco; it is of a dirty dirt-color. 3d. I don't like the effects of its use: it makes the teeth yellow and brown when they should be white; it makes the breath offensive when it should be sweet; it injures the voice so that those who chew can not sing and speak to advantage. The voice breaks, and the chorister croaks like a raven when he should sing like a boholink; the orator merely barks, and a tobacco bark is very disagreeable. 4th. I fear tobacco creates an appetite for liquor; it lights a fire in the throat which water may not put out.—M. K. B., Jr., Reading, Pa.

Aunt Sue's Puzzle-Box.

We were rather hurried last month, and our announcement concerning the prizes for the solutions of the anagrams, and our notices to correspondents, were "too late." I was delighted to think they would "keep," notwithstanding the warm weather, and you shall have them now.

THE ANAGRAM PRIZES

were drawn by O. A. Gage, Pelham, N. H., Blue Bird, Bridgewater, Mass., H. E. P., Stratford, Conn., and Josiah, Box 767, P. O. New York City.

Now I am going to give you a fish story prepared by our friend TEMPY. You are to fill all the blanks with the name of some fish that shall make sense of the story. In sending the solution, don't trouble yourselves to write out the whole *poem;* I should prefer to have you send your answers in this style: 1. Whale. 2. White. 3. Smelt. 4. Shiner. 5. Shark. 6. Bass, and so on (of course I have not given the right answers): and all those who give a correct version *of the whole*, shall have honorable mention.

Don't forget to direct your answers to AUNT SUE, Box 111, P. O. Brooklyn, N. Y., and NOT to the office of the *Agriculturist*.

415. *Illustrated Rebus.*—Well, Aunt Sue is a queer woman. Here she has left some rebuses, and has gone off into the country, without saying what shall be put under them. We can't stop to guess them out, but we have not the slightest doubt that they are very good, and we are sure that they look sufficiently puzzling.—ED.

A FISH STORY.

BY SALMON C. PIKE, JR.

Once on a time, down East, in days of yore,
An old [1]—— dwelt (the [2]—— was cape [3]—— shore),
An [4]—— she, who erst sold beer for bread,

416. *Illustrated Rebus.*—See remarks under the rebus above, and guess away at it. When you have found the answer, don't send it to this office, but to Aunt Sue. Her Post-office direction is given in another column.

And happy lived till [5]—— enough to wed,
She might have had a good old [6]———.
Alas! alas! she chose that scamp ——[7]——.
Ah! me, they lived a [8]—— and [9]—— like life,
Till death in pity freed the poor [10]——.
——[11]—— wooed her next, oft hight ——[12]——,
A [13]—— man he, and sailor off and on,
Who, though a reg'lar [14]—— reared and bred,
Rudder and [15]——, scorned, as soon as wed.
"I'm waxing old," he said, "infirm a[illegible] ——,
I find the seas too [17]——, the wind t[illegible] ——."
In sooth, he'd rather [19]—— himself t[illegible] ——
Or [21]—— with [22]—— from off some [23]——'s deck,
Or [24]—— along the [25]—— or tavern stay,
And [26]—— his [27]—— and [28]—— the livelong day,
Till [29]——light [30]——'ring, or the [31]——'s pale [32].——:
Then [33]—— at last from oft replenished [34]——,
The [35]—— feels his homeward way at dawn,
To [36]—— there like [37]—— in his stye,
Or like an o'erfed [38]—— till noon to lie.
No wonder [39] "——" dubbed by village boys,
Who said old ——[40]—— hailed from Illinois.
One morn, [41]"—— up," she cried, "you lazy [42]——!"
(She punched his [43]—— and shook the [44]—— [45]——.)
"Of butter not a [46]—— or [47]——, or crumb
Of meat or fish big as a ——[48]——:
And here like [49]—— snorting lies this sot.
Sdeath! —— [50]—— —— and hark ye —— [51]—— ——."
Her voice was [52]——, and when she chose to [53]——
Each word a [54]——, tongue as [55]—— sharp;
No [56]—— from [57]—— drawn inspired such dread
As this she [58]——. (To *himself* he said)
"By [59]——! she makes each tortured ear [60]—— feel
As if 'twere stung by an ——[61]——.
Sweet wife," he plead (for brewing storm he [62]——,
And the vexed [63]—— vainly hoped to melt)
"My [64]——! dearest woman on the [65]——"
(Here from his bed he leaped into his robe),
"I'm off, for lo! last night I had a dream.
Methought I caught, ah! such a [66]—— of [67]——,
Bought by the [68]—— Sam upon the hill.
Did your lean purse with solid [69]—— fill,
Bought Bob some [70]—— and you a [71]—— shawl,
Me a ——[72]——, and Pet a doll."
Jack went and with him his fish [73]—— took,
With clams for [74]——, bob, sinker, line, and hook;

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MAKING MUD PIES.—*Drawn and Engraved for the American Agriculturist.*

Went, but he ne'er returned. Alas! sad fate,
It grieves my very [75]—— to have to state
Next morning [76]—— and [77]—— both were found,
But not ——[78]——, although they dragged the [79]——,
To *fish-her-man* in vain the neighbors tried.
So Moll a relict lived, a widow died.
In truth, 'tis said, her grief was so profound
That she herself and grief in ——[80]—— drowned.

TEMPY.

ANAGRAMS.

1. O! rate Abel.
2. Suit old ice.
3. In a poor nest.
4. True trial, E.
5. Coin from G. T.
6. Dent piece.

E. L. K.

ANSWERS TO PUZZLES IN THE JULY NUMBER.

ANAGRAMS.—1. Authorities. 2. Ultimate. 3. Unpleasant. 4. Unsurpassed. 5. Naturalists. 6. Distinguished. 7. Obliterates. 8. Imperturbable. 9. Reconnoitred. 10. Overhauled. 11. Daniel Webster, the Statesman. 12. Aaron, Aron. 13. Scup, cup. 14. Slaughter, laughter. 15. Two men, women. 16. Albert Gates Pettinger.

17.
MASTS
ASHEN
SHARE
TERSE
SNEER

18.
GRACE
ROMAN
AMEND
CANOE
ENDED

19. Idleness is the sepulchre of a living man.
20. Kingfisher. 21. Raspberry. 22. Pineapple. 23. Oakapple. 24. Rattlesnake.
25. When little more than boy in age,
I deemed myself almost a sage;
But now seem worthier to be styled
For ignorance almost a child.
26.
L
RED
FRANC
AMERICA=Lear.
27. Bungo. 28. Ignore, region. 29. Brush, shrub. 30. Deform, formed. 31. Thing, night. 32. Three, there.

AUNT SUE'S NOTICES TO CORRESPONDENTS.

E. L. CLARK. I "would rather have" short, pithy puzzles; charades, double acrostics, almost any thing but numerical enigmas and cross-words.

STAR AND CRESCENT. You have asked a good many questions, but I will try to answer them concisely. 1. For convenience of Publishers. 2. Yes. 3. About a thousand.

JERE PLUMEN answers No. 12 of the June puzzles with "S-hot (shot), or S-warm (swarm)," which is not bad.

MARY SOULE. The "diamond cross-puzzle" speaks for itself in the "answers," this month.

L. S. C. Many thanks for your puzzles. Your "Proverb Pi" is particularly good. I know how much patience its construction costs.

BLUE BIRD. Of course I missed you. "Childish"?—not at all—very wise.

J. B. H. I was only waiting to hear from you once more.

Will those sending enigmatical contributions please specify whether they are for the *Agriculturist* or for *Hearth and Home?*

Thanks for puzzles, etc., to Eleanor, Snicker, Ben, J. B. H., and W. H. K.

Healthy boys love the dirt. That fine fellow whose hat-brim is a little torn, perhaps from climbing trees, sits down on the lap of "mother earth" as though he were not a bit afraid. He is stirring that dough with a hearty good will. We like a boy that can play with girls. Both of these boys are gentlemen. One of them mixes dough while the other one is putting up the stove-pipe. The girl with the cup is making herself generally useful. She does not insist on mixing or baking, but she is a good-natured soul, ready to wait on the rest. The one with the pie already made on that bit of china is the "chief cook." But do you know which one we love best? The one we have not mentioned yet. That little young-old girl-woman in the sun-bonnet. How gingerly she holds that pan, making believe it is hot! Take care! Don't burn your fingers, my dear! We are really afraid that pan is so hot that you will burn your dress! And how about your pies? Nearly done, eh? Give them one more turn in the oven. They want a little more browning at the bottom! Ah! little woman, how red the little cheeks must be under that great big sun-bonnet. How we should like to kiss them! If we dared! For with so much dignity and care, perhaps she would be offended. She is playing old lady so earnestly that she may have forgotten that she is only a sweet little girl lost in mamma's sun-bonnet, and that her pies are only mud!

Blessed days of bare feet and broken china! We who are big and busy, envy you who mix your mud pies under the hollyhocks. Soon you will quit playing and go to work in earnest. God bless you, and may your pies never burn. Play on, and when play-time is over and working-time comes, try to keep your hearts as cheerful as they are now, making mud pies under the hollyhocks.

Fairs—1871.

State and National Fairs.

Alabama	Montgomery	Oct. 16–20
Arkansas	Little Rock	Oct. 3– 6
American Institute	New York	Sept. 7–Nov. 2
American Pomological	Richmond, Va	Sept. 6–8
Atlanta	Atlanta	Aug. 29–Sept. 2
California	Sacramento	Sept. 18–23
Cherokee-Georgia and Alabama Agricultural	Rome, Ga	Oct. 10–13
Cincinnati Industrial	Cincinnati, O	Sept. 6–Oct. 7
Colorado	Denver	Sept. 12–16
Cotton States Mech. and Agricultural	Augusta, Ga	Oct. 31–Nov. 4
Dixon Horse	Dixon	Sept. 13–16
Georgia	Macon	Oct. 23–26
Illinois Swine	Chicago	Sept. 19–21
Illinois	Du Quoin	Sept. 25–30
Indiana	Indianapolis	Oct. 2– 7
Iowa	Cedar Rapids	Sept. 11–15
Kansas	Topeka	Sept. 11–15
Lonisiana	New Orleans	Nov. 18–27
Maryland	Baltimore	Oct. 3– 6
Michigan	Kalamazoo	Sept. 19–22
Mich. Nat. Horse Ex	Kalamazoo	Aug. 15–18
Mich. Union of State Pom. So. & N. Ag. & Mech. So.	Grand Rapids	Sept. 12–15
Minnesota	St. Paul	Sept. 26–29
Missouri	St. Louis	Oct. 2– 7
Mississippi	Jackson	Oct. 23–28
Nebraska	Brownville	Sept. 26–29
New England	Lowell, Mass	Sept. 5– 8
New Hampshire	Dover	Sept. 26–29
New Jersey	Waverley	Sept. 19–23
New York	Albany	Oct. 2– 6
Ohio	Springfield	Sept. 25–29
Oregon	Salem	Oct. 9–15
Pennsylvania	Scranton	Sept. 19–22
Pennsylvania Hort	Philadelphia	Sept. 12
South Carolina	Columbia	Nov. 6–11
San Francisco M. I.	San Francisco	Aug. 8–Sept. 5
San Francisco Bay H.	San Francisco	Aug. 8–Sept. 5
Tennessee	Nashville	Sept. 26–30
Vermont	St. Johnsbury	Sept. 12–15
Virginia	Richmond	Oct. 31–Nov. 3
Virginia Horticultural	Richmond	Sept. 6– 8
Wisconsin	Milwaukee	Sept. 25–29

District Fairs.

Agr. and Hort. Union	Aurora, Ill	Sept. 25–29
Belle Plain Union	Belle Plain, Iowa	Sept. 19–22
Bridgeton District	Bridgeton, Ind	Aug. 28–Sept. 2
Central Iowa	Des Moines	Sept. 16–22
Central Kentucky	Danville	Sept. 19–22
Central Michigan	Lansing	Oct. 3– 5
Central Missouri	St. Joseph	Sept. 22–24
Central Ohio	Mechanicsburg	Sept. 19–22
Central Pennsylvania	Altoona	Sept. 12–16
Elgin	Elgin	Sept. 5– 8
Farmers' & Mech. Inst.	Danville, Ill	Sept. 19–22
Horse Fair	Dixon, Ill	Sept. 13–16
Middleton District, Ind.	Middleton	Sept. 12–16
North-eastern Iowa	Pottsville	Oct. 4– 6
Northern Kansas	Atchison	Oct. 3– 6
Northern Kentucky	Florence	Sept. 19–22
Northern Mich. Stock Agr. & Mech. As	Saliabury	Sept. 26
North Missouri	Hannibal	Sept. 26–30
Northern Ohio	Cleveland	Sept. 12–17
Northern Wisconsin	Oshkosh	Oct. 2– 5
So. Kans. & Mo. Ag. Ass.	Fort Scott, Kansas	Sept. 25
Southern Wisconsin	Janesville	Sept. 12–15
South-west'n Wisconsin	Mineral Point	Sept. 5– 9
South-west Iowa	Red Oak	Oct. 3– 6
State and Pleasant Valley Grape-Growers'	Hammondsport	Sept. 26–28
Tennessee A. M. Ass	Tuscumbia, Ala	Oct. 24–28
Union—Iowa	Mechanicsville	Sept. 19–22
Union Fair	Milton, Iowa	Aug. 23–25
Union Central	Atlanta, Ill	Aug. 29–Sept. 2
Union of Southern Ohio	Blanchester	Aug. 29–Sept. 1
Union Fair	Warren, Ill	Sept. 12–15
West Alabama	Eutaw	Oct. 17–21
Western New York	Rochester	Sept. 26–29
Wisconsin Valley	Mazo Manie	Sept. 13–15

Provincial Fairs.

CANADA.

Barton and Glanford	Glanford	Oct. 10
Brant North	Paris	Oct. 3– 4
Brant South	Brantford	Oct. 5– 6
Brockville and Elizabethtown	Unionville	Sept. 19–20
Blandford	Plattsville	Sept. 22
Canada Provincial (Out.)	Kingston	Sept. 25–29
Central	Hamilton	Oct. 4– 6
Cheese Fair	Ingersoll	Sept. 21–22
Dundas	Dundas	Aug. 30–Sept. 1
Durham and Hope	Port Hope	Oct. 12–13
East Wawanosh	Wawanosh	Oct. 3
Elma	Newry	Oct. 4
Esquesing	Georgetown	Oct. 13
Harwich	Blenheim	Oct. 10
Hibbert	Staffa	Oct. 10
Howard	Ridgetown	Oct. 5
Huron North	Clinton	Sept. 19–20
Huron South	Seaforth	Sept. 21–22
Kent	Chatham	Oct. 5– 6
Mara		Oct. 6
McNab	Balmer's Island	Sept. 27
Mornington	Milverton	Oct. 3
Northumberland West	Cobourg	Oct. 17–18
Otonabee	Keene	Oct. 13
Ottawa No. 1	Chelsea, P. Q	Sept. 20
Oxforth North	Woodstock	Oct. 10–11
Oxforth South	Ingersoll	Sept. 21–22
Proton	Ronaldsay	Sept. 20
Perth North	Stratford	Oct. 5– 6
Perth South	St. Mary's	Oct. 3– 4
Renfrew South	Renfrew	Oct. 3
St. Johns, P. Q	Lacolle	Sept. 21
Saltfleet and Binbrook	Stoney Creek	Sept. 20
Southwold and Dunwich	Iona	Sept. 20
Toronto	Toronto	Sept. 19–21
Tornley	Wingham	Oct. 4
Usborne	Exeter	Oct. 2– 3
Vespra	Midhurst	Sept. 22
Wallace and Elma	Listowell	Oct. 3
Waterloo	Waterloo	Oct. 5– 6
Waterloo South	Galt	Oct. 3– 4
Wellington Cen	Guelph	Oct. 10–12
Wellington N	Harriston	Sept. 27
Western Ontario	London	Sept. 26–29

NOVA SCOTIA.

Yarmouth	Court-House	Oct. 5

Town and County Fairs.

CALIFORNIA.

San Joaquin Valley	Stockton	Sept. 12–15
Santa Clara Co	San Jose	Aug. 28–Sept. 1
Sonoma and Marin	Petaluma	Sept. 25–31
Upper Sacramento V'y	Chico	Sept. 26

COLORADO.

Boulder City		Oct. 3– 7

CONNECTICUT.

Hartford Co	Hartford	Sept. 26–29
Middlesex Co	Middletown	Sept. 26–29
New London Co	New London,	Sept. 26–28
Union	Falls Village	Sept. 12–13
Watertown Co	Watertown	Sept. 6– 7
Windham Co	Brooklyn	Sept. 26–28

DAKOTA.

Clay	Vermilion	Sept. 15–16

GEORGIA.

Atlanta Ag & Ind Asso	Atlanta	Oct. 16–20
Columbus Indus. Ass	Columbus	Oct. 31–Nov. 4

ILLINOIS.

Adams Co	Quincy	Sept. 4– 9
Boone Co	Belvidere	Sept. 12–15
Buel Inst. of Putnam Co	Hennepin	Sept. 12–14
Bureau	Princeton	Sept. 18–21
Carroll Co	Mt. Carroll	Sept. 12–15
Cass Co	Virginia	Sept. 5– 7
Champaign Co	Urbana	Sept. 12–15
Coles Co	Charleston	Sept. 6– 9
Damascus F. C	Damascus	Sept. 20
Danville	Danville	Sept. 19–22
De Kalb Co	Sandwich	Sept. 5– 8
DeKalb	Sycamore	Oct. 4– 6
Douglas	Tuscola	Sept. 26–29
Edgar Co	Paris	Sept. 12–15
Franklin Co	Benton	Sept. 13–16
Fulton Co	Canton	Oct. 9–14
Greene Co	Carrollton	Sept. 26–29
Grundy Co	Morris	Sept. 13–16
Henry Co	Cambridge	Aug. 29–Sept. 1
Henderson	Biggsville	Sept. 26–29
Iroquois Co	Watseka	Sept. 5– 8
Iroquois Co	Onarga	Sept. 12–15
Jackson Co	Murphysborough	Sept. 20–22
Jersey Co	Jerseyville	Oct. 10–13
Jo Daviess	Galena	Sept. 26–29
Kane Co	Aurora	Sept. 12–15
Kane Co	Geneva	Sept. 20–23
Kankakee Co	Kankakee	Sept. 12–15
Kendall	Bristol	Sept. 19–22
Knox	Knoxville	Sept. 12–15
Lake Co	Libertyville	Sept. 27–29
La Salle Co	Ottawa	Sept. 5– 8
La Salle Co. Horse	Earlville	Aug. 30–Sept. 1
Logan Co	Atlanta	Aug. 29–Sept. 2
Logan	Lincoln	Sept. 5– 9
Macon	Decatur	Sept. 12–15
Macoupin Co	Carlinville	Sept. 19–22
Madison Co	Edwardsville	Aug. 29–Sept. 1
Marshal	Henry	Sept. 19–22
Menard	Petersburg	Sept. 5– 7
McDonough	Macomb	Sept. 19–22
McHenry	Woodstock	Oct. 3– 5
McLean Co	Bloomington	Sept. 12–15
Mercer Co	Aledo	Oct. 3– 6
Morgan	Jacksonville	Sept. 18–23
Pekin Co	Pekin	Sept. 18–22
Peoria Co	Peoria	Sept. 26
Perry Co	Pinckneyville	Sept. 12–15
Pike Co	Pittsville	Sept. 12–15
Putnam Co	Hennipen	Sept. 12–14
Randolph	Sparta	Sept. 20–22
Richland	Olney	Sept. 20–22
Rock Island	Rock Island	Aug. 29–Sept. 1
Saline	Harrisburg	Sept. 13–15
Schuyler Co	Rushville	Oct. 4– 6
Shelby Co	Shelbyville	Sept. 6–10
Stark	Toulon	Sept. 20–22
Stephenson Co	Freeport	Sept. 12–15
St. Clair	Belleville	Sept. 5– 8
Union of Centralia	Centralia	Sept. 18–22
Union Co	Jonesboro	Sept. 12–15
Union	Warren	Sept. 12–15
Vermilion Co	Catlin	Sept. 5– 8
Vermilion Co	Danville	Sept. 19–22
Wabash	Mt. Carmel	Oct. 3– 6
Warren Co	Monmouth	Sept. 19–22
Whiteside Co	Sterling	Sept. 19–22
Will Ag. and M. Ass	Joliet	Sept. 5– 8
Winnebago Co	Rockford	Sept. 19–23
Woodford	Metamora	Sept. 12–15

INDIANA.

Boone	Lebanon	Sept. 11–16
Cedar Valley	Cedar Valley	Sept. 19–21
Dearborn Co	Lawrenceburg	Sept. 20–23
Daviess Co	Washington	Oct. 24–27
Delaware	Muncie	Sept. 19–22
Edinburg Co	Edinburg	Sept. 26–30
Fall Creek District	Pendleton	Sept. 26–29
Fayette Co	Connersville	Sept. 5– 8
Fountain and Warren	Attica	Sept. 19–22
Fountain, Warren and Vermilion	Covington	Sept. 26–29
Gibson Co	Princeton	Sept. 19–23
Gosport	Gosport	Sept. 6– 8
Grant Co	Marion	Sept. 12–15
Greene	Linton	Oct. 10–14
Hamilton Co	Cicero	Sept. 27 —
Harrison Co	Corydon	Sept. 13 16
Hancock	Greenfield	Sept. 19–22
Hendricks Co	Danville	Aug. 29–Sept. 1
Henry, Madison and Delaware Cos	Middletown	Sept. 12–16
Henry Co	New Castle	Aug. 22–25
Honey Creek	New London	Sept. 21 —
Howard	Kokomo	Sept. 26–30
Huntington Co	Huntington	Sept. 26–29
Indianapolis A. M. & H.	Indianapolis	Sept. 25–30
Jefferson Co	Madison	Sept. 25–29
Johnson Co	Franklin	—
Knightstown	Union	Aug. 29–Sept. 1
Lawrence Co	Bedford	Sept. 12
Madison Co	Anderson	Sept. 5
Mooresville	Mooresville	Sept. 4– 7
Morgan Co	Martinsville	Sept. 12–15
Monroe Co	Bloomington	Sept. 20–24
Montgomery	Crawfordsville	Sept. 18–22
Noble Co	Ligonier	Sept. 27–29
Orange Co	Paoli	Sept. 26–30
Owen Co	Gosport	Aug. 29–Sept. 2
Parke Co	Bridgeton	Aug. 28–Sept. 2
Parke Co	Bloomingdale	Sept. 22–25
Perry	Rome	Nov. 1
Posey Co	New Harmony	Sept. 12–15
Putnam Co	Russellville	Sept. 4– 9
Putnam Co	Greencastle	Sept. 11–16
Randolph	Union City	Sept. 19–21
Richmond Co	Richmond	Sept. 12–16
Rush Co	Rushville	Sept. 12–15
St. Joseph Co	South Bend	Sept. 27–29
Spencer	Rockport	Oct. 3 5
Starke	Richmond	Oct. 5– 7
Switzerland & Ohio Co.	East Enterprise	Sept. 11
Thorntown Union	Thorntown	Sept. 25–29
Tippecanoe Co	Lafayette	Sept. 4 9
Union Co	Union City	Sept. 19–22
Union Joint Stock	Liberty	Aug. 29
Vanderburg	Evansville	Sept. 7– 9
Vermilion Co	Newport	Sept. 12–15
Vigo Co	Terre Haute	Sept. 5– 9
Wabash Co	Wabash	Sept. 19–22
Warrick Co	Booneville	Oct. 10–13
Wayne Co	Centreville	Aug. 22–25
Wayne Co	Cambridge City	Sept. 26–29

IOWA.

Adair Co	Fontanelle	Sept. 28–30
Adams Co	Corning	Sept. 4– 9
Agricultural College	Ames	Sept. 19–22
Allemakee	Waukon	Sept. 19–21
Appanoose Co	Centreville	Sept. 12–14
Benton Co	Vinton	Sept. 5– 8
Black Hawk Co	Waterloo	Oct. 3– 5
Boone Co	Boonesboro	Sept. 14–16
Bremer Co	Waverley	Sept. 26–28
Buchanan Co	Independence	Sept. 13–15
Cass Co	Atlantic	Sept. 6– 8
Cedar Co	Tipton	Aug. 29–Sept. 1
Cedar, Jones, etc. Cos.	Mechanicsville	Sept. 19–22
Cedar Valley	Cedar Falls	Sept. 19–21
Central	Des Moines	Sept. 19–21
Chickasaw Co	New Hamilton	Sept. 19–21
Clark Co	Osceola	Aug. 30–Sept. 1
Clayton Co	Farmersburg	Sept. 21–24
Clinton Co	Clinton	Aug. 28–31
Crawford Co	Denison	Sept. 21–22
Decatur Co	Leon	Sept. 14–16
Delaware Co	Manchester	Oct. 4– 6
Des Moines Co	Burlington	Oct. 3– 6
Fayette Co	West Union	Sept. 28–30
Floyd Co	Charles City	Sept. 21–23
Greene	Jefferson	Sept. 26–28
Hardin Co	Ackley Union	Sept. 6– 9
Harrison and Monona	Little Sioux	Sept. 27–29
Hamilton Co	Webster City	Sept. 13–14
Henry Co	Mt. Pleasant	Sept. 26–29
Iowa	Marengo	Sept. 28–30
Jackson Co	Maquoketa	Sept. 26–29
Jefferson Co	Fairfield	Sept. 26–28
Johnson	Iowa City	Sept. 26–28
Keokuk	Sigourney (?)	Oct. 5– 7
Kossuth Co	Algona	Oct. 6– 7
Lee Co	Keokuk	Aug. 29–Sept. 1
Lee Co	Fort Madison	Sept. 26–29
Linn	Marion	Sept. 6– 9
Louisa Co	Wapello	Sept. 26–28
Madison	Winterset	Sept. 27–29
Mahaska Co	Oskaloosa	Sept. 19–22
Mills Co	Glenwood	Sept. 27–29
Milton Union	Milton	Aug. 23–25
Mitchell Co	Osage	Sept. 27–29
Monroe Co	Albia	Sept. 26–29
Muscatine Co	Muscatine	Sept. 19–21
North-eastern	Postville	Oct. 4– 6
Pottawattamie Co	Council Bluffs	Oct. 3– 6
Poweshiek Co	Malcolm	Sept. 19–21
Scott Co	Davenport	Sept. 4– 8
South-western	Red Oak Junction	Oct. 3– 6
Story	Nevada	Sept. 5– 7
Tama Co	Tama City	Sept. 19–21
Union Co	Afton	Sept. 27–29
Union	Keokuk	Aug. 29–Sept. 1
Union	West Liberty	Sept. 26–28
Van Buren Co	Keosauqua	Sept. 21–23
Wapello Co	Ottumwa	Sept. 26–29
Warren Co	Indianola	Sept. 5– 7
Washington Co	Washington	Oct. 3– 5
Wayne	Linnville	Sept. 20–22
Wilton Union	Wilton	Aug. 23–25
Winneshiek Co	Decorah	Sept. 26–28
Woodbury	Sioux City	Oct. 11–13

KANSAS.

Blue and Kansas Valley	Manhattan	Sept. 26–28
Dickinson	Abiline	Oct. 4– 6
Dodge	Duncan	Sept. 13–15
Doniphan Co	Troy	Sept. 26–29
Douglas Co. Ag. & Mech	Lawrence	Sept. 7– 9
Miami	Paola	Sept. 27–30
Saline	Salina	Sept. 6– 8
Southern Kansas	Fort Scott	Sept. 25–29

KENTUCKY.

Bourbon Co	Paris	Sept. 5– 9
Boyle Co	Danville	Sept. 19–22
Boyd Co	Ashland	Sept. 19
Carroll Co	Carrollton	Sept. 12
Clark Co	Winchester	Aug. 29–Sept. 1
Harrison Co	Cynthiana	Sept. 12
Henry Co	Eminence	Aug. 22–26
Jessamine Co	Nicholasville	Aug. 8

Jefferson Co	Louisville	Sept. 12
Lincoln Stock	Stanford	July 27-28
Madison Co	Richmond	Aug. 8-12
Marion Co	Lebanon	Aug. 29
McCracken Co	Paducah	Oct. 11
Mason and Bracken	Germantown	Sept. 19-23
Mercer Co	Harrodsburg	Aug. 1- 4
Montgomery	Mt. Sterling	Aug. 22
Nelson Co	Beardstown	Sept. 5
Owen Co	New Liberty	Oct. 3
Pulaski Co	Somerset	Sept. 5
Salvisa Stock	Salvisa	Sept. 15
Scott	Georgetown	Aug. 22-25
Shelby Co	Shelbyville	Aug. 29
Simpson Co	Franklin	Sept. 5
Warren Co	Bowling Green	Sept. 19
Washington Co	Springfield	Sept. 26

LOUISIANA.

Sabine Valley		Oct. 3

MAINE.

Aroostook Co	Houlton	Sept. 14-16
Cumberland	Portland	Sept. 26-29
Franklin Co	Farmington	Oct. 4- 5
Franklin North	Strong	Oct. 4- 5
Hancock Co	Orland	Sept. 28-29
Kennebec Co	Readfield	Sept. 27-28
Knox North	Appleton	Oct. 4- 6
Penobscot Co. Poultry	Bangor	— — —
Sagadahoc	Topham	Oct. 10-12
Waldo Co	Belfast	Sept. 27-28
West Washingt'n Ag. So	Jonesboro	Sept. 20-21

MARYLAND.

Carroll Co	Westminster	Oct. 3- 6
Cumberland Co	Cumberland	Oct. 17-20

MASSACHUSETTS.

Barnstable Co	Barnstable	Oct. 3- 4
Berkshire Co	Pittsfield	Oct. 3- 5
Bristol Co	Taunton	Oct. 3- 5
Bristol Centre	Myrick's	Sept. 20-22
Essex Co	Ipswich	Sept. 26-27
Franklin Co	Greenfield	Sept. 28-29
Hampshire, Franklin & Hampden Cos	Northampton	Oct. 5- 6
Highland	Middlefield	Sept. 14-15
Housatonic Co	Great Barrington	Sept. 27-29
Hampshire Co	Amherst	Sept. 26-27
Hampden Co	Springfield	Oct. 3- 4
Hampden East	Palmer	Oct. 10-11
Hingham	Hingham	Sept. 26-27
Hoosac Valley	North Adams	Sept. 19-21
Middlefield	Middlefield	Sept. 8- 9
Martha's Vineyard	West Tisbury	Oct. 17-18
Marshfield	Marshfield	Oct. 5- 6
Middlesex Co	Concord	Oct. 3- 4
Middlesex North	Lowell	Sept. 27-28
Middlesex South	Framingham	Sept. 19-20
Nantucket Co	Nantucket	Sept. 27-28
Norfolk Co	Readville	Sept. 21-22
Plymouth Co	Bridgewater	Sept. 28-30
Union	Blandford	Sept. 26-27
Weymouth Ag. & Ind	Weymouth	
Worcester Co	Worcester	Sept. 21-22
Worcester North-west	Athol	Oct. 4- 5
Worcester South	Sturbridge	Sept. 7- 8
Worcester West	Barre	Sept. 28-29
Worcester North	Fitchburg	Sept. 26-27
Worcester South-east	Milford	Sept. 26-27
Worcester Horticultural	Worcester	Sept. 19-22

MICHIGAN.

Allegan Co	Allegan	Sept. — —
Bay Co	Bay City	Sept. 27-29
Branch Co	Coldwater	Oct. 4- 6
Calhoun	Marshall	Oct. 3- 8
Central	Hubbardston	Oct. 3- 5
Eaton	Charlotte	Sept. 27-29
Genesee	Flint	Oct. 3- 6
Hillsdale	Hillsdale	Oct. 3- 4
Ingham	Mason	Sept. 27-29
Ionia	Ionia	Sept. 27-29
Lenawee Co	Adrian	Sept. 27-29
Macomb Co	Romeo	Sept. 28-30
Oakland Co	Pontiac	Oct. 4- 6
Saginaw	Saginaw	Sept. 27-28
St. Joseph Co	Centerville	Sept. 27-29
Schiawassee Co	Owasso	Oct. 4- 6

MINNESOTA.

Blue Earth Co	Mankato	Sept. 13-15
Carver	Carver City	Sept. 29-30
Dacotah Co	Farmington	Sept. 19-21
Fillmore and Mower	Preston	Sept. 14-15
La Sener	Cleveland	Oct. 3- 4
Minneapolis Co	Minneapolis	Sept. 12-17
Nicollet Co	St. Peter	Oct. 3 —
Olmstead	Rochester	Oct. 5- 7

MISSOURI.

Andrain Co	Mexico	Aug. 15-20
Bates Co	Butler	Sept. 26-30
Boone Co	Columbia	Aug. 29-Sept. 3
Boone Co	Sturgeon	Sept. 5-10
Buchanan	St. Joseph	Aug. 22
Callaway Co	Fulton	Aug. 22-27
Chariton Co	Salisbury	Sept. 26-Oct. 1
Clay Co	Liberty	Aug. 29-Sept. 2
Clinton	Plattsburg	Sept. 12
Cole Co	Jefferson City	Sept. 12-17
Cooper Co	Booneville	Sept. 4- 8
Dade Co	Greenfield	Sept. 27-29
Daviess Co	Gallatin	Sept. 26-Oct. 1
De Kalb	Cameron	Oct. 3- 8
Gentry Co	Albany	Sept. 19-22
Holt Co	Oregon	Sept. 13-15
Henry Co	Clinton	Sept. 27 —
Jackson Co	Independence	Sept. 4- 7
Jasper Co	Carthage	Oct. 10-12
Laclede Co	Lebanon	Oct. 12-13
Lafayette Co	Lexington	Oct. 10-15
La Grange	La Grange	Aug. 28-31
Lewis Co	Canton	Sept. 26-30
Linn	Brookfield	Sept. 13-17
Livingston	Chillicothe	Sept. 19
Marion	Hannibal	Sept. 25-30
Moniteau Co	California	Sept. 26-29
Monroe Co	Paris	Sept. 12-17
Montgomery Co	New Florence	Sept. 26-30
Pettis Co	Sedalia	Sept. 18-23
Phelps	St. James	Sept. 13-16
Pike Co	Louisiana	Sept. 19-24
Platte Co	Platte City	Sept. 5-10
Randolph Co	Huntsville	Aug. 29-Sept. 1
Roanoke District	Roanoke	Aug. 22-27
Saline	Miami	Sept. 12
Shelby Co	Shelbyville	Oct. 9-14
South-eastern	Cape Girardeau	Oct. 12-14
Sturgeon	——	Sept. 5-10
Warren Co	Warrenton	Oct. 11 —
Washington Co	Potosi	Sept. 12-16
Webster	Marshfield	Sept. 28-30

NEBRASKA.

Douglas Co	Omaha	Sept. 19-21

NEW HAMPSHIRE.

Ashnelot	Winchester	Sept. 13-14
Contoocook Valley	Hillsboro' Bridge	Sept. 19-20
Coos Co	Lancaster	Sept. 25-26
Cheshire Co	Keene	Sept. 26-28
Grafton Co	Plymouth	Oct. 3- 5
Hillsborough Co	Milford	Sept. 12-13
Mascoma Valley	Canaan	Sept. 13-15
Merrimac Co	Concord	Sept. 20-21

NEW JERSEY.

Burlington	Mt. Holly	Oct. 3- 4
Cape May Co	Seaville Station	Sept. 6- 7
Cumberland	Bridgeton	Sept. 27-28
Hunterdon Co	Flemington (?)	Sept. 26-28
Monmouth Co	Freehold	Sept. 12-14
Salem Co	Salem	Sept. 21-22
Trenton Union	Trenton	Sept. 5- 7

NEW YORK.

Allegany Co	Angelica	Sept. 20-21
Broome	Whitney's Point	Oct. 3- 7
Cayuga Co	Auburn	Sept. 12-14
Chautauqua Co	Jamestown	Sept. 25-28
Chenango Co	Bainbridge	Sept. 19-21
Chenango Co	Norwich	Sept. 19-21
Chemung Co	Elmira	Sept. 21-23
Columbia A. & H. Ass	Hudson	Sept. 26-28
Corning Ag. Soc	Corning	Sept. 13-15
Cortland	Near Cortland Village	Sept. 12-14
Delaware Co	Walton	Sept. 26-28
Erie	Hamburg Driving Park	Sept. 13-15
Franklin	Malone	Sept. 26-29
Geneva Horticultural	Geneva	Sept. 20 —
Genesee	Batavia	Sept. 13-15
Huguenot Horricultural	Kingston	Sept. 19-21
Iroquois	Versailles	Sept. 19 22
Jefferson Co	Watertown	Sept. 19-21
Lewis Co	Lowville	Sept. 12-14
Livingston Co	Geneseo	Sept. 27-28
Lenox Farm's & Mech	Oneida	Sept. 28-30
Madison Co	Hamilton	Sept. 26-28
Newburg Bay Hort	Newburg	Sept. 26-28
Niagara Co	Lockport	Sept. 14-16
Onondaga Co	Manlius and Pompey	Sept. 20-21
Oneida Co	Camden	Sept. 12-14
Oneida	Rome	Sept. 18-22
Oneida Co	Annsville	Sept. 25 —
Oneida Co	Trenton	Sept. 5- 7
Oneida Co	Waterville	Sept. 26-27
Ontario	Canandaigua	Sept. 21-22
Orleans Co	Albion	Sept. 15-16
Oswego Co	Mexico	Sept. 19-21
Oswego Town	Oswego	Sept. 5- 7
Oswego Co	Oswego Falls	Sept. 12-14
Oswego Co	Sandy Creek	Sept. 14-15
Otsego Co	Cooperstown	Sept. 12-14
Otsego Co	Schenevus	Sept. 27-29
Queens Co	Mineola	Sept. 27-29
Rensselaer Co	Troy	Sept. 4 —
St. Lawrence Co	Canton	Sept. 12-14
St. Lawrence Co	Gouverneur	Sept. 26-28
St. Lawrence Co	Hammond	Sept. 20-22
Schuyler Co	Watkins	Sept. 28-30
Steuben Co	Bath	Oct. 4- 6
St. Lawrence Co	Waddington	Sept. 5- 7
Tompkins Co	Trumansburg	Sept. 20-22
Wayne Co	Palmyra	Sept. 28-30
Warren Co	Glens Falls	Sept. 12-15
Westchester Co	White Plains	Sept. 12-16
Wyoming	Warsaw	Sept. 20-21
Washington	Salem	Sept. 27-29
Yates	Penn Yan	Oct. 10-12

NORTH CAROLINA.

Rowan Co	Salisbury	Oct. — —

OHIO.

Allen Co	Lima	Sept. 21-23
Anglaize Co	Wapakonetta	Oct. 4- 6
Ashland Co	Hayesville	Sept. 26-28
Ashta Co	Orwell	Sept. 4- 6
Belmont Co	St. Clairsville	Sept. 27-29
Brown Co	Georgetown	Sept. 5- 8
Butler Co	Hamilton	Oct. 3- 6
Carroll Co	Carrollton	Sept. 26-28
Champaign Co	Urbana	Sept. 12-15
Clark Co	Springfield	Sept. 5- 8
Clermont Co	Boston	Sept. 12-15
Clinton Co	Wilmington	Sept. 6- 8
Columbiana Co	New Lisbon	Sept. 20-22
Conneaut Co	Conneaut	Sept. 20-22
Coshocton Co	Coshocton	Sept. 13-15
Crawford Co	Bucyrus	Oct. 3- 6
Cuyahoga Co	Cleveland	Oct. 3- 6
Darke Co	Greenfield	Sept. 26-29
Defiance Co	Defiance	Oct. 3- 6
Delaware Co	Delaware	Oct. 8- 6
Erie Co	Sandusky	Oct. 3- 6
Fairfield Co	Lancaster	Oct. 11-14
Fayette Co	Washington C. H	Aug. 22-25
Franklin Co	Columbus	Sept. 5- 8
Fulton Co	Wauseon	Sept. 27-29
Geauga Co	Burton	Sept. 13-15
Greene Co	Xenia	Sept. 12-15
Guernsey Co	Cambridge	Sept. 20-21
Hamilton Co	Cincinnati	Sept. 5- 9
Hancock Co	Findlay	Oct. 6- 7
Hardin Co	Kenton	Sept. 13-15
Harrison Co	Cadiz	Oct. 4- 6
Henry Co	Napoleon	Sept. 20-21
Highland Union	Garrettsville	Sept. 27-29
Highland Co	Hillsboro	Sept. 4- 6
Hocking Co	Logan	Oct. 5- 7
Huron	Norwalk	Sept. 19-21
Jackson Co	Jackson	Sept. 27-29
Knox Co	Mt. Vernon	Sept. 26-28
Lake Co	Painesville	Sept. 27-29
Licking Co	Newark	Oct. 3- 6
Logan Co	Bellefontaine	Oct. 3- 6
Lorain Co	Wellington	Sept. 6- 8
Lorain Co	Elyria	Sept. 19-22
Lucas Co	Toledo	Sept. 19-22
Mahoning Co	Canfield	Oct. 3- 5
Marion Co	Marion	Sept. 5- 7
Medina Co	Medina	Sept. 11-13
Meigs Co	Rock Spring	Sept. 13-15
Mercer Co	Celina	Sept. 21-23
Miami Co	Troy	Oct. 4- 7
Monroe Co	Woodsfield	Sept. 22 —
Montgomery Co	Dayton	Sept. 5- 8
Morgan Co	McConnellsville	Sept. 27-29
Morrow Co	Mt. Gilead	Sept. 26-28
Muskingum	Zanesville	Oct. 11-13
Noble Co	Sarahsville	Sept. 20-22
Orwell	Orwell	Sept. 4- 6
Perry Co	New Lexington	Oct. 4- 6
Pickaway Co	Circleville	Sept. 19-22
Portage Co	Ravenna	Sept. 25-27
Preble	Eaton	Sept. 26-29
Putnam Co	Ottawa	Sept. 27-29
Richland Co	Mansfield	Sept. 19-22
Ross Co	Chillicothe	Sept. 10-13
Sandusky Co	Fremont	Oct. 4- 7
Seneca Co	Tiffin	Oct. 10-13
Shelby Co	Sidney	Sept. 19-22
Stark Co	Canton	Sept. 26-29
Summit Co	Akron	Sept. 3- 6
Summit Co	Twinsburgh	Sept. 5- 7
Trumbull Co	Warren, Oak Grove	Sept. 19-21
Tuscarawas Co	Canal Dover	Oct. 3- 6
Tuscarawas Co	Uhrichsville	Sept. 6- 8
Union Co	Marysville	Oct. 3- 6
Van Wert Co	Van Wert	Sept. 15-19
Warren Co	Lebanon	Sept. 20-22
Washington Co	Marietta	Sept. 20-22
Wayne Co	Wooster	Oct. 3- 5
Williams Co	Bryan	Sept. 19-21
Wood Co	Tontogany	Oct. 4- 6
Wyandott Co	Upper Sandusky	Oct. 11-13

PENNSYLVANIA.

Beaver Co	Beaver	Sept. 27-29
Berks Co	Reading	Sept. 12-15
Bucks Co	Newtown	Sept. 26-28
Butler	Butler	Sept. 26-28
Columbia	Bloomsburg	Oct. 11-13
Cumberland	Carlisle	Oct. 11-13
Doylestown A. M. Institute		Oct. 3- 6
East Pennsylvania Co	Norristown	Sept. 27-30
Fayette	Brownsville	Oct. 3- 6
Franklin	Chambersburg	Oct. 3- 6
Highland	Johnstown	Oct. 3- 6
Indiana Co	Indiana	Sept. 20-22
Kurtztown	Kutztown	Oct. 3- 6
Lehigh	Allentown	Sept. 26-29
Monroe	Stroudsburg	Sept. 26-29
Montgomery	Ambler's Station	Sept. 19-22
Northampton	Nazareth	Oct. 3- 6
Union	Lewisburg	Oct. 4- 6
Westmoreland	Greensburg	Sept. 26-28

TENNESSEE.

Campbell	Alexandria	Sept. 26-30
Memphis Ag. and Mech.	——	Oct. 16-22

TEXAS.

Grayson Co	Sherman	Oct. 10-14

VERMONT.

Caledonia Co	St. Johnsbury	Sept. 26-28
Chittenden Co	Essex Junction	Sept. 5- 8
Franklin	Sheldon	Sept. 20-22
Lamoille	Hyde Park	Sept. 26-27
Orange Co	Bradford	Sept. 26-28
Orleans Co	Barton	Sept. 6- 7
Rutland Co	Rutland	Sept. 13-14
Washington	East Montpelier	Sept. 27-28
Windham Co	Wilmington	Oct. 3 —

VIRGINIA.

Augusta	Staunton	Oct. — —
Lynchburg	Lynchburg	Oct. 24-26
Petersburg	Petersburg	Oct. 24-26
Shenandoah Valley	Winchester	Oct. 18-20
South-western	Wytheville	Oct. 11-13

WISCONSIN.

Dane Co	Madison	Sept. 19-21
Dodge	Juneau	Sept. 13-15
Fayette	Darlington	Sept. 14-16
Fond du Lac Co	Ripon	Sept. 19-21
Fond du Lac Co	Waupun	Sept. 14-16
Fond du Lac	Fond du Lac	Sept. 12-14
Green Co	Monroe	Sept. 21-23
Green Lake	Berlin	— — —
Jefferson Co	Jefferson	Sept. 19-21
Juneau	Manston	Sept. 21-23
Kenosha	Bristol	Sept. 19-21
Lafayette	Darlington	Sept. 19-21
Lake	——	Sept. 18-21
Lodi	Lodi	Sept. 13-15
Marquette	Oxford	Sept. 20-21
Monroe	Sparta	Sept. 14-16
Outagamie Co	Appleton	Oct. 5- 7
Portage Co	Plover	Oct. 4- 5
Racine Co	Racine	Sept. 13-15
Ripon Agr. Ass	Ripon	Sept. 19-21
Sheboygan Co	Sheboygan Falls	Sept. 13-15
Walworth Co	Elkhorn	Oct. 3- 6
Winnebago Co. & Omro Agr. & Mech. Assoc.	Omro	Sept. 13-15
Waupun	Waupun	Sept. 14-16

WASHINGTON TERRITORY.

Clarke Co. A. & M. Soc.	Vancouver	Sept. 19-21

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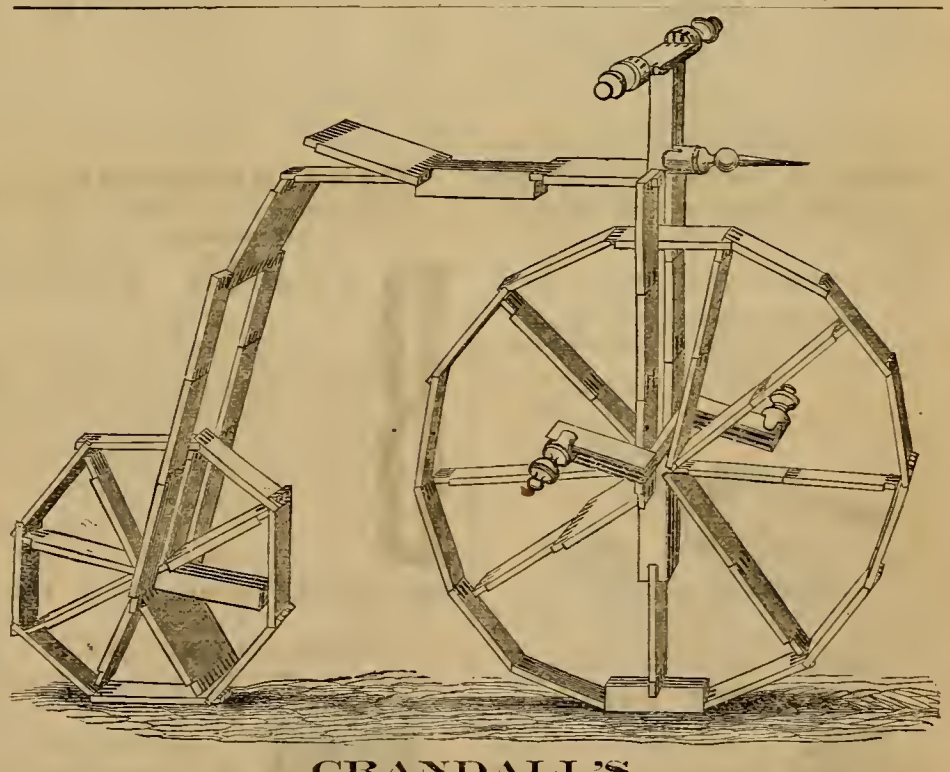

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SALTING THE SHEEP.—DRAWN BY FORBES.—*Engraved for the American Agriculturist.* (*See Page* 370.)

Contents for October, 1871.

INDEX TO "BASKET," OR SHORTER ARTICLES.

Calendar for October.

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

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MOON.	D.	BOSTON. H. M.	N. YORK. H. M.	WASH'N. H. M.	CHA'STON H. M.	CHICAGO. H. M.
3d Quart..	6	0 48 ev.	0 36 ev.	0 24 ev.	0 12 ev.	11 42 m.
New Moon	14	1 35 m.	1 23 m.	1 11 m.	0 59 m.	0 29 m.
1st Quart..	20	7 10 ev.	6 58 ev.	6 46 ev.	6 34 ev.	6 4 ev.
Full.....	28	3 30 m.	3 18 m.	3 6 m.	2 54 m.	2 24 m.

AMERICAN AGRICULTURIST.

NEW YORK, OCTOBER, 1871.

On our own farm, we have always found October and November the two busiest months of the year. We have often had cause to regret doing work the early part of October that might have been postponed. We have dug out stones during fine weather in October, and been compelled afterwards to dig potatoes amid snow, sleet, rain, and frost the latter part of November. Let our readers be wiser. Push the work now. Hire extra help, if need be, to secure all the crops as soon as they are ready. The farmer that gets behind with his work now will certainly be a loser. Every thing will turn against him. The weather will grow colder, and the days shorter. Hired help will become scarcer, and will ask higher wages and do less work. We have paid men $1.75 per day to dig potatoes the last of November, who were willing to work for $1.25 in October. And they would have done one third more work.

A farmer should sit down and make out a list of the work he has to do before winter sets in. He should place the items under two heads, thus (we give a few items as an example):

Work that MUST *be done.*	*Work that* OUGHT *to be done.*
1st. To finish cutting up corn.	1st. Ditches to be cleaned out and deepened.
2d. To dig potatoes, commencing on the ripest.	2d. Fall plowing.
3d. Apples to pick and barrel	3d. Stones to be got out and put in heaps, so that they can be drawn away in winter.
4th. Pumpkins to draw in.	
5th. Roots to harvest.	4th. Corn to draw in, to be husked in the barn.
6th. Corn to husk, and stalks to draw in	5th. Gate to hang, posts to straighten up, fences to fix, boards to nail, etc., etc.
7th. Stock to attend to, daily—almost hourly.	

Under the head of work that ought to be done, a farmer, if he will jot them down as they occur to him, can readily find a score or two of items. The work that must be done should of course have the precedence, but if the weather is unsuitable, or the crops are not quite ready, select some job from the other column. Such a list will be found a great help, and we would urge every reader of the *American Agriculturist* to make one out at once.

Hints about Work.

Rye will do well sown the first or second week of this month, and on rich, warm land a good crop may be obtained when sown as late as the first of November. The earlier it is sown, the more the plants tiller, and the less seed is required, say 1½ bushels the first of October, and 3 bushels per acre towards the last of the month. Rye does not germinate as soon as wheat, and on wet, heavy, cold land is liable to rot in the ground. Where there is a good demand for the straw, rye is a profitable crop, and deserves more manure and better treatment than it usually receives. It delights in a warm, sandy loam, and frequently does well on low, mucky land where wheat would lodge. But it must be drained. It is throwing time, and labor, and seed away to sow *any* grain crop on wet land.

Winter Wheat sometimes does well sown as late as the beginning of October; and we once saw a good crop in Western New York that was sown in November. But, as a rule, north of 41°, wheat should be in by the last of September. When this can not be done, better sow rye, or if the land is too heavy for this crop, better plow it this fall and sow it to oats or barley in the spring. A good crop of oats or barley is far more profitable than a poor crop of wheat.

After Wheat is sown, if there is reason to suppose some portions of the field, such as sandy knolls, too poor to prodnce a good crop, it is a good plan to spread some well-rotted manure on the surface. It often has a wonderful effect, not only on the wheat, but also on the clover and grass afterwards. If manure can not be had, 200 lbs. of Peruvian guano per acre will be good, or 150 lbs. nitrate of soda sown this fall, and 150 lbs. in the spring.

Furrows to let off water, if not already done, should be made at once. Many an acre of wheat is lost from neglecting this simple operation.

Cutting up Corn should not be delayed an instant longer than necessary. A frost, while the corn is standing, injures the fodder, though it does not hurt it after it is cut up. And not only this: over-ripe or frosted corn is more difficult to bind properly. The contrivance for binding figured in the last *Agriculturist* will be useful in such a case.

Husking Corn will in time be done by machinery. We have already several machines that "promise well." But this year a hundred million bushels or more will have to be husked by hand. We have from time to time figured several little contrivances for facilitating the labor and relieving the fingers. Where a farmer and his boys do the husking, it is a good plan, at any rate for the first day or two, to husk for only a few hours at a time, and then go to some other job. In our own case, we find it cheaper to let out the work by the bushel—taking care to see that the corn is husked clean, that the stalks are properly tied, and the bundles made into compact, good-sized stooks, with two bands on top.

Corn-Stalks.—Hay will be scarce and high the coming winter, and we ought to take extra care in curing and preserving corn-stalks. Half the corn-stalks, even in sections where farmers pretend to think a great deal of them, are rendered comparatively worthless for want of a little attention in curing and stacking. Farmers *know how* this work should be done, but do not sufficiently realize its importance. In this case, as in so many others, they need exhortation rather than precept. The point is to cure the stalks as rapidly as possible, and to draw them in as soon as the sap is so much reduced that they will not ferment injuriously in the stack or barn. In this case, as with hay, the water or sap that is *in* the stalks is not half so likely to cause mold as a little water on the outside of the stalks from dew or rain.

Potatoes.—Commence to dig as soon as the tops are dead or dying. Better be a little too early than too late. Give yourself plenty of time, and dig during fine days and when the ground is dry. If we might hazard an opinion, we should say that, taking everything into consideration, it will be full as profitable to *sell* the crop this fall, as soon as dug, as to be at the labor and expense of storing. The crop of 1868 brought double the price in the spring as in the fall; the crop of 1869 brought more in the fall than in the spring; the crop of 1870 again brought a very high price in the spring;

and the crop of 1871 will probably *not* pay so well for keeping until spring as that of a year ago. If you have not good conveniences for storing them, better sell them directly from the field. If kept in pits over winter, select a dry spot, cover with dry straw, and then throw over it three or four inches of soil. Let them remain so until winter is about to set in. Then put on *another layer of straw*, six or eight inches thick, and cover with soil as before. This middle layer of straw, acting as dead air, will do more to keep out frost than a foot of solid earth, and saves a great deal of hard work.

Live-Stock.—In the hurry of fall work, we must not neglect our stock. Because beef, butter, cheese, and pork are low, many farmers are cruel and foolish enough to neglect and half-starve their calves, steers, cows, and pigs. We hazard nothing in saying that those who give their *young* stock good feed and the necessary care are sure of their reward. The present low prices are only temporary, and now is the time to prepare for the reaction which is sure to follow. Select the best cows and sows for breeding; use only thorough-bred males; feed liberally and take good care of the young stock; when the market changes for the better, you will have something that will bring a good price.

Sheep are again in the ascendant. At present prices, wool is more profitable than any other animal product. And there is little prospect of a decline, at any rate, for two or three years. In sections where there is no demand for mutton, there can be little doubt that Merino sheep are the most profitable to keep. They require less care than the mutton sheep. But where mutton and lambs are in demand, it is equally certain that as long as combing and delaine wool brings as high a price as fine wool, Cotswolds or Leicesters, and their grades, *may* be made to pay far more than Merinoes. It is simply ridiculous, however, to suppose that these sheep, which grow with great rapidity, require no more food than a Merino, which does not grow half as fast. A good-sized common Merino ewe, if well fed, and put to a thorough-bred Cotswold or Leicester ram, will produce a lamb weighing 12 lbs. at birth, and which the spring following, if well fed, will weigh 100 lbs., and shear 7 lbs. of washed wool, that will bring more per lb. than the best Merino wool. But this can not be done without good food and fair treatment.

Fattening Sheep in Winter.—The indications are favorable for this business. Select the best three or four-year-old Merino wethers that can be found, give them good grass and, if need be, a little grain this month, preparatory to shutting them up to fatten. They should gain more this month than during the two next. The profit comes, not from the increase in weight, but from the extra quality and the increased price of the mutton next spring. Much money has been made in this business, but a person who has had no experience should not rush into it on a large scale.

Do not Overstock.—This is a common error. Make an estimate of how much grain, hay, straw, and corn-stalks you have to feed out. Taking wheat, oats, peas, beans, barley, and corn together, you will not probably be far wrong in estimating that for every 100 lbs. of thrashed grain you have left 150 lbs. of fodder. Cattle, horses, and sheep will eat per day, per 100 lbs. of live weight, 3 lbs. of hay or its equivalent—say ½ lb. hay, 2 lbs. of good straw, and ⅝ lb. of grain. Such a ration will keep animals in good growing condition, and ¼ lb. more grain per day will make a full-grown sheep quite fat. It will be well to estimate that half of the straw and fodder will be wasted in the form of butts, tops of stacks, litter, etc. Do not overstock. If you have any hay or straw to spare it will bring a good price, and if you are short you will be very apt to put the animals on a short allowance—than which nothing is more unprofitable.

Work in the Horticultural Departments.

In most localities the harvesting of the crops will be completed in October; but after this is finished there is still an abundance of work to do in preparing for the next year's crop. The abundant harvest this year of nearly all kinds of fruits and vegetables, will give the gardener fresh encouragement to persevere. If some mistakes have been made or some experiment has failed, he should profit by them. The aim of the gardener or orchardist should be perfection, and he should never rest satisfied until he has the best varieties of vegetables and fruits that can be procured.

Orchard and Nursery.

Planting of all kinds of fruit trees can be made now, as well as in the spring, and it will save much time when the early spring work is pressing. When trees are set in the fall they should have a good mulch. It is a common impression that stone-fruits should not be set in the fall. However this may be in colder localities, we find that in the great peach districts of Delaware and Maryland they set in the fall or spring, as most convenient.

Labels.—In planting see that the labels attached to the trees are not so tightly twisted as to cut the bark. Make a plan of the orchard and mark the position of each variety; do not rely upon labels.

Shade Trees.—Plant shade trees, except evergreens, as soon as the leaves fall; if done carefully they will hardly feel the effects of their removal.

Manure.—If the orchardist wishes for a good crop of fruit, he will find it necessary to give his trees a liberal supply of manure. Manuring not only pays in the larger quantity of fruit, but also in the finer quality.

Nursery Stock.—Keep the nursery rows clear of weeds. A dressing of well-decomposed manure, placed in furrows between the rows, will be of great benefit to growing trees and shrubs.

Seeds.—Save a supply of tree seeds, and keep in sand during winter.

Drying Fruits.—Where there is a full supply, a quantity may be dried for use next summer.

Fruit Garden.

Plant all small fruits as soon as possible, in order that they may get established before winter.

Blackberries.—Set in rows eight feet apart and four feet in the rows, so as to give plenty of room to work between them. Before planting cut the canes off about six inches above the ground. Some hoed crops may be raised between the rows during the first year, for economy. The ground ought to be well manured before the plants are set.

Currants and Gooseberries.—Set out in rows five feet apart each way. Make cuttings as soon as the leaves fall off, and plant in good soil. Prune old bushes into shape.

Grapes.—Allow those that are intended for wine to remain upon the vines until thoroughly ripe. Pick those for market and keep in a dry, cool place, where there is no danger from frost. Prune as soon as the leaves have fallen. The vineyard ought to be shallow plowed, and if any fertilizer is used, apply ashes or ground bone. Remove tender varieties from the trellises, and cover with earth before the ground freezes.

Strawberries.—Where plants have been struck in pots, set out as soon as possible, otherwise it is best to defer the planting until next spring. Materials should be collected for covering the strawberry-beds during the winter, but the covering should not be put on until the ground begins to freeze. Leaves or straw make the best covering, though hay, corn-stalks, and branches of evergreens are often used.

Pears.—Pick as soon as matured, and before they begin to soften, and allow them to ripen upon shelves in the fruit-room.

Kitchen Garden.

After the crops are harvested, preparing the soil for the next season's planting will occupy the gardener as long as the ground is capable of being worked. In most places it is not too late to lay drain-tile, and thus prepare the land for earlier working. Where the soil is stiff and difficult to work, it might be greatly benefited by throwing into ridges, and allowing the frost to ameliorate it; in fact, all land ought to be plowed in the fall, as this often makes a difference of a week or more in the time of working it in the spring. Apply the manure in the fall when the plowing is done.

Asparagus.—As soon as all growth has ceased, cut off the tops and burn them, to prevent their seeds from being scattered. Cover beds with coarse stable manure.

Artichokes.—Draw the earth around the stems, and throw over the tops a little litter.

Beans.—If there is a crop of late string beans, pick and salt them as before recommended. Pick the late Limas, and if more ripen than are wanted for seed, try them baked in "pork and beans;" they are much superior to the common field beans.

Beets.—Pull before the frost has injured them, as this impairs their sweetness. They are much better packed in sand, as this prevents wilting.

Cabbages.—Allow the winter sorts to remain in the ground until hard frosts, when they may be taken up and stored in trenches in the open ground, or remove them to a cool cellar. A good way to store them is to dig a trench wide enough for three rows, and, after removing the outside leaves, pack the cabbages closely together and cover with six or eight inches of earth. Dig a drain to carry off the water, and when the earth over the cabbages is frozen, cover with 5 or 6 inches of litter.

Cauliflowers.—These will usually head if set out in a cellar or cold-pit.

Carrots.—Preserve in sand or soil as recommended for beets. The tops are good for cattle.

Celery.—Continue to earth up, using care that no earth gets into the center of the plant.

Cold-Frames.—Prepare these for the reception of cabbages, cauliflowers, etc.

Cucumbers.—Gather for pickles as long as the vines continue to bear, and salt down, as previously recommended.

Endive.—Take up the plants, with a quantity of earth attached, and set close in the cellar for a winter supply. The bitter taste of the endive will prevent its very general use as a salad plant, and no amount of blanching will entirely remove this.

Hot-Beds.—A good quantity of earth must be provided in the fall, as in the spring it can not be obtained without a good deal of difficulty. Store it in a cellar or shed.

Lettuce.—Plants can be set in a cold-frame, or in mild situations they will stand the winter well if only covered with a light layer of straw.

Manure.—No adequate returns can be expected from a garden unless plenty of manure is applied, and to do this the gardener ought to save everything that is capable of making manure, with the utmost care. All house slops, small weeds, sods, and in fact all rubbish may be mixed with the compost heap. Store a supply of dry earth under cover for use in the privy, and to mix with fresh manure.

Onions.—Cover the late-sown beds with an inch or two of straw.

Parsnips.—Dig a supply for winter use before the ground freezes hard, and allow the rest to remain in the ground until spring.

Rhubarb.—Old plants may be divided in the fall. Set out the plants in well-manured soil four feet apart each way, before the ground freezes. Cover old beds with a thick layer of stable manure.

Salsify.—Treat as recommended for parsnips.

Spinach.—Keep the weeds down by the constant use of the hoe and rake, and cover lightly with litter before very cold weather.

Squashes.—Store before the frost has a chance to injure them, where they will not be subjected to great changes of temperature. Use the greenest specimens first.

Sweet Potatoes.—Harvest as soon as the tops are touched by frost. They must be dug on a warm day, and allowed to dry in the sun before storing them. Pack in barrels with cut straw. Use care

in handling, and store in a room with a warm, even temperature.

Tomatoes.—Cover up a few of the later plants during frosty nights. To protong their season pull up the vines and hang in a sunny room, and they will continue to ripen for a month or more.

Spading.—During warm spells spade such parts of the garden as can not be plowed, and work in a good dressing of manure.

Turnips will do better in the ground until hard frosts come, then store in the root cellar.

Flower-Garden and Lawn.

The present month is more favorable for laying out plans for improvements than during the pressure of spring work. New walks and drives can be laid out, and old ones repaired.

Bedding Plants.—Make cuttings of all seedling plants, if not already done, and take up such old plants as are to be kept during the winter.

Bulbs.—Plant early this month, if possible. Take up all tender bulbs like Tuberoses, Gladioluses, etc., before hard frosts, and store in a dry room where they will not be injured by mice.

Chrysanthemums.—These are very fine and showy for late bloomers, as they are not injured by the early frosts. Keep tied up to stakes; pot a few of the best for blooming in-doors.

Dahlias.—Keep tied up to sticks, and if they are protected by a covering of paper they will continue in flower a long time. After the tops are killed by the frost, allow the tubers to remain in the ground for a week, in order to ripen.

Frames and Pits.—Have these ready to receive the plants as they are taken up from the border.

Cannas.—Take up before the foliage is killed by frost, and lay in a shed for a fortnight, and then store the same as Dahlias.

Peonies.—The best time to set Peonies is in the fall, as they start too early in the spring to be moved with safety.

Perennials.—Transplant those sown in the spring to the place where they are to flower.

Greenhouse and Window Plants.

The greenhouse ought to be ready for receiving all plants which are outside, as soon as there are any signs of frosts. The tender ones must be taken in early, in order to have them grow well during the winter.

Annuals.—Sow seeds of annuals, for winter flowering, in pans of rich soil, and prick out as soon as large enough to handle.

Bulbs.—Pot all bulbs for winter flowering, and allow them to remain in a dark place for a few weeks, to promote the formation of roots.

Insects.—Every plant ought to be thoroughly cleansed before being taken into the greenhouse, so as to remove all insects, and in order to keep the house clear of those pests of plant growth.

Materials.—See that all pots, soil, moss, etc., are in readiness for winter, so that nothing may occur to hinder work.

Forcing Plants.—Take up all shrubs which are to be forced for winter flowering, pot them, and store in a cold frame, giving water occasionally until February, when they may be brought into heat and forced.

House Plants.—Re-pot plants which have become "pot-bound" in good, rich soil, and keep in the shade for a few days until established.

Cattle Eating Dry Earth.

Cattle Eating Dry Earth.—C. Newton, Fayville, Mass., wants to know why his cattle eat dry earth in winter, when they have a liberal supply of meal and roots, and plenty of the best hay. This is because earth is a part of their natural food. In pasturing, ruminant animals partly cut off the grass and partly tear it up by the roots, taking more or less earth with it. The food is stored in large quantities in the first stomach, where it is more or less fermented under the influence of the warmth and moisture to which it is subjected. The earth neutralizes the acids, and perhaps condenses the gases thus formed, and prevents the distension and discomfort that would ensue. When cattle are fed on clean forage, they merely gratify a healthful appetite in eating earth. This indicates the advisability of feeding roots without washing them.

Fowls for Town-Dwellers.—W. F. W., Selin's Grove, Pa., asks us to name a breed of fowls proper for a family living in town, who would keep a few only, and desire good layers, and also large-sized birds for the table.——These conditions are fulfilled by the Brahmas, either Light or Dark. They are fair layers of rich eggs, and produce well in fall and winter, there being no breed that distributes its laying favors so evenly through the year, a trait very desirable where the eggs are for family use. The great size of the Brahmas is too well known to need mention.

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 Sept. 15, 1871, 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.	371,000	3,805,000	2,104,000	191,000	115,000	1,219,000
26 days *last* m'th.	312,000	2,736,000	4,117,000	57,000	16,100	941,000
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days *this* m'th.	323,000	4,939,000	3,615,000	96,000	51,000	1,224,000
26 days *last* m'th.	804,000	3,128,000	4,037,000	178,000	11,400	1,319,000

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

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days 1871	371,000	3,805,000	2,104,000	191,000	115,000	1,219,000
26 days 1870	596,000	2,354,000	1,581,000	57,500	151,000	1,429,000
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days 1871	323,000	4,939,000	3,615,000	96,000	51,000	1,224,000
26 days 1870	291,000	2,656,000	1,719,000	37,000	4,850	1,531,000

3. *Exports from New York, Jan. 1 to Sept. 14.*

	Flour.	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
1871	1,248,637	13,212,359	7,850,088	231,177	81,797	20,433
1870	1,315,244	12,233,854	301,431	85,734	——	11,806
1869	975,290	11,615,661	1,557,677	114,006	——	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.
1871.						
Sept. 12	471,710	3,310,849	30,492	9,483	884,629	187,525
Aug. 14	397,516	2,403,359	34,599	——	34,405	177,484
July 10	385,163	634,354	66,945	——	271,099	199,541
June 12	230,350	292,188	114,783	3,480	334,459	142,572
May 9	283,700	234,245	160,734	50,725	376,328	171,933
April 10	811,871	180,947	150,964	164,393	709,363	171,897
March 13	1,523,785	204,388	150,514	329,349	1,133,897	218,231
Feb. 13	2,203,677	311,471	148,498	481,863	1,409,995	215,124
Jan. 16	3,685,116	272,618	157,730	554,491	1,736,936	216,394
1870.						
Dec. 15	3,060,762	208,319	148,669	500,597	2,085,137	231,129
Nov. 9	2,092,900	300,000	116,800	400,400	2,125,000	——
Oct. 10	1,869,921	476,544	53,391	184,803	1,679,658	237,453
Sept. 12	1,387,487	761,894	50,869	107,473	1,053,079	130,881

5. *Receipts at head of tide-water at Albany each season to Sept. 9th:*

	Flour. bbls.	*Wheat.* bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.
1871	149,800	9,230,000	13,937,100	207,100	90,100	1,893,900
1870	249,000	8,727,800	2,927,600	315,400	94,300	2,330,500

CURRENT WHOLESALE PRICES.

	Aug. 16.	Sept. 15.
PRICE OF GOLD	112¾	114
FLOUR—Super to Extra State	$4 40 @ 6 25	$5 50 @ 7 15
Super to Extra Southern	4 90 @ 9 50	5 60 @ 9 75
Extra Western	5 00 @ 9 00	6 20 @ 9 75
Extra Genesee	6 30 @ 8 25	7 15 @ 8 75
Superfine Western	4 40 @ 5 00	5 50 @ 6 00
RYE FLOUR	3 85 @ 5 00	4 10 @ 5 15
CORN-MEAL	3 30 @ 4 15	3 30 @ 4 10
WHEAT—All kinds of White	1 45 @ 1 65	1 55 @ 1 70
All kinds of Red and Amber	1 30 @ 1 51	1 40 @ 1 65
CORN—Yellow	71 @ 82	75 @ 77
Mixed	67 @ 69½	71 @ 73
OATS—Western	35 @ 51	50 @ 52
State	Nominal.	— @ —
RYE	75 @ 85	80 @ 98
BARLEY	Nominal.	80 @ 95
HAY—Bale ₱ 100 lbs.	1 15 @ 1 65	1 05 @ 1 55
STRAW, ₱ 100 lbs.	60 @ 1 20	60 @ 1 10
COTTON—Middlings, ₱ lb	18¾@ 19¾	21¾@ 21¾
HOPS—Crop of 1870, ₱ lb	15 @ 25	18 @ 30
Crop of 1871	@	40 @ 55
FEATHERS—Live Geese, ₱ lb	65 @ 75	70 @ 76
SEED—Clover, ₱ lb	10½@ 11	10¾@ 11¾
Timothy, ₱ bushel	4 00 @ 4 50	3 00 @ 3 50
Flax, ₱ bushel	2 05 @ —	2 00 @ 2 06
STOCK—Brown, ₱ lb	8¾@ 10¾	8¾@ 11
MOLASSES, Cuba, ₱ gal	20 @ 45	20 @ 45
COFFEE—Rio (Gold, in bond)	10¾@ 13¾	11 @ 14¼
TOBACCO, Kentucky, &c., ₱ lb	6 @ 12	7¾@ 14
Seed Leaf, ₱ lb	12 @ 70	14 @ 60
WOOL—Domestic Fleece, ₱ lb	50 @ 70	50 @ 68
Domestic, pulled, ₱ lb	38 @ 65	37 @ 63
California, unwashed	23 @ 40	27 @ 40
TALLOW, ₱ lb	8½@ 9¼	8½@ 9¾
OIL-CAKE—₱ ton	39 00 @42 50	37 00 @39 50
PORK—Mess, ₱ barrel	18 50 @13 62½	13 62 @18 75
Prime, ₱ barrel	10 75 @11 00	10 00 @10 50
BEEF—Plain mess	8 00 @12 50	8 00 @11 50
LARD, in tres. & barrels, ₱ lb	8¾@ 9¾	9 @ 9¾
BUTTER—State, ₱ lb	13 @ 32	13 @ 32
Western, ₱ lb	10 @ 25	10 @ 23
CHEESE	6 @ 11	5 @ 11
BEANS—₱ bushel	62 @ 3 80	1 25 @ 3 90
PEAS—Canada, free, ₱ bu	1 30 @ 1 35	1 18 @ 1 25
EGGS—Fresh, ₱ dozen	19 @ 28	25½@ 28
POULTRY—Live Fowls	17 @ 20	16 @ 22
Turkeys, ₱ lb	18 @ 20	19 @ 22
Geese, ₱ pair	1 75 @ 3 00	1 75 @ 3 00
Ducks, ₱ pair	75 @ 1 12	62 @ 1 00
POTATOES, ₱ bbl	1 00 @ 2 00	1 20 @ 2 25
SWEET POTATOES, ₱ bbl	— @ —	3 00 @ 4 00
CABBAGES—₱ 100	4 50 @ 8 50	3 00 @ 7 00
BROOM-CORN—₱ lb	4 @ 5	3½@ 7½
APPLES—₱ barrel	1 75 @ 3 00	2 00 @ 4 75
PEACHES—₱ basket	50 @ 1 50	75 @ 2 50
PEARS—₱ barrel	— @ —	2 00 @10 00
GRAPES—₱ pound	— @ —	6 @ 18

Gold has advanced to 114¾, closing, September 14th, at 114.....Under more favorable foreign advices, there has been a decided improvement in values of Breadstuffs, with an active home and export demand for the leading articles, also some speculative inquiry, closing strong in most instances. The scarcity of ocean freight-room and the high rates claimed by ship-owners have been against the outward movement.....Provisions have been more freely dealt in; Hog products have been quoted firmer; Butter, heavy; Cheese, steady.....Wool has attracted attention and has shown less buoyancy as to price, but holders have not been eager to place stocks at less than full asking figures.....Cotton has been quite freely purchased at higher prices.....Tobacco has been quoted dearer on a fair trade.....Hops have been in reduced stock and good request at better rates. .....Seeds have been quiet and depressed.

New York Live-Stock Markets.

WEEK ENDING	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	*Tot'l.*
August 21st	9,330	105	2,956	28,869	17,231	58,494
August 28th	8,153	68	2,749	34,049	22,811	67,830
September 4th	7,973	81	3,555	27,729	24,272	63,610
September 11th	9,356	121	2,777	32,373	30,610	75,237
Total in 4 Weeks	34,812	375	12,037	123,020	94,927	265,171
do. *for prev. 5 Weeks*	37,302	406	14,488	145,213	114,825	312,235

	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per Week	8,703	94	3,009	30,755	23,757
do. do. *last Month*	7,460	81	2,898	29,043	22,965
do. do. *prev's Month*	8,049	81	3,075	27,616	27,107
Average per Week, 1870	6,847	97	2,240	28,151	17,108
do. do. do. 1869	6,275	92	1,752	28,836	15,348
do. do. do. 1868	5,733	105	1,588	27,182	12,809
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	5,355	118	1,500	16,091	11,023
Total in 1869	326,380	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	3,369	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	856,733	573,190
Total in 1864	297,699	7,603	73,621	782,462	660,277

Beef Cattle.—The weekly average for the past four weeks exceeds the average of the previous five weeks by 1,243 head, and is 1,856 greater than the weekly average of last year. While there has been plenty of thin, immature native cattle and a large number of Texans, the quality has averaged better than usual for the season. The demand has improved with the cooler weather and the return of our summer wanderers, and trade has been generally good and fairly remunerative to shippers. For the second week under review, prices declined ½c. @ ¾c. per lb., but this decline was recovered in the third week, and the close was firm at the rates given at the close of last month.

Below we give the range of prices, average price, and figures at which large lots were sold:

Aug. 21st, ranged	7 @12½c.	Large sales	10¾@11¼c.	Av.	11
Aug. 28th, do.	7 @12¾c.	do.	do. 10¾@11	c. do.	10¾
Sept. 4th, do.	6½@12½c.	do.	do. 10¾@11¼c.	do.	11
Sept. 11th, do.	7 @12¾c.	do.	do. 11 @11½c.	do.	11¼

Milch Cows.—An increased supply has met the improved demand incident to the season, and trade has been moderately active, more especially for the last two weeks, at sustained prices. Mixed with a considerable number of old, worn-out stock were some fair to good milkers and some promising young heifers, but nothing really fine, and all in thin flesh. Some of the poorest offered as milch cows were sold at $30 @ $35 each; and some of the best, with good calves by their sides, sold at $80 @ $85; but $40 @ $75 is the general range.....**Calves.**—Fat veal calves have been comparatively scarce and have ruled firm, with an advancing tendency. Grass calves were plenty, but sold readily at nearly sustained prices up to last week, since which time the market has been overstocked, with a marked decline. A few lots of fine, thrifty, well-bred calves have arrived, but the bulk of the receipts were poor to common. Good to prime milk-fed are firm at 9½c. @ 10½c. per lb.; common to fair sell at 7½c. @ 9c.; mixed lots, half grassers and half milk-fed to slaughterers at 5½c. @ 7c.; and common to best grassers to feeders at $5 @ $9 per head.....**Sheep and Lambs.**—The average receipts show a slight increase over the average for last month, but the demand has kept even pace with the larger offering and the market has ruled unusually steady. Excepting a few car-loads, weekly, from Ohio and from Canada, the sheep have been of only common to fair quality, and the lambs, particularly the large number from Canada, have not been so good as in former years at this season. Poor to medium sheep have sold at 4½c. @ 5¼c. per lb.; fair to good at 5½c. @ 6c.; and prime to best selections at 6¼c. @ 6½c., with one lot of extra, last week, at 7c. Lambs range from 6½c. @ 7¾c. per lb. generally, with some of the worst at 5½c. @ 6c., and prime to extra lots at 8c. @ 8¼c.....**Swine.**—There has been a small increase in the receipts and more sales of live hogs. Quite a number of car-loads have come in from this State and from Michigan, consigned to commission salesmen. With unimportant fluctuations in prices, the market has been much the same as for the preceding month. Live hogs have sold at 4¾c. @ 5¼c. per lb., with one car-load of choice State, this week, at $5.30 per 100 lbs.; and dressed are quoted at 6c. @ 7c., with the bulk of the sales at 6¼c. @ 6¾c., closing steady.

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 can not 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

Where our Thoughts come from.—The human mind is like a ponderous engine upon a railway track. A small point of iron at a switch will turn it to the right or left—sending it on its proper course, or perchance causing it to go over an embankment, or into another train, crushing both in shapeless destruction. The sight of some object, a word spoken or read, will give one's train of thoughts *a new direction*, or some direction quite different from what it would otherwise have taken. Upon very small things depends all one's future course in life. Parents, teachers, guardians, in fact every one, may well ponder this. We are all influencing each other, giving direction to thought, every day, every hour, every moment.—One hint in this connection: A family read a journal (say like this) for a year, and, at the end of that time, do not recall any particular advantage therefrom. But how many *new* channels of thought have their minds been led into by what they have read! How many plans have indirectly and insensibly come from what they could have read! How much of vacancy there would be if they blot entirely from their minds all the information they have gained, and all the new ideas and plans of their own, suggested only, and indirectly at that, by what they have read during a year! The truth is, one can not read and think too much about his daily labor. If he get not one new positive piece of useful information, the thinking developed by reading other men's views and ideas can but be useful in stimulating him to reasoning, to intelligent labor—that labor in which his head aids his hands. Labor without intelligence is merely brute muscle in exercise.

Bulb Catalogues.—The dealers are all ready to receive orders for bulbs. First came Richardson & Gould's catalogue, then James Fleming's, both of New York, then James Vick, of Rochester, and F. K. Phœnix, of Bloomington, Ill. B. K. Bliss & Son, and J. M. Thorburn & Co., and we know not how many others, have sent their bulb lists. Let our readers look in the advertising columns, and they will a number of dealers who are ready to serve them with good bulbs.

The New England Fair, which was held at Lowell last month, was in many respects a success. The weather, as usual the first week in September, was very fine, which of course brought out a very large attendance. Other managers may notice this fact with profit. The grounds at Lowell are large, and well arranged for all kinds of live-stock, giving good protection and comfort for the animals. The show of mechanic arts was spoiled by being divided into two parts. The exhibition of horses and cattle, sheep, swine, and poultry, was very large and good. The show of Ayrshire cattle was very fine indeed—in fact, we have rarely seen a better one. The herds of Wm. Birnie, of Springfield, Mass., Messrs. S. M. and D. Wells of Wethersfield, Ct., and others, are hard to beat. The show of Jerseys was not large, but very fair in quality, some of the animals being as fine as can be found in the country. There was a good display of Hereford cattle, which are not commonly seen at the fairs, and they attracted much attention. Dutch cattle were fairly represented, and of good quality; while Shorthorns were there in comparatively small numbers, some of very good style and blood. Long-wooled sheep are rising in importance in New England, as elsewhere all over the country. Messrs. Appleton, of Mass., Hartwell, of Ct., and Chase, of Mass., showed some very fine Cotswolds. The collection of swine was quite large, but mostly of one kind—Chester Whites—many of which were of very good quality, but the judges wisely gave the first prize and sweepstakes to a splendid Berkshire sow, and first prize to her litter of pigs. The officers of the Fair were very courteous and attentive to all comers, but there was evidently a great lack of efficient management. Committees were not in attendance early, and there were no proper arrangements for them to work when finally together. Marshals were not appointed to attend them until they begged and waited for them, and no proper provision was made for their entertainment even. Those who work hard all day for nothing should at least be furnished with a good dinner, but such could not even be bought on the grounds, and some of the committees regaled themselves on cream-cakes and returned to their labors. Let this matter be reformed, and let the management stop the peddler nuisance.

June or Blue Grass.—Jas. McC., Newfane, N. Y.—The specimen is what is commonly called June grass. It is quite different from the grass known as "Quack" or Couch grass, and can be more easily got rid of. It is in some places valuable for pasture—in fact, it is the same grass known as Kentucky Blue-grass. Plowing under will rid the land of this grass without trouble; but the soil being full of seed from past sowings, it will appear again after a grain crop. A clover and timothy crop will keep it down. The description of the couch-grass rake is too late for this month.

Fodder Crops.—W. Howard, Ithaca, N. Y.—It is not too late to sow rye for soiling. We have sown it as late as 14th October, and it was ready to cut by the middle of May. It must be sown on rich ground if a heavy cutting is desired. It will be followed by oats, for which the ground should be prepared, and well prepared, both by plowing and manuring this fall, and the seed sown as early as possible in the spring, at the rate of four bushels per acre. Good ground will bear heavy seeding for a forage crop.

Seed Wheat—"Golden Chaff May" Variety.—"D. P. M.," Raleigh, N. C., wants to know where he can procure a good variety of seed wheat, such as is grown on the hills of Pennsylvania. We are not acquainted with the variety, at least not under this name. The White Mediterranean, Treadwell, Diehl, and Michigan Amber are all favorite wheats in the locality mentioned. With us the Treadwell has succeeded very well, and has given fair crops, though it requires care and good cultivation where the winters are changeable and inclined to be severe. All of these varieties could be procured at the principal seed stores. See advertisements.

To Preserve Hams from Flies.—S. Green, Jackson, Ill., asks how he can keep his hams free from skippers. The skippers, as they are called, are the larvæ of the meat-fly. To prevent their attacks we have enveloped the hams and bacon in thick paper, wrapping carefully, so that the meat is completely covered. Then the meat is put into a cotton bag, which is sewn up closely. The fly can not penetrate both envelopes with its ovipositor, and if no holes or small openings are left, the meat may be preserved from it. We have also packed the meat in wheat bran and oats in boxes and barrels, and have been successful in saving it. But we favor the first-mentioned plan.

Wild Carrot.—"H. J. J.," Franklin Co., Pa., wants to get rid of wild carrot. No weed is easier killed than this. As soon as the seed is matured the root dies. It is therefore necessary only to gather the seed, or, better still, to gather the flowers, which will prevent seeding for a year or two, and they will disappear. These roots are of no value for any purpose.

Golden Rod.—A "Subscriber," Milford, Pike Co., Pa., sends us a specimen of a weed for name and means of destroying it. It is a Solidago, or Golden Rod (*Solidago nemoralis*), known also by several local names, one of which, common in Pennsylvania, is Wire-weed. It is a very common and thrifty weed, and in damp meadows forms patches of matted roots, stout enough to throw out the plow. It can only be destroyed by plowing up the roots, and gathering and burning them; or throwing them into a heap and decomposing them with quicklime, when they will make manure. This plant is so tenacious of life that a root we placed on the top of a fence at one time, grew and struck its fibers into the crevices to seek a living. It is therefore hopeless to try to kill it otherwise than as above.

Packing and Preserving Butter.—"R. R." wishes to pack butter for sale, and also to have a process for coloring it evenly. Packing butter that is gathered up at country stores, is a nice operation, and needs to be carefully performed. As it is of all shades of color, from white to pale yellow generally, a coloring may be prepared by melting some of the butter and dissolving in it the prepared annatto, which may be procured at any drug-store. This should be kept for use as it is wanted. To use it, take a quantity of the butter to be colored in the mixing bowl, cut it into gashes with the butter-ladle (don't touch it with the hands), place a small portion of the coloring preparation in each of these gashes, and mix until the color is evenly spread and no streaks are to be seen. Then gash it once more with the ladle, sprinkle one ounce of salt to the pound of butter, and leave it twenty-four hours. Then pour off any water collected on it, and pack it in a new oak tub that has been soaked with brine for a day and night. Water should never be used in working butter at any time.

Abutilon striatum.—R. L. Schrock, Laclede, Mo. We preserve this over winter in the cellar, as you suggest. It makes a very good house-plant if you have room enough to keep it in that way.

North-eastern Bee-Keepers' Association will hold a meeting during the session of the New York State Fair. The evening of October 3d is assigned for the discussion of Bee Culture.

Keeping Eggs.—Relt Rednevae, Richmond, Ind., wants to know the best way to keep eggs. Parties in the egg business in a large way build brick vats made water-tight, in which is lime-water, made by putting lime in water, and when it is slaked and settled to the bottom drawing off the clear liquor. Into this liquor the eggs are placed and kept beneath the surface. They are kept as cool as possible. These are the "limed eggs" with which the markets are supplied during winter. Another mode of keeping eggs, tested by the Agricultural Department, is as follows: Rub the eggs with flaxseed (linseed) oil, and place them, small end downwards, in sand. Eggs so prepared were found at the end of six months to have the taste and smell of perfectly fresh eggs, and to have lost in weight only three per cent. Greasing eggs with lard or tallow has not been successful in preserving them, except for short periods.

SUNDRY HUMBUGS.—Elsewhere we have spoken of a certain class of "medical" advertisements. An Illinois subscriber sends us a prominent advertisement of a so-called "Medical Retreat," in Cincinnati, O., of the "Madame Restell" order, which he says has polluted the fair pages of an otherwise good Peoria journal for a whole year past!.....The "Ladies' Health Association," 49 and 51 Wall street, New York, is a sheer humbug. No such articles as are professedly offered, even if desirable, can possibly be made. No letters to that address can hereafter get through the New York P. O. ....."Dr." Andrews, of Albany, N. Y., whom we recently showed up, has various "female" "precautions," and many other things, in his so-called "Good Samaritan," which he continues to scatter, to the destruction of life, health, and morals, and now we hear he is sugar-coating agents with the offer of building lots to those who aid him (and the Devil) in scattering his worse than vile trash.....We suppose few editors are so "green" as to publish the "direct" advertisements of the so-called "Metropolitan Cash Prize Co.," until they get the money, and we hope there are few who care so little for their readers as to publish the advertisement at any price, though cash be paid down...."Ink Recipes," etc., are advertised in some respectable journals. We have often shown them up, and need only say that whoever sends 25c. or 50c. or more for any such recipe or powder will lose not only his money and stamps, but all the time he expends in bothering with them....Miss O. H. Hoover, of Hazle Barrens, Mo., wants to let people into the lite (light) of making money easy. We hardly know, from her illiterately written circular, whether to call her (or him) a swindler, a crazy person, or a fool. The last appellation will certainly belong to any one patronizing her (or him)....No matter what the tickets say, we say that neither L. P. Pardee & Co., Binghamton, N. Y., nor any other parties, will for $2 send you gold watches, chains, etc., etc., *worth* $25, or anything like it. The most you will get in these cases, where you get anything for your money, will be cheap stuff, usually worthless, and always affording a good round profit to the sellers at the price *you* pay. The ticket and the C. O. D. dodges are to catch greenhorns....We should pity South Carolina if her population could be increased by no other aid

than that of the Lottery yclept "the S. C. Land and Immigration Ass." There can not be 150,000 foolish people who will pay $5 each to float that scheme, showy as it looks on the red-line circulars. Probably some will want one chance in 150,000 at a $250,000 Academy of Music, and have faith enough in their "luck" to pay $5 for even such a chance. We would not give 5 cents.....All "Honey-making recipes" offered for sale are to be avoided, no matter how highly set off. *No one* has any right to territory to sell, though sundry persons profess to have. New subscribers continually come asking about "Sunlight oil," etc. We have repeated, until we are tired of it, that all manufactured oils, as the so-called Sunlight oil, etc., are dangerous humbugs. For this class of readers we again say, that the entire brood of recipe-sellers are to be let alone entirely. *Never* advance any money, or order anything of the kind C. O. D. (to be collected on delivery). If you must try the sale of some of these recipes and gimcracks, make the seller trust you until you have tried the articles, and be very careful not to promise pay on any conditions. And then, if you are not satisfied to pay after full investigation and trial, don't be scared into paying by any amount of threats of law-suits, etc.....The "Queer" or counterfeit money pretenders have been so fully exposed as to need no further notice here. Among the swindlers' newly-assumed names before us are Zena Walsh, 688 Broadway, N. Y. (the million-dollar man under his fortieth name); Wm. & John Hood, 192 Broadway, who use a Masonic emblem; Young & Morse, 46 Liberty street, N. Y.; "Yours, etc.," inclosing card of J. T. Palmer, 39 Park Row, N. Y.; E. Sampson, 688 Broadway, who uses both Masonic and I. O. O. F. symbols; Wm. Sage & Co., 37 Spruce street, N. Y.; Saml. Davis & Co., 34 Liberty street, who also steals I. O. O. F. symbols; S. K. Kraiz, Doylstown, Pa., etc., etc..... A vast deal of nonsense is printed, putting forth the most absurd claims for electricity and galvanism, in cures, hair curling, etc., etc., well calculated to deceive the ignorant by the parade of scientific terms, even the proper use of which is not understood by the pretenders, as they plainly show. We have several very neatly printed circulars, pamphlets, and newspapers devoted to advertising these humbugs, but have barely space to properly characterize the whole class as ingenious swindles.

Murder—Those Terrible Revelations.—The reading people of our city, and, indeed, of the whole country, have been greatly excited during a month past by the "Trunk Mystery," the detection of "Dr." Rosenzweig, "Madam" Burns, and others. It is well that these revelations have thus come prominently before the public in such a way as to arouse attention. To us there is nothing new in all this. The long-time readers of the *American Agriculturist* know how frequently this journal has uttered words of warning; how often it has spoken in deprecatory and sorrowful tones of the course of certain journals—albeit admitted into and supported by Christian families—that have acted as the paid and efficient agents of the incarnate devils who for money, murder in cold blood their hecatombs of living mortals, born or unborn. Not long since we showed that, to pay the expenses of advertising, etc., these murderers *must* receive from their victims at least **$150,000** a year, to say nothing of the hundreds of thousands, if not millions, expended in gilded mansions and luxurious "country-seats," and we inquired how great the number of victims necessary, at the ordinary and extraordinary charges, to roll up these great sums of money. Now we see whole columns of malediction in the press. The *New York Herald* joins in this cry; yet, after all these terrible revelations, we find in to-day's issues of that paper now before us, a string of advertisements of these murdering abortionists, inserted and spread before the families of those who admit the sheet to their homes, as many do, and all for the sake of the fifteen to thirty dollars paid it daily for the space. If this thing were confined to that sheet, it would be less disastrous, but hundreds of other journals over the country are printing advertisements that covertly accomplish the same result. What country editor so unsophisticated as not to know the aim and intent of advertisements of "obstacles from whatever cause," and the like? We are right glad to note the conversion of the *New York Times*, which is now attacking the *Herald* and kindred sheets. How long since the *Times* dropped from its columns the "medical" advertisements of like import? But we hail its conversion as one good omen.——We have long been aware that the success of these dangerous practitioners has arisen partly from a deficient moral sense, a failure to perceive the enormity of the crime of extinguishing a living spark of life yet unborn, and from a fatal reliance upon the assurances of the safety of such infanticide, so far as the *parent* is concerned. Time and again we have tried, in as delicate language as the case would admit of, to speak of the peril to her life and health. We quote a few extracts from our own columns, as specially applicable at the present time: "On no rational ground, except that of sheer ignorance, can we explain the fact that many professedly religious journals, and others that claim to be respectable, continue to admit a certain class of medical advertisements. Some of these, published in leading religious papers even, covertly advertise the worst possible 'private medicines.'....There is probably no one thing so readily seized upon as the prospect of, or an offered remedy for disease. The suffering invalid, with his judgment impaired perhaps by disease, becomes a ready dupe, and the more terrible or probably incurable the disease, the more eagerly he swallows the bait.—— But, passing by the general run of quack medicines, we refer now to a specific class. In a chance number of one of the most respectable N. Y. Dailies, or one so considered, and patronized by a large class of respectable people, we find under the head of 'Medical,' half a column, or thirteen advertisements, of which at least ten are really of the worst possible character. For example, the first one is addressed to 'Married or Single Ladies,' professing to 'remove all stoppages or irregularities, *from whatever cause*,' etc. (We only quote what is placed before your families every day in the year, in at least half the journals printed.) The 4th, 5th, 6th, 7th, 9th, 11th, and 12th advertisements are of very similar character, some more bidden in their expressions, but all indicating what they are aiming at. These cost for one insertion $19, and there is an average of as many on each of 350 days in the year, or over $6,500 a year paid to one paper, with much larger sums paid to others. We name far less than the actual sum, when we say that **$150,000** are paid yearly by this single class of advertisers for publicity alone. Of course they must have a *large* patronage, or they would not continue the advertising.——*What of their patrons?* One of two things. Many of them buy useless medicines at enormous prices. Of course none of the purchasers expose themselves by exposing the swindlers. But some of them at least do buy medicines that attempt to effect what they propose. The result is not only 'the murder of the innocents,' but, in *almost all cases, of the mothers themselves; or if not producing direct death, they leave a shattered constitution to drag out a miserable existence worse than death. Stung by guilt, the poor patient seldom betrays to her companion if married, or to her most interested friend if not, the cause of her suffering. Let us say to all who put any faith in the statements of this class of murderers, for such they really are, that the pretenses put forth for these medicines and operations* are FALSE, *as every good physician well knows.*".....We repeat: Let no one flatter herself that private "relief" can be given by any one of these doctors, male or female, with any safety whatever. Their patients are almost invariably murdered by the unnatural processes and medicines, or so wrecked in health and constitution, that the remainder of their existence on earth is worse than a hundred immediate deaths. Let those who think they can easily, privately, and safely throw off a mother's responsibility, plainly understand that *it is not so.* Let the unfortunate understand also that it is *far* better to endure the shame of their condition, than to peril their lives and souls by any league with these foul murderers.——P. S.—Since writing the above, we find in the *New York Herald* of Sept. 17th, one of the strongest articles we have seen on the subject, headed "The Sin of the Age," which speaks of the terrible consequences of the evil to society at large, and attributes its prevalence to "a *venal press*, a demoralized clergy, and medical charlatanism." The *Herald* might have reserved its fling at the clergy, for in that very paper we find advertisements of "medical charlatans," *alias* murdering abortionists. Shame on such "*venality.*" Can decent people carry such a paper to their families, however valuable it may be as a news sheet?

Lloyd's Maps.—In response to numerous inquiries, we answer that we have full confidence in Messrs. H. H. Lloyd & Co., 21 John st., New York City, and Louis Lloyd & Co., 126 Dearborn st., Chicago, Ill. (note particularly the names and numbers.) We don't want to be questioned about any other Lloyd map business—have been bothered by it too much already. We don't propose to settle difficulties for those who send money foolishly in answer to every promising advertisement.

Lice on Poultry.—O. Kellog, Bradford Co., Pa., has his poultry infested with lice, and wants to know how to get rid of them. Take out of the house every perch, nest, box, or movable thing; remove all battens, cleats, or any thing whereby a crevice is made, so that the inside is smooth. Then make a whitewash of fresh lime, into which put one ounce of carbolic acid to a pailful. Wash the house thoroughly with this. Then wash the outside. Then smear the perches with a mixture of lard and kerosene oil, putting it on thick, so that when the fowls roost they will get some of it on their feathers. Also, put some of it on each fowl, under the wings. This will clear the house, and the hens will clear themselves if no recruits are furnished from the house. In a month, or less, if there is occasion, wash the house again and grease the roosts; take care to fill all holes and cracks in the poles. It would be well to pass the poles through a fire made of straw, exposing them to the flame, before greasing them.

Osage Orange.—"Subscriber," Columbia Co., N. Y. The Osage Orange is fairly hardy at Newburgh. We cannot say how it would be with you. Honey Locust makes a better hedge, and is hardy.

Curious Peahen's Egg.—R. M. Griffith, Wilmington, Del., has a peahen that produced three eggs joined end to end, the united length being 9 inches! Each egg contained a perfect yolk.

Fastening Shells upon Wood.—"Seamoss." The best way to fasten shells upon wood is to cover the wood with a thin layer of putty, and place the shells in position.

Price of Stock.—"W. H." asks what a two-year-old Ayrshire heifer and a yearling Shorthorn bull may be bought for. The heifer may be had for $150 to $1,500, and the bull for $150 to $8,000. You might as well ask what a house in New York can be bought for, so much depends upon circumstances and "fancy." See notes on buying stock in Walks and Talks and O. F. Papers.

Pronunciation of Eumelan.—Mrs. "R. H. K.," Page Co., Va. The first syllable of Eumelan is the one accented, and it is pronounced the same as if it were spelled *You*-me-lan.

A Great Mistake about a Grater.—On page 335 there is a mistake in the make-up. What is now marked "Fig. 4. Wooden Revolving Grater" should be "Iron Revolving Grater," and *vice versa*.

Green Slugs.—F. F., Portland, Me.—You do not say what kind of trees are affected. If you mean the green, slimy, leech-like slug that is found mainly upon cherry and pear trees, dry lime sifted over them will kill them. We had but a very few this year and treated them to very dry earth, and they disappeared, but the number was so small that we did not watch the experiment closely.

Apple-Trees do not Bear.—C. Hammatt, Putnam, Ct. The fact that your trees blossom and set well while the fruit drops early, would point to insects as the cause of the trouble. The codling moth is one of the worst pests. It deposits its eggs upon the young apple, and the larva or maggot eats its way in and causes mischief. It is hard work to fight insects without the co-operation of your neighbors. Hay-bands and old cloths put loosely around the trees, in June, will catch many of the insects as they go down to change into the pupa state. Picking up fallen fruit and feeding to the pigs will also help.....H. B. Rose, Galliopolis, O., seems to have trees in a similar condition.

Cutting Cions.—"C. G. A.," Augusta, Me., writes: "Is there any sufficient ground for believing, as I have read, that cions cut from the top of a tree will be more fruitful, or in any way better, than those from another part of the tree? I have sometimes chosen the strong uprights on the horizontal limbs of large trees. Is that wrong?"—In selecting cions he should chose short-jointed and well-ripened wood. The shoots in the top of a tree are more apt than others to be very vigorous, and have poorly developed buds, and we should not select such, no matter in what part of the tree they grew. ....The same correspondent asks: "If a cion cut in the spring has brown pith, ought it to be rejected?"—Yes. The cion should be a perfect representative of the tree from which it is taken, and brown pith is an indication that it has been poorly kept.

Value of Sea-weed for Manure.—Wm. Collins, Rye, New Hampshire, wants to know the best way to use sea-weed as manure. There are only two ways in which sea-weed can be profitably used. One is, to spread it and plow it under when fresh; the other, to gather it into piles, and when sufficiently dry to burn, to reduce them to ashes. In composting the bulk is very much reduced, and they seem to disappear almost altogether. When burned they yield a very large bulk of ashes—about one seventh part of their dry weight. The ash contains, of potash, 12 per cent.; soda, 12 per cent.; salt, 20 per cent.; lime, 10 per cent.; phosphates, 5 per cent.; and sulphuric acid, 24 per cent. Besides these there are some chlorine and iodine. It will thus be seen that this ash is very valuable as a manure, and would pay excellently for the labor of gathering and burning. Plowed in fresh, it rapidly improves the soil, and no benefit is gained by any other more laborious manner of treating.

Value of Sea-Weed as Manure.—Wm. Collins, Rye, N. H., wants to know the best way to use sea-weed as manure. On page 333 (September) he will find an article on sea-weed, in which the mode of using it on the farms of Long Island is described. The Canadian farmers on the shores of the Gulf of St. Lawrence use it in a similar manner, and also burn it and spread the ashes on the land, or apply it in the hills when planting potatoes.

Woolly Taste in Mutton.—"J. G. L." writes us that it is the outside skin on the carcass that gives the woolly taste to the mutton. Butchers, he says, often gash it in fanciful figures as an ornament to the quarters, instead of removing it.—There may be some truth in this idea; but the English sheep have the same cuticle on the carcass, and yet no one complains of the woolly taste in the mutton. And a *well-fattened* three-year-old Merino wether affords a saddle of mutton fit for the table of an epicure.

Painted Pails.—E. Skinner, Orange Co., N. Y., writes: "The pail almost exclusively used by farmers is the common painted wooden one. This can be bought for one third the cost of a tin pail. These pails are used for milking and for water; they are absolutely unfit for either—no liquid can remain in them, even for a short time, without becoming poisoned and disagreeable to the taste. I suggest that one half the pails sent to dealers in the country remain unpainted on the inside, so that farmers can secure the article they need. If this can be accomplished, it will prove a mutual benefit."—It is years since we have seen a painted pail. We find the unpainted ones in the country stores near our place. Storekeepers will usually sell such articles as the customers require.

Weak Knees in a Colt.—C. Schneider, McKee's Port, Pa., has a colt whose knees are so weak that it could not stand up for four weeks. The fore legs appear crooked. This is doubtless due to constitutional weakness, which no outward application will remedy. Give him, in some nourishing feed, as ground oats with wheat bran, also a tonic of sulphate of iron 2 oz., pulverized gentian root 1 oz., pulverized ginger 1 oz., saltpeter 1 oz.; make this into twelve powders; give one powder with each feed. Foment the knees with warm water, and put on a bandage to support the joint.

Muck for Wheat.—"K. T.," Iona, Mich., has a field of wheat; land has been run down, and has had little manure in fifteen years. He asks: "Will it be any benefit to top-dress the wheat this fall with muck fresh from the swamp? Also if muck could benefit corn or oats next spring."—The muck will do but little if any good to the wheat without lime and salt or ashes. But still, if the muck is there, we would haul it out and spread it, if nothing better can be done. The future crops will get the benefit of it. If hauled out and spread during the winter, it would be in better condition for spring crops than for wheat now.

Sowing Clover.—C. R. Shiller, Peoria, Ill., has a piece of land now in corn and potatoes, which he wants for hay next year, and have the aftermath for hogs in the fall, and asks, "How soon must the clover be sown?"—Clover should not be sown so late as this. It would be injured by the frosts. Better prepare the ground thoroughly before winter, and sow the clover seed early in spring, when, if the ground is in good heart, a crop of hay might be taken off the same season. But we would not advise it to be both mown and pastured; it would hardly survive such severe treatment the first year.

Compost of Muck, Lime, etc.—"L. E. S.," Newburg, asks what proportions of muck, lime, and manure will make the most beneficial compost. —We would not recommend such a mixture. A compost of muck and stable manure, in proportion of two loads of the former to one of the latter, would make valuable application to land. The process of composting has no other end than to secure fermentation and decomposition, without the loss of any gases formed during the process. Lime added to such a compost would have exactly this injurious effect, and therefore should not be used in contact with barn-yard manure. A good compost may be made with one cord of muck and four bushels of lime with one peck of salt. Ten to fifty bushels of lime is a proper quantity to apply alone to an acre of ground.

Hard Times for Farmers.—"C. A. W.," of Alleghany Co., N. Y., wrote us August 21th: "Pastures are dried up, and corn is going into the sear and yellow leaf; while some farmers are cutting it up and feeding it to the cows. Nobody has enough fodder corn. Two-year-old heifers only bring the price of yearlings last fall. What shall the end be?"—Since then we have had a great rain, and we presume C. A. W. feels better, as he has sent us $5 for two bushels of pure Diehl wheat! Did any one ever know a period when times are *not* hard? At any rate, hard times are as common as drouths, and fluctuations in prices seem the normal condition of American agriculture. The remedy for drouths is better tillage and heavier manuring. The way to have more green corn for fodder is to make a piece of good land as rich as possible, and *drill in* three bushels of corn per acre, and use the cultivator freely between the rows. There is no individual remedy for fluctuations in prices. All that a sensible man can do is to prepare for them, just as he does for chances in the weather. He must not have all his eggs in one basket. He must try to raise things that require more brains, skill, energy, patience, and perseverance, than the majority of people are willing to bestow.

Holding Back the Milk.—F. Gross, Gordonsville, Va., says in Switzerland a wet rag is laid on the back of a cow that holds back her milk, and is a very good remedy. Another correspondent says a weight laid on the back—as a bag of earth or sand, or a chain in the bag—will make her give her milk.—As all the remedies in vogue for this vice relate to an application to the back, there probably may be something in it. We never could succeed in it, and shall be glad to hear more about it from those who have.

Fine Corn.—G. W. Craig, Arbuckle, West Va., sends a boxful of ears of corn as a specimen of his crop. The ears are enormous and a capital illustration of what may be done by selection of seed. Mr. C. states that varieties brought from further North do not succeed well with him. The kind he sends has been cultivated by father and son upon the same farm for forty or fifty years. Notwithstanding the drouth, this variety is so fine in appearance at least, that we do not know where he could go to better it, did he wish to make a change. Good for West Virginia.

To Cure Lucern Hay.—Peter A. Droubay, Pine Canon, Utah.—Lucern hay needs to be cured without exposure to the sun's heat. It should be put in cocks as soon as wilted, and allowed to ferment and heat for two days, during which time the moisture will pass off, leaving the hay still somewhat damp, in which state it may be safely stacked or put into the barn. The cocks may be made high, but narrow, so that the moisture may readily escape. We shall be happy to receive the information referred to.

Ironweed.—D. S. Major, Lawrenceburg, asks how to kill Ironweed (Vernonia). This weed is a perennial, and depends for its existence on the continuance of the root, and will succumb only to such a course of cultivation as will destroy the root. Repeated plowings, with a succession of hoed crops, will effect this. All attempts to get rid of weeds by cultivation and plowing will be abortive, if they are permitted to seed in the fence corners, or other waste places on the farm. These are the places that should be attended to closely.

Relative Value of Manures.—J. K. Webster, Dayton, Ohio, asks which is the cheapest manure to buy to apply on a market garden, soil sandy clay loam—stable manure, at 50 cents a two-horse wagon load; night-soil (delivered), 75 cents a cart load; refuse from glue factory, $10 per ton; bone dust, $45 per ton; distance to haul, one mile. We should say that the night-soil and stable manure were the cheapest, and if the sawdust and shavings are tolerably well rotted they will be of considerable benefit in a mechanical way to the soil. We would compost these two manures so that they should be well rotted, and at the prices mentioned would prefer them. But gardens need a rotation of manures as well as of crops. See Peter Henderson's book on Gardening.

Draining a Basin.—Leander J. Post, Lowell, Mich., wants to drain a basin which is surrounded by rising ground. Has tried digging a hole and filling it with stones for a drain, but it became clogged. This is our own experience with such a place. We did not succeed until a drain was dug through the bank which surrounded it, and the water led away. If the value of the land, the appearance, or the convenience warrants the expense, make the drain; if not, leave it as it is.

Sewage.—"A Digest of Facts relating to the Treatment and Utilization of Sewage, by W. H. Corfield, M.A." London and New York, McMillan & Co. How to dispose of the waste matter of towns and cities is a problem the difficulty of which increases in proportion to the size of the community. How to make this waste matter available in agriculture and to return to the land the fertilizing material it so much needs, is a question that has occupied the minds of individuals and legislatures, especially in England. In the various investigations that have been made in England, the name of Mr. Corfield, the author of the above-named work, has long been prominent, and the book before us presents in a concise form the present state of knowledge upon that subject. It seems that on a large scale the earth system is too cumbersome, and that the effete matters must be carried off by water. It appears probable that irrigation with sewage will be found the only feasible plan. The work is worthy the attention not only of agriculturists, but of those interested in sanitary matters. It is a handsome 8vo. of 343 pages. Price $3.50.

Flax.—We would recommend every farmer who can make it convenient, or who has a piece of ground suitable, to prepare a piece to be sown in flax in the spring. As it is necessary to be sown early, the ground should be plowed in the fall. A piece of fairly good sod ground would do, but if stubble is to be taken it should be manured. The seed will be found valuable for the young stock and the horses, or a new milch-cow; the fiber can be made available in almost every locality, for fortunately the old folks who can use the spinning-wheel have not all disappeared, and a loom can yet be heard to rattle in almost every township of the United States. Linen towels, or table linen, or even linen grain-bags of homespun, are worth much more than anything of the kind that can be purchased; and it is refreshing for one who has a lingering reverence for old times to see now and then the old-fashioned homespun, which bears an honest look on its face, and will, on acquaintance, verify abundantly all the good opinions that one may form about it.

To Prevent Interfering.—Levi P. Simms, So. Marshfield, Mass., asks how to shoe a horse that strikes. There are two ways of striking—one when the horse strikes the toe of his hind foot on the heel of his fore foot, and another when he strikes the side of the near or off shoe against the fetlock joint on the opposite side. This is what we understand our correspondent to refer to. To prevent, remove the edge of the crust that strikes the ankle, and have the shoe set well under the foot. The opposite shoe should be set lower on the outside and a little higher on the inside, so as to turn the ankle somewhat, that the shoe may clear it in passing. Let the hind calks point inwards, and be rounded off on the outside. If all fails, put a leather shield on the ankle.

"What is the Best Way to Extirpate Sorrel and Mustard?"—Mr. H. L. Johns, of California, asks us this question. We do not know. It depends a good deal on the character of the land, the kind of crops grown, etc. We have succeeded in banishing sorrel from a piece of light, sandy land that was formerly covered with it, by seeding it down to grass and top-dressing it with manure. The first two years after it was laid down to grass, the sorrel almost killed out the grass, but the manure so encouraged the growth of the grass, that in two years more it crowded out the sorrel, and it entirely disappeared. The same result sometimes follows a dressing of wood-ashes or lime, and it has been supposed that the ashes or lime neutralized the acid in the soil and prevented the growth of the sorrel. There is nothing in this idea. The ashes and lime, like manure, encourage the growth of other crops, and these starve out or crowd out the sorrel. In regard to mustard, we know of no better plan to get rid of it than to summer or fall fallow, and follow with two or three hoed crops. The point is to cause the mustard seed now in the ground to germinate and then kill the plants before they go to seed. Any plan that will do this is good. Seeding the land with clover and mowing the clover before the mustard goes to seed, will be useful.

Leaves.—In a short time the frosts, aided by rains and winds, will have scattered a bountiful supply of leaves over the woodlands. These leaves can be made to do an excellent service on the farm. They should be carefully raked together in heaps, and drawn to the homestead, where a shed or some place can be found in which they may be stored away. They may be hauled in a hay-rack by weaving in some corn-stalks between the stakes, close enough to prevent them falling through. A large barn-basket is a convenient thing to load them with, and it will be surprising how many loads may be gathered from an acre of woodland. They make a very excellent bed for hogs, being to some extent the bed provided for them by nature. For sows with young pigs, they are the best bed that can be procured, as there is no danger, when they are used, of the young pigs getting entangled in the bedding and crushed. As a source of manure they are valuable: they rot easily, and have good fertilizing qualities. Elm and oak leaves contain a large proportion of potash, and leaf mold, or the decomposed leaves, make a valuable addition to the soil of flower-gardens, or for potting plants. Where manure is scarce—and where is it not?—leaves should be the first resource whereby an increase may be made.

We respectfully ask every Reader to carefully consider the following Eight Paragraphs—or the last Six of them at least,—and to show them to others.

SOME EXPLANATIONS.

FIRST.—The reader must judge whether or not it *pays* to take this journal. We simply suggest that, while its cost is materially reduced when from four to twenty or more persons club together, its highest cost to single subscribers is *less than three cents a week*—not the price of one poor segar—not the price of two eggs—not the price of ¼ lb. sugar—not the price of an ounce of tea—or of two ounces of butter—or of one glass of cheap beer—and for a whole year only half the cost of one pair of shoes. Yet this small outlay secures neatly-printed copies of about **Five Hundred Engravings**, which cost over **$12,000**, and **Over One Thousand Columns** of carefully prepared Original Reading Matter, besides a considerable amount of advertising, which is specially valuable because thoroughly sifted from all humbugs, deception, and unreliable parties.

The **Engravings** are not coarse, poorly printed ink blotches, but are so finely cut and carefully printed, that they really refine and cultivate one's mind and taste.

The **Reading Matter** is the result of an immense amount of careful thought and investigation. *Reliability*, freedom from error, is the *first* aim of the editors; to print that which will be useful to the most people, is the second; and to get the most thoughts, the most information, into the fewest plain words is their next endeavor. At least half a dozen conscientious, earnest, intelligent, practical minds—the very best the Publishers can secure at any cost—are constantly engaged in collecting and *condensing* into these pages information derived from experience, from wide observation, from a large correspondence, from reading—in short, from all sources; and the result of all this pains-taking and expense is enjoyed by *every* reader of these pages at the small cost above indicated. To write finely in high-sounding phrases, spread out over much space, is NOT the aim in this journal. We have to do with every-day work; we would aid in every possible way the toiling millions who are struggling for subsistence, for comfort and competence.—To guard our readers, and through them the public, against the wiles and tricks of ingenious swindlers, is another aim, and it is satisfactory to know that, not only our own readers generally, but multitudes of others, have been saved the loss of millions in the aggregate. That the hints and suggestions from time to time thrown out have directly or indirectly led to profitable results, has been testified to by tens of thousands. (An example of thousands of letters is given in the item "$185 per Acre," on page 369. See also the item "Where our Thoughts Come from," page 365.)

SECOND.—Without reckoning for the printing of a single copy, this journal costs about **$60,000** a year, for editing and gathering information, for engravings, offices, type-setting, electrotyping plates, postage, incidentals, etc. This is to be divided among all the subscribers, whether there be two thousand, or two hundred thousand. Of course, the greater the number, the less the cost for each, or the more there can be expended for all, in engravings, preparing matter, etc. For this reason, a paper of large circulation can give much more for the same money than a smaller one—to say nothing of the larger receipts from advertising in such a journal. (The Publishers of the *American Agriculturist* expend upon the paper *all* the money received from subscribers, and **$30,000** to **$40,000**, a year *more*, of money derived from advertisements. Subscribers thus get the paper for a great deal less than it costs to make it. This explains *how* it is that so *large* and so *costly* a paper is supplied for *so small a price*. It is beyond competition, because no other similar journal has one quarter of its circulation.).....When the plates are all ready to print from, the further cost for each subscriber, or additional subscriber is only for printing paper, press-work, and mailing—these items amounting to hardly a dollar each where the paper is sent to large clubs, but much more where there is but one person at a post-office to be looked after during a year. It will be readily seen, then, that while the actual *total* cost is much greater than the subscription money received, it is profitable to extend the circulation, and *why* premiums can be paid to secure this. The advertising space is never allowed to crowd upon the reading columns, but it is made more valuable by every hundred subscribers added, and this supplies more means for improving the paper, for paying premiums, and for profit... ...Again, believing the paper useful, the Publishers as well as Editors are gratified at every extension of its influence. "Published to do good and make money" is their motto.

THIRD.—Most readers voluntarily send in their annual subscriptions promptly, at single or club rates. Others, intending to do so, put it off from day to day until too late for the year. Others greatly dislike letter-writing, and do without a paper rather than write for it. Many others are unacquainted with the value of this paper to themselves. It is therefore convenient and desirable *to have some one at* EVERY *Post-Office who will gather up the irregular subscriptions, and show and explain the character of the paper and describe its usefulness to non-subscribers, and even urge them to give it a trial.* So, while trusting much to the voluntary good-will of those who send on the names of their neighbors and friends, the Publishers many years ago adopted the further plan (now largely imitated by other journals) of offering *Prizes* or *Premiums* to those who, in their own localities, where they are known, act as canvassers, and take the trouble and time to gather and forward subscriptions. The plan has worked very well all round, as explained below. The Premiums are open to *any* and *every* one, and more than **13,000 persons** have obtained them with almost universal **satisfaction** and **pleasure.**

FOURTH.—The large value of these premiums surprises some persons; they even think there *must* be deception. It is easily explained, and will be interesting to many. The Publishers as well as Editors are ever on the lookout for good things that will please or be useful to their readers, and are "dead set" against commending by engraving, or description, either in reading or premium columns, any article that they do not believe to be of the *best quality* and *every way reliable.* This is so well understood by manufacturers and sellers that they consider the best recommendation they can possibly get is to have their articles placed in our premium list. They are therefore quite ready themselves to supply some of their good articles free for our premium list, or at least to offer very great inducements in the way of prices, advertisements, etc., for the comparatively limited number required for premiums. (Owing to the much larger circulation of this journal, its character, and this carefulness in commendation, better terms can be offered to its publishers than to any other paper.).....In addition to the above arrangements, the Publishers, in order to supply a large assortment to select from, add some other useful premium articles, books, etc., upon which they expect to lose money even, if it be not made up by increased advertising.....The above explains why so *large* premiums can be given, and why cash commissions of any thing like the amount can not be paid. **Yet the premium articles are each just as good to the recipient as so much Cash.** *The assortment is large and varied enough for every one to select a needed or desired thing. After reading this page, please turn to page* **393** *and examine the list, and the descriptions following. Let it be distinctly understood that not a single article of a poor kind, or poor make, or second-hand, or in any way unreliable, is offered. The* BEST *is guaranteed in all cases. The price set against each article is that at which it is regularly sold; and, we repeat, that every article is just as good as so much* CASH *to every one who may desire it.*

FIFTH.—The premiums are **open to all persons alike, everywhere.** There is no blind competition against unknown parties, or favorites, or pretended recipients of premiums, never really paid. The simple offer to each and every person is: *Send so many names at the prescribed price, and the Premium shall be* **yours**—no matter how many others are after the same thing. Arrangements are made with reliable parties to supply enough for all premium demands. (For any articles beyond the premium requirements, we must pay the regular prices.)

SIXTH.—We have thus given the whole secret of the premium business. *Is not this a plain, straightforward arrangement, all round?* It gives a good remuneration to those who take a little time and trouble to collect and forward names of subscribers, few or many. Those supplying the articles are satisfied. The Publishers are able to make the liberal offers. Those who get the premiums are pleased and *profited.* Those who are induced to subscribe through the premiums given to canvassers, get a good and useful paper at its usual cheap rate, and we are sure that every reader for a year will get hints, suggestions, information, engravings, etc., of far more value in the end than the small outlay for subscription. There are five million persons who ought to take the paper on their own account. A small company of them, at least, live within *your* circle of acquaintance, and you can reach them.

SEVENTH.—And Now, Reader, we cordially invite you to take a personal interest in this enterprise. There is hardly a post-office among the 30,000 in this country, and those in British America and elsewhere, around which there are not persons enough to form at least one premium club, and generally there is room for several such clubs. New and old subscribers may be included if there are some new names. Others in your locality may or may not take hold of the matter also. There is usually room for several, and you need not wait for others. You can hardly fail to find some very desirable article in the large list of premiums, and determination will secure it without cost. Over **13,000** other persons have obtained one or more of these premiums with great satisfaction, and **you can do the same.** It is certainly quite as honorable as soliciting trade in the highest ranks of business. Merchants, clergymen, and other professional men, ladies and children, are recorded in our past premium books in large numbers. One does a good work who promotes the diffusion of intelligence among his fellow-men, and such an end is gained by securing a wider circle of readers for a journal of this kind. Let ten, twenty, or thirty families in a neighborhood read it, and the thinking and reasoning developed, and the improved culture and the improved homesteads, will tell upon the increased value of all property there.

EIGHTH.—One Item More.—All subscribers received during the remainder of this year get the *American Agriculturist* from the time their names come in to the end of next year, for a single year's subscription price. Those coming early get more papers. Those coming in October get the paper for fourteen months. **A Premium List can therefore be made up now quite as well as later,** for there is the extra inducement for new subscribers coming now. Old subscribers can renew in a club now as well as a month or two hence. The canvassers for premiums first in the field will have the best opportunity. As fast as new names are secured send them on, that they may begin to receive the papers of this year *free*... ..See page **393.**

Sterile Fan-tail Pigeons.—H. B. R., Easton, Pa.—Sterility in birds of all kinds is sometimes a consequence of great age. If your birds are young, a probable reason why their eggs did not hatch is non-impregnation. Pluck the feathers from the middle of the tails of the hens, removing two thirds or more of the whole, for the trouble in impregnation with this breed is in a sense mechanical rather than physiological.

Poultry Disease.—W. G. West, New Berne, N. C., states that there is a disease prevalent among the poultry in his neighborhood which causes the fowls to mope about and shake as if they were chilled; the comb and wattles break out in sores, and swell so that the eyes are closed. Nine out of ten cases are fatal.——This disease is roup. It is often caused by cold, damp, or unclean lodging. The cure is to administer the following: Finely pulverized charcoal, fresh burned, and new yeast, of each three parts; pulverized sulphur, two parts; flour, one part; water sufficient to make a thick paste. Give a dose about the size of a white bean three times a day. Another remedy is: Powdered gentian and ginger, each one part; sulphur, one part; Epsom salts, one and a half parts; mix with butter, and give a dose similar to the one above every morning. The head should be bathed with a lotion of one ounce sulphate of zinc in a quart of water or warm milk and water. Dry quarters must be given, and cleanliness is requisite.

Hogs and Horn Dust.—I. W., Camden Co., N. J., is feeding a pen of shoats liberally with steamed ship stuff. He mixes with the manure daily a portion of swamp muck and leaves, and sows over the whole a small amount of prepared horn and hoof dust. The hogs root out and consume the horn dust, and as it costs $80 a ton, I. W. wants to know if he loses anything in the process. We should say there was some loss. The hogs need something of the kind, or they would not eat it; and needing it, must of necessity assimilate some of it. What amount of loss there would be, is a question we could not answer. We would not mix any more in the pen, but would burn some bones and feed them to the hogs. If they are young hogs, they will require more phosphate of lime than they will get in their feed, which probably has the coarse bran taken out of it, to supply the demand of the growing frame of bone which must be built up very rapidly in fast-growing hogs; the burnt bone will be readily consumed by them, and what is not used up in bone will be added to the manure. Bone, in this shape, will be found cheaper than in the form of horn.

Steaming Food.—W. C. Blackfan, of Bucks Co., Pa., writes: "I would like to know if it would be profitable for me to steam the food for my stock. I fatten twenty head of cattle, and have twelve to fifteen head of milk cows, sheep and swine, horses, etc. Would it pay to cut up corn fodder and steam it with meal on it? and would I be the gainer after the extra labor was deducted? I am a young farmer, and desire to make farming pay by any new improvements."——It is the general opinion that steaming saves one third of the food, and that cattle thrive better on cooked than on uncooked food. Our experience seems to sustain this assumption. Your stock seems to be about equal to forty head of cattle. If we fix the saving at *one quarter*, instead of *one third*, you will save by steaming the cost of the food of ten head. You know better than we do how much this is worth. The extra cost of steaming will be, say, 12½ per cent on the cost of apparatus (about $800), $100; fuel, $25; extra labor, $100; in all, $225. To offset a portion of this, you will have steam-power for thrashing, sawing wood, grinding grain, etc., etc., and the services of the extra help for a portion of the time. If your own time is not fully occupied in the winter, your extra labor will cost less than our estimate. With the foregoing facts before you, you can decide better than we can whether it will pay. It does pay us.

Sour-Keep for Beet-leaves, etc.—I. B. Root, of Rockford, Ill., says: "We have a great many tons of leaves of beets, carrots, cabbages, cauliflowers, etc., in fall. Now, how can we keep them for feed even a few weeks? An answer through the Ogden Farm papers in *Agriculturist* would doubtless interest many. Last season I tried the Dutchman's 'sour-keep'—burying as so many roots after tramping very tight; but all heated and rotted."——We know of no way to preserve these leaves except by the German system of "sour-keep," and that we have not tried. The reports of the operation as practiced in Germany are very favorable, and we fear that the cause of failure in this instance is due to the admission of air. The leaves should be very tightly tramped down in a pit in dry soil, and covered with a well-packed layer of earth—raised so as to shed the rain. As the leaves ferment and settle, cracking the earth covering, this should be smoothed over so as to exclude the air. We do not advise that the keeping of leaves in this way on a large scale be attempted at first. It is safer to begin with a limited experiment. The plan works well in Germany, and there is no reason why it should not here. Whether it will pay with our more costly labor is another question. Try it.

Good Advice from a Doctor.—"Medicus" writes: "Let me say a word to my brother practitioners in the country. Take the *Agriculturist*, and study it, and you will be able to pass many a pleasant hour discussing its contents among your patrons. A physician is a man of influence, and much information is expected from him, let the farmer but see that you have accurate ideas of farming, and he will have more confidence in your professional skill. Of medicine he is ignorant, but if you are *au fait* on agricultural matters, he will take it for granted that your medical knowledge is equally reliable. So take the *Agriculturist*."

Wagon with a Low Body.—The figure of a wagon with no reach, given by Mr. Stoddard in his article on an *Egg Farm* in July last, has caused numerous inquiries by our readers. It is a proof that agricultural papers have a mission to perform in disseminating information respecting valuable inventions, when so convenient a wagon is used only in a few localities, for it should find a place in every town in the country. The wagon is used a great deal in Rhode Island, where it is called the "Providence low-gear." The advantages in loading low, in case of brick, stone, iron, and other heavy articles, are not the only ones secured, for in loading dirt, manure, and the like, each shovelful is thrown a less distance than is necessary in loading a common wagon. The saving of time, as well as of muscular exertion in this way, is worth the attention of farmers—two short throws with the shovel or manure-fork taking no more time than one long one. We know of instances in our own vicinity where the wagons give great satisfaction in many kinds of work, the owners declaring they would part with them on no account, and we have never heard of a trial resulting otherwise. The vehicle is simple, and easily built by any wagon-maker, with the exception of the rear axle-tree, which can be made to better advantage at a power-shop, where heavy forging is done, than at an ordinary blacksmith's. Iron sockets should be attached to the sides of the body, in which stakes may be inserted to support side boards when needed.

A Missouri Farm—How to Manage it.

Mr. Alexander Morrison, of Michigan, writes us that he has "bought a farm in Missouri, and would like an answer to the following questions in the *American Agriculturist*.

"The farm is high rolling prairie, with soil from two to six feet deep, underlaid with limestone, but it is probable that the lime does not help it, as the soil is composed of the grass rotting on the surface for generations. The soil is flat or insipid, and needs something to quicken it. The crops of corn have ranged from sixty to seventy bushels per acre, according to season and cultivation, and now what I want to know is how to make it produce one hundred bushels per acre. I have a good limestone quarry on the farm, and a good coal bed a few feet from the surface, and there is any quantity of manure to be had for the carting less than a mile."

Question 1st. "Will fresh-burnt lime do such land much good? If so, how much and how applied?"—The first thing to be done is to see that the land does not suffer from stagnant water. If it does, no amount of lime or manure will enable it to produce maximum crops. There is no other remedy but draining; but probably a few surface ditches will be all that is needed to make such loose, rich land dry. When this is done, lime will probably be of great benefit, especially for wheat, clover, and tame grasses. If it can be burnt on the farm for five or six cents per bushel, the chances are that its application will be highly profitable, as the effect will last for many years. We should put on 160 bushels per acre, or a bushel to the square rod. Spread it broadcast over the land, and harrow or plow it in.

2d. "Would stable manure do good? How much and how applied?"—Apply it in any way and at any time that is most convenient to you. Put on twenty loads per acre, and as much more as you can find time to draw. It is ridiculous to suppose it will not do any good.

3d. "Would it pay to use guano or flour of bone?"—Certainly not—when you can get manure for the hauling.

4th. "Will it pay to use plaster?"—We can not tell. Better try a little.

5th. "Is there any other fertilizer that will help such soils?"—Nothing so good as well-rotted manure. All that such land needs to enable it to produce 100 bushels of corn per acre, in a favorable season, is draining, good tillage, heavy manuring, early planting, and thorough cultivation.

$185 an Acre in Improvements, and How it Pays.

Many readers will get a useful hint from the following facts, given to the *American Agriculturist* by a reliable gentleman, well known to us, but who wishes not to have his name in print. Such hints and details give great value to the pages of this journal, for every cultivator having even the smallest plot of ground. "....Eleven years ago I bought a field that was somewhat wet in spots, not a little rough with stumps and bushes, and quite stony. With hard plowing, much hoeing and cultivating, a part of it yielded 34 bushels of corn per acre, and a part of it 67 bushels of potatoes. Failing to bargain for an adjoining piece of ground as I expected, I thought to put the money out at interest, but, guided by a suggestive item in your paper, I hired a lot of men just discharged from a railroad, and set them to work with spades. The roots and brush we burned. The larger stones we sunk in holes dug under them. The smaller ones, all that could be handled, we sunk in large drains, dug every 25 feet, 5 feet deep, and filled up 2½ feet with the stones. Where stones were lacking we filled out the drains with drain tiles. *We spaded the whole piece over* two feet deep, keeping the best soil on top, digging in twenty-five two-horse wagon-loads of manure pretty deeply, and picking out every stone as large as a hen's egg. This whole work cost $185 per acre, and all the neighbors called me foolish—wasting money that would have brought me 7 per cent. Indeed, I borrowed some money at that rate to finish my job. The whole field was as fine and mellow as an ash-heap or onion bed, and you could thrust a cane down into it two feet deep anywhere.

"Now for the result: For ten years past a part of that lot has given me an *average* of 76 bushels of corn per acre—sold at an average of 83 cents per bushel—or 42 bushels more per acre than I could possibly have obtained as it was originally. It is like cultivating any other garden plot. It costs no more for manure, for seed, for planting and working, and the extra stalks have doubly paid for the handling of the extra 42 bushels of corn. So I have had annually 42 bushels of corn extra, at 83c. per bushel, or $34.86 annual interest on the outlay of $185 at first—equal to over 18¾ per cent, instead of 7 per cent for the money borrowed! Part of the same ground, when in potatoes, has yielded as high as 50 per cent interest per annum, and more. Indeed, though I can not give all the figures, I am *sure* that on all the crops, taken together, I have got my original investment fully back once in three years! From this experience, and others like it for a shorter period, I can fully subscribe to the oft-repeated doctrine of the *American Agriculturist*, that most farmers would make a great deal of money by selling half their land and putting the avails into the other half, if indeed it would not pay to sell two thirds. Much less expense would put the majority of soils into the ash-heap or garden condition of my land. Keep on drumming these ideas into our American cultivators. You put money into every man's pocket whom you bring over to intelligent culture. Arithmetic and common sense, or sound reasoning, will yet do the business of making farming pay better, and your journal must perform a large share of the work. I was led to give you this experience by a remark in your business announcement for September, in which you say that no cultivator can afford to be without the paper, unless he would suffer great loss, and fall behind his neighbors who do. I am thousands of dollars richer to-day for its hints to me, and I know several others in the same condition.... "

Bee Notes for October.—*By M. Quinby.*

The careful beekeeper will now select his stocks for winter. There should be about twenty-five pounds of honey in each, where there is much bee-bread; that, together with the wax, will often weigh ten pounds, and bee-bread is never reliable as sustenance for old bees. There will be very much more of it in a hive that has worked from the swarming season until this time without a queen. There is danger of a hive having too much honey, as well as too little. The progressive beekeeper, with the movable frames, will find it best to alternate combs that are filled with such as are not. Do not attempt to winter a light, weak stock; unite it with some other. Feed up to the required weight as soon as brood is all hatched. If strained honey is used, scald it thoroughly, to avoid danger of foul brood. If comb is used, cut the sealing of the cells, and if robbers are excluded, it may remain on top of hive through the day. All stocks a year old should be examined with reference to foul brood, and by no means allow such to be robbed, thus infecting others. Remove boxes. If any are partly full, let the honey from such be removed by the bees of some hive that needs it, after which the clean empty combs can be saved for another year. Examinations for foul brood are best made in the middle of the day, but the strength of a hive is best ascertained in the morning. A cluster of bees

that extends through seven or eight combs on a cool morning this month, may be considered strong enough. The combs of a light stock from which bees have been taken can be set away to freeze, and be used for swarms another year. Set right side up, and exclude mice.

In preparing honey for market, care should be taken to have it look neatly, as experience proves that consumers have an eye to appearances. Wipe with a damp cloth any honey that may have leaked on to the glass. Paste paper or muslin on the bottom of the box, to exclude dust. Boxes to ride to market should be inverted, to prevent breaking, but they should not be inverted at any other time, as there are often some unsealed cells that will leak, and give the combs and glass an untidy appearance. The effect is worse if they are turned bottom side up while warm, when first taken from the hive. In taking boxes from the hive, they should be carefully lifted with a strong knife slipped under the bottom. Set them on one side or end, keeping the combs vertical, until the bees are out, then put them away, standing them in the same position as when on the hive. In regard to foul brood, we have succeeded in eradicating it from our apiaries, not having seen a case of it this summer. I mention this as another argument for movable comb-hives. With their aid we can discover it in its incipient stages. Hence our success.

Salting the Sheep.

See Engraving on first page.

While flock masters differ upon various points of management, they all agree that sheep need salt. Some consider salt so necessary to the well-being of the flock, that they provide covered troughs to contain it, so constructed that the sheep can have constant access to the salt, while that is protected from loss by rains. Others content themselves with salting regularly once or twice a week. With our own flock, it is made the shepherd's duty to salt them every Saturday. There are those who contend that animals do not need salt, but if they could see the eagerness with which the sheep come at the call, they would be convinced that the appetite, if an artificial one, as they claim, has every appearance of being a natural one. In England, Flanders, and other countries, salt has long been regarded as the chief preventive of the formidable disease in sheep known as rot.

Riding on Horseback.—No. 6.

The horse having taught the man—in the earlier papers of this series—it is time now for the man to teach the horse. That is, the pupil should now have sufficient skill to be able to take in hand any horse that is fit to be used for pleasure-riding, and so to train him as to make him a really good saddle-horse.

As the best way to do this is, in our opinion, on the principle of Baucher's system, we give here a brief sketch of his method, not being able to devote anything like the space necessary for its full exposition. The peculiarities of the method are thus set forth by Mr. Phillipps, from whose book we have before made extracts: "It begins by enabling the horseman to take complete possession of the horse's faculties while at rest and in slow motion. This ascendency, once gained, need never be lost; because a good horseman is always able to reduce his horse to that state in which it can be successfully re-asserted. The horse is, in this manner, soon made to perceive that if he escapes from the equilibrium required by his rider, when at a pace which gives him the opportunity of doing so, he will immediately find himself brought back to a pace at which he may be forcibly prevented from doing so. When he once understands this truth, his self-will is subdued forever."

Baucher teaches that the horse does his work easily to himself and pleasantly to his rider only when he moves under the rider's weight and in obedience to his directions, with the same ease and grace, the same perfect *equilibrium*, as when playing with other horses in an open pasture. A horse moving in a state of freedom carries his hind legs so far under him, that they carry the weight of the hinder part of his body in the easiest way, and so as to give the front legs only their proper share of work to do. The neck is left perfectly free to carry the head in whatever position will best assist in maintaining the balance of the body. If we take an unbroken horse, whose movements in the pasture are all perfect, and put a rider on his back and a bit in his mouth, he will either perform such antics as will make him anything but a pleasant saddle-horse, or, which is most likely, he will become perfectly rigid and awkward, poking out his nose, bearing on the bit with the full force of his neck, carrying too much of the weight on the fore quarters, and straddling along with his hind legs in a very ungainly and uncomfortable way. Especially in the canter will he seem to plunge with his whole weight on to his fore feet, making his gait both uncomfortable and unsafe. Baucher's method overcomes these difficulties, empowers the rider to carry the weight of both horse and rider on the fore feet, or on the hind feet, or on all, at pleasure, and to soften the rigidity of the neck, and cause the head to be carried in an easy position.

The first step, after having broken the horse to saddle and bridle, is with the neck and mouth. Stand at his left side, facing his neck, holding the left rein of the snaffle in your left hand. Take both curb-reins in your right hand, a few inches back of the bit, and draw them gently towards the horse's chest, holding him in place, and keeping his head quiet with the left hand. The horse will at first resist the pressure of the curb, and try to throw up his head, but if you are patient and firm, he will presently bend his neck, draw in his chin, and champ the bit; then drop the curb-reins, pat his neck, and make much of him. Repeat the lesson at short intervals, until at the slightest touch of the curb he will arch his neck. This lesson having been repeated until it is perfectly understood, renew it in the saddle, drawing on the curb with a steady pressure, until he drops his head and champs the bit as before. Reward the first sign of obedience by caresses and praise. Repeat the movement, until at the first touch of the rein he lets go of the bit, arches his neck, and stands quietly and at ease. Even if you have to call assistance to keep him in place, do not let him either back or turn around in order to get away from the pressure of the bit.

The next step is to obtain the same control over the hind quarters that you now have over the forehand, and you must first teach him to bear the spur without moving. Accustom him first to the pressure of the leg and of the unarmed boot-heels, and later of spurs with cloth or leather over the rowels; when he is perfectly indifferent to them, then uncover the rowels.

Mr. Phillipps says: "When he has learned not to resist the spurs (by kicking), he must next be taught to spring from them. Get him well in hand, and touch him lightly but firmly on both sides. If he kicks or winces, you are getting on too fast, and must return to the covered rowels, if not to the bare heels. . . . If he tries to move forward, carefully restrain him by the bridle, and then, dropping both your legs and hands, caress him, and let him stand at ease. Repeat the lesson until the slightest pressure of your legs is sufficient to make him promptly collect himself and bring his hind legs under his body." The great point is now secured; the horse has been taught the position you desire him to maintain, to carry his weight well on his haunches, to arch his neck, and to relax his jaw. Future instructions consist mainly in teaching him to preserve this position, and to avoid all rigidity at any speed.

Ogden Farm Papers.—No. 21.

[NOTE.—This paper should have appeared in September, but the editor, going off for a vacation, put it into his pocket instead of sending it to the printer.—ED.]

Whether it is in consequence of the dry season, or because of the cold June, I will not pretend to say, but for some reason Ogden Farm is producing a very small yield of suggestions at about this time. I can grow corn fodder in a very satisfactory way, and can make a good product of butter and get a good price for it; but when it comes to sitting down for the monthly chat with my readers, the soil seems to be sterile, and the crop of "ideas" to have been nipped in the bud. What to write about, that is the question, and it is sometimes a very hard one to answer. Some one suggests, "Your own experience." Very well, but is my experience worth the telling? How long can a man farm sixty acres of land—even in the best way—and get from it an experience that will always be worth telling? And then, to tell the truth, the editor won't let me write just as I like; if my efforts don't strike him as worth printing, he has a way of not printing them. The consequence of all this is, that I am often overtaken by the feeling that I would rather hoe corn all day than try to squeeze any more "papers" out of Ogden Farm.

But, after all, is this not a bilious, hot-weather view of the case? What man with ordinary wits can devote himself to the wonderful processes of an improving farm, and not have "experiences" every day—yes, every hour—that are richly worth imparting, if only he had the faculty of setting them forth in their proper clothing of words, and of making others realize them as he does? We have been now nearly four years at our work; four years of preparation. A poor, wet, naked, mossy old farm, without a decent fence or a passable building on it, with not crops enough to pay rent and taxes, with no inducements to buy that were not comprised in a low price and a good fall for drainage. This was our starting point, and when we recall it, in all its dismal proportions, and then see where we are to-day, we do seem to have made headway. We have cleared away nearly all interior fences; relaid those that were kept; built a first-rate barn, sheds, and other out-buildings; made the house habitable; drawn away through thirteen miles of tile drains the accursing ooze that had made the farm a slime; accumulated a stock of over seventy, horse kind and horned cattle; fed them bountifully, and so made abundant manure for the fields, and have really got to a point where we can see daylight. The old farm was an inert tool—worn out, stuck in the mud, and utterly useless. Left to itself, it would soon have become a swampy, bushy, wild common. It is a source of no little satisfaction to have taken this tool out of the mire, put in new springs and stays, polished it up, and oiled its joints, so that it begins to work again; and to feel that the more it is used, if it is only *well* used, the better it will become. Every spot of strong and luxuriant growth is an earnest of what is coming in due time; it shows what the

farm will do when it has a chance—which we know it soon will have.

To show that my emotions do not depend entirely on what the farm *is to do*, let me say what it *has* done. We are now (end of July,) feeding in the barn and yards the equivalent of 35 full-grown cows, and we have had about this amount all the season. About 15 acres of the land are in fallow (being cleaned for late planting), or just set out to roots and cabbage; 4 acres are in the inclosures about the buildings. This leaves about 42 acres in crop. Since about the middle of May the stock spoken of above has been fed (soiled) entirely from the produce of the land; we have housed 10 tons of well-cured oats and some 2 tons of rye straw; as much as 5 tons of oats, grass, vetches, and other surplus soiling crops will be secured within a week; nine and a half acres of new meadow (that has cut two crops of soiling oats already) will give a good aftermath to cure in August; thirteen acres of sowed corn is growing most luxuriantly, and seven acres more are to be planted at once for a tender bite in the autumn; four acres of potatoes are growing, and most of them promise well. Just how much of the corn-land we shall have to cut over to feed our stock until frost, I do not know; it will depend very much on the age of the corn when cut. But I am confident that the 35 head of stock can not between now and November 1st consume more than one third of the crop, leaving two thirds to be cured for winter use. To sum up: If my anticipations are fulfilled, the 42 acres will have produced, this year, enough long fodder of various kinds to entirely supply the 35 head, the year through, with all the hay and fodder they will need.

This is no wonderful showing. Of course, there are many farms that have done better, and I regard it as only a commencement of our own possibilities; but it is fully enough to confirm me in my belief that before the time the Ogden Farm operation is put to the test of an auction sale, to determine the actual money result (six years hence), the 60½ acres will produce all the long fodder needed for 50 cows, and salable crop enough to pay for all the grain they will need, that is, to support them entirely. When we estimate the yards, roads, headlands, etc., etc., the available area for cropping will be reduced to about fifty acres. A cow to the acre—well kept—is not unknown, but, in my experience it is at least unusual; and it is a result that can only be achieved by soiling, high feeding, and heavy manuring. That we need stop at this point, I am not inclined to believe. That an acre of land—with sufficient manure and sufficient labor—might support two cows, or even more, is within the range of possibility. It is mainly a question of the just apportionment of the means to the end—of the point at which the cost of production will overbalance the value of the product. Where this point lies with any given soil, has not, so far as I know, been determined. Probably it lies farther on than most of us would suppose, for, up to a very high rate of production, the expenses bear a less and less ratio to the crop the larger the crop becomes.

Before an average farmer can decide whether soiling will pay him, or not, he must know how much it costs him to pasture his stock, and how much it would cost to soil them. For instance: In my neighborhood, land that will carry one cow to two acres is worth $150 per acre. The pasture for 20 cows (40 acres) would cost $6,000; at seven per cent, the outlay for summer keep would be $420. Five acres of the same land that had been *thoroughly prepared* for soiling—that is, that had received, for ten years, all the manure and all the labor the forty acres had demanded to be kept in good order—would, if the crops were well arranged, support the same head from early in May until November. Thus $315 in interest would be saved. The labor of growing the crops and attending to the stock would not cost so much as this, and there would be, so far as the land is concerned, all the difference of high condition and constant improvement, or low condition and constant deterioration. The land is like the human mind: the more we put into it, the more it will receive and make good use of, and the more it is used, the more serviceable it becomes, if only used with judgment and discretion.

Then, again, the produce of the cows will be more in the case of soiling than in the other. In June I was making a very satisfactory amount of butter; so were the pasture men all around me. Now that the drouth has (in spite of passing rains) begun to affect the pastures, their product is falling off, and by September it will be materially lessened. My product is increasing week by week, until, from the same number of cows, it is now over ten per cent more than it was in June, and, as the experience of previous years has shown, it will be fully ten per cent more in September than it is now. Probably by that time the pastured cows will have fallen, on an average, to one half their June supply.

Some of this difference, though less than would probably be supposed, taking whole herds together, is due to the character of the cows. "Native" cattle do well if they hold to one half their yield six months after calving. Jerseys, that will not do a great deal better than this, are not worth having. I have a thorough-bred heifer ("Thrift"), that had her first calf as a two-year-old in October last. She took the bull again in November, and is to calve in August. She is small, and not an especially fine specimen of the breed. I have several young ones whose flow is much larger, and I only bring her forward as "a case in point." The following is her monthly average of milk:

November....14½	pounds	April.....	8½ pounds
December....14	"	May.....	9 "
January.....11	"	June.....	10 "
February.....11½	"	July.....	8½ "
March.....10	"	August.....	8¼ "

The daily average for the ten months (during which time she gave 3,150 pounds of milk, or 1,575 quarts) was 10½ pounds—being 72 per cent of her fullest flow, while the product of the last month (within one month of calving) was 57 per cent of the fullest flow. It does not now look as though we would be able to dry her off. At the date of this writing, when she is within three weeks of calving, and is springing a fresh bag, she is giving a little more than 8 pounds per day, considerably more than one half as much as she gave at her flush. This is what I mean when I say, that a *good* Jersey is the best family cow. She is small, and cheaply kept, and while she will never overflow the pantry with more milk than the pans will hold, she will keep the milkman from the door more weeks of the year than any other cow in the world. Five quarts a day is not a large amount of milk for a growing family, but if it is good Jersey milk, it will go as far (except in the swill-pail) as eight quarts of "milkman's" milk, and —what is the best of all—the cream does not fall away as fast as the milk does. The last month's milk is much richer than the first.

Fig. 2.—"DUBBED" WHITE LEGHORNS.—(See next page.)

To explain my illustration of the economy of soiling, it is proper to say that it would probably be practically impossible to arrange the cropping of five acres so as to keep up a full season's supply for 20 cows, but ten acres may be made to feed the whole from one half its produce, the other half being cured for winter use.

As a report of progress to those who are curious about my dairying, I would say that the deep cans are still in constant use, and that I am more and more pleased with the system. With all sorts of weather, when we would probably have made several semi-failures if using shallow pans, the butter has been perfectly uniform, and even my Philadelphia customers (who like, when away from home, to brag about Philadelphia butter) say they have never eaten butter so good as the O. F. they are now getting; and a little praise goes a great ways with a young farmer.

An Egg Farm.

BY H. H. STODDARD.—*Sixth Article.*

The layers must be of a breed that affords chickens easily reared, for success in the nursery department is all-important; they must be at the head of the list of prolific layers of fair-sized eggs. None but a non-sitting race will answer, for sitters make fully double the labor during half of the year; and the feathers must be light, because dark ones show badly when chickens are dressed. There is at present no breed that fulfills all these conditions as well as the White Leghorn. It may degenerate in time, as other races of fowls have done, by being bred for fancy instead of utility, but it possesses now more vigor than any other non-sitting breed. Excessive wattles, comb, and tail, prized by the fanciers, are for our purpose avoided, and by selecting the most moderate combs and other appendages for a number of generations, our stock appears as in fig. 1, which, like all of our illustrations, was drawn from life. In breeding poultry, show and utility do not get on well together in the long run. To fanciers unquestionably belongs the credit of originating improved breeds, but afterwards, in fixing conventional points for the show-room, the stock is often ruined in their hands. To prevent freezing of the combs and wattles during severe winters, they should be dubbed when the birds are two thirds grown (see fig. 2 on preceding page). The operation is not so painful as might appear, and if shears are used, the blood-vessels are pinched, and but little blood will flow.

The layers are relied upon to produce the principal part of the income, and as they are chief in point of numbers, the detached stations where they are kept form the main part of the establishment, to which the breeding and sitting departments are merely tributary. Most of the layers must be kept only until the age of from fifteen to twenty months, and then killed for sale, and their places supplied with young pullets. This course is necessary, because the yield of eggs is greatest during the first laying season if the hens are of an early-maturing breed and are fed high, and stimulated to the utmost, as they must be, to secure the highest profit. For though hens are still vigorous at two years, yet it will be found that after a course of forcing to their greatest capacity through the first season, they can not generally be made to lay profusely during the second. If we chose not to put on the full pressure of diet the first year, but to feed moderately high for two or three years, a fair yield of eggs would be afforded during each. But such a course would not pay as well as to keep pullets only, and maintain a forcing system constantly from the time they commence to lay until they stop, and then market them before they eat up the profits in the idleness of fall and winter. Pullets grow fast during the early part of their lives and give a return in flesh for what they eat then. After they commence laying, their eggs are prompt dividends, and, besides, their bodies increase in weight until the age of a year or more. Young hens may be killed a fortnight after ceasing to lay, and if they have been skillfully fed, their flesh will prove excellent for the table as compared with fowls that are two or three years old. It is no wonder that there is little liking for the adult fowls the markets ordinarily afford, for they comprise many that are very old and unfit for food. But regular customers will soon approve fowls a year old, which have been supplied with the cleanest food, and brought to just the proper fatness, and delivered freshly killed and neatly dressed, and our experience proves that the families upon the egg route will order all that the establishment has to dispose of. The high-pressure mode of feeding and turning off while yet young, is then the true policy. The point is, there is a certain consumption of food to enable any animal to keep alive. The ordinary vital operations, aside from laying or increase of size, demand force, obtained through food—which is money—and we should aim to support only such fowls as are all the while giving returns in either growth or eggs. The long period of moulting and recovering from its consequent exhaustion, costs, as does the maintenance of the vital fires during the cold of winter. It is a matter of quick balancing of profits and expenses with animals, which, like fowls, consume the value of their bodies in about six months. If it is urged that the stimulating diet and unnatural prolificness will subject the stock to disease, the reply is that the regimen is not continued more than six or eight months, and in that time evil effects will not ordinarily follow, for the birds are allowed freedom, sun, and air, and special provision is made for daily exercise. As none of the fowls to which this forcing system is applied, leave descendants, no evil effects are accumulated and entailed upon the stock. The layers are from the eggs of fowls that have not been subjected to any such pressure, and during the period of their principal growth they

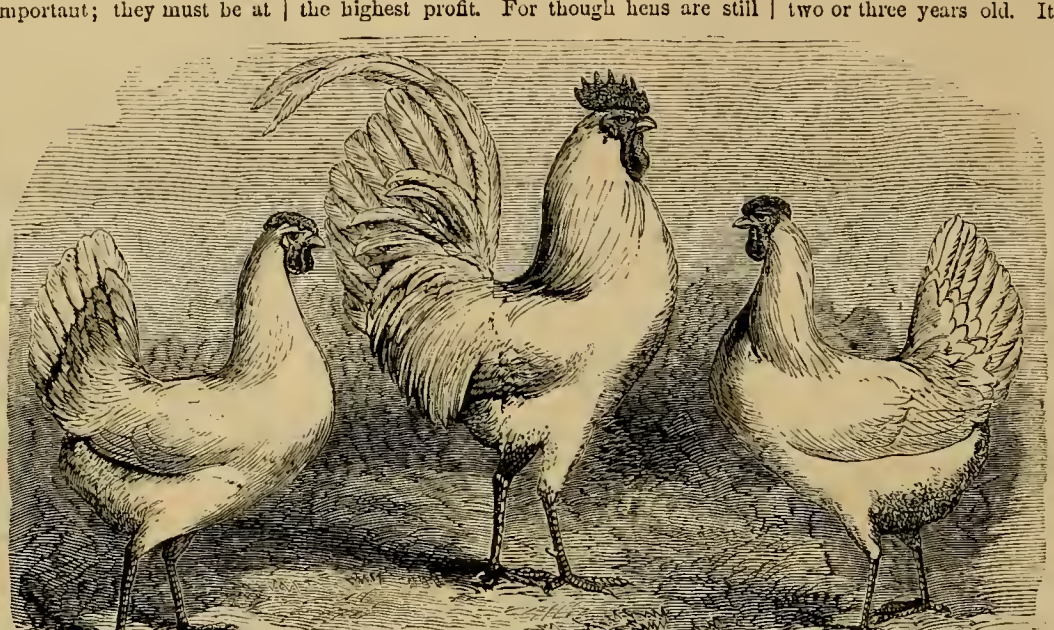


Fig. 1.—WHITE LEGHORNS.

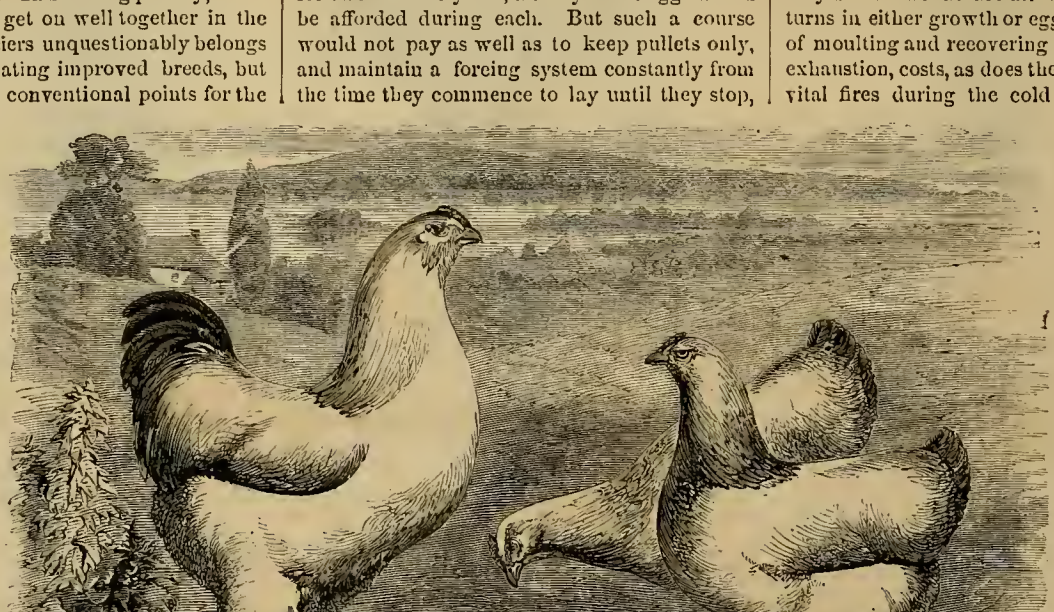


Fig. 3.—LIGHT BRAHMAS.

have been given a nutritious but not especially stimulating food—like a colt at pasture. When they arrive at the laying age, they are kept like the horse—broken to work, and put to constant and severe labor, and fed as high as he will bear.

The sitters are of a breed chosen for persistence and regularity in incubation, fidelity to their chickens, and gentleness of disposition. The Light Brahmas are our resource, and can not be excelled for hatching and rearing (see fig. 3). Pure bloods, however, are not used; but to give less awkwardness and greater spread of wings, they are crossed with snow-white barn-yard fowls (see fig. 4). The half-bloods produced are represented very accurately by the artist (see fig. 5). They resemble the Brahmas the most in form and other characteristics, and are almost uniformly docile. The half-blood Brahmas are extremely valuable for hatching and taking care of chickens. The results of the labors of poultry fanciers in producing two such breeds as the White Leghorns and Light Brahmas are enough to compensate for all the humbug practiced by many members of the guild. The sitters are not kept at detached stations like the layers, for several reasons. One is, they should be all near together, because of the great amount of attendance necessary in connection with hatching. Then the buildings should be large enough for the keeper to enter, in order to take care of the nests and chickens, but the size of the structure and the risk of jarring eggs will prevent moving. Nor can the system of indirect feeding and no yards be pursued, for the sitters should be fed at the attendant's feet, and tamed so as to submit quietly to the handling they must receive while hatching and rearing. Their yards are sufficiently large to admit of exercise, and for the same reason their dry grain is buried in the ground or under straw. In very cold weather they are confined to their houses for warmth, and are given a stimulating diet to promote winter laying, not so much for the value of the eggs as to render it certain that there shall be a considerable number of birds ready to sit in February, and many more in March. The fowls chiefly depended upon for this, consist of the earliest pullets of the previous year, and also the old hens that have been employed much of the time the preceding summer in hatching two or three broods. The prevention of laying by hatching and rearing, causes birds thus occupied to lay earlier the next season. By a little management there is no difficulty in procuring plenty of offers to sit from February to June. One half the sitting stock are kept until two years old, and of the pullets of the sitting class raised yearly, some are hatched in February and March, and some in the first week in September, the better to secure sitting at various parts of the year. Except in winter, the sitters should not be fed with a view to encourage laying, but the aim should be to keep them on as moderate an allowance as possible, and not have them become poor. Their specific purpose is incubation, and they should be made to do as much of this as possible. By uniting broods, when a hen has hatched one nestful of eggs she may be given another immediately, and if managed rightly she will not be injured by sitting a double term. Each hen must hatch two broods per year at least, and some will hatch three. In this way the stock of 500 sitters will produce 10,000 chickens yearly, or an average of 20 apiece.

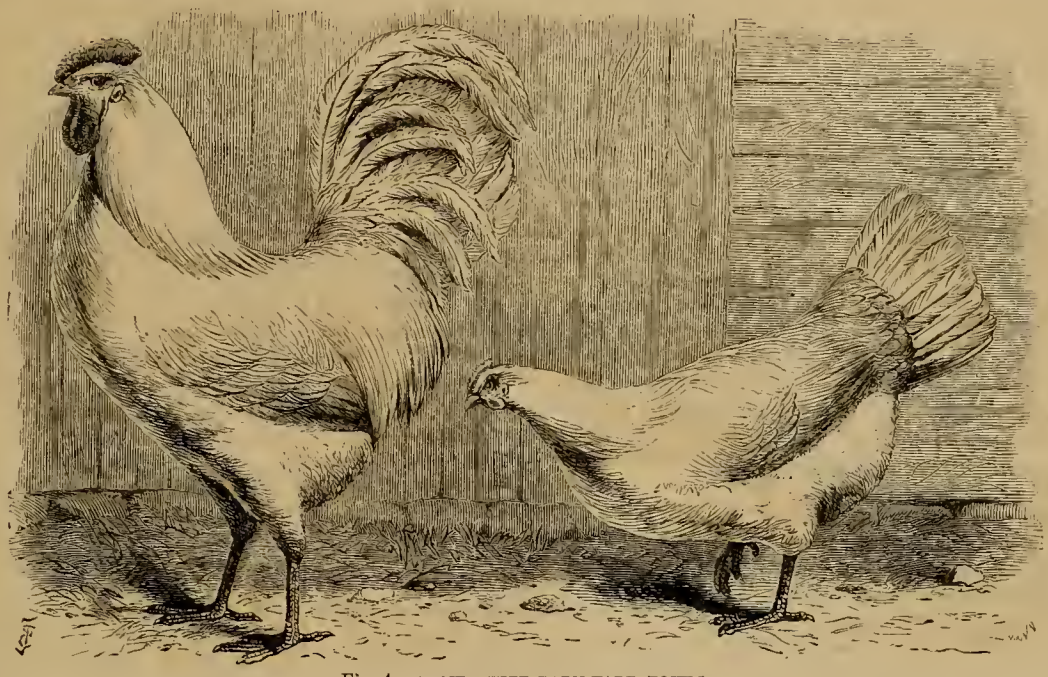


Fig. 4.—SNOW-WHITE BARN-YARD FOWLS.

Fig. 5.—HALF-BREEDS FOR SITTERS.

MANURING MEADOWS DURING THE AUTUMN. — The importance of properly caring for the preservation of mowing lands during winter can not be overestimated. In proportion to the yield of hay, is the feeding capacity of the farm; and in proportion to the amount of stock kept, is the size or richness of the manure pile or compost heap. Want of care may lead to serious damage if the winter should happen to be unfavorable. To avert ill consequences, a coating of manure should be spread upon the meadows before winter sets in. No fear of waste need be entertained. The soil will absorb all soluble fertilizing matter that may be carried down by the rains into it, and the coarser matter left will remain as a protection for the roots from severe freezing. Rotting, as soon as exposed to the warm rains of spring, it will form a layer of fertile soil near the roots of the grass or clover plants, just where it is needed. If mowing lands have been closely pastured, a great risk is run of destructive freezing, unless a liberal amount of covering is supplied to them. A good stand of clover, unwisely pastured too close, has often been totally destroyed for want of protection during winter. The natural protection having been eaten off, a substitute must be furnished, failing which, total loss may result. But whether pastured or not, no harm can result from a liberal dressing of manure. On the other hand, a good return may be confidently looked for next season. If sod ground intended for corn next spring is thus treated, it will not only gain the benefit of the protection afforded, but also of the manure added, and an important work will have been attended to

Walks and Talks on the Farm—No. 94.

We are through thrashing, and can now take a breathing spell for a few days. It has been a trying season. Poor upland has suffered from drouth, and undrained lowland has suffered from water. Some of my corn was drowned out, and some of the late, planted on the sandy knolls, withered up just as it commenced to ear. The truth is, no season suits a poor farmer. Some of my wheat this year could not have yielded over five bushels per acre, while other parts of the same field must have yielded thirty-five or forty bushels. About 200 acres of my farm is what is called "rolling land." The knolls are full of limestone rocks, and the soil is thin and of a light, sandy nature; while the level land is comparatively free from stones, and the soil is deeper and heavier, though not clayey. Before it is drained, it looks like clay, and bakes in spots as hard as a brick, but after it has been drained a year or two, and well worked, these "clay spots," as the men formerly called them, prove to be a rich, friable loam. It was here that I got my good wheat. The moment the reaper struck one of these underdrained valleys, the rake had all it could do to keep the platform clear, while on the sandy knolls the reel barely reached the grain, and the reaper had to run two or three rods to get a sheaf large enough to bind. This spring I saw something was the matter with the wheat on these knolls, and thought of winter-kill, Hessian fly, wire-worms, etc.; but it is just *poverty*—this and nothing more.

I have thought that this poor yield of the sandy knolls was due to the fact that they had been plowed very deep. They were full of stones, and we made a business of getting them out by plowing round and round, and turning the furrows down hill. In this way, the land was plowed a foot or fifteen inches deep, bringing raw, poor sandy soil to the surface. Last year I had wheat on a knoll treated in this way, and it was about as good wheat as any in the field, and the previous crop of barley was also just as good as the rest of the field. But the land had been well manured. This year my wheat was not manured, and the sandy knolls were exceedingly light, and the clover on them is by no means as good as I like to see.

One of my neighbors had a field of similar soil to these knolls of mine, which he summer-fallowed, and sowed to Diehl wheat; and I understand that he only got fifteen bushels per acre, and the grain is so inferior that it will shrink away one third in cleaning Another neighbor, on adjoining land, near his barn-yard, and likely on this account to have received more or less manure in previous years, had over thirty bushels per acre of as handsome Diehl wheat as could be desired.

The Deacon thinks this does not say much for summer-fallowing. But I never supposed any one ever summer-fallowed such light, sandy soil with any expectation of enriching it. What I have advocated is summer-fallowing land of a clayey nature. Our clay loams usually abound in latent plant-food, and a summer fallow favors its decomposition, and renders it available. But light, sandy soils are porous enough already, and the organic matter they contain will decompose rapidly enough, without constant stirring and exposure to the atmosphere.

My wheat turned out better than I expected. Fourteen acres of it was after wheat, and eight after oats. Both these fields were seeded down with clover the spring of 1870, but failed; and there was nothing to be done but risk them again with wheat. The remainder was after barley. In all, there was not quite forty acres, and we had 954 bushels of Diehl wheat. This is not so bad in the circumstances; but I shall not be content until I can average, taking one year with another, thirty-five to forty bushels per acre. If the land had been rich enough, there would unquestionably have been forty bushels per acre this year. That is to say, the *season* was quite capable of producing this amount; and I think the mechanical condition of the land was also equal to it; all that was needed was sufficient available plant-food in the soil.

Take the field of fourteen acres, where wheat followed wheat, as an illustration of a question which is now occupying the attention of many scientific farmers and investigators. The two crops together yielded forty-five bushels per acre, or twenty-three bushels in 1870, and twenty-two bushels in 1871. The field has had no manure of any amount for years. In fact, since the land was cleared, forty or fifty years ago, I presume all the manure that has ever been applied would not, in the aggregate, be equal to more than a good crop of clover hay. The available plant-food required to produce these two crops of wheat came from the soil itself, and from the rain, dews, and atmosphere. The land is now seeded down with clover, and with the aid of a bushel or two of plaster per acre next spring, it is not improbable that, if mown twice for hay next year, it will yield in the two crops three tons of hay per acre.

Now, three tons of clover hay contain about 33 pounds of phosphoric acid, 90 pounds of potash, and 150 pounds of nitrogen.

The last crop of Diehl wheat, of twenty-two bushels per acre, and say 1,500 pounds of straw, would contain:

	In the grain.	In the straw.	In total crop.
Phosphoric acid	11¼ lbs.	3¾ lbs.	15¼ lbs.
Potash	6¾	9¾	16½
Nitrogen	23	9½	32½

It seems very unkind in this crop of wheat not to give me more than twenty-two bushels per acre, when the clover plants coming after will find phosphoric acid enough for forty bushels of wheat, and potash and nitrogen enough for nearly 100 bushels per acre. And, confessedly, these are the three most important constituents of plant-food. Why, then, did I get only twenty-two bushels of wheat per acre? I got twenty-three bushels on the same land the year previous, and it is not improbable that if I had sown the same land to wheat again this fall, I should get twelve or fifteen bushels per acre again next year. But the clover will find plant-food enough for forty bushels.

Why did I not get forty bushels per acre? A scientific answer to this question would be exceedingly interesting and useful, and recent investigations lead us to believe that it will not be long in forthcoming. In the mean time, we may safely conclude that the roots of wheat are so constituted that we can not get a maximum growth of wheat without having in the soil a far larger amount of available nitrogen than is required for the growth of a maximum crop of clover. And yet a maximum crop of clover contains twice as much nitrogen as a maximum crop of wheat.

What I want is, instead of getting forty-five bushels of wheat per acre in two crops, to get it in *one crop*. The three tons of clover hay that the field will yield per acre next year will contain much more than the necessary amount of plant-food required for such a crop. If this clover was plowed under, or consumed on the land by sheep, and the land was then sown to wheat, why should it not yield forty bushels of wheat per acre? The land would certainly contain plant-food enough. But it would not all be in an available condition. The roots of the wheat would only be able to reach a portion of it. Mr. Lawes, in a recent address, referring to his long-continued and carefully conducted experiments, stated that "a mixture of 300 pounds of superphosphate and 200 pounds of ammonia salts, applied every year for nineteen years, has yielded almost exactly the same amount of barley as fourteen tons of dung applied annually for the same period." The average of these nineteen crops of barley grown every year on the same land, with the above two manures, was about fifty-three of our bushels per acre. To produce this result, one acre had received during the nineteen years 266 tons of manure, and the other acre only about 4¼ tons. Mr. Lawes remarks: "About 200 pounds of nitrogen was annually supplied in the dung, but with it there was no over-luxuriance, and no more crop than where 41 pounds of nitrogen was supplied in the form of ammonia or nitric acid. How is this to be accounted for?" He states that experiments are now being made at Rothamsted that may throw more light on this subject.

One thing is clear, that if 41 pounds of nitrogen, in the form of ammonia or nitric acid, will have as great an immediate effect as 200 pounds of nitrogen in barn-yard manure, it is very important for us to ferment and decompose our manure as much as possible before burying it in the soil. And it is very likely that applying it as a top-dressing to the land, where it would for several months be exposed to the atmosphere, and where the rains and dews would dissolve out the soluble matter and carry it into the soil, and distribute it more completely, would render it still more immediately effective. John Johnston and other good farmers have found from long experience that such is the case where the manure is applied as a top-dressing on grass land in the fall, and the field plowed up for corn the following spring.

A year ago, as I mentioned at the time, I had ten acres of wheat seeded down with clover, but on which the clover failed. I wished very much to get it into clover, and could hardly make up my mind to plow it up. I thought the clover might still come in. And so, immediately after harvest, I top-dressed it with barn-yard manure, thinking that, if the clover came in, the manure would help it, and if it did not, that it would at any rate help any crop I might put on the land in the spring.

The clover did *not* come in. And so, with great reluctance, I this spring plowed it up, and drilled in three bushels of peas and one bushel of oats per acre. The manure put on the previous September was of good quality, pretty well rotted, and we put on a liberal dressing, say fifteen tons per acre. It was spread as fast as drawn. The weather was hot and dry, and some of my neighbors thought the manure would all be burnt up, or at any rate that nearly all the virtue in it would evaporate and be lost. I never had any fears on this score. We harrowed it once or twice last fall, and re-spread any portion that the harrows pulled together; and there the manure lay, exposed on this bare ground, through the fall and winter, until it was plowed under in the spring.

The result fully came up to my expectations.

We had on the ten acres eighty loads of produce. The loads were not large, but such as we usually put on when drawing in with three teams and three wagons. In such case, you know, it does not pay to put on extra large loads, as they are harder to pitch. But they were fair, medium-sized loads. The crop was pretty hard to thrash, as the straw and haulm was very long, and we raised the concave of the machine pretty high, and probably did not thrash very clean. Still we had 560 bushels from the ten acres, weighing 49 lbs. per bushel. Estimating the crop as oats, at 32 lbs. per bushel, the yield was equal to 88½ bushels per acre. I was fortunate enough to get in the crop without a drop of rain falling on it, and the straw will be fully as good as over-ripe or badly cured hay.

Of course, I can not say that there would not have been just as good a crop if the manure had not been applied until spring, but I am inclined to doubt it. And, at any rate—and this was one of my objects—it gave an opportunity for the weed seeds in the manure to germinate last fall, and the spring plowing destroyed the plants. The field is the one I "fall-fallowed" three years ago, and, for a run-down, weedy farm, the land is now encouragingly clean, and I expect a good crop of wheat on it next year, and a big crop of clover hay, with the chance of a good crop of clover seed the year following.

After the clover seed is off, I propose to top-dress the land with some good, well-rotted manure (and clover hay and peas will *make* good manure), and then, perhaps, pasture the field another year with sheep, until late in the fall, and then plow it up. The next spring I shall be ready to accept a challenge from the Deacon to see who can raise the biggest crop of corn.

"That is looking some distance ahead." Yes; and a farmer must look ahead if he intends to do any thing. He must "learn to labor and to wait." To a well-regulated mind, this is one of the charms and the advantages of agriculture. No great work was ever done in a hurry. The man who is not willing to lay plans five or ten years ahead, and set about accomplishing them now, and continue the work year after year, keeping his object steadily in view, had better quit farming. All good, successful farmers consciously or unconsciously possess this quality of planning, working, and waiting.

"What is the good of all this talk about improved farming?" remarks a grain speculator; "the trouble is that we raise too much produce already." Without admitting or disputing this assertion, it may be remarked that the province of an agricultural paper is not so much to induce farmers to raise a greater aggregate amount of produce, as to show them how it can be raised cheaper. What I advocate is trying to raise forty bushels of wheat per acre once in four years, instead of twenty bushels every other year, or ten bushels every year. I do not want farmers to raise more pigs than they do now, but I would like to see them raise better ones. I am sorry to see a farmer feed ten bushels of corn to produce a hundred pounds of pork, when a well-bred pig would produce the same amount of pork, and of far better quality, from six or seven bushels.

The present over-production in certain articles of farm produce is not the result of improved agriculture. It is the result of too many farmers turning their attention to the production of one thing to the neglect of others. A few years ago they sold their cattle for a song, to buy sheep at high prices; subsequently, they sacrificed their sheep to go into the dairy business or hog-raising, or back again to cattle feeding. Now they will sell their cattle and hogs, and go into sheep again. There may have been agricultural writers who have advocated these various changes, but I am not one of them. What I preach and what I endeavor to practice is to be content with fair profits, to raise such crops and keep such animals as are best suited to the land and the location, and stick to it year after year, be prices what they may.

Our Ogden Farm friend thinks my advice to the young Kansas farmer who wanted some thorough-bred stock is not sound—that it does not "do full justice to the breeders." I beg his and other breeders' pardon. No one appreciates their labors more highly than I do. But they are quite capable of taking care of themselves. My sympathies are with the young farmers who wish to buy thorough-bred animals to improve their common stock, and who have little money to spare. I have been in precisely that position myself. I can recollect, when I first commenced farming, writing to Mr. Thorn, asking him if he had a thorough-bred Shorthorn bull that was not of the stylish, fashionable kind that brings fancy prices, but which nevertheless had a good pedigree, and one which would, consequently, impress its characteristics on the calves from common cows, that he could sell me at a price a poor farmer could afford to pay. He offered me a calf for $125. I thought this too much, and wrote to Mr. Sheldon, and he asked me $300! The result was I did not buy one—and there I missed it. I think it would have been a thousand dollars in my pocket by this time if I had. But I needed every dollar I had to underdrain, kill weeds, and otherwise improve my farm. And while I know I have lost money by not using a thorough-bred bull, it is equally certain that I should have lost still more if I had taken $125 out of my draining operations and invested in a calf. *I ought to have done both.* But I lacked pluck.

Now what our Ogden Farm friend says is all true. We have no right to find fault with the breeders for asking high prices. But, on the other hand, when a young farmer who is straining every nerve to improve his land asks my opinion as to how he can at the same time improve his stock, I have a right to advise him "not to be in a hurry," and not to pay "fancy prices"—to visit some of the breeders in his own State or county, and see if he could not find an animal with a good pedigree that could be got at a price he could afford to pay. Recollect I was writing to a young farmer who did not propose at present to raise pure-bred stock, but who merely wanted a thorough-bred bull for the purpose of raising animals for the butcher. It would be ridiculous for a man to pay "$5,000" for a bull in such a case, no matter how rich the man might be, or how good the bull was; and it would be simple madness for a young farmer, who needed all his money to improve his farm, to buy such an animal.

"Ogden Farm" does not believe in the idea of "fancy prices." I agree with him perfectly in what he says on this point. Still I happen to know that a good many people pay fancy prices for fancy stock. Think of paying $1,000 for a Berkshire pig! "But if he is worth it, why not?" Simply because a pig is merely a machine for converting corn into pork, and unless some new chemical or physiological discovery has been made, one good Berkshire pig will, on the average, produce as much pork from a given quantity of food as another. If you have two Berkshire pigs, each a good specimen of the breed, and both equally well bred, I can not imagine any real reason why one should be worth $1,000 and the other only $50. I think it is mere "fancy." When, a few years ago, people paid $500, $1,000, and even $10,000 for an American merino buck, I think they paid "fancy prices."

Mark you, I am not arguing against thorough-bred stock. No man believes in it more enthusiastically than I do. But even gold can be bought too dear. I think the young Kansas farmer, if he follows my advice, and buys a good, fair, thorough-bred Shorthorn bull, at a moderate figure, and avoids delusive hopes and fancy prices, will have no cause to regret it.

The Benefits of Fall Plowing.

That the plowing of heavy soils in the fall is attended with excellent results is generally admitted. That any benefit accrues to soils of a lighter texture, is questioned by many agriculturists, with whom we do not altogether agree. All admit that the tenacious character of a clay soil is reduced, and its texture opened and rendered less compact, by the operation of frost. The lumps fall apart, and are disintegrated by the mechanical effect of the expansion in the act of freezing of the water held between the particles. The field, which at the commencement of winter exhibited only a surface of shapeless clods, in the spring is seen to have been brought into a condition of mellowness which no amount of plowing or harrowing could have effected. But is this the full effect of the forces of nature, which operate in small things as perfectly as in greater? The power which has forced asunder the clods, and reduced them to fragments, has also had an effect upon those fragments themselves, and has reduced them to particles so small, that the solubility of the soil has been increased. Thus another effect besides a mechanical one has been produced; or rather the operation of mechanical force has brought about conditions under which chemical action can more readily take place. Now, can we believe that this result only occurs in the case of clay soils? If this should be so, then, as there is a variety of such soils, the effect must be proportioned to the nature of the soil. If a clay soil is benefited, is not also a clay loam? And if a clay loam, why not a sandy loam? If the particles of a clay soil are rendered more soluble by this exposure to the frosts of winter, and those particles are mainly alumina and silica, how can another soil altogether escape similar effects, when only the proportions in which those constituents are combined are changed. But we are told that clay soils are absorbent, while more silicious soils are more or less leachy, and part with their fertile properties by the percolation of water through them. Then, if this were true, a light or sandy soil would in course of time be washed free from all fertilizing properties. But this is not the case with these soils. They can be improved by the addition of manure until their characters are changed; the added color and other qualities are not washed away. If this idea of leachiness, then, is unfounded, no harm, but only benefit, can result from plowing such soils in the fall. They will experience as much improvement in one sense as a heavier clay soil. The reduction of hard lumps is not necessary, for these soils are naturally mellow, but

an increased solubility will have been gained. But one other benefit must not be forgotten here, which is, that deeper plowing is permissiable in the fall, and six months' exposure to the sudden changes from frost to thaw will bring the hitherto unused soil into condition for assisting to bear crops. We do not advise the plowing of sod at this season, at least not for a corn crop. This should be postponed until the last possible day in the spring consistent with having the ground prepared in time. But for roots or oats, or other spring crops than corn, we would plow now and manure through the winter, when a mellow and rich soil some inches in depth will be ready to be stirred again early in the spring; and this we would do irrespective of the quality of the soil, whether it be clay or a light loam. Potatoes planted in a gravelly loam thus prepared, have with us given double the yield of those in ground not so treated. Oats, too, have been benefited greatly, but the result with corn was unfavorable, mainly, we believe, on account of the greater development of weeds, which prevented the crop from being kept clean.

We have not adverted to the economy of time resulting from having the ground plowed before winter, and ready for a second plowing early in spring; but this is a point worthy of attainment under any circumstances. Farm operations depend very much for their success on "taking time by the forelock," and keeping work well pushed forward; and to have all the stubbles plowed before frost sets in, must be a comfort to any farmer.

An Easily-made Pile-Driver.

It has occurred in our experience that the use of a pile-driver, if one could have been had, would have resulted in great economy and advantage in such work as building bridges and dams, driving fence-posts, etc. Many a country bridge has been insecurely built, and has in consequence been washed away with the first freshet, because the piers were not made of piles. Had a simple pile-driver been built, at a cost of less

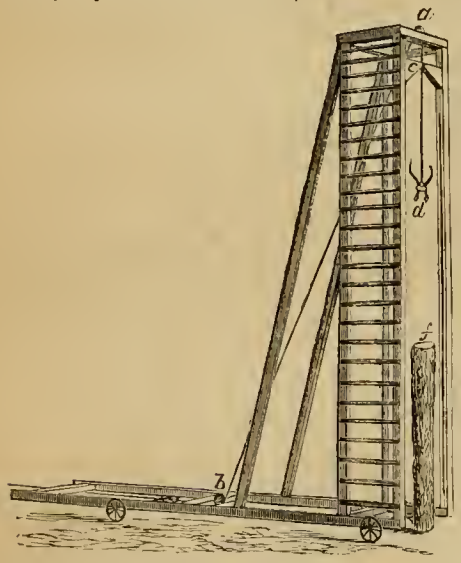


Fig. 1.—A SIMPLE PILE-DRIVER.

than forty dollars, and used on these constructions, much money might have been saved. In building dams, a few piles along the bank of the river, and a row to connect the cribs together, will make the work much more solid, and render it able to resist a freshet that otherwise would carry it away. Country roads and bridges might often be greatly improved by the use of a little engineering talent, but farmers generally, who are the men on whom the duties of making these roads mostly fall, although they may thoroughly understaud their own business, have seldom had opportunities of studying engineering. We illustrate in figure 1 a simple pile-driver. It is intended to be worked by a pair of horses, and such a one as is here figured can be put together for less than fifty dollars, "monkey" included. The frame does not need to be very heavy —4×6 scantling is quite sufficient. The sills may be heavier, and six or eight feet long, and framed three feet apart, outside measure. This will leave two feet in the clear inside between the posts. The frame for hoisting need not be more than two feet clear inside, and should be sixteen feet high. A pair of braces should be framed in behind to stiffen it, and here and there side braces might be put in for the same purpose. Cleats are to be nailed up one side to make a ladder, which will be necessary when the pulleys at the top require fixing. The pulley for hoisting is fixed at the top (*a*), the rope is brought down, and passes under another pulley at the bottom (*b*). Near the top of the frame, at the front, are two triangular catches (*c*), between which the hoisting rope passes, and which engage with the arms of the hoisting grapple (*d*), forcing them together, and releasing the monkey, which falls on the pile (*f*). The sides of the monkey are grooved; rails fixed on the sides of the posts fit into these grooves, and guide the monkey in its fall. These should be greased when in use. Fig. 2 shows the monkey and the grapple on a larger scale. No detailed description of this is necessary, as the figure speaks for itself. Small wheels may be placed under the sills, which will assist in moving it from place to place, but when in use it should be firmly fixed, and ballasted with a few large stones, to keep it steady. A light driver of wood might be made, bound at the bottom with a stout iron ring, to prevent splitting, which would be useful to drive fence-posts where the soil is not too rocky. On prairie farms, posts might thus be driven very rapidly. Care should be taken to point the posts correctly. The bevel from heel to point should be equal on all sides, or the post will not drive perpendicularly. The monkey ordinarily used is of cast iron, and weighs about 200 pounds.

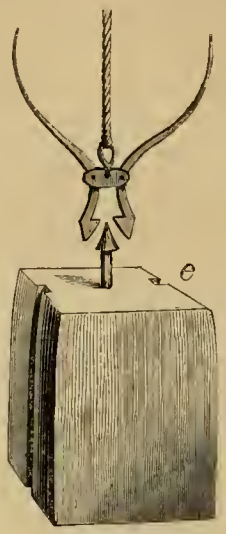


Fig. 2.—MONKEY AND GRAPPLE.

If a pair of guides are fixed on the grapple in such a manner as to slide up and down on the rails on which the monkey slides, and retain the position necessary to enable the grapple to connect with the catch, it may be made self-acting, and will not need any attention to fasten it on to the hook or catch of the monkey by which it is drawn up. For use on prairie farms, where posts will enter the soft, yielding soil very easily, a lighter machine may be built. If mounted on larger wheels, it could be readily moved from place to place by two men or a man and a boy. A driver weighing sixty pounds could be hoisted very easily by one man, and falling sixteen feet would drive a post with a few blows. Posts driven in such soil are much more solidly placed than if set by digging holes. It is necessary, in driving posts, to remove the bark from that portion which enters the ground; much less resistance is encountered, and the posts last longer.

A Dumping Wagon.

Several have asked for plans for a dumping wagon. The simplest dumping wagon that we have met with is one that is in use in New York City, and shown in fig. 1. This works very well; in fact, the load is dumped from it just as easily as from a cart. The frame on which the box rests (fig. 2) is furnished with three rows of small wheels (*a a a*), about the size and shape of those used on a railway horse-power, say four inches in diameter. On the bottom of the box is an iron-flanged track of cast iron, which runs over the wheels. The frame is elevated sufficiently at the front to enable the box with the load to

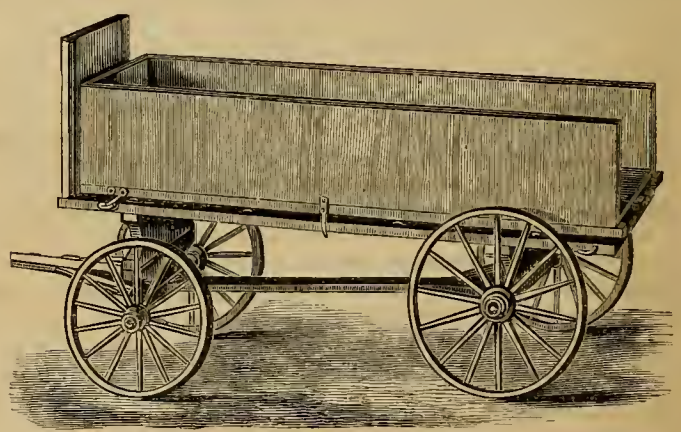


Fig. 1.—A DUMPING WAGON.

run back gently (as soon as started) on the wheels, until the box projects behind enough to make it tip and dump the load. At the proper point, the movement of the box (fig. 3) is stopped by a catch (*b*) on each side of it, which engages with a hook on the frame (*c*), and prevents the box going further than is required to over-

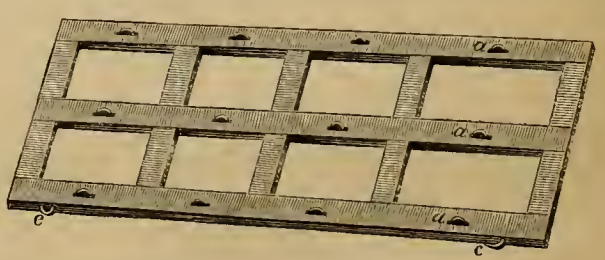


Fig. 2.—FRAME TO SUPPORT BOX.

balance it and dump the contents. This catch also prevents lateral movement of the box, and keeps it in its place. When the load is dumped, the driver lifts the box and pushes it back into its place, where it is held by a hook (*d*) on each side, fitting into eyes (*e*) fastened into the frame. The frame is fixed on the bolsters of the wagon, and no stakes are used to sustain the sides of

the box. We should not consider these wagons fitted for very rough roads, but on ordinarily smooth country roads they would doubtless

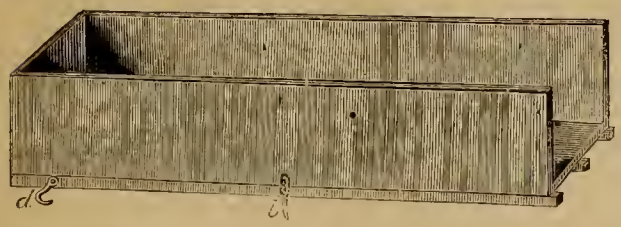


Fig. 3.—WAGON-BOX.

stand very well. From the style in which these wagons are build, heavy lateral jars or jerks would be injurious to them.

Reclaiming Swamps.

If any swamp lands require plowing, it must be done during the months of August or September. These months include the season for preparing the ground and sowing wheat, and in case both can not be done, it is often a question which of them shall be put off. The alternative having been in many cases presented year after year, the swamp has generally had the go by, often unadvisably, as we think. A spring crop or a summer fallow would often pay better than a crop of fall grain; and when the question is presented, Shall that swamp remain forever unproductive? the resolution to undertake the task would be an eminently wise course, we think, even were the fall crop to be abandoned for one year. This experience has been passed through by the writer, and no regret ever occurred at the course taken, which was to bring the ground into profitable cultivation at all hazards. If such land can not be underdrained, it may be brought in by surface draining, as follows: We suppose the tussocks have been removed, and the coarse grass mowed off, as either of these would seriously impede the plowing. The first process is to lay out the ground to be plowed into lands of such a width as the underdrains would be apart when made. If the land is clay, 24 feet should be the distance for the drains, and this should be the width of the lands. This, for the reason that when the drains are dug the open furrows will be the places for them, and these will be already at least one foot below the average surface. To lay out the lands, plow a double furrow, throwing them together, to commence a ridge, at a distance of 12 feet from the edge of the field. Then measure 24 feet, and throw up another ridge, and so on through the piece to be plowed. An assistant, armed with a sharp hog-hoe, will be needed to cut off any roots that are not severed by the plowshare, and to help turn the sod into its place. It is often very refractory in this respect, and needs considerable humoring to get it to lie just right. Patience will be found a useful ally. When the lands are all carefully laid out, the plowing may be commenced. The assistant will no longer be needed. A deep slice should be taken, and the ridge well rounded up. The open furrows should be plowed out twice, until they are at least twelve inches deep, and the shovel should be used to complete them, throwing out the loose earth to the center of the ridge. When the lands are all finished, the headlands may be plowed, by going round the piece and throwing a flat furrow towards the center of the field. The open furrows must then be completed through the headlands, by means of spade and shovel, and the earth thrown up, to finish the ridge to the lowest boundary of the field. Here a substantial watercourse should be plowed out, to carry off the flow from the furrows through the field, unless a natural one already exists, when a good connection should be formed therewith. This will complete the operation this fall. During winter, lime should be hauled for a dressing of 50 bushels per acre, to be applied early in spring, after which, as soon as sufficiently dry, the field should be harrowed lengthwise of the ridges, and oats be sown. A bushel of red-top and a peck of timothy should be sown with the oats, of which grain two bushels per acre would be quite sufficient for seeding.

This arrangement of lands and furrows will permit the use of the reaper, and the land will be found sufficiently dry for its use if the furrows be kept open. But we would not advise that such a field should be considered finished, for, if not underdrained, coarse grass will work in. A part of the proceeds of it should be yearly invested in tiles, until the whole field is thoroughly drained. It will then doubtless be found the richest piece of the farm.

An Arrangement for Spreading Liquid Manure.

The cost of a suitable vehicle for spreading liquid manure on grass lands is a great obstacle to its general use. A cart with tank especially prepared is an expensive article, and can be

Fig. 1.—APPARATUS FOR SPREADING LIQUID MANURE.

used for no other purpose; its cost is therefore greater than most farmers could afford. Without some such an arrangement, liquid manure can not be utilized, and it is therefore not collected. A few years ago we arranged a dozen large barrels (old kerosene-oil barrels, which held forty gallons each, and were all well hooped with iron hoops), so that they were suspended on the reach of a wagon, and by this means were enabled to spread liquid manure with ease, and at a very small cost. In the first place, we procured short chains, with an iron plate attached to each end, and by riveting these iron plates to the barrels, fastened them together in pairs (fig. 2). The barrels of each row were then joined together by pieces of four-inch rubber hose, which passed through holes bored in the barrels to receive them. The ends of the hose were slit for half an inch in length, and were turned down on the inside of the barrels and securely fastened there, and the joint covered on the inside of the barrel with a leaden plate nailed over it, and made water-tight (see *a a a*, fig. 1). Thus the dozen barrels were arranged in pairs, each pair connected with the adjoining pair, so that all communicated with each other. The last pair had a tin pipe fixed on (*b*), which was perforated with holes for the purpose of scattering the liquid. These barrels were slung over a long reach on a wagon, and hung by means of the short chains, one of each pair on each side of the reach, at a sufficient hight to clear the ground easily. Fig. 1 shows the arrangement of the barrels, and the mode in which they were slung on the reach. When a load was wanted, the wagon was drawn to the barn-yard tank, the pump was set to work, and the barrels filled. They were drawn to the

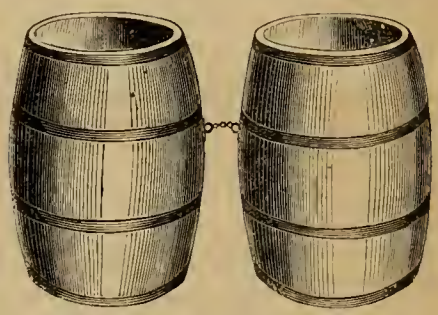


Fig. 2.—BARRELS CHAINED TOGETHER.

meadow, the valves were opened, and the load spread. The valves were fixed one on the inside of each of the last pair of barrels; were made of a piece of wood covered with sole leather, and were held in their place by means of a piece of spring steel. A cord attached held them open when desired. If the supply was short, one valve only was opened; when the tank was full, and economy no object, the full supply was discharged.

One load of 480 gallons could be spread over an acre of ground by attending to the valves properly, and regulating the discharge. When it is necessary to attach the barrels to the wagon, the following arrangement is made: A frame of plank is constructed, consisting of two long pieces, each of which passes under one row of barrels, and three cross-pieces, one at each end and one in the middle, which hold the side planks together. This frame is made long enough to permit the barrels to rest on it, and is supported by means of blocks about twelve inches from the ground. The barrels are put together on this frame, and when it is required to load them, the wagon is brought up, the reach taken out from the hind axle, and the front part of the wagon is backed up to the barrels, and the long reach placed between the two rows under the chains which hold them together; the hind axle is brought up and the reach inserted. Then, with a handspike or lever, the frame on which the barrels stand is raised (one end at a time), and the blocks removed. This lets the frame on to the ground, and the barrels

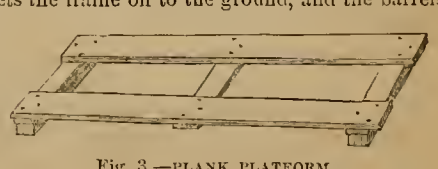


Fig. 3.—PLANK PLATFORM.

are suspended on the reach, and are ready for work. When they need to be unloaded, the frame is raised (the barrels are raised with it), and the reach drawn out. Figure 3 shows the frame for supporting the barrels; this should have a permanent place in a convenient situation, as it must of necessity be made the resting-place of the barrels when they are not in use.

An Interesting Letter from Kansas.

Mr. R. A. Steele, of Douglas Co., Kansas, writes as follows: "I wish to tell you that I have been following your advice in regard to my farming operations. I have been in Kansas for fifteen years, and have been on the farm that I now occupy for five years. It consists of 500 acres, and over 200 acres of it is bottom land, and part of it wet. I wish you could see it now! I cut a main ditch, 200 rods long, running in the same direction as the River Wakarusa, and emptying into the river at a bend. This ditch prevents any water from running on my land, except what falls. The ditch is 6 feet deep at the outlet, and 2 feet at the starting point. I used a plow and scraper on the shallow part. I have on hand a large lot of tile which cost me three cents per foot, that I am going to put in soon. I have fifteen acres of corn on the wet part, where water stood the year round before ditching. I plowed it twice last summer, and during the winter I plowed it again full 8 inches deep, harrowed it this spring, and planted it on the 20th of April. I will send you a sample of the corn in the fall. It now beats any thing on the farm, and exceeds my most sanguine expectations. I spread over 200 loads of manure on my bottom land this spring. I think it pays. I feed every thing I raise. I fattened 75 head of cattle last winter, and about the same number of hogs.

"Last spring I started an orchard, or rather an addition to one. I broke the sod a year ago last June, and fenced off the land by itself. I penned 150 head of cattle on it for sixty nights; plowed it again in January, and also in April, and then planted 2-year-old apple-trees. Every one is now growing. I planted the orchard in beans, which is an experiment.

"Your plan with sheep is good for your country, but will not do here. I gave sheep a thorough trial, but they will not pay here. They improved my farm materially, and I lost no money, and made but little. I tried it for five years with from 100 to 1,000 head. The summer is what tries them. They may do when we get tame grasses.

"I have the Magie stock of hogs, which I think is superior to the Chesters or Suffolk. I intend to try the Essex breed."

Remarks.—We are glad to hear that our advice in regard to draining, and the thorough working of the soil, manuring, etc., has proved so satisfactory. The fact is, that *the principles* of good farming are true everywhere; it is their application that varies, according to the character of the soil, location, and circumstances. The wise farmer will learn all he can from others, and then think and act for himself.

Our correspondent is unquestionably right in feeding out his crops on the farm, rather than to pay the high charges for freight in shipping bulky produce to distant markets. We think, too, he is probably right in regard to cattle and hogs being more profitable on his land than sheep. Such is unquestionably the case on his low bottom land. We may add, too, that we have never recommended seeding a *young* orchard to grass. Our own practice, to which allusion is made, was on an orchard fifteen years from planting. We stated that it was our intention to keep it down in grass, to top-dress it every year or two with well-rotted manure, and keep it closely pastured with sheep. In this way, we thought the land would be kept rich enough for the trees without cultivating the land. But young orchards require cultivation, either with a bare fallow or with some such crops as corn, beans, or potatoes, that admit the free use of the cultivator. And even in the case of old orchards, let no one suppose we recommend keeping them in grass, *unless* the grass is frequently manured and the whole of it is fed off on the land by sheep or swine.—ED.

What is Science in Farming?

It is not unusual—perhaps it is not unnatural—for one who has been only a "practical" farmer all his life to discourage the idea that *science* can be of assistance to him, and to doubt its value. Perhaps his objection would be less if he appreciated the exact meaning of the word. Webster gives it four definitions: "(1) Knowledge; penetrating and comprehensive information, skill, expertness, and the like. (2) The comprehension and understanding of truth or facts. (3) Truth ascertained; that which is known. (4) Knowledge duly arranged, and referred to general truths or principles on which it is founded and from which it is derived."

Now, surely no farmer will deny the value of knowledge—a knowledge of his own business. He must know how and when to perform the various operations of the farm, and if he knows also the reasons why they are necessary, he will be better able to exercise a sound judgment concerning them. The more penetrating and comprehensive his knowledge is, and the greater his skill and expertness, the more cheaply and the more effectively will his work be done. The more comprehension and understanding of the truths on which his success depends, and of the facts which daily arise in his management of his business, the better farmer will he be. Truth ascertained, that which is known, is "Book Farming"—that is to say, the knowledge that we get from books and agricultural papers is nothing more nor less than the recorded knowledge (not the fancies) of other people. It is an important item of the science of farming, that seed, in order to germinate and produce a crop, must be so put in the soil as to satisfy the conditions of growth. This much every farmer knows, and to this extent has he acquired a scientific understanding of his business. The knowledge is of absolute value to him and to every other farmer, and its value would not be at all lessened if he were to write a communication to an editor informing him and his readers of it. If another person were to write that because the germinating plant comes up in a certain way, therefore all farmers ought to plant their grass seed with their fingers, always putting the right end uppermost, this would be neither book farming nor science, nor any thing else; but mere fancy, and a fancy of which every farmer would see the folly.

Now, generations of men have been busy in investigating, mainly in the field, every thing connected with the operations of practical agriculture. Little by little they have acquired knowledge, which knowledge has been duly arranged, and so much of it as is well understood has been referred to the general truths and principles on which it is founded, and from which it is derived. The knowledge itself is due mainly to the experience of working farmers; and chemists and others, who have made general truths and principles the subject of careful study, have classified and arranged it, and given it the form that is generally understood by the word "science." No error, no unproved theory, none of the fancies of those who write from imagination rather than from experience, is to be called either Science or Book-Farming, and it is unfortunate that so much of our agricultural writing has been done by men who lack experience on the farm. It has given rise to the doubt referred to in our first paragraph, and discouraged many of our best and most intelligent working men from seeking knowledge, where it is best to be found, in the recorded experience of those who have gone before them.

The real truth of the matter is that in decrying science farmers decry knowledge, and a natural deduction from their reasoning would lead them to withdraw from the management of their farms, because they have some knowledge, and give it over to men who have none whatever. If knowledge is essential, and if, as we are told and believe, "a little knowledge is a dangerous thing," then the more knowledge we get, the better our chances will be. Follow no false lights, but let the lamp of true knowledge lead wherever it will.

How to Use Corn Fodder.

The usual method of feeding corn fodder has been hitherto a very wasteful one, though its now generally recognized value as an article of feed has to some extent brought about a change in this respect. Yet it is still true that the larger portion of the corn-stalks produced is wasted, so far as its feeding properties are concerned. It is the common practice to throw out into the barn-yard to the cattle a quantity of stalks, sometimes not even unbound, and allow them to eat what they can and destroy the rest. In the fighting and trampling done by cattle under such circumstances, the greater part of the fodder is unconsumed, and becomes trampled down in the mire or snow, a tangled mass of tough, unbroken stalks. There they remain, until it is necessary in the spring either to cart them out to the fields, or to turn them over in the endeavor to get them rotted. In the one case, they are useless as manure, and a very great impediment to the plow or harrow, and even to the mowing machine, for they often remain on the surface undecomposed until the hay crop comes round again. In the other case, much labor is necessary to get them rotted, and the tearing the mass of them apart and turning them, is certainly the most severe labor the farmer is called upon to perform.

Now, with a rational mode of using them, all this trouble and annoyance can be avoided, and their whole value as fodder be made available. If a farmer owns but one horse and cow, he can save money by procuring a fodder-cutter, and cutting up and feeding his corn-stalks. Where few stock are kept, the copper-strip fodder-cutter, of small size, and costing ten dollars or thereabouts, is sufficient. With a numerous stock, a larger machine, to run by horse-power, and costing $30 to $40, would be needed. Provided thus, the farmer should cut up the whole of his stalks. They contain, when properly harvested and housed, much nutritious matter, and in our experience we have found no difference in the appearance of our stock, or their productive qualities, whether fed on fodder or hay. Cut up, wetted, and sprinkled with meal of corn, oats, or buckwheat, either singly or ground together, with wheat or rye bran in equal proportions with the grain, at the rate of one quart to the bushel of fodder, with a handful of salt, they make a feed capable of keeping stock of all kinds in good, thriving condition throughout the winter. The quantity needed for one feed is one bushel of this mixture to

each full-grown animal (yearlings may be counted as two, and spring calves as three, for one full-grown). Hogs will eat the fodder readily, and poultry will pick out much of the finer shreds. On farms where heavy and fancy stock are kept, of course this feed would not be sufficiently rich; but we refer to the generality of farms, where stock receive ordinarily good fare. A cow or ox that has been used to winter in the shelter of a hay or straw stack, would improve wonderfully on the fare here recommended; and stock that have been used to receive hay *ad libitum* would present a better appearance, especially in smoothness and mellowness of skin, if fed on fodder thus prepared. In the present condition of our farms, when we need to increase as much as possible the amount of live-stock kept and fed though the winter, every means of economizing fodder is of value. Here is one most important item of economy, and we are able to assert from experience that if corn fodder is used in the manner here described, two head of stock may be fed where before only one could be.

Bones.—A Great Waste.

Bones are a very important agricultural product, for they remove from the soil a very large amount of its most valuable mineral constituent. Consisting largely of phosphate of lime, they abstract from the farm that which we find it most difficult and most expensive to replace. The extent of this abstraction, too, is something considerable. The number of animals brought into the city of New York during 1870 was as follows: 356,044 oxen, 889,616 swine, 1,463,852 sheep, and 116,480 calves. Estimating the average weights of these as 700 lbs. for beeves, 150 lbs. for swine, 75 lbs. for sheep, and 100 lbs. for calves, dressed weights, and the bones at 20 per cent of the weights of the carcass, there would be over 50,000 tons of bones. The consumption of New York is probably one twentieth of that of the whole United States. There would be therefore one million tons of bones produced on our farms and pastures in a year by means of animals raised for food alone. Fifty-five per cent of this consists of phosphate of lime, or 550,000 tons. Now it is a question worthy of consideration how much of this is returned to the soil in the shape of bone-dust or superphosphates, or whether it is possible ever to recover the greater portion of it. Vast quantities of bones are used in the arts, for the purpose of manufacturing handles of brushes and knives, rings, umbrella and parasol handles, buttons, and an infinite variety of other "notions," the material of which is lost to agriculture. Then there are exported to foreign countries over 72,000 tons per annum, in the shape of bone-black or raw-bone, which is also lost to us. Then the large quantity uncollected and left to waste all over the country would probably bring the total lost to agriculture to a half of the quantity produced. Therefore it is pretty certain that not more than one half of the amount of phosphates abstracted from the soil is returned thereto in the shape of bone-dust, superphosphates, and other artificial manures. We do not take into account the loss by means of the milk of ten million cows, which in 1869 were fed on our farms, which would equal 15 lbs. of phosphates per cow per annum; nor that contained in the vast quantity of grain raised and shipped away and sold. That the average yield of grain is each year diminishing, that pastures are no longer able to support the former stock, or that our agricultural population at the East are fast removing to "fresh fields and pastures new" in the far West, is no longer surprising, when we consider the steady drain to which our lands have been subjected for a period now measured by centuries in some districts, but by scores of years in almost all the eastern parts of the country.

But when we understand the cause of a thing, the remedy becomes apparent. And a remedy must be applied forthwith. We are abundantly warned in the lessening fertility of our fields that we must restore something of what we have for so many years been occupied in abstracting, and that, if possible, no particle of bone be suffered to escape the service for which it is so much required. That a large quantity is irrecoverably wasted each year is a fact beyond dispute, all of which would be gladly utilized if it could be secured. Hundreds of tons are annually wasted by farmers themselves, who, if they do not care to use them on their own farms, should feel it to be their duty to put others who would gladly use them in the way of procuring them. In most towns and villages of the United States, there are dealers who would gladly purchase them, at a price equal to or approximating a cent a pound; and if those who make a business of crushing bones, for the purpose of manufacturing them into manure, could procure them, there would be made a large addition to the available amount of fertilizers in the market, all of which would ultimately find its way back to the soil whence it was originally abstracted. Great Britain imports a large quantity of bones for agricultural use, and exports none, gathering from almost every country in the world; and the consequence is that crops there have reached and are maintained at an average quantity equal to the maximum ever reached in the most abundant periods of American agriculture. Here is a lesson for us that we should not hesitate to learn, and we shall guide ourselves accordingly.

Raising Calves for Milkers.

It is not sufficient that we save all the good calves from the knife of the butcher, but we must give them wise and judicious treatment. Having chosen the animals to be raised, it is necessary to feed with generosity, and at the same time with caution, that a well-built frame may be established. A young animal intended for the dairy may be spoiled in the outset by improper feeding; or one that has been mistakenly selected, will take on fat in spite of all care, and may be discarded. It is not fat that we want. We want growth of bone and muscle, and all fattening food must be avoided. Good pasture through the summer, and feed of which wheat or rye bran and buckwheat meal are the principal constituents, are all that are needed, besides a regular supply of salt and free access to water. At the season when pasturing is over, the period has arrived which makes or mars the young beast. The cold rains and piercing winds of autumn have arrived, and one exposure to them will give the calf a check which can be overcome only with much care. No young animal should be permitted to suffer from cold or wet to such an extent that its back is drawn upwards like a bow. When this occurs, dangerous effects will surely follow. Immediate steps should be taken to remedy these evil effects. Laxative food, with warm drinks and dry, warm quarters, will prevent hide-bound and loss of condition, which would hinder growth throughout the whole of the ensuing winter. Prevention would be the wiser course; therefore, let proper shelter be prepared in time. This should be closed against piercing winds, and have a roof that will shed rain, open to the sun on the southern side, and with good ventilation. No expensive shelter is required. When colder weather has arrived, and a new drain is made on the system to maintain the animal heat, more fattening food is required, and a half-pint of oilmeal or cotton seed meal may be fed in addition to the other feed. We have always fed our calves, for convenience' sake, in the same manner as our cows; had them similarly tied in stalls, and the feed prepared for the whole stock was given to them in proportionate rations. We have found that three calves would consume an equal amount with one cow. In addition, each calf has been fed a daily ration of half a pint of wheat bran, with half a pint of oil or cotton-seed meal, and a small quantity of salt. Feeding thus, we have had no difficulty in bringing our heifers into profit at two years old. Having passed through the winter thus cared for, the heifers will come out in the spring thrifty and in a growing condition, and when turned on to the grass in spring will push right along. During this time, and until they come in, no falling off in care should be permitted, and during the second winter it must be remembered that a new draft is made on the still growing animal that must be abundantly met. Feed rich in phosphates, such as coarse bran, should be well supplied, as well as such stimulating feed as corn-meal, and laxative feed like oilmeal. During the three months previous to calving, the future milking qualities of the cow are formed, and, as a matter of precaution, this period should be put off until grass has become the main feed. No inflammatory action is likely to take place while the animal is fed mainly on grass, and care and judgment must be exercised, as the important crisis approaches, that the system shall be in as natural a state as possible, all exciting feed being gradually withdrawn for a few weeks before the heifer produces her calf. When this event occurs, and all is well, the feed may be gradually restored and increased according to circumstances.

In raising milch cows, we aim to build up a healthy frame and sound constitution, with a facility for turning a large supply of food into a corresponding amount of milk or cream, and when we have raised an animal that is able to do this, and also able to transmit the same qualities to her offspring, we have a good cow; and her calves are worthy of good care.

Fences.—As a general rule, it is too costly a practice for any farmer to permit his young grass or clover, or the aftermath of his meadows, to be pastured. Then the fences dividing the fields thus occupied are really worse than useless, because they take up land that might be otherwise employed. As a specimen we would refer to one farm in particular that we know of. There are sixty acres of land, divided into six fields (one of which is an orchard), that are under the plow, and thirty acres in permanent pasture. Now, as cattle are in no case ever admitted into these fields, of what use are the inside fences, which take up three fourths as many rails as are required for the outside fence, and occupy an acre and a quarter of ground? This ground would, if put in roots or corn fodder, furnish feed for all the stock kept on that farm for two months, or possibly double that time.

REPRISALS.—DRAWN BY J. C. BEARD.—*Engraved for the American Agriculturist.*

Most of the owls may be regarded as the farmer's enemies. The larger species, especially in new countries, prey upon the domestic fowls that roost out of doors, and they have been known to carry off even so large a bird as a half-grown turkey, while chickens fall ready victims to their powerful claws. Nor are the smaller species any less injurious, as they destroy large numbers of insect-eating birds, especially while young, and thus deprive the farmer of many a friend. Although some of the small owls prey upon mice and the larger insects, yet the good they effect in this way is more than offset by the injury they do to birds. Owls of all kinds are regarded as marauders, and, like the hawks, are shot when opportunity offers. It is a satisfaction to know that the owls do not have it all their own way. Though they may make havoc at night, the small birds frequently have their revenge in the daytime, when the owl is scarcely able to see, and is almost powerless to act on the defensive. When the day birds discover the retreat of an owl, they make common cause against him. Almost all of the day birds, large and small, seem animated by a decided antipathy to their nocturnal enemy, and gather around him, screeching and pecking at him, and making him the subject of their impotent rage. The small birds, not being birds of prey, have not the power to inflict much injury upon the owl, but they are able to greatly annoy him and interfere with his repose. Naturalists hunting for specimens are frequently able to find the whereabouts of an owl from the discordant screeching made by the usually mild-mannered birds that are thus attacking him.

Hardy Bulbs, especially Tulips.

The bulb catalogues of the dealers have made their appearance, and we would remind the reader who intends to plant bulbs that the sooner he attends to the matter the better. There are no more desirable things for the garden in spring—be it of the largest or the smallest—than those flowers classed under the head of bulbs. The Hyacinths, Tulips, Narcissuses, Crocuses, and the like, give us earliness, beauty, brilliancy, and fragrance. Our people would plant more largely of bulbs were it not for two things. The work has to be done too far in advance of flowering time to suit our impatient amateurs, and, secondly, the directions for cultivation are unnecessarily ponderous and prolix. The bulb-fancier who wishes to obtain the best results and grow every flower to the regulation standard, must mix his soils, and go to a great deal of trouble. We like to see this painstaking upon the part of those who can afford it. But we would see a clump of bulbs in every back or front yard, or so near the farm-house that the good wife can look up from her work and catch a glimpse of brightness from the kitchen window. Bulbs of unnamed varieties, which will answer for common culture, may be had at very low rates, and the mail will bring them to every home. Unnamed Hyacinths may be had at $1.25 to $1.50 the dozen, early single and double Tulips at 50c., Crocuses and Snow-drops at 20c., Narcissuses and Jonquils at 50c. A few dollars rightly invested now in bulbs will bring abundant returns in pleasure next spring. Any good garden soil will answer, but it must not be wet. If heavy, add sand; if not rich enough, spade in well-rotted cow-manure. Plant any time in October or early in November. Set the bulbs to a depth equal to twice their thickness, and three times this distance apart—*i. e.*, if the bulbs are two inches through, set them four inches deep and six inches apart. When the ground is about to freeze, cover the bed with a few inches of leaves or littery manure, and leave until spring opens. The best results require the bulbs to be taken up when the leaves die down after flowering, but in ordinary culture they may be left in place for three or four years. This simplifies bulb culture very much. It is not the way to get exhibition flowers, but it is the way to make bulbs popular with the people at large, and this is what we are striving to do. The results reached in this way will be so pleasing as to inspire a desire for better things, and choice-named varieties and more careful treatment will come afterwards. For a beginner, Hyacinths, Tulips, Crocuses, Narcissuses, Snow-drops, and Bulbocodiums will be a good assortment. The last named is not very well known, but it is the earliest of all. It is the *Bulbocodium vernum* that we have in mind, and not the *Narcissus Bulbocodium*, which is quite another thing.

For a grand show, nothing is more effective than the early double tulips. Individually, the flowers are not as pleasing as the single ones, but a clump of the double ones is truly brilliant.

Fig. 1.—PARROT TULIP.—(*Tulipa Turcica.*)

The early tulips are from a different species from the late varieties. The early varieties are derived from the *Tulipa suaveolens* of Southern Europe, while the late tulips are derived from *Tulipa Gesneriana* of Asia Minor. This last is *the* Tulip of the florists, about which so much has been written, and which some two centuries ago was the subject of extravagant speculations. The typical form of this tulip is shown in the engraving (figure 3). It has broken into a most wonderful number of varieties, which the florists have divided up into several classes. There are over fifteen hundred named varieties in some of the large European collections.

Fig. 2.—HORNED TULIP.—(*T. cornuta.*)

Fig. 3.—ORIGINAL TULIP.—(*T. Gesneriana.*)

Some other species of tulip are interesting, though they are not very often seen in cultivation. The Parrot Tulip (fig. 1) is by some regarded as a distinct species, *Tulipa Turcica*, while others think it a garden variety produced by hybridization. It is a most striking variety, its petals being curiously cut or fringed upon the edges, and generally furnished with a spur. Sometimes it is self-colored; but the showiest forms are marked in the most brilliant manner with red and green on a clear yellow ground. Another species which we have satisfactorily cultivated is the Horned Tulip, *Tulipa cornuta* (fig. 2), which is odd and unlike other tulips, but still not without a certain quaint beauty.

The Egg-Plant.

BY PETER HENDERSON.

J. J., of Manorsville, Pa., writes that, for the first time, the egg-plant has been grown in his section this season, and that it has been a wonder to the good people of that place, and they wish for more light on its culture and uses. J. J. says that the earliest and best fruit is produced on the plants last set out (June 10th), and seems to wonder that such should be the case. His experience here teaches a forcible lesson on the subject that we so often dwell upon, cautioning against the sowing or planting of tender plants, such as tomato, egg-plant, cucumber, or melon, too early. In the latitude of New York, egg-plants should never be sown in hot-beds sooner than April 20th, the temperature of the hot-bed to be not less than 70° at night. The plant at no season of its growth should be kept for any length of time at a lower average temperature than 70°, and for this reason: The experiment of J. J. demonstrated that his plants, planted in open air on May 19th, were inferior to those set out on June 10th. Egg-plants, when they first germinate, are very sensitive to damp and to being chilled, and the amateur often fails to raise them, even with his hot-bed; but as they are now grown in all large towns, those wishing to try them, and not having the proper means of raising the plants, can procure them at trifling expense from the market-gardeners or florists of their nearest town. The soil they best fruit in is a light, sandy loam, well enriched by decayed stable manure.

J. J. further asks at what stage the egg fruit is fit for use. It may be used from the time it is the size of a turkey's egg until it is at its average size, say five inches in diameter; but it is not so good when the seeds indicate an appearance of ripening. He wants to know how best to cook it; but here I must decline answering, and leave him in the

hands of some of your lady readers, who are *au fait* in the art, and who, when they know he is a bachelor, may commiserate his case.

Successful Hedging.

A few weeks ago we drove through portions of the States of Delaware and Maryland, and were surprised to see how universally the hedge was used as a substitute for fences. One of our traveling companions was a gentleman who was quite familiar with England, and he would frequently exclaim, "This is like a road I remember in Kent," or some other part of England, so like was the scenery and the hedgerows. The Osage Orange may be said to be the universal hedge plant; here and there the Cockspur Thorn, or, as it is there called, the Black Thorn, and some other of our native thorns, are used. The Osage Orange, however, makes a superior hedge; not only is it more compact, but it presents a more pleasing green, its lively-looking foliage, even in a dusty time, making a much more cheerful appearance than that of the thorns. The thorns belong to the Rose family, and, like all their relatives, are subject to the attacks of numerous insects, a trouble from which the Osage Orange is particularly free. With hedges, as with all other crops, (?) the best results attend the best cultivation, and one can no more hope to grow a hedge under neglect than he can expect a crop of corn to successfully contend with the weeds, and then yield seventy-five bushels to the acre. The old method of hedge-making, that of cutting back each year, and raising the hedge by regular stages from a broad base, is well-nigh abandoned. In preparing the ground for a hedge, it is necessary to exercise great care in removing all roots of native shrubs or vines. If the hedge is to be set upon the site of an old fence, where vines and creepers have become established, this is especially necessary; otherwise the Cat-Brier, Virginia Creeper, and similar things will greatly interfere with the growth of the hedge. The plants are set about six inches apart, and kept carefully cultivated. Neither grass nor weeds are allowed to intrude upon the young growth, and a fence of some kind is put up to protect it from injury by animals. The plants are allowed to grow at will for three or four years, according to the growth they have made, after which time they are "laid down," as it is called in Delaware, or "slashed," as they say out West. This operation is performed in spring, and consists in bending the plants over and cutting each one half-way or more through, at a point three or four inches above the surface, and laying it down upon the preceding one. After this operation both the partially severed stump and the tops that have been laid down throw up innumerable shoots and form a broad and dense thicket, which is soon ready to be shaped into the proper form for a hedge. By this treatment a full, thick bottom is secured—so thick, that a rabbit can hardly get through it, and several prunings during the early growth are saved. The after treatment consists in giving two, and frequently three, prunings each year. The cutting, being done while the wood is still soft, is very rapidly performed. A simple knife, like a corn-cutter, is the implement generally preferred. The finest hedges we saw were those upon the estate of D. J. Blackiston, Esq., Kent Co., Md. This gentleman has five miles of hedging, and they are justly a matter of pride to him. He stated that last year he kept an account of what it cost him to keep his hedge in order. The work was done by one of his regular hands and the time that he devoted to the hedge came to $26. Those who would see hedging successfully practiced, not as a matter of rural adornment, but as one of farm economy, should visit Kent Co., Maryland, and Kent Co., Delaware.

The Fraxinella.

BY CHARLES DOWNING.

[In a description of Fraxinella, given last August, we referred to a horticulturist with whom the plant is a great favorite. We had in mind Mr. Charles Downing, whose experience with herbaceous plants is more extensive than that of any one of our acquaintance. Mr. Downing kindly supplements our article with the following interesting notes.—Ed.]

"In your notice of the Fraxinella, in the August number, you state that it does *not* produce seed very abundantly. I have always found it in quantity, but it should be gathered before fully ripe, because the seed-vessels, when quite ripe, burst, and the seed is lost. Sow it as soon as ripe, or soon after, in the open ground, and on the approach of winter cover it an inch or two deep with dry muck or some rubbish, to prevent the frost from throwing out the seed. This covering should be removed when the seed begins to vegetate in the spring. Plants grown from seed do not flower until three or four years old, but they are better than those grown from divisions of the root.

"The statement that the resinous secretion of the plant will burn is true, as I know from experience. When the plant is in flower apply of a damp evening a light to the lower part of the flower spike, and the resinous matter will burn with a flash. This will succeed with each cluster only once the same season, as the combustible matter is burned off."

Notes from the Pines.

The Weather.—It has rained every three days, or else there have been three rains in one day, and nothing flourishes but weeds. Light, sandy soil has been kept so wet, that moss and other low forms of vegetation form a green film upon it. Egg-plants grow as large as a bushel basket, and do not give a fruit; tomatoes decay before they are fully ripe; melons and squashes are all vines and no fruit, and sweet-potato plants find so much to do above ground, that they can not attend to their proper business. Things looked so badly, that I hardly cared to go about the garden. Just about at the worst of it I chanced to visit the garden of a millionaire, who was able, if he chose to do it, to put a man on every square rod of ground and tell him to keep it clean. This gentleman's garden was so much more weedy than mine, that I came home quite contented.

Lima Beans.—For two years my Limas have been well-nigh a failure. Last year I used somebody's superphosphate, and this year the Communipaw Plant-food. These are good fertilizers for most things, but they are very bad for Limas. Good stable-manure is the thing for them.

Asparagus Bean.—I never happened to grow this bean before the present year, and only regret that I put in so few. It is a pole-bean, and bears a very long pod. As a snap or string bean, it proves most delicious, cooking with a tender marrowness that is delightful.

The Trophy Tomato.—Last year I was obliged to report a perfect failure with the Trophy. I took unusual pains with it, and trained my plants to single stakes. The fruit clusters were so heavy, that they bent and constricted the stem which held them to that degree that circulation was stopped, or so far checked that as soon as the fruit attained its full size it decayed instead of ripening. This year I tried several methods of training. That which has given the best results, or at least as good as any, has been no training at all. After the brush for the early peas had served its purpose, it was gathered into fagots and laid alongside of the tomato vines, which were allowed to sprawl about at will, and only had their over-luxuriance held in check by an occasional pinching. Such abundance and such excellence of fruit compensated for last year's disappointment.

My Big Pear-Tree.—When I came upon the place I found a large pear-tree, some twenty-five or more feet high, and reputed worthless. For the last two years it fully sustained its reputation. Early in September it would shed its foliage, leaving a great quantity of the most miserable cracked and forlorn-looking fruit imaginable. No baking nor stewing would soften their obdurate hearts, and when asked what kind of a pear that was I always answered, "Cast-iron." In the press of other matters I failed to graft it. When I was able to go out this spring, I found that the housemaid, to save a few steps, had all through the winter thrown the chamber slops at the foot of this tree. So freely had they been used, that the grass all around was killed. I almost hoped that the tree had been killed also, but it took on an unusual appearance of health. The foliage and the fruit looked quite different from what they had ever done before, and upon examining the tree a few days ago I found that I had some bushels of Duchesse of a very fair size, and which had they been thinned would have been very fine. So much for this accidental manuring. Before that, Van Mons himself would not have recognized the tree as a Duchesse.

Grapes.—What an amount of abuse has fallen to the share of those of us who have advocated the Concord! While we have freely admitted that the fruit is not by any means of the first class, we have claimed that fruit of a moderate quality was much better than none, and held that if a person wished grapes, he should plant the Concord to rely upon, and then experiment with as many others as he chose. There are my vines, some thirty or forty varieties; the Concords are loaded with fruit, the foliage perfect, and almost all the rest so much injured by mildew as to be unable to ripen their fruit. What seems the strangest, is that the Croton and Senasqua, which are more thoroughly foreign than any others in my collection, should be completely exempt from mildew, and that pure natives on either side of them are almost ruined. About the meanest grape in my soil is the Salem. I know it does splendidly elsewhere, but I have a four-year-old vine and some younger ones that are the poorest apologies for vines that one need wish to see. Much talk was made about the Black Hawk a few years ago. My vines have fruited this year, and a miserable foxy thing it is. It is worse than the Martha, which is high dispraise.

Vine Insects.—The heavy rains seem to have been unfavorable to the development of insects. The cabbage pest, which began the season in such a threatening manner, is scarcely to be found, and grape-vines have been nearly free of insects; for weeks I have not seen a Vine Fretter or "Thrips." The fall Web-worm

(*Hyphantria textor*), which spreads its tent as it moves along, does not seem to mind the rain, and is unusually abundant. What an omnivorous thing it is; there is scarcely an ornamental or fruit tree or vine upon which it will not make itself at home, and it has been more than usually troublesome upon the grape. Its web is almost invisible, and it is not usually discovered until considerable mischief is done.

Bugs and Bugologists.—The most destructive insect upon our cucumbers, melons, and all plants of that family is the Northern Lady-bird (*Epilachne borealis*). Here the Striped-bug and the Squash-bug are innocent in comparison with this, which goes through the vines like a devouring flame. It is a yellow Lady-bird, with seven black spots upon each wing-case, and has a yellow larva bearing curiously branched black spines. Both perfect insect and larva eat the leaves at a fearful rate. It is the only known Lady-bird that is a vegetable-feeder, and it makes up for the abstemiousness of all the rest. C. V. Riley, the State Entomologist of Missouri, was here a short time ago. They do not have the *Epilachne* in Missouri—blessed people!—and it was gratifying to see him "go for" the specimens. He was heartily welcome. How refreshing it is to meet with an enthusiast in any department of science! Missouri presents an example that some of the older States might well follow. She keeps a throughly competent entomologist in the field, and publishes his reports in handsome style, with great promptness. In New York, the matter is left to that remarkably ponderous and slow-going body, the State Agricultural Society. They have an entomologist who sometimes reports and sometimes does not. Then, if he has any thing to communicate, in two or three years it may get before the people, or such of the people as happen to get the antiquated volume of reports.

The Plum Curculio.

It would be interesting to have a list of the various methods proposed for the extermination of the curculio. Almost every year we have a secret preparation or other remedy proposed. It is never heard of afterwards, and we go on in the only known certain way, catching and killing. The latest new method comes from Col. Hardee, at Jacksonville, Florida. He proposes to frighten the "little Turk" out of his wits by means of concussion. He says: "I placed two pounds of powder in the hollow of a live-oak stump immediately in the vicinity where they (the curculios) promised the entire destruction of some plums, peaches, etc. The powder was fired off one calm night, and it not only destroyed every curculio, but every winged insect in my entire orchard." He claims that concussion is "the greatest fertilizer known."

Our Southern cotemporaries are giving considerable space to this matter. A correspondent of the *Rural South-Land* writes as follows: "Subsequent experiments have been made upon various crops by other persons carrying out Col. Hardee's idea, and especially in the destruction of the caterpillar in a cotton field, until Col. Hardee now claims that concussion may be economically used as a specific against the ravages of insects upon the vegetable kingdom. He further claims that it was by the frequent concussion of heavy artillery that the ravages of the yellow fever were prevented, and did not prevail in any of the Southern cities during the late war." This is, of course, one of those matters that can only be settled by experiment. Should the effects of concussion prove to be as destructive to insects as Col. Hardee claims, we can not only turn our swords into plowshares and our spears into pruning-hooks, but our artillery into curculio-catchers. Dr. Hull's curculio-catcher will please stand aside and let Hardee's battery come up. A gentleman of our acquaintance has a fine lot of plum-trees, which has in previous years given him good crops—jarring and killing the curculio having been faithfully followed. He saw it somewhere stated that the fumes of carbolic acid would keep away the insects. So corn-cobs, saturated with the acid, were hung all over the trees, and the jarring abandoned. The result is, not a single plum, but the trees have a very unique appearance, on account of the numerous corn-cobs that are suspended all through them. We shall be very glad to record some well tested and successful method of warding off the attacks of the curculio, but at present we are unable to recommend any thing, except jarring the trees, catching, and killing.

Be Just to the Gardeners.

BY PETER HENDERSON.

A friend called at my office last week and asked me if I could recommend him a gardener who could manage his place. Knowing that already he had one of the best men in the vicinity of New York, I asked him what was the matter. He replied, that Mr. —— was perfectly incompetent, that his grounds were overgrown with weeds, and every thing in disorder. Further inquiries elicited the fact that he had reduced his assistants, to curtail expenses, which, coupled with the fact that this vicinity has been deluged with rain during the whole of August, readily accounted for the weeds and disorder. All who have had any experience in working the ground know that during periods of such incessant summer rains as we have had for the past six weeks, the labor of two men is hardly equal to that of one, and consequently, if additional assistance has not been given to meet such contingencies, nothing else can be expected but weeds and disorder. It is short-sighted economy to withhold labor in the garden or on the farm, whether it be worked for pleasure or for profit. Surely it is any thing but pleasing to see grounds overgrown with weeds, and as to profit, we all know that weeds in the ascendency are the bane of all profit to the worker of the soil.

Ten minutes of this kind of reasoning seemingly convinced my friend that he rather than his gardener was at fault.

Large Collections of Fruit.

When we take the fruit lists of our nursery catalogues, and those given by our pomological writers, and compare the hundreds of varieties of apples and pears, for instance, with those that are actually to be found in the market, we see that the proportion of varieties really grown is very small in comparison with those that are known. In the absence of public collections we can not be too grateful to such men as Ellwanger & Barry, Col. Wilder, Charles Downing, and many others, who for many years have kept up, at great expense, large experimental orchards. The number of varieties of the pear that will bring a good price in the market, may be counted on the fingers, while those in the catalogue can be told by hundreds. Some Western fruit-grower has said that in the Chicago market they only know Bartletts and pears—all besides the popular Bartlett not being considered worthy of a name. Every novice in fruit-growing makes the mistake of planting too many varieties of any one fruit. When he comes to market his fruit, he finds that he has a miscellaneous lot of unpopular kinds, and not enough of any one sort to make a respectable consignment. In fruit-planting for market there should be varieties enough to extend over the season, and these of such kinds as are known in the market. We think that our Horticultural and other societies make a mistake in offering large premiums for the largest collections of apples, pears, etc.

Pears in Orchard Culture

Pear culture may be regarded in two aspects. The amateur who has a few trees in his garden grows his trees as pets, cultivates them for the love of it, and it makes but little difference to him how much his pears have cost him a dozen, so that they are from his own trees and the results of his own labor. With one who sets out trees by the thousand with a view to profit from the sale of the fruit, the cost of his fruit is a matter of great consequence, and whatever affects the health of his trees or the quality of his fruit appeals at once to his pocket. Those who have not been over the ground can have but little idea of the extent to which pear culture has been undertaken in Delaware and the adjoining counties of Maryland. A recent trip through this section of country enabled us to see successes and failures, and a few notes on these may be of interest to those contemplating pear culture. In visiting a large number of orchards we found that success in raising pears, as with other crops, only attended good cultivation. While we saw partial failures in some cases where good culture had been given, we saw no instance in which good crops accompanied neglect. At Newark, Del., there are two very instructive orchards. One of these belonged to Randolph Peters, Esq., who has removed his nursery to Wilmington, but still retains at Newark a pear orchard of 10,000 trees. These trees have been set nine years and comprise standards and dwarfs in equal proportions. The rows are twenty feet apart, and the intervening spaces have been cropped with corn every year. An annual manuring is given to the corn crop and incidentally to the pear-trees. The leading varieties are Bartlett, Duchesse, Buffum, Seckel, and Laurence, though there are many other and mainly unprofitable varieties. The kinds mentioned were in full bearing, in many cases the trees being overloaded and breaking down with the weight of fruit. The show of Bartletts was worth going far to see. Charles Downing and P. T. Quinn, who were of the party, and who had visited the orchards of California, both declared that they saw nothing on the Pacific that equalled the display of Bartletts in Mr. Peters' orchard. Other varieties also made a fine show.

About a mile from Mr. Peters' orchard is that of Prof. E. D. Porter, Professor of Agriculture in the Delaware College. The soil of this orchard was well prepared, and the trees—1,000 of different varieties—were planted the same season as those of Mr. Peters. The trees, up to the time they were six years planted, had been kept thoroughly cultivated, and were considered models of shape, health, and productiveness. About this time the Gardeners' Monthly was strongly advocating "Pear-Trees in Grass," and Prof. Porter was induced to try the plan. Cultivation was stopped, and the orchard seeded down to grass. The plan of the Gardeners' Monthly was thoroughly carried out and the

grass mowed several times a year and left upon the ground. We visited the orchard on the same day that we did that of Mr. Peters. Not a tree in it had a decent crop, many trees were quite dead, and others just lingering. The orchard, which was at one time the finest in all that region, is now such a melancholy wreck, that the Professor keeps the gate locked, and no one is allowed to enter, unless he desires to see an "example and a warning."

The next most injurious thing to grass in a pear orchard, according to the Peninsular growers, is strawberries. They interfere with the growth of the trees to such a degree, that many think they "poison the soil." Raspberries and currants between the rows, as they demand and allow of cultivation, are less objectionable, but the general impression is, that no crops save annual ones, requiring yearly manuring and abundant working, should be tolerated in the pear orchard. Many, if not most of the orchards, are planted with alternate dwarfs and standards. Where the pear stock takes root this plan will answer, but dwarfs, kept as such, are not profitable in orchard culture; their place is in the amateur's garden. The great drawback to pear culture is blight, which, like the rain, comes upon the just and the unjust—those who cultivate their orchards, and those who neglect them. There is, we think, less blight in well-cultivated orchards than in others, but in the best kept it is sufficiently frequent as to cause great discouragement. A tree will one day be the picture of vigor, health, and fruitfulness, and the next a mass of blackened limbs, only fit to be cast into the fire. The ascribing this to fungus, electricity, etc., is only another way of acknowledging our ignorance. Some varieties seem to escape, and others to be particularly susceptible. The only thing to do is to cut, at the first appearance, down to sound wood, no matter if it takes the whole tree. Upon the supposition that the blight may be caused by a fungus—though it is only a speculation—the dead limbs should be burned. The only hope of the pear growers is that the blight may prove here, as it has in other places, periodic.

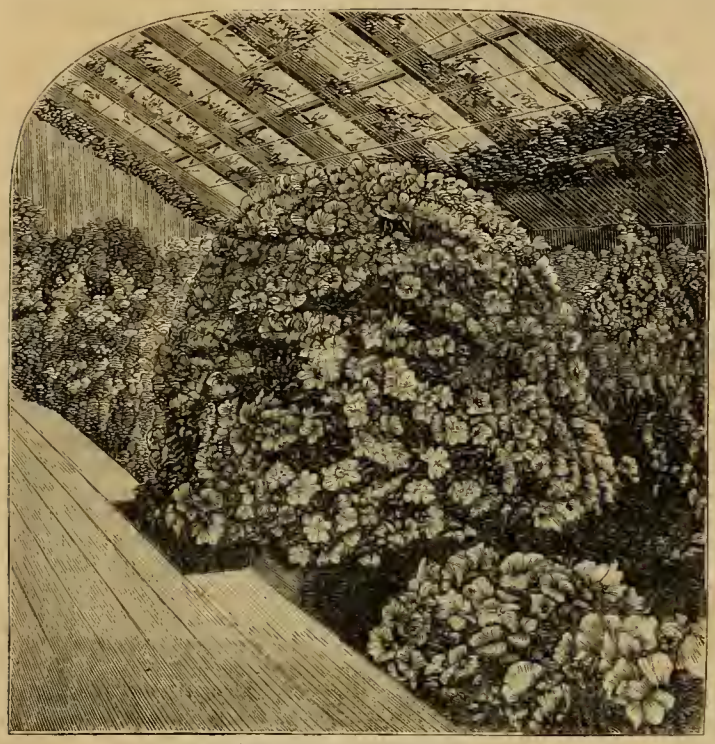


Fig. 1.—THE AZALEA HOUSE.

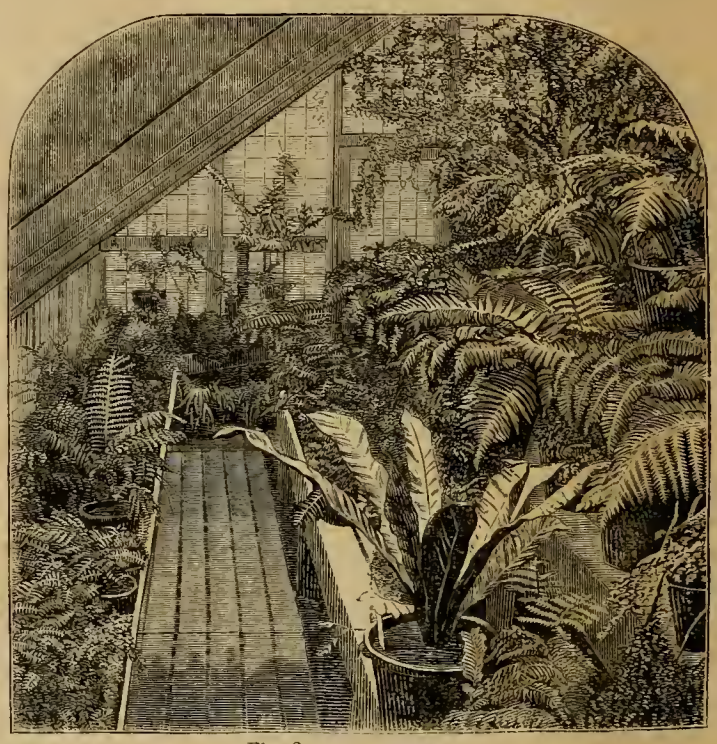


Fig. 2.—THE FERNERY.

Fine Specimen Greenhouse Plants.

It is never amiss to have a high standard of excellence set before us, and those of our readers who have greenhouses, as well as those who have to content themselves with a few pots on a window-shelf, will be none the less eager in their endeavors, if they know what it is possible to attain under the best circumstances.

Fig. 3.—PLANTS IN THE STOVE-HOUSE.

We some months ago made a visit to the greenhouses of Mr. C. S. Sargent, at Brookline, Mass., —an enthusiastic farmer, and a most accomplished gardener. Mr. S. is a relative of Mr. Henry Winthrop Sargent, whose edition of *Downing's Landscape Gardening* is so well known.

The accompanying illustrations are from photographs taken in Mr. Sargent's houses.

Fig. 1 is a view in the Azalea house, where we saw over a hundred very fine specimens in bloom. The central plant is the Azalea Indica "Decora," which has been brought to its present perfection by about thirty years of careful training. An offer of $1,000 was made for it (and refused, of course) some years ago. The circumference of the head of this plant is fifteen feet, and its hight above the tub four feet and one inch. At the time of our visit, it was one mass of rose-colored bloom, like an immense bouquet; and in its setting of other colors, it was more gorgeous than we had supposed it possible for any plant to be. Figure 2 is a view of the fernery; and figure 3 of some of the central plants in the "stove"-house. The great number of plants with fine foliage now in our collections allows the cultivator to keep up a brilliant appearance at all seasons, even when there are no flowers. Indeed, the leaves of the various Marantas, Caladiums, Alocasias, Cyanophyllums, and plants of that character are so beautiful, that the absence of flowers is not noticed. These are only some of the items of an establishment where every thing is as nearly perfect as it is possible for skill and attention to make it. Upon a scale of equal completeness with his greenhouses is Mr. Sargent's dairy, which, although luxurious beyond the needs of common farmers, combines several improvements well worthy of general adoption. The barn, and the Jersey cattle, too, are well worth a visit.

THE HOUSEHOLD.

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

Little Matters and Greater Ones.

In the primitive housekeeping of the wife of the Western pioneer, the skillet is the universal household utensil. In this the bread is baked, the meat is cooked, and the dishes washed. Indeed, it serves so many domestic purposes, that those fastidious about their food should not investigate too closely. How bewildered one of these housekeepers would be could she visit a first-class house-furnishing store, where human ingenuity would seem to have been sorely taxed to invent a hundred utensils to do that which she had always found her simple skillet equal to! We like to visit a store of this kind, as it is wonderful to see the amount of thought and skill that have been expended for the benefit of the housekeeper. It is not always the case that the new things are better in practice than old ones, but there is nevertheless the same display of ingenuity. What a variety of devices have been presented for the simple purpose of beating an egg! We like now and then to drop in to the store of our neighbor Baldwin, in Murray street, to look at the strange "traps," and exercise our ingenuity in guessing their uses, for some of them are embodied conundrums, and it takes no little acuteness to make out what they are for. As an illustration of the inventive skill bestowed upon a simple thing, we will take the nutmeg-grater. The primitive grater (fig. 1) is well enough known: a rough piece of tin, upon which the nutmeg is to be rubbed—simple and effective. But careless people may grate their fingers as well as the nutmeg. This may be prevented by providing a holder, in the shape of a wooden block with a hole in it (fig. 2). The nutmeg is placed in the hole in the block, which slides over the grater. The same principle is expressed in a different way in figure 3, where the grater forms an arc of a circle, and the nutmeg-holder, attached to an axis, is pushed back and forth over it. In these cases the nutmeg moves over the grater. There is another set of graters, in which the nutmeg is stationary and the grater moves. Figure 4 shows one of these, where the nutmeg is held in place by means of a wooden spring, and the grater, in the form of a disk, is moved against it by turning a crank. The same idea is carried out in the iron implement, fig. 5, in which both nutmeg and grater are concealed from sight and also from dust. These are all single-barreled graters, but in figure 6 we have what might be called a revolver. The grater is a short cylinder, with the grating surface upon the inside.

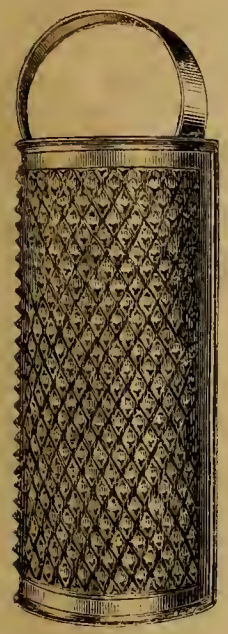


Fig. 1.—COMMON GRATER.

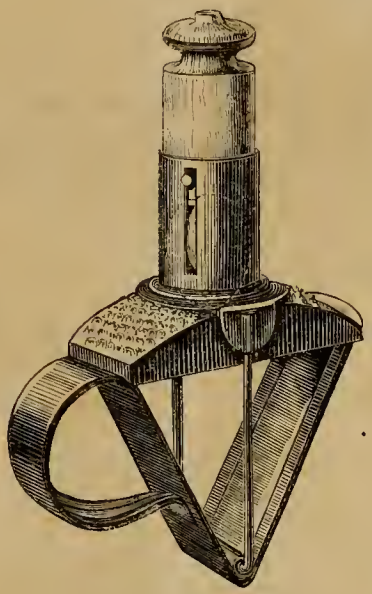


Fig. 3.—CURVED GRATER.

Within the grater is another short cylinder, which revolves; this has upon its circumference four holes, at which four nutmegs are held by means of springs, and are brought in contact with the grating surface as the crank is turned. Any of these

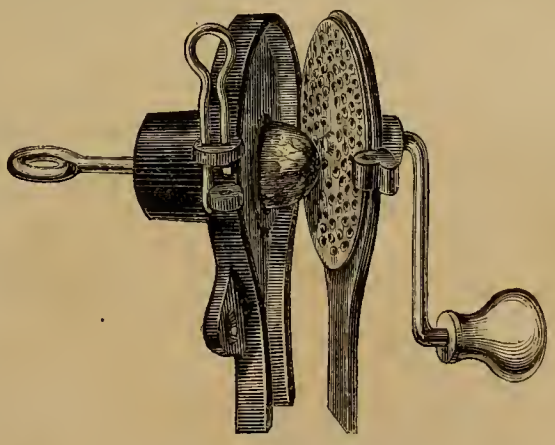


Fig. 4.—WOODEN REVOLVING GRATER.

graters do their work well. In purchasing household or any other implements, simplicity should be sought, as well as efficiency. That implement that will do its work with the fewest parts and joints is to be preferred, as less liable to get out of order, to any complicated one, no matter how ingenious it may be in design.

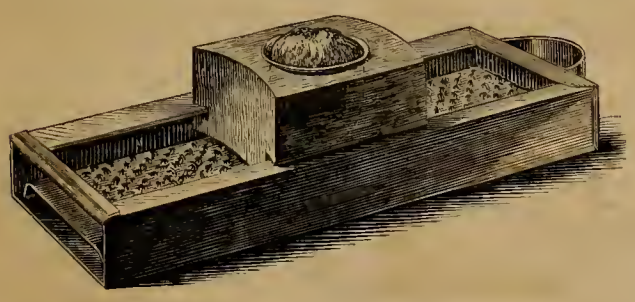


Fig. 2.—GRATER WITH GUARD.

Letter from a Housekeeper.

DEAR AGRICULTURIST: There is nothing I enjoy reading better than a practical letter from some unknown sister housekeeper, and the farther off it comes, really, the more interesting it seems to be. Although nothing definite may be told about the circumstances surrounding her, yet there is just enough mystery about it to make it pleasant to enlarge upon it in the imagination. It is astonishing how often I think of the mother, and her interesting family, who wrote the short but touching letter which appeared in one of the back numbers of the *Agriculturist*. You know the letter I refer to—"From an Overworked Woman." When I am weary, and tired, and overdone, I just think of her, and somehow I feel better for the sympathy. I wonder if she won't write to us again, and let us *Agriculturist* sisters know how she is getting along? If she has dropped down in the harness, let us know it from her husband or some neighbor, that her sisters may shed a tear to her memory. I find this hot weather that it is difficult to make bread without the

Fig. 5.—IRON REVOLVING GRATER.

DOUGH TURNING SOUR before I can get it baked; so lately I have taken the precaution to add a little carbonate of soda to the sponge. I use for my baking of twelve ordinary-sized loaves about two thirds of a teaspoonful, well dissolved in plenty of warm water. I have not had sour bread since I have done so, and I have followed this practice since early in the summer. As there is not the slightest discoloration in the bread, I know by this sign that it needed something of the kind. I have an idea that most of the flour we buy is slightly acid, but of course I don't know how far I am correct about this, but I do feel positive that the soda used as I use it, enables me to make whiter, sweeter, and more wholesome bread and biscuit than without. During the early spring, we had very poor old potatoes, and as the new ones were not large enough for the purpose, I omitted putting potatoes in my bread. Since the new ones have become large, mealy, and fully ripe, I have commenced using a generous quantity in the bread, and I am surprised to see what a great difference it makes. The bread is whiter, softer, firmer, and more glutinous-looking, and keeps moist much longer. Being a young housekeeper, I have often questioned with myself the utility of putting potatoes in bread. Since this experiment has been thrown in my way, my mind is fully made up, and I think I shall never again omit them. We are all fond of

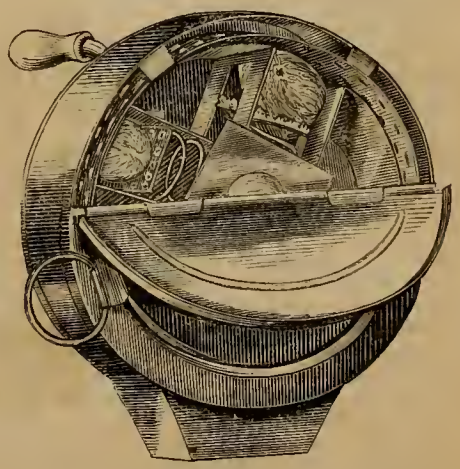


Fig. 6.—FOUR-BARRELED REVOLVING GRATER.

BISCUITS, and as I think raised biscuits the best, I always reserve a quantity of the raised dough for

a good pan of biscuit for tea. I leave about as much dough as would make a good-sized loaf of bread, and I add to it, well working it in, a piece of shortening as large as a duck's egg. I let it rise again, and then mold and cut into biscuits. I let the biscuits touch in the pan, and I am very careful to set them perfectly even with one another, just so many and no more, both ways. Some housekeepers are not particular about this, and the biscuits look very ugly. One great secret in making good biscuits is to have them well risen. I have noticed that the same dough takes longer to rise in biscuit shape than if a loaf of bread had been designed. Have any of my sister housekeepers observed the same thing? Not leaving them to rise long enough is, I think, why some people fail to have light and white biscuit. Where biscuits are made by themselves, and for any especial occasion, new milk is much better with which to wet the sponge, as the biscuits will be much whiter, and the whole appearance will be better. Many persons, especially in the country, can use milk entirely for all the bread, but persons residing in the city are glad if they can afford milk to raise their biscuits.

GREEN-GRAPE PIE.—In the absence of other materials, and a friend having recommended me to do so, I have been making pies of green grapes. They take a good deal of sugar; that is the chief objection to them. I have at times added a few grains of soda in order to neutralize some of the acid, so as to use less sugar. The pie would then be very good; but for those who can afford it, no soda, and the full complement of sugar, will give better satisfaction to most tastes. The stones are now soft, and I do not remove them. I fancy that as the grapes get riper they will make a better pie than now—though we all agree that green-grape pie is excellent, and quite equal to a green gooseberry pie. My neighbor, Mrs. Sargent, makes a

GREEN-GRAPE STEW, which, she tells me, with plenty of sugar added, makes a good sauce for tea, in case nothing less expensive is convenient.

GREEN-GRAPE JELLY.—There is hardly any finer jelly than that made from green grapes. Just before they turn color is the time to gather them.

GRAPE JELLY.—Ripe grapes make an excellent, fine-flavored, handsomely colored jelly. Strip from the stems any quantity of ripe and quite sound grapes. Extract the juice in the oven or over the fire, bruising them as slightly as possible, and using a wooden spoon to stir them up. After the grapes have burst, strain the juice through a flannel bag, *twice*. Then boil up the strained juice, and let it boil for twenty minutes. Now stir in the sugar, and boil for fifteen minutes, stirring constantly.

GRAPE CATSUP.—Ripe grapes, with sugar, vinegar, cloves, and other spices, boiled until tender, make an excellent relish to eat with cold meat.

SQUASH PIE.—We have had so many squashes of all kinds this summer, that we were at a loss to know what to do with them. We gave a good many away. We had some white scallop summer squash, which we considered wonders in their way. One fellow struck us as so remarkable in shape and size, that husband took it to a butcher's shop and had it weighed. It turned the scale over four pounds and a half. Now, I suppose some farmer, with plenty of good land, and all the guano and superphosphates and home-made what-do-you-call-'ems at his command, will laugh when he reads of our boasting over a four-and-a-half-pounder of a summer squash, but he must remember that we didn't have any Peruvian nor superphosphate stuffs to coax 'em with, but just planted the seed in the bare ground. But I was telling about squash pies. I think them most as good as pumpkin pies. As I had no recipe just at hand, I made them according to my judgment, and the result suited the children, at any rate. Boil until very tender any quantity of squash which has been previously peeled and freed from seeds. Mash until perfectly smooth. To about one pint of the pulp add two tablespoonfuls of sugar, a grated nutmeg, a half-pint of new milk, and two eggs well beaten. Bake in a tin plate, lined with a good paste, as a custard pie is made.

Home Topics.

BY FAITH ROCHESTER.

A COVER FOR AN OPEN SEWING MACHINE.—This may be made very easily of an oblong piece of calico or linen, with rounded corners, hemmed around the edge. A strong string may be run in the hem, to tie under the edge of the iron machine upon the wooden stand. This protects the machinery from dust, and from meddlesome little fingers.

What object is served, I wonder, by rounding one end of the spools of cotton? Some of our best machine thread comes in that way; and in using it with machines where we sew directly from the spool (at least, in using it with Grover & Baker's machine), it is extremely annoying to have the thread run off faster than it is needed, and twist around the spindle, as it does from the rounded end when we put on a new spool.

NIGHT-GOWNS.—There are persons who do not seem to see the "sense" of night-gowns, especially of men's night-shirts. They may admit that it is quite reasonable for a man who wears fine starched linen about his daily business, to change to a plainer garment at night, especially if he cares for a small laundry bill. But why should a farmer take the trouble to put on a night-shirt?

Because the garment he has worn all day is so saturated with the perspiration of the wearer—the insensible if not the sensible perspiration—that it needs a good airing before further service. It is not tidy to sleep in it, especially if another person occupies the same bed. A due regard to the laws of health would lead us all—men, women, and children—to remove every article of clothing worn during the day on going to bed, changing to garments at night that have been well aired during the day. The habit of rolling up night-gowns in the morning, as soon as taken off, and placing them under the pillows, results from the same ignorance that leads housekeepers to make beds before they have been well aired in the morning.

Night-drawers, for young children of both sexes, have several advantages over the ordinary gowns. When properly made, they keep their place much better during the night, so that children who throw off the bed-spreads have at least one covering left. They are also a better protection to modesty, where several children are undressing and frolicking together. They should be made very long in the body, and very short in the legs, comparatively—though they should cover the little feet in winter. The opening reaches the whole length of the back to the legs, and should have a wide lap, and button securely together, to keep the back from exposure to cold. They look loose and bagging, but are very comfortable.

Men's night-shirts are made about the same as their day-shirts, only longer in the body, and without bosoms and wristbands for starching. A flannel night-gown, to be worn over an ordinary muslin one, is a great comfort in very cold weather.

HOMES FOR THE HOMELESS.—As cold weather approaches, and our thoughts run ahead to preparations for the comfort of our own beloved families during the coming winter, let us see if we can not draw a little closer together in our homes, and so make room for some of the Lord's little ones who may be left to perish without our help. In all the great cities of our country they may be found. There are thousands who need comfortable Christian homes to save them from lives of vice and crime. And there are thousands of comfortable Christian homes in our land where there is room for a poor, unfortunate child of poverty and ignorance, and where the hearty adoption of such a desecrated little image of the Lord, "in His name," would be a great benefit to the family adopting it. Careful training and kind treatment might make of the little waif a valuable member of the family and of general society. The moral culture of the self-denial involved in such training, and the reflex influence of patience and kindness, are not among the least of the blessings sure to follow such adoption, if made from pure motives. The golden rule is grossly violated sometimes by those who adopt orphan children. Such little ones are treated like little slaves by some selfish people. If *our* children were left poor and orphaned among strangers, what treatment should we desire for them? Is the test absurd? Centuries ago, there lived on earth One who made the test of Christianity our love for our brethren—for the poorest, lowest, and vilest—a love that would rush to their succor from degrading conditions of life. I often use the word "Christian," but hardly in the technical sense—never as necessarily synonymous with "church-member" or "professor of religion." So when I bespeak "Christian homes" for homeless wanderers, I am thinking of the homes where Love and Duty preside.

The children of ignorance and vice increase so fast, we must work at both ends of reform movements if we really mean to do what we can toward true civilization; must stretch out helping hands toward the fallen in all possible places, and must work even more earnestly to keep the young from the same sad fate.

THE AGRICULTURIST AND THE CHILDREN.—My small children welcome the coming of the *Agriculturist* with about the same eagerness with which they hail their own little green-covered "Nursery." Both are equally profitable to them, I think, though in different ways. Of course, they can not appreciate the reading of the *Agriculturist* (except the easiest part of that contained in the children's department), but they are full of questions about the pictures, and they learn something of natural history and botany from the pictures in the *Agriculturist*, with the explanations they coax from us.

I groan sometimes because I can not have the privilege of reading an illustrated paper or book in their presence without knowing that they are longing to have me show them the pictures, and "sing 'bout dat," as the youngest one pleads. But there is great delight in supplying their honest needs for knowledge with that which is wholesome and of lasting benefit. Many children are stuffed with any kind of intellectual husks that come handy, when they ask for stories or beg to see pictures.

Some of my friends seem to suppose that my little ones are peculiar in their aptitude for natural science, when they hear the five-year-old boy talk so familiarly about the physiology of plants and insects. Even the two-year-old toddler is fast learning the names of the weeds in the yard, as well as of the flowers in the garden, and begins to ask, with comical seriousness, "Is dat in 'e same family?" from hearing her brother inquire so often about the family relationships of plants and animals, and even of fabrics and kinds of cooked food.

But I can not believe that the natural inclination of these two children toward the observation of natural facts is above the average of children. I am thankful that we have been "led" in this way, and I believe that my children will be thankful some day that a taste for these pursuits was cultivated in them (or allowed a chance to *grow*) before the too common pap of average Sunday-school books, and stories of fairy-land, and narrations of the every-day incidents of child-life, in repeated easy doses, had almost hopelessly demented them.

I used always to choose the easy reading for myself when I was a little girl—the little stories or baby novelettes. I had friends who regretted this, but the mischief had been done long before they thought of care in the matter. The little hands of my babies have led me nearer to nature, to learn something of her wonderful secrets, in order that I may teach and delight them with things more beautiful and wonderful than any fanciful traveler ever found in any imaginary fairy-land.

But I was going to tell how glad my boy and I were to find the "Arrowhead" pictured and described in the *Agriculturist* for July. It had proved too much for me with my old botany to decide upon. Other wild flowers are pictured every month that are the faces of friends familiar to us in the woods around, and whose names we have learned only within the last few years.

BOYS & GIRLS' COLUMNS.

Churns and Bottles.

BY "CARLETON."

Churning! What would you say, my young friends, if you were riding over one of the great prairies of the North-west, away out on the frontier, fifty miles from any house, and were to find an old woman churning butter? Do you say that it is not a likely story? Well, but you can see such sights on the frontier. I have been traveling day after day over these green fields of the North-west, and have driven my horse almost a hundred miles without seeing a house, but I saw hundreds of wagons moving in long procession over the prairies, their white canvas tops fluttering in the wind, and droves of cattle and sheep following behind. Boys and girls, with bare feet and frowzy heads, were driving them. There was a chicken-coop on every wagon, and a pig-pen, and the roosters were crowing, and the pigs grunting, and the sheep and lambs were bleating, and there was music from one end of the train to the other. These were settlers who had sold out their farms in Wisconsin and Iowa, and were moving on to Dakota, to find new homes in one of the richest valleys in the world, on the banks of the Red River of the North.

But about the churning. The teams had gone into camp for the night; the oxen were unyoked, and were feeding on the tall grass; the cows had been browsing by the roadside all day long, and were glad to stand still and chew their cuds while the big girls milked them. The boys picked up some brush and sticks of wood, and kindled a fire, and went down to the brook and brought up pails of water. The women got their frying-pans down from the wagons, and hunted up pieces of pork from a barrel, and in a very short time there was a delightful smell of fried pork floating out on the evening air. And there a clattering of tin plates and cups, and knives and forks, which the little barefooted girls took out from a box beneath the wagon-seat. While all this was going on, the gray-headed grandmother sat in her chair on the green grass, churning the milk in an old-fashioned dash-churn, and they all seemed to be just as happy and as contented as if they were at home.

I think that the old grandmother had the hardest work to do. When I was a little boy, I used to hate churning. I never could see any fun in lifting the dasher, and sending it down with a jab, hour after hour. It made my arms and back ache, and once I declared I would go without butter rather than churn. This gray-haired woman seemed to like it, and as I saw her lifting the dasher so steadily, it set my thoughts running over what I had seen in the way of butter-making in years gone by, and I remembered how vexed I used to get when the butter wouldn't come; how once I began to churn in the morning, and kept at it all the forenoon and all the afternoon, and lost my temper, and wished the old churn was in Halifax, and, finally, got so mad that I jabbed the dasher down so hard that I split it, and came near staving a hole through the bottom; and how I churned, and churned, and churned, and still it wouldn't come, and went to bed with the back-ache, and got up in the morning and found the butter had come of its own accord in the night, and came to the conclusion that I had made a fool of myself by getting angry.

The witches used to get into the cream. People believed in witches when I was a little boy, and I can just remember that one of the hired girls burnt out the old witch by dropping a red-hot iron wedge into the cream, and then the butter came at once. I never could find out, however, what became of the old witch.

I have seen a great many kinds of churns, with cog-wheels, floats, rollers, paddles, dashers, rockers, and patent contrivances to make the butter come, but the funniest and queerest churn I ever saw was in the Eastern country; and it undoubtedly was just such a churn as Abraham, and Jacob, and all the old farmers that we read about in the Bible had in their households. It was a funny affair, and if you were to guess a dozen times I do not believe you could tell how it was made. It had no dasher; there was not a cog-wheel about it. It was made of raw hide—the skin of a goat, taken off from the animal with great care, and the hairy side turned in, and sewed neatly and tightly together with the sinews of the creature. It was sewed so well and so closely, that it was water-tight. That is the way they make bottles in the old countries. I think it likely that Hagar had just such a water-bottle when Abraham sent her, with the little scapegrace Ishmael, out into the desert. I never thought it was very gentlemanly in Abraham to turn them out, but he wanted peace at home, and that was the way they did things in those olden times. That is the way they make wine-bottles in the East. Glass factories are not often found in Asia, but there are goats enough on the hills, and it is an easy matter to skin one, turn the skin inside out, and sew it up again—all but the neck. Every family has such a churn. The housewife puts the cream into the churn. Do you ask if she turns it in upon the hair? Certainly, for the skin will not soak through near so quickly with the hair on the inside as it otherwise would. When the cream is all in, a cord is tied around the neck, and then the boys and girls have a game of football. They kick the churn round the room, they toss it into the air, give it a lusty shaking, and keep it going until the butter comes. Such butter! It holds together well. It is about as well haired as any you can find in your own market. Please do not turn up your noses at it, for it is the best you will get. Do we eat it? Certainly; and when you read about butter and honey in the Bible, when you think of Samuel, David, and Daniel, of Paul, Peter, and the Saviour, as sitting down to dinner and eating bread and butter, you may be sure the butter was churned in such a churn.

Upon the whole, I think I had rather have an old-fashioned dash-churn than a goat-skin, even if it does make my back ache.

MINNESOTA, August, 1871.

Aunt Sue's Puzzle-Box.

[An apology is due to Aunt Sue and the boys and girls who enjoy her Puzzle-Box. Aunt Sue wrote, asking the editors what day they would need her "notices to correspondents," and the editor whose business it was to write and tell her, neglected, forgot, omitted, or something, and did not reply. She called in at the office the other day, on her way to the sea-shore, and was so good-natured about it, that the delinquent editor felt very much ashamed of himself. So if correspondents have to wait another month for replies, it is not Aunt Sue's fault, for she is altogether too fond of corresponding with children to intentionally neglect them.—EDITOR.]

NUMERICAL ENIGMA.

1. I am composed of 11 letters:

My 11, 10, 6, 3, is the name applied to the principal branch of a river.
My 5, 2, 3, 4, is a propeller.
My 1, 9, 8, 3, is a sort of oven.
My 4, 6, 8, 7, is a measure.
My whole is one of the kings of Europe. FRANK.

SQUARE WORD.

2. Square the word "Write." STAR AND CRESCENT.

BLANKS.

(Fill the following blanks with words pronounced alike but spelled differently.)

3. Will you —— me a ——?
4. The —— sang a plaintive ——.
5. —— the men saw the ——.
6. —— will read a ——.
7. They gave —— a —— to read.
8. —— will —— the tree.
9. His —— was that of a —— man.

THE ITALIAN BOY.

CROSS-WORD ENIGMA.

10. My first is in shadow but not in storm.
My next is in substance by not in form.
My third is in rain but not in snow.
My fourth is in reap but not in mow.
My fifth is in pipe but not in bowl.
My sixth is in mouse but not in mole.
My seventh is in bird but not in cage.
My eighth is in sulky but not in stage.
My ninth is in bran but not in meal.
My tenth is in grouse but not in teal.
And now, if you're patient, and clever, and witty,
My whole you'll discover, the name of a city.

UNCLE ED.

PUZZLE.

(Make sense of the following letters.)

11.
YADOT
OMOTO
RRELD
RPVLN
OUEIA
WTNTC
WOFFU
HATYO

E. L. CLARK.

PROVERB PI.

(Make five proverbs out of the following 43 words.)

12. A good man goes to pay a debt.
The only child goes sorrowing.
It is easier to revenge at sixteen.
He is to blame: health will prove it.
Do that which is above a wrong.
Wealth at sixty is better than a borrowing.

L. S. C.

ANAGRAMS.

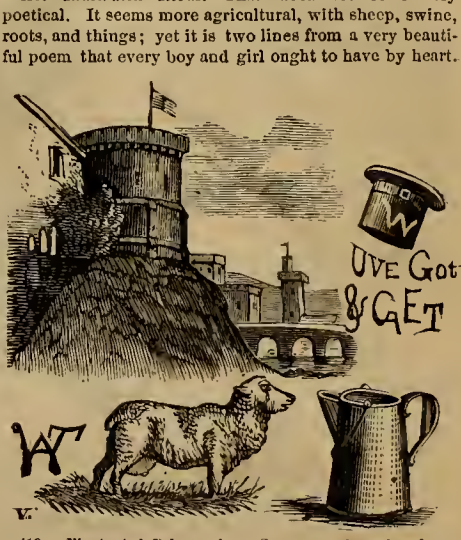
13. Exit rum.
14. Depart sea.
15. Under fish.
16. Prim men's vote.
17. For Mrs. Peer.
18. None dip cream.
19. Train must enlist.
20. In a census.
21. Seven crags.
22. Tries cord.

PI.

23. Otrynocilica samrenn mancmod metsee.

417. *Illustrated Rebus.*—This seems to be a very ingenious way of imparting good advice of a kind which is equally applicable to old and young.

418. *Illustrated Rebus.*—That does not look very poetical. It seems more agricultural, with sheep, swine, roots, and things; yet it is two lines from a very beautiful poem that every boy and girl ought to have by heart.



419. *Illustrated Rebus.*—Aunt Sue says that the above rebus is a selfish man's motto. If so, do not try to follow its teachings when you have made it out.

ANSWERS TO PUZZLES IN THE AUGUST NUMBER.

1. Aunt Sue. 2. Lighthouse. 3. Lady's Slipper. 4. Americanize. 5. Invisible. 6. Penniless. 7. Lighthouse. 8. Gentleman. 9. Mistaken. 10. Heroine. 11. Romances. 12. Shivered. 13. Volcanoes. 14. Delineation. 15. Interested. 16. Alternated. 17. Sluggishness. 18. Orchestral. 19. Traveller:

T
ARE
HEART
PERVERT
TRAVELLER
FAILURE
INLET
JET
R

SUMMER AND WINTER.—DRAWN BY EMSLIE.—*Engraved for the American Agriculturist.*

20. For ways that are dark and tricks that are vain,
The heathen Chinee is peculiar.

21. Presence of mind is necessary at all times. 22. Hector.

412. Fools rush in where angels fear to tread.

413. Be in haste, and remember delays are dangerous.

414. Popping the question.

Summer and Winter.

How sweetly and peacefully grandma sits under the trees! She has been reading. But now the spectacles are laid upon the book, and the eyes are looking far away. Perhaps she hears the birds sing. Perhaps she sees something. But we think not. What she hears, are the sweet voices of the girls who are swinging under the trees. She hears their happy voices, and her heart is made happy. She is thinking of the time when she, too, was a child. She seems to hear the voices of the little girls she used to play with so long, long ago. She can almost see them again. These little girls will have a long road to travel before they get to be as old as grandma. How many stories the old lady can tell these two children in the evenings! But the stories they like best, begin: "When I was a girl." And these two happy girls are all the happier for having grandma by them. They brought her chair out here, and then they went and invited her to come out and sit with them under the trees. It makes grandma happy to know that she is loved and that the girls enjoy her company. A young person can do much to make the last days of an old person happy. The birds sing sweeter to these girls because they are kind and loving, and the heart of the old lady is so happy that the happiness shines out of her face. Dear old grandma! May you live many days yet, to make the children happy.

AMERICAN AGRICULTURIST.

ORANGE JUDD & CO., Publishers, 245 Broadway, N. Y. City.

ANNUAL SUBSCRIPTION TERMS (always in advance): $1.50 each for less than four copies: Four to nine copies, $1.25 each: Ten to nineteen copies, $1.20 each: Twenty copies and upward, $1 each. Papers are addressed to each name. ☞ Either English or German Edition, at these prices.

HEARTH AND HOME: $3 a year for less than four. Four to nine copies, $2.75 each; 10 or more copies, $2.50 each.

☞ Subscribers to **American Agriculturist** for 1872 are entered as soon as received, and they get the balance of this year FREE. This applies also to premium list names. Subscribers to **Hearth and Home** begin when their names are received, unless otherwise directed, and are entered for one year from date of reception.

For Everybody!

LARGE PAY For Spare Hours, For Evening Work For Rainy Days, and for those Seeking Employment.

GOOD FOR

Farmers, **Postmasters,**
Gardeners, **Merchants,**
Nurserymen, **Mechanics,**
Physicians, **Lawyers,**
Ministers, **Students,**
Teachers, **Clerks,**
Ladies, **Conductors,**
Children, **For ALL.**

The Publishers of *American Agriculturist* and HEARTH AND HOME take pleasure in announcing a new general Premium List for 1872 superior to anything before offered. The best premiums of last year—those that gave the greatest satisfaction—are retained, and many new and valuable articles are introduced.

The design of this Premium List is fully explained on page 368 of *Amer. Agriculturist*, Oct., 1871, which please see.

These premiums have engaged the attention of all classes in past years, and over **13,000 persons** have found *pleasure* and *profit* in them.

They are all *new*, *first-class*, *valuable*, *reliable articles*, **just as good as money.** The assortment is so large that every one will find something needed. See table and descriptions (p. 394).

Any person who chooses may collect a small or large list of subscribers and receive the premium. It is only necessary to show a copy of the paper, explain its value, and collect and forward names.

It has been done largely at stores, shops, post-offices, etc., and by private individuals. By **Co-operation,** Ministers, Teachers, Churches, Sunday and week-day Scholars, have obtained Melodeons, Libraries, Cyclopedias, Dictionaries, etc., also Sewing Machines, and the like, for poor widows and others. Many professional men have opened and made up good premium lists at their offices. Clerks in stores and post-offices have materially increased their salaries thus, while individuals in all classes have secured good things for themselves or for presents to others, *all without the use of working hours*, **and at no money cost.**

As a **constant Business Employment,** some persons *canvass all the time*, receive the premium articles, and sell them for cash, and thus secure large salaries. One lady has averaged over **$3,000** *a year* for years past, and others are getting large pay for their time, often **$5** to **$20** a day. Some who did poorly at first have, by perseverance, acquired the art of canvassing, and become very successful. The work is honorable. The Journals are useful in *every* family in City, Village, and Country.

The *American Agriculturist* is everywhere known and approved. HEARTH AND HOME is now without a superior in the world as a *splendidly illustrated* Weekly Newspaper, for real value, cheapness, and adaptability to every home in America. The papers are *entirely different*. Taken together, they supply over **$30,000** worth of *fine engravings*, and more good reading than can be found in *fifty* books costing one Dollar each.

Premium Clubs can be made up of subscribers to either paper, or partly of one and partly of the other, as noted over the Table. We call especial attention to the *last* column of figures, showing the small number of names required where *both* papers are taken, at the reduced price of $4 a year.

You, Reader, can get a Premium. TRY 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; otherwise it is not.

[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: also at the rates of $4 a year for both papers together.]

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 2nd and 4th columns, or from the 3d and 5th, or wholly from the 6th column.*

Table of Premiums and Terms, For American Agriculturist, and for Hearth and Home, for the Year 1872.

Open to all—No Competition.

No.	Names of Premium Articles.	Price of Premiums.	(1) American Agriculturist. Number of Subscribers required at $1.50	(2) American Agriculturist. Number of Subscribers required at $1.	(3) Hearth and Home. Number of Subscribers required at $3.00	(4) Or (5) Hearth and Home. Number of Subscribers required at $2.50	Or (6) Both Papers together. Number of Subscribers required at $4.00.
1	Knives and Forks (Patterson Bros.)	$14 00	21	50	11	35	13
2	Knives and Forks (do. do.)	$18 50	27	90	14	45	16
3	Knives and Forks (do. do.)	$22 00	33	110	17	55	19
4	Knives and Forks (do. do.)	$25 50	39	134	20	62	22
5	Carver and Fork (do. do.)	$5 00	13	37	7	19	8
6	Fluted Steel (do. do.)	$2 50	6	25	3	13	4
7	French Cook's Knife, Fork, and Steel	$3 00	8	30	4	15	5
8	Pocket Knife (Smith & Clark)	$1 50	4	....	2	....	3
9	Pocket Knife (do. do.)	$2 00	5	22	3	11	4
10	Pocket Knife (do. do.)	$2 50	6	25	3	13	4
11	Ladies' Pocket Knife (do. do.)	$2 00	5	22	3	11	4
12	Mullum in Parvo Knife (do.)	$3 50	8	30	4	15	5
13	Cake Basket (Lucius Hart Man'f'g Co.)	$12 00	19	65	10	33	11
14	Casters and Fruit Basket (do. do.)	$30 00	44	140	22	70	25
15	Revolving Butter Cooler (do. do.)	$8 00	16	52	8	26	9
16	Card Receiver (do. do.)	$7 00	15	49	8	26	9
17	Nut-picks and Crackers (do. do.)	$12 00	19	65	10	33	11
18	Half Dozen Napkin Rings (do. do.)	$6 00	15	45	8	28	9
19	One Dozen Teaspoons (do. do.)	$6 00	15	45	8	28	9
20	One Dozen Tablespoons (do. do.)	$12 00	19	65	10	33	11
21	One Dozen Table Forks (do. do.)	$12 00	19	65	10	33	11
22	Child's Cup (do. do.)	$2 75	7	27	4	14	5
23	Gold Pen, Sil. Case (George F. Hawkes)	$3 25	8	30	4	15	5
24	Gold Pen and Silver Case (do. do.)	$5 00	12	37	6	19	7
25	Gold Pen, Handle gold-tipped, (do. do.)	$6 00	13	37	7	19	8
26	Ladies' Gold Pen and Rubber Case (do.)	$6 00	13	37	7	19	8
27	Ludden's Patent Reviving Pencil	$1 50	4	19	2	10	3
28	Ludden's Patent Revolving Pencil	$3 50	8	30	4	15	5
29	Amusette	$6 00	13	37	7	19	8
30	Baby's Chair (L. O. Colvin)	$4 00	9	33	5	16	6
31	Parlor Kaleidoscope	$7 00	16	52	8	26	9
32	Moore's Floral Set (Moore Man'f'g Co.)	$1 00	3	24	2	6	2
33	Steam Engine	$1 00	3	24	2	6	2
34	Garden Seeds for a Family (40 kinds)	$5 00	12	33	6	17	7
35	Flower Seeds for a Family (100 kinds)	$6 00	12	33	6	17	7
36	Garden Seeds & Flower Bulbs (Selection)	$2 00	5	22	3	11	4
37	Set of Field Croquet	$8 00	16	52	8	26	9
38	Sewing Machine (Grover & Baker)	$55 00	60	240	30	120	33
39	Sewing Machine (Florence)	$63 00	70	275	35	138	39
40	Sewing Machine (Wilcox & Gibbs)	$55 00	60	240	30	120	33
41	Bickford Family Knitting Machine	$25 00	38	120	19	60	21
42	Washing Machine (Doty's)	$15 00	21	70	11	35	13
43	Clothes Wringer (Best—Universal)	$9 00	17	54	9	29	10
44	Blanchard Churn	$8 00	16	52	8	26	9
45	Melodeon, 4-octave (G.A. Prince & Co.'s)	$67 00	78	295	39	148	43
46	Melodeon, 5-octave (do. do.)	$112 00	178	400	69	200	76
47	Piano, Splendid 7-oct. (Steinway & Sons)	$6 5 00	600	1550	300	775	330
48	Silver Watch (American Watch Co.)	$40 00	50	150	25	75	28
49	Ladies' Fine Gold Watch (Am. Watch Co.)	$100 00	110	350	55	175	61
50	Breech loading Pocket Rifle	$16 00	24	80	12	40	14
51	Double Bbl. Gun (Cooper, Harris & H.)	$30 00	46	150	23	75	26
52	Tool Chest (Patterson Bros.)	$45 00	60	190	30	95	33
53	Charles Pratt's Astral Oil (1 can, 5 Gal.)	$4 00	9	32	5	16	6
54	Barometer (Woodruff's Mercurial)	$10 00	18	58	9	29	10
55	Barometer (Woodruff's Mercurial)	$15 00	22	75	11	38	13
56	Buckeye Harvester Mower	$125 00	150	450	75	225	83
57	Patent Cylinder Plow (R. H. Allen & Co.)	$18 00	27	90	14	45	16
58	Collins & Co.'s Cast Cast-Steel Plow	$25 00	38	120	19	60	21
59	Hand Cultivator and Weeder (Comstock)	$9 00	17	54	9	27	10
60	Cahoon's Broadcast Seed-Sower	$10 00	18	58	9	29	10
61	American Submerged Pump	$15 00	19	65	10	33	11
62	Pump and Sprinkler (Page's)	$5 00	13	37	7	19	8
63	Family Scales (Fairbanks & Co.)	$14 00	21	70	11	35	13
64	Building Blocks (Crandall)	$2 00	6	20	3	10	4
65	Pocket Lanterns (One Dozen)	$9 00	17	54	9	27	10
66	New American Cyclopedia (Appleton's)	$80 00	96	325	48	163	53
67	Worcester's or Illustrated Dictionary	$10 00	18	58	9	29	10
68	Any Back Volume Agriculturist (Unbound. Post-paid.)	$1 75	....	20	....	10	2
69	Any Two Back Volumes do.	$3 50	....	29	....	15	4
70	Any Three do. do. do.	$5 25	13	37	7	19	8
71	Any Four do. do. do.	$7 00	15	47	8	24	9
72	Any Five do. do. do.	$8 75	17	54	9	27	10
73	Any Six do. do. do.	$10 50	19	61	10	32	11
74	Any Seven do. do. do.	$12 25	21	68	11	34	13
75	Any Eight do. do. do.	$14 00	23	74	12	37	14
	—(Each add'l Volume at same rate)	....	....	....	....	....	....
76	Fifteen Vols. XVI to XXX	$36 25	56	118	18	59	20
77	Any Back Volume Agriculturist (Bound. Post-paid.)	$2 50	....	24	....	12	2
78	Any Two Back Volumes do.	$5 00	....	36	....	18	6
79	Any Three do. do. do.	$7 50	16	48	8	24	9
80	Any Four do. do. do.	$10 00	18	60	9	30	10
81	Any Five do. do. do.	$12 50	21	71	11	36	12
82	Any Six do. do. do.	$15 00	24	82	12	41	14
83	Any Seven do. do. do.	$17 50	27	92	14	46	16
84	Any Eight do. do. do.	$20 00	30	102	15	51	17
85	Any Nine do. do. do.	$22 50	33	110	17	55	18
	—(Each add'l Volume at same rate)	....	....	....	....	....	....
86	Fifteen Vols. XVI to XXX	$37 50	50	150	25	75	28
87	Farmer's Boy's Library	$5 00	12	33	6	17	7
88	Farmer's Boy's Library	$8 25	16	52	8	26	9
89	Farmer's Boy's Library	$11 25	20	65	10	32	11
90	Farmer's Boy's Library	$15 75	25	85	13	42	15
91	Farmer's Boy's Library	$20 00	30	102	15	51	17
92	Any Back Vol. Hearth & Home (Bound).	$4 00	9	32	5	16	6
93	Any Two Back Vols. do. do.	$8 00	16	50	8	25	9
	—(Each additional Volume at same rate.)	....	....	....	....	....	....
94	A $10 Library (Your Choice) (All sent prepaid through by Mail or Express)	$10 00	18	58	9	29	10
95	A $15 Library do.	$15 00	24	85	12	43	14
96	A $20 Library do.	$20 00	31	106	16	53	18
97	A $25 Library do.	$25 00	38	135	19	63	21
98	A $30 Library do.	$30 00	41	144	22	72	25
99	A $35 Library do.	$35 00	50	162	25	81	28
100	A $40 Library do.	$40 00	56	177	28	89	31
101	A $45 Library do.	$45 00	62	192	31	96	34
102	A $50 Library do.	$50 00	68	207	34	104	38
103	A $60 Library do.	$60 00	80	237	40	119	44
104	A $75 Library do.	$75 00	100	282	50	141	55
105	A $100 Library do	100 00	125	360	63	180	70
106	A Choice of Good Books. (See Description.)	....	....	....	....	....	....

☞ *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 12, 23 to 28, 31, 35, 36, 68 to 91,** *and* **94 to 106** *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.—(No.* **33** *mailed for 30 cents extra.) The other articles cost the recipient only the freight after leaving the manufactory of each, by any conveyance desired. See* **Descriptions** *of Premiums on* **Next Page.**

Descriptions of Premiums.

(For number of Subscribers required, see Table, page 393.)

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 guarantee, 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 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 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.—Multum in Parvo Pocket Knife.—This is a most attractive as well as useful Premium. It comprises, in one knife-handle, a large and a small blade, a screw-driver, a saw, a strong hook, a nut-cracker, a brad-awl, a gimlet, a corkscrew, a pointer, a slim punch, and, in addition to this, it can be used for various other purposes which will at once suggest themselves to any smart boy or man. The knives will be sent anywhere in our country, post-paid.

No. 13.—Cake Basket.—A new pattern, oval-shaped, nicely chased—a very taking, useful, and *beautiful* table ornament. This, with other articles that follow, is made by the **Lucius Hart Manufacturing Co., of Nos. 4 and 6 Burling Slip, New York City,** and is warranted by them to be of the best triple plate. Mr. Hart, "the veteran Sunday-school man," was engaged in the same place and business for nearly a quarter of a century. We have known him and his work for many years, and have taken pleasure in commending and guaranteeing its value to be as represented. We believe the Company which bears his name is fully sustaining his reputation. 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. 14.—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 and of equally good quality as the preceding.

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. 13.

No. 16.—Card Receiver.—This is a beautiful ornament, as well as a useful article. It is finely chased and gilt-lined, and, like the three preceding, is from the **Lucius Hart Manufacturing Co.**

No. 17.—Nut Picks and Crackers.—Here are twelve nut-picks, elegantly chased, of medallion pattern, with two handsome nut-crackers, in a morocco-covered case. From the same house as No. 13.

No. 18.—Half-Dozen Napkin Rings.—These rings are beautifully chased, and in a morocco-covered case. From the same house as No. 13.

No. 19.—One Dozen Teaspoons.—No. 20.—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. 13. They are far *cheaper* than anything we have found at half the price, and well worth working for.

No. 21.—One Dozen Table-Forks.—The same description and remarks apply to these as to No. 20. 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. 22.—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 keepsake.

Nos. 23, 24, 25.—Gold Pens: *with ever-pointed Pencils, in extension, coin-silver cases.*—Premium No. 23 contains the best No. 4 Gold Pen; and No. 24 the best No. 6 Gold Pen, which is the same style, but larger. No. 25 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 an excellent reputation. We have known the maker and his goods for many years, and can recommend them.

No. 26.—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.

Nos. 27, 28.—Ludden's Patent Magic Revolving Pencil.—This is a beautiful Pocket Pencil, which is extended or closed by pulling or pressing the head. They are made with great care, and every Pencil warranted to work perfectly. They are gold-plated, and will last for years. We offer two patterns, one for ladies, with ring for chain, at $1.50 each, and one of heavier and firmer plate, at $3.50. They are made by **Ludden's Gold P. and P. C. Co., Wm. A. Ludden, Agent, 195 Broadway,** who has been in the business thirty years.

No. 29.—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. This premium, 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. 30.—Baby's Chair.—This beautiful Premium will delight mothers and babies everywhere. It is a chair, in combination with a limited spring, suspended from a hook in the ceiling of a room. It gives a young child such a variety of amusement, such varied and healthful exercise, allowing free motion and action for limb and muscle, that it becomes almost an indispensable article to the nursery. It is made of black walnut, nicely finished, upholstered in green, blue, or red, with cords to match, and sold, with the hook, for $4. **L. O. Colvin, 94 Waverley Place, Newark, N. J.**

No. 31.—Parlor Kaleidoscope.—A most pleasing article—one which can not fail to delight all who receive it. The Kaleidoscope is handsomely finished, with brass object-box, mounted on a neat black-walnut stand. The changes and combinations of colors which may be seen are exquisitely beautiful, and almost numberless. The younger members of the family, especially, will find great entertainment in this elegant premium, which a little effort will secure for them.

No. 32.—Moore's Floral Set.—This is a beautiful Premium—a complete set of **Ladies' or Children's Garden Tools** for the cultivation of flowers, consisting of a Floral Hoe, Spade, Fork, and Rake. They are made of the best steel and iron, with finely polished hard-wood handles, light, durable, and highly finished, and each set inclosed in a box. They will be found very convenient in the garden and greenhouse, and are pleasing toys for the little folks. Made by the **Moore Manufacturing Company, Kensington, Ct.**

No. 33.—Steam-Engine.—This is a veritable steam-engine; one that will GO; and a capital, intensely interesting, and instructive article for boys, and grown-up people too. Our eleven-year-old boy ran his engine an average of an hour or more a day for six months; he has exhibited it in motion to many of his playmates; has hitched on various toy machinery, and it appears to go just as well as when first started.

No. 34.—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. 35.—Flower Seeds.—Like No. 34 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. *Delivered free.*

No. 36.—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 you to select from the list below 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, 25c.; Dioscorea Batatas, or Chinese Potato, per doz. bulblets, 25c.; Moore's Early Concord Corn, pkt., 25c.; Laxton's Alpha Peas, pkt., 25c.; Trophy Tomato, ¼ oz. pkt., 50c.; ¼ oz. Marblehead Mammoth Cabbage, 50c.; ¼ oz. Improved American Savoy, do., 25c.; ¼ oz. Improved Brunswick, do., 25c.; ¼ oz. Premium Flat Dutch, do., 25c.; ¼ 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, 30c.; 1 pkt. New Black Pekin Egg-Plant, 25c.; 1 pint Carter's First Crop Peas, 30c.; 1 pint Crosby's Extra Early Sugar Corn, 25c.; 1 pkt. (ten 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, 50c.; 1 Lilium lancifolium rubrum, Japan Lily, red, 40c.; 1 Lilium lancifolium album, Japan Lily, white, 40c.; 1 doz. Gladioluses, fine mixed varieties, $1.50; 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), $1.50; 4 doz. Tulips, double and single, early and late (for fall planting), $2.00; 100 Crocuses, fine varieties (for fall), $1.00.

No. 37.—Set of Field Croquet.—The game of Croquet is so pleasing, and has become so pop-

ular, that we believe many will be glad to avail themselves of the opportunity of obtaining this new and beautiful Premium upon terms as easy as we propose.

Nos. 38, 39, 40.—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. 41.—Bickford Family Knitting Machine.—This is a practical and efficient machine, simple in construction, works very easily, makes scarcely any noise, occupies but little space, can be attached to any common table, and be removed instantly by simply turning a thumb-screw. It can be worked by any person of ordinary intelligence, after a careful perusal of the accompanying book of instructions and a little patient practice. A great variety of articles have been made with this machine, and it is capable of producing many more and different kinds. A complete stocking, heel, toe, and all, can be knit in ten minutes by a skillful operator, and socks, sacks, hoods, skirts, mittens, undergarments, etc., in remarkably quick time. Send for circular to **Dana Bickford, General Agent, 689 Broadway, New York.** For 52 subscribers at $1.50, or 162 at $1.00, we will send the machine with black walnut table, price $33.

No. 42.—Doty's Improved Clothes Washer, with the Metropolitan Balance Weight. Over sixty thousand families in the United States are now using the Doty Washing Machine, and we believe the improved machine has no superior. The "help" use it and like it. Send for descriptive circulars to **R. C. Browning, 32 Cortlandt St., New York,** or to **Metropolitan Washing Machine Co., Middlefield, Ct.** It goes cheaply by freight or Ex.

No. 43.—Universal Clothes Wringer.—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 fibers 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.

No. 44.—Blanchard Churn.—The manufacturers of this churn have been engaged (father and sons) in the making of churns for over fifty years! They have devoted much time to the scientific investigation of the chemical process of butter-making, and developing the best means for aiding it. They believe they have succeeded, and now offer "The Blanchard Churn" as in every respect the best one ever made. It is not a new thing, as over thirty thousand are now in actual and successful operation. It has no cog-wheels or gearing of any kind. It brings the butter as quickly as it ought to come. It works the butter free from butter-milk in the churn, without any change of dasher, quicker and better than it can be done by hand. It works in the salt in the same way. These churns are manufactured by Porter Blanchard's Sons, and are supplied to us by **R. H. Allen & Co., 189 Water st., New York.** The churn in the list is No. 5, for about 8 galls. of cream. For 15 subs. at $1.50, or 45 at $1, we will give No. 3, for 2 galls. cream, price $6; and for 18 subs. at $1 50, or 58 at $1, we will give No. 7, for 18 galls. cream, price $10.

Nos. 45, 46.—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 *twelve* 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 as 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.

No. 47.—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. 48.—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, enable 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. 49.—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-jeweled, 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. 50.—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. ☞ 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. 51.—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 caliber 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. 52.—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 Adz-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 Screwdriver 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.; 1½ in., 60c.; 1 Framing Chisel, ea. ¾ in., $1; 1 in., $1.10; 1½ 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., 14c.; 5 in., 17c.; 1 Flat File, 8 in., 30c.; 1 Wood Rasp, 50c.; 1 Soldering Copper, 60c.; Solder, Nails, etc., $1.25=$45.

No. 53.—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 Guarantee 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 fully indorsed by the highest scientific authorities in the land. 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 of Oil, which may be distributed among a club.

Nos. 54, 55.—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—and of special value and interest now with the Government Weather Reports.

No. 56.—Buckeye Harvester Mower.—The Buckeye Mower is so widely and favorably known that we need not describe it particularly. In 1870 this machine received the premium at twenty-eight field trials, and several 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. We can give, as Premiums, any of the Buckeye machines.

No. 57.—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 inches deep, $15.00.

No. 58.—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 ax. 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 manufacturers' 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 St., New York.**

No. 59.—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, Ct.,** who furnish descriptive circulars to all applicants. See cuts in *American Agriculturist*, page 127, 1869, and page 118, 1870.

No. 60.—Cahoon's Broadcast Seed-Sower.—This is an article that the majority of farmers would be glad to own. The Premium offered is the **Hand Seed-Sower.** It sows from four to eight acres per hour, at a common walking gait, throwing wheat and rye about 33 feet wide; barley, 30 feet; hemp, 28 feet; oats, 23 feet; clover, millet, and Hungarian seed, 22 feet; and timothy 18 feet. The bag and hopper will hold about 22 quarts—as much as a man can well carry at once. The manufacturers warrant this machine to sow 50 acres of wheat, or 35 acres of oats, or 30 acres of grass seed in ten hours. Made by **D. H. Goodell & Co.,** and sold by **R. H. Allen & Co., 189 and 191 Water St., New York,** who are the General Agents, and will send circulars if desired.

No. 61.—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 two 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 pump is set in the well, and nothing but the perpendicular brake and spout appear above the platform. Send for Circulars, to the **Bridgeport Manufacturing Co., Bridgeport, Ct., or 55 Chambers St., New York.**

No. 62.—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 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.**

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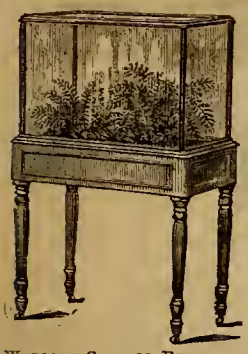

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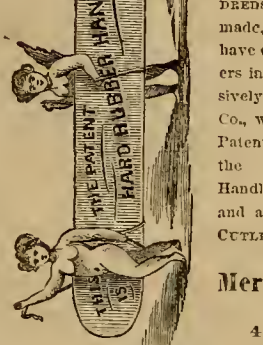

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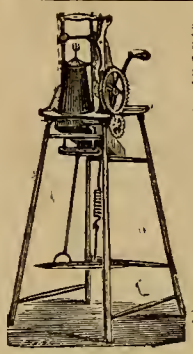

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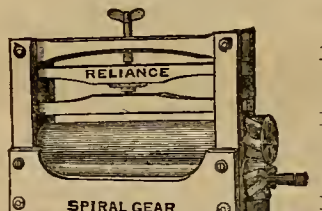

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VOLUME XXX.—No. 11. NEW YORK, NOVEMBER, 1871. NEW SERIES—No. 298.

HOLSTEIN COW AND BULL.—PRIZE ANIMALS AT THE NEW ENGLAND FAIR.—*Drawn and Engraved for the American Agriculturist.*

The Holstein cattle seem to have been strangely overlooked by our breeders, and it is only within a few years that they have made an appearance at our fairs. The Holsteins, also known as the Dutch cattle, are pre-eminently dairy animals. They come from a country where the production of butter and cheese is a leading feature of the agricultural industry, and the animals have been bred with a view to the largest production of milk, though they are by no means inferior as beef animals. The cow represented in our engraving is the "Maid of Opperdoes," the property of Thos. G. Wales, Esq., Framingham, Mass., and took the sweepstakes prize at the New England Fair. The bull, "Amsterdam," belongs to Chas. Houghton, Esq., Putney, Vt., and took the first premium for bulls. Mr. Allen gives an account of the performance of an imported Holstein cow, which in ten days gave an average of nearly 74½ pounds of milk. The milk produced over 22 per cent of cream. Six days' milk of this cow yielded 17 lbs. 4 oz. of butter, or nearly three pounds per day. The grade animals are said to inherit the remarkable milking qualities of the breed. The colors of the Holsteins are pure jet black and clear white, variously pied and mottled.

Contents for November, 1871.

INDEX TO "BASKET," OR SHORTER ARTICLES.

Calendar for November.

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

PHASES OF THE MOON.

MOON.	BOSTON.	N. YORK.	WASH'N.	CHA'STON	CHICAGO.
	D. H. M.	H. M.	H. M.	H. M.	H. M.
3d Qnart..	5 8 11 m.	7 59 m.	7 47 m.	7 35 m.	7 5 m.
New Moon	12 0 25 ev.	1 13 ev.	0 1 ev.	11 49 m.	11 19 m.
1st Qnart..	19 4 3 m.	3 51 m.	3 39 m.	3 27 m.	2 57 m.
Full.....	26 9 9 ev.	8 57 ev.	8 45 ev.	8 33 ev.	8 3 ev.

AMERICAN AGRICULTURIST.

NEW YORK, NOVEMBER, 1871.

November! One more month, and the year 1871 will be numbered with the past. How rapidly the months and years come and go! We can not stand still. The farmer has to deal with matter that is ever changing. And an accurate knowledge of these changes is essential to the highest success. This is agricultural science, pure and simple. There is nothing in it to frighten a farmer—nothing in it, certainly, that should excite his contempt. He must study these changes, and then apply his knowledge to the daily duties of the farm. It is to set forth, unfold, illustrate, and apply this knowledge that is the great aim and work of the *American Agriculturist*. We know its importance. We glory in the work. We fully and freely admit the importance of good government, of cheap and rapid transportation, of mechanical inventions, and of manufactures, trade, and commerce; but, at the same time, we know and feel that farming is the basis of our material prosperity. Our aim is to lessen the cost and increase the profits of raising our agricultural products.

Those who live in large cities, with their thousands and tens of thousands of poor men, women, and children struggling to obtain the bare necessaries of life, fully realize the importance of cheap bread. Cheap, wholesome, highly nutritious animal food, also, becomes daily of more and more importance as the masses of the people become more active, energetic, and intelligent. The thousands of young men (and young women, too) who use their brains, as well as their muscles, require a more nutritious kind of food than the mere plodder. The necessities of our agriculture on the one hand, and the requirements of the ever-increasing number of active, hard-working, intelligent consumers on the other hand, demand more and better animal food.

When in the city, we realize the importance of cheap bread, and a more abundant supply of nutritious meat. On the other hand, when at home on the farm, we have a farmer's desire to get good prices for our products. We know that farmers work hard, and seldom receive adequate compensation for their care, labor, and anxiety. Our *profits* are too small. As patriots, we want to see cheap bread and cheap meat; as farmers, we want higher profits. We believe both these ends can be attained. How, it is the aim of the *Agriculturist* to explain. And, in preparing our monthly hints about work, as well as of other articles in the paper, this object is steadily kept in view.

Hints about Work.

Live-Stock.—We would urge our readers to keep ever before their minds the idea that an animal is, so to speak, a machine that, from the day of its birth to the hour of its death, is constantly in motion. It never stops; whether asleep or awake, in summer or winter, night and day, it is ever running. And the power required to keep it in motion is derived from the food, or from flesh and fat previously stored up in the animal. In the aggregate, farmers lose millions of dollars every year from not understanding and acting upon this simple truth. There are thousands of calves, cows, and steers that on the first of next April will weigh no more than they do now on the first of November. All the food they consume during the winter is used merely to keep up the animal heat and sustain life. Aside from the total loss of food, an animal so kept, especially a young animal, is not in a healthy condition, and it will take several months of good feed in the spring to give it a good start. An animal that will not pay for liberal feeding had better be sold for whatever it will bring.

The low price of Stock affords a favorable opportunity for purchasing good animals. Weed out the herds. The present depression will only be temporary, and you can now pick up good, thrifty animals at cheap rates. It certainly will not pay this year to winter a poor pig, cow, sheep, or steer.

Sheep.—The same remarks are generally true in regard to sheep, but, at the present time, not with equal force. There is an increased and increasing demand for sheep and wool, and it *may* pay better to winter a poor flock of sheep than to dispose of them. Better, however, sell the poor ones, and buy younger, healthier, and more thrifty sheep.

Look out for Storms.—Have the barns and sheds in readiness, and be careful not to let the sheep be exposed to severe rain. Nothing is more injurious.

Do not Confine Sheep in Close Quarters.—An open shed is better than a close, ill-ventilated barn. The moment the rain is over, if the sheep are still wet, they will do better and dry quicker out of doors in the wind than in a close barn, the atmosphere of which is saturated by the moisture evaporating from the damp wool. Dry cold seldom or never hurts sheep. Damp quarters and wet land are exceedingly injurious.

Give the Sheep some Dry Food.—Grass at this season is comparatively innutritious. Let the sheep have all they will eat of it, but at the same time let them have access to racks filled with hay or straw. If they are not thriving, give a little grain—two bushels of oats per day to one hundred sheep.

Breeding Ewes should be served this month or the beginning of next. A little extra food at this season is particularly desirable. It will tend to secure more, better, and healthier lambs. Do not overtax the ram. If allowed to run with the flock, do not place more than sixty ewes with one ram, and if he has not attained his full growth, not over forty. In either case, give him from a pint to a quart of oats per day. Give a little salt every day.

Sheep like Exercise and Fresh Air, and it is desirable to let them run out on the pastures every day as long as they can get a bite of grass. It is a great mistake to suppose that they will not eat dry fodder as long as they can get at the grass. Give them all the hay and straw they will eat, and let them run out every fine day, and they will thrive and stand the winter better than if shut up too early.

Fattening Sheep should gain rapidly this month. Let them run out on the pastures, and give hay and straw, and half a pound of oats or corn per day.

Swine.—Select out the best sows for breeding; and if you have no good ones of your own, buy the best you can find. Unless you propose raising breeding stock, you do not need to buy thorough-

bred sows. Get a good-sized, healthy, vigorous common sow, that is well formed, and likely to be a quiet mother and a good milker, and put her to a thorough-bred boar. Keep her in a thriving, half-fat condition, and you are pretty sure of a litter of healthy, handsome, fat pigs, that will give a good account of their feed next spring and summer.

Fattening Hogs should be pushed forward rapidly, and sold early. We shall probably be obliged to accept low prices this season. In our section we are feeding at a decided loss. With good pigs, it requires from seven to eight bushels of corn, judiciously fed, to make 100 lbs. of pork. If a fat hog is worth one cent per lb. more than a lean or half-fat one, it will pay us better to make him fat than to sell him lean. We shall probably lose money in either case, but less by making the hogs fat than by selling them lean. This is emphatically true in the cheap corn sections of the West. Besides, meat is very high in Europe, and wages are advancing, and there may yet be sufficient foreign demand to give us fair prices for our pork.

Milch Cows should on no account be suffered to decline in flesh at this season. A little bran and corn-meal will keep them wonderfully, both in flesh and milk. Guard against cold storms on the one hand, and hot, close stables on the other. We hardly know which is more injurious. If confined at night, let the stable be thoroughly ventilated and kept cool and clean. Give the cows all the corn-stalks or hay they will eat at night, and let them run on the pastures as long as they can get a good bite and do not poach the soft ground.

Potatoes should now be dug as rapidly as possible. If the ground is hard and weedy, plow a light furrow away from each side the row, as close as you can run without disturbing the potatoes; then run the plow under the row of potatoes, and follow with hooks. In our experience, by actual test, this saves one third the labor. Where potatoes are worth 50 cents a bushel, we think it better to go over the ground with hooks, as above recommended, than to try to get out the potatoes by harrowing. The potatoes left in the ground will more than pay the difference in the expense. See hints last month in regard to selling, storing, etc.

Small potatoes, cabbage leaves, etc., are usually fed out at this season. It is a great mistake. They are of far more value as a tonic than as food; and by and by, when the animals can not get a bite of grass, they will be worth double what they are now. The small potatoes will pay well to pit and keep until spring.

Mangel-wurzel and other Beets should be secured at once. Be careful not to bleed them. They keep better in pits than in a close cellar. But they keep well in the latter if properly corded, with spaces left for the air to circulate through, and the cellar is kept well ventilated, and seldom allowed to get warmer than 50°. The mangels should be kept until all other roots are gone. They improve by keeping. Fed at this season, they are apt to cause scours. This effect is usually attributed to their containing salts, but is probably due to the fact that the roots are not ripe. Their proper season is from February to May.

Ruta-bagas are not so liable to be injured by frost as mangels and beets, and if other work is pressing may be left out until December.

Beet and Turnip Leaves, if put into pits when the temperature is near the freezing point, and beat down very firm, and then lightly covered with earth, will keep through the winter, and be more valuable next March (because more needed) than if fed out now. Select a dry, sandy knoll, and be careful to pack them solid, and not until steady cold weather is about to set in.

Carrots wither up if kept in a loose heap in the cellar. A good plan is to put them in barrels or in a box or bin in the cellar, and put a layer of sand between each layer of carrots, and an inch or so of sand between the carrots and the sides of the bin. Put two or three inches of sand on top to prevent evaporation. Let the cellar be kept cool and well ventilated, and the carrots, if earth enough has been mixed with them, will neither mold nor shrivel up. Carrots can also be kept in pits, cording them up, and placing a vertical layer of soil between each pile of carrots.

Parsnips keep best in the ground, and only those needed during the winter should now be dug.

Cabbages are easily kept by placing them tight together in a furrow, with the roots sticking up, and then covering them with four or five inches of earth. Select a dry, light soil. This operation is best performed immediately before winter sets in. If done too early, and during warm weather, they may commence to decay, and when decomposition has once commenced, in this as in all other vegetable matter it is very difficult to stop it.

Common White or Soft Turnips are not worth much labor in housing. Better sell them or feed them out before Christmas.

Corn-Stalks should be secured without delay. If possible, let them be free from snow, rain, and all external moisture. If this can not be done, better let them stay out until they freeze dry. See hints for last month.

Fall Plowing should be pushed forward rapidly every day that the teams can be spared from the labor of gathering in the crops.

Surface Drainage is a very important matter, not only on winter wheat, but on all the land intended for spring crops. Those who have paid little attention to this matter will be surprised how much water can be let off their land by means of furrows made with a plow and the occasional use of a spade and hoe. We would urge attention to this matter at once, or at least after the first heavy rain.

Manure may be drawn out and spread on grass or other land whenever convenient. Except on steep hill-sides and on very sandy land, there is little danger of the manure leaching away. The ground will absorb it.

Work in the Horticultural Departments.

A favorable November will give the gardener an opportunity to prepare himself properly for the winter, by clearing up his grounds, plowing, carting manure, and doing many little jobs for which he can not spare the time in early spring. Many hints for October are applicable whenever the ground does not freeze so hard that it can not be worked.

Orchard and Nursery.

Planting.—Continue the operations of planting as long as the ground remains unfrozen, and prepare for spring planting by plowing and manuring.

Heeling in.—When nursery stock is received too late for planting this fall, heel in, taking care to select a light soil where water will not stand during the winter. Care must be used in filling the soil around the roots so as to leave no space for air. Trees thus treated will pass the winter in perfect safety, and be handy for early planting in the spring.

Apples.—These will all be harvested by this time, and if stored in bins just as they were picked, they ought to be sorted, put in barrels, and stored in a cool place where there is no danger from frost. Cider is best when made after cold weather has commenced, as fermentation is not so active then as during the warm weather of last month.

Cellars.—See that there are conveniences for ventilating cellars where fruit and vegetables are stored. The best way is to open a ventilator into the chimney flue. Do not close the cellar entirely until there is danger of freezing.

Grafting. — Seedling stocks for root grafting should be lifted and heeled-in in the cellar, where they can be easily reached during the winter. Cut cions after the trees have stopped growing, and bury in sandy soil in the cellar, or pack in sawdust.

Insects.—If not too cold, give the trees a thorough washing with strong soapsuds or lye, applied with a stiff brush; this will destroy many eggs, which would produce insects. Examine the trunks of the trees near the ground, and if there are any signs of borers at work, probe out with a stiff wire.

Labels.—Before freezing weather has set in, see that all labels are properly renewed, and set so firmly that the frost will not displace them. Labels for nursery rows, made of clear pine or cedar, 18 inches long, 3 inches wide, and ¾ of an inch thick, are very convenient. Paint with white-lead, and write the names with a soft, black lead-pencil. The part which is placed in the ground will last much longer if thoroughly saturated with petroleum.

Manuring.—Give orchards a good dressing of manure, applied and plowed in this fall. No profitable returns can be expected from an orchard where the ground is exhausted by grass or grain crops, and where nothing is returned in the way of fertilizers to compensate for the crops of fruit which are annually taken from the trees.

Nursery Rows.—Give the rows of young trees in the nursery a final plowing before winter sets in, turning the furrows toward the rows.

Seedlings.—Seedling forest trees are covered with evergreen boughs, and see that there is sufficient drainage to prevent the water from standing and freezing about the roots.

Fruit Garden.

Planting.—Make preparations for planting hardy shrubs and trees, and see that the tender ones are properly protected from the frosts.

Blackberries.—Plant as directed last month as long as the weather is suitable. In most localities, it will not pay to lay down and cover with earth.

Grape-Vines.—Set out good one or two year old plants with well-ripened wood, and cut back to within a foot of the ground. The best manure for grape-vines is ashes or bones which are not ground very fine, so that their action will continue for several years. If stimulating manure is applied, the wood fails to ripen properly. Any system of training can be adopted which seems best adapted to the wants of the cultivator.

Strawberries.—Cover the beds with a layer of leaves or straw as freezing weather approaches.

Manure.—In the fruit garden, as well as in the other divisions of the garden, manure is essential to the proper growth and ripening of the wood, and now is the best time to apply it.

Raspberries.—Plant out new rows of these, and lay down the tender sorts. Set in rows four feet apart, with plants in the rows three feet apart.

Kitchen Garden.

As long as the ground remains open, there is always plenty to do in preparing for the coming spring. If there are any crops left in the ground over winter, make suitable preparations to carry off all water. Plow or trench the soil as long as it remains open. Clear off all weeds which have been allowed to grow during the busy time of harvesting. If there are any which have been allowed to go to seed they must be collected and burned, together with any other rubbish which has been accumulating during the summer.

Asparagus.—Make new beds as before directed, and apply a coat of littery manure to insure an early and rapid growth next spring. Never allow a bed to be left full of weeds in the fall, but dig out all weeds, and in the spring apply a dressing of salt, which is a valuable fertilizer for asparagus.

Beets and Carrots.—Severe frosts injure these, and they must be harvested and stored in a dry cellar in sand if possible. The tops make valuable food for milch cows. If one has a considerable quantity of tops to feed out, it would be well to try to preserve them by the "sour-keep," mentioned on page 369 in October. See notes on farm work.

Cabbages.—If any of the crop is still in the ground, remove and store as recommended last month. Savoys are not injured by moderate freezing.

Celery.—Store in trenches, or in earth in the cellar.

Cold-Frames.—Allow these to remain open as long as the weather is mild, taking care, however, to close before nightfall. Provide shutters and mats for increased protection during very cold weather.

Mice.—See that no mice are allowed to infest the cold-frames. Seeds must also be constantly looked after. Destroy by using poison or traps.

Rhubarb.—Make new beds if not already done, and apply a heavy dressing of good stable manure.

Turnips.—Allow them to remain in the ground as long as possible, and when pulled and topped, store in the root-cellar, or in trenches outside.

Tools and Wooden Appliances.—See that everything is in perfect order for cold weather. Never allow any implement which can be used another year to remain out of doors. Bean poles, if properly cared for, will last for several seasons, and save considerable time and expense every season. It is the little items which are to be carefully looked after, and it is only by prompt attention to these that success is attained. Don't think that because a roller is wholly of iron that it will not do any harm to leave it out all winter, or because a marker is easily made, that it can be easily replaced, and that the weather will not affect it.

Water.—If any part of the garden is so low that water stands upon the surface during the winter, open a surface drain to carry it off. Underdrains are better; still, surface drains are useful.

Flower-Garden and Lawn.

Although the early September frosts destroyed the tender plants in Northern localities, still many of the hardier ones remain to beautify the flower-garden. The season has been favorable for the construction of walks and roadways, and for preparing beds for early planting in the spring.

Bulbs can be planted this month, if not already done, provided the ground remains open enough. Dig up all tender bulbs which are still in the ground, and after drying in the sun a few hours remove to a dry place where they will not freeze.

Dahlias.—Before the weather becomes very cold, take up the tubers and store in a dry cellar, carefully labeled with the name or color of each clump. They will keep well in any place where potatoes are stored, if packed in dry sand.

Frames and Pits.—Open these whenever the weather is mild, but take care to close them before they have time to become too cool. Water only when the earth looks dry. Use mats for protection during cold nights.

Lawns.—It is now too late to sow seed with any prospect of success, but preparations can be made for sowing early in the spring, by leveling the ground, manuring, etc.

Perennials.—The young seedlings will winter better if covered with a thin layer of litter or leaves.

Roses.—Remove the tender varieties to the cellar, or bend them down and cover with sod.

Cannas.—Take up the clumps before the foliage is killed by the frost, and store in a dry cellar. Save a supply of seeds for raising young plants.

Greenhouse and Window Plants.

The change in temperature should be gradual, so that plants taken from the outside will not feel the effects of removal. Give plenty of air during the middle of the day. No fires will be needed unless the temperature of the house is below 45°. Use care in watering, as more plants are killed by too much water than from the want of it.

Annuals.—Seeds of annuals sown in pots or pans must be pricked out into boxes for winter flowering before they become drawn. If no seeds have been sown, prepare a few pans of Mignonette, Sweet Alyssum, etc., immediately.

Bulbs.—Remove a few pots from the cellar every week for winter flowering. It takes about six weeks for Hyacinths and Tulips to flower after they are brought into the greenhouse.

Camellias.—If early flowers are wanted, remove a few pots into a gentle heat, and give plenty of water, and once a week a watering of liquid manure. The larger number of the plants should be kept back as long as possible.

Greens.—Store a quantity of *Lycopodiums* in the cellar for use in making bouquets during the winter. Also secure a quantity of green moss for making up hanging-baskets, in-door rock-work, etc.

Insects.—Keep all plants free from insects by fumigating, or washing with whale-oil soap.

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. 17, 1871, and for the corresponding month last year.

1. TRANSACTIONS AT THE NEW YORK MARKETS.

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
28 days *this* m'th.	329,000	4,316,000	1,924,000	261,000	541,000	2,116,000
25 days *last* m'th.	371,000	3,805,000	2,104,000	191,000	115,000	1,219,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
28 days *this* m'th.	391,000	4,259,000	3,710,000	114,000	296,000	1,804,000
25 days *last* m'th.	323,000	4,939,000	3,615,000	96,000	51,000	1,224,000

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

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
28 days 1871.	329,000	4,316,000	1,924,000	261,000	541,000	2,116,000
25 days 1870.	453,500	2,814,000	1,287,000	99,000	715,000	1,558,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
28 days 1871.	391,000	4,259,000	3,710,000	114,000	296,000	1,804,000
25 days 1870.	397,500	3,168,000	1,521,000	71,000	217,000	1,718,000

3. *Exports from New York, Jan. 1 to Oct. 16.*

	Flour.	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
1871.	1,347,463	17,068,047	9,508,756	336,919	81,896	27,904
1870.	1,509,230	13,880,054	334,176	65,781	134	17,191
1869.	1,175,456	14,782,841	1,571,785	130,938	——	46,197
1868.	747,384	4,220,727	5,471,816	153,093	——	43,556

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

	Wheat, bush.	*Corn,* bush.	*Rye,* bush.	*Barley,* bush.	*Oats,* bush.	*Malt,* bush.
1871.						
Oct. 13.	511,353	3,011,536	124,230	44,633	1,487,887	166,003
Sept. 13.	471,710	3,310,849	30,492	9,453	884,629	187,525
Aug. 14.	397,516	2,403,359	34,599	——	34,405	177,484
July 10.	385,163	634,954	96,945	——	274,099	190,541
June 12.	239,350	292,188	114,783	3,480	334,459	142,572
May 9.	283,700	259,245	160,734	50,725	376,226	171,933
April 10.	811,871	180,947	150,964	164,393	709,362	171 897
March 13.	1,523,735	204,388	150,514	329,349	1,133,897	218,231
Feb. 13.	2,293,677	311,471	148,198	481,863	1,409,995	215,121
Jan. 16.	3,683,116	272,618	157,730	554,491	1,756,936	216,394
1870.						
Dec. 15.	3,060,762	208,319	148,069	509,397	2,085,137	231,129
Nov. 9.	2,092,900	890,000	116,800	400,400	2,125,000	——
Oct. 10.	1,309,921	476,544	53,391	184,803	1,679,658	237,453

5. *Receipts at head of tide-water at Albany each season to Oct. 7th:*

	Flour. bbls.	*Wheat,* bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.
1871.	164,900	13,141,000	16,722,700	511,500	600,500	3,414,500
1870.	301,200	10,052,300	3,753,000	392,700	723,600	4,037,300

CURRENT WHOLESALE PRICES.

	Sept. 15.			Oct. 17.		
PRICE OF GOLD	114			113¼		
FLOUR—Super to Extra State	$5 50	@	7 15	$6 25	@	7 75
Super to Extra Southern	5 60	@	9 75	7 20	@	10 25
Extra Western	6 20	@	9 75	6 85	@	10 00
Extra Genesee	7 15	@	8 75	7 75	@	9 25
Superfine Western	5 50	@	6 00	6 25	@	6 85
RYE FLOUR	4 10	@	5 15	4 60	@	5 80
CORN-MEAL	3 30	@	4 10	3 50	@	4 50
WHEAT—All kinds of White	1 55	@	1 70	1 65	@	1 80
All kinds of Red and Amber	1 40	@	1 65	1 50	@	1 68½
CORN—Yellow	75	@	77	78	@	80
Mixed	71	@	73	77	@	79
OATS—Western	50	@	52	52½	@	55
State	—	@	—	53½	@	54½
RYE	80	@	93	92	@	1 06
BARLEY	80	@	95	80	@	1 10
HAY—Bale ₱ 100 lbs.	1 05	@	1 55	1 05	@	1 50
STRAW, ₱ 100 lbs.	60	@	1 10	55	@	1 00
COTTON—Middlings, ₱ lb	21⅛	@	21⅞	20¾	@	21
HOPS—Crop of 1870, ₱ lb	18	@	30	20	@	30
Crop of 1871	40	@	55	35	@	65
FEATHERS—Live Geese, ₱ lb	70	@	76	70	@	78
SEED—Clover, ₱ lb	10¼	@	11¼	10¼	@	11
Timothy, ₱ bushel	3 00	@	3 50	3 00	@	3 35
Flax, ₱ bushel	2 00	@	2 06	2 03	@	2 06
SUGAR—Brown, ₱ lb	8¼	@	11	8¼	@	11¼
MOLASSES, Cuba, ₱ gal	20	@	45	20	@	45
COFFEE—Rio (Gold, in bond)	11	@	14¼	14¾	@	16¾
TOBACCO, Kentucky, &c., ₱ lb	7¾	@	14	7¼	@	14
Seed Leaf, ₱ lb	14	@	60	12	@	65
WOOL—Domestic Fleece, ₱ lb	50	@	68	50	@	68
Domestic, pulled, ₱ lb	37	@	63	37	@	65
California, unwashed,	27	@	40	26	@	40
TALLOW, ₱ lb	8¼	@	9¾	9¼	@	9¾
OIL-CAKE—₱ ton	37 00	@	39 50	39 25	@	40 50
PORK—Mess, ₱ barrel	13 62	@	13 75	13 12	@	13 25
Prime, ₱ barrel	10 00	@	10 50	10 00	@	10 25
BEEF—Plain mess	8 00	@	11 50	7 00	@	11 50
LARD, in tres. & barrels, ₱ lb	9	@	9¾	9½	@	10¼
BUTTER—State, ₱ lb	13	@	32	20	@	25
Western, ₱ lb	10	@	23	11	@	20
CHEESE	5	@	11	7½	@	13¾
BEANS—₱ bushel	1 25	@	3 90	1 10	@	3 50
PEAS—Canada, free, ₱ bu	1 18	@	1 25	1 25	@	1 35
EGGS—Fresh, ₱ dozen	25½	@	28	27	@	32
POULTRY—Live Fowls	16	@	22	14	@	17
Turkeys, ₱ lb	19	@	22	14	@	18
Geese, ₱ pair	1 75	@	3 00	1 50	@	3 00
Ducks, ₱ pair	62	@	1 00	75	@	1 25
VENISON—₱ lb	—	@	—	14	@	20
POTATOES, ₱ bbl	1 20	@	2 25	1 35	@	2 50
SWEET POTATOES, ₱ bbl	3 00	@	4 00	1 50	@	3 00
CABBAGES—₱ 100	3 00	@	7 00	3 00	@	7 00
BROOM-CORN—₱ lb	2½	@	7¼	10	@	15
APPLES—₱ barrel	2 00	@	4 75	2 00	@	4 75
PEARS—₱ barrel	2 00	@	10 00	4 00	@	10 00
GRAPES—₱ pound	6	@	18	5	@	10
QUINCES—₱ barrel	—	@	—	5 00	@	9 00
CRANBERRIES—₱ barrel	—	@	—	7 00	@	10 00
BUCKWHEAT FLOUR—₱ 100 lbs.	—	@	—	3 00	@	3 50

Gold has been up to 115 since our last. It closed weak, however, at 113¼ on the 17th of October....The awfully destructive fire at Chicago was the chief topic in business circles the latter part of the month under review. The main consideration of our merchants was, not how much they had lost by the fire, but what were the sufferings of the people of the hapless city, and how far and in what way relief could be promptly afforded to the sufferers.....

In the produce line the reports of the fire and of the amounts of produce destroyed by it, tended to stiffen prices in our market. Holders offered supplies less freely, and seemed confident of the establishment of an important advance. Buyers, however, did not respond with freedom, purchasing only as they urgently needed stock, at the higher figures. At the close sellers of Breadstuffs were generally more accommodating, and the market seemed weak and yielding.....Of Provisions the available supplies were gaining on the demand, and prices were depressed.....Wool has been moderately sought after and held with firmness....Hay, Seeds, and Tobacco have been quiet at our revised quotations.....Hops have been in more request and quoted dearer.....Broom Corn has been in active demand and decidedly higher in price, under the reports of the large amounts destroyed by the Chicago fire.

New York Live-Stock Markets.

WEEK ENDING	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	*Tot'l.*
September 18th	9,651	126	3,669	35,638	25,496	74,595
September 25th	8,975	133	2,720	28,709	30,327	69,960
October 2d	9,481	99	2,578	34,036	38,412	84,606
October 9th	9,197	120	2,166	32,641	43,763	87,887
October 16th	8,005	102	2,085	27,186	31,509	68,873
Total in 5 Weeks	44,409	580	13,218	158,225	169,498	385,926
do *for prev. 4 Weeks*	34,812	375	12,037	123,020	91,927	265,171

	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per Week	8,882	116	2,643	31,645	33,899
do. do. *last Month*	8,703	94	3,009	30,755	23,757
do. do. *prev's Month*	7,460	81	2,898	29,043	22,965
Average per Week, 1870.	6,847	97	2,240	28,151	17,108
do. do. do. 1869.	6,275	92	1,732	23,836	15,348
do. do. do. 1868	5,733	105	1,588	27,182	18,809
do. do. do. 1867.	5,541	64	1,320	22,154	20,605
do. do. do. 1866.	5,718	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	4,837	91,083	1,499,509	798,199
Total in 1868	298,128	5,166	82,573	1,413,479	973,061
Total in 1867	293,832	3,369	69,011	1,174,154	1,102,643
Total in 1866	286,880	4,885	62,420	1,040,000	673,000
Total in 1865	270,271	6,161	71,991	836,733	573,190
Total in 1864	267,609	7,603	75,621	782,462	660,277

Beef Cattle.—With a little increase in numbers, the market has been variable during the past five weeks, the close showing a decline of about 1c. One week ago, with unfavorable weather, the markets were extremely depressed, and prices fell off nearly 1½c. ₱ lb., but with a lighter run just now, ½c. is restored. The great fire at Chicago has had the effect to derange the trade here, as the bulk of stock coming to this market was originally sent to Chicago and there bought by parties operating on Eastern account. Texans are coming forward quite freely, and are in fair condition. The experiment of sending them direct from Texas was unsatisfactory and has been abandoned. We are now receiving droves which were kept for some time in the States.

Below we give the range of prices, average price, and figures at which large lots were sold:

Sept. 18th, ranged 7½@12½c. Large sales 10 @11½c. Av. 11¼
Sept. 25th, do. 6½@12½c. do. do. 10 @11½c. do. 11
Oct. 2d, do. 7 @13 c. do. do. 10 @11½c. do. 11
Oct. 9th, do. 6 @13 c. do. do. 9 @10½c. do. 9¾
Oct. 16th, do. 7 @12½c. do. do. 9½@11 c. do. 10¾

Milch Cows.—As is usually the case at this season of the year, the offerings have been larger, to meet the increased demand. Good milkers, known to be fresh, are in fair demand, but common cows sell slowly. Prices vary from $40@$50 each, for poor; $60@$70 for medium to good, with a few choice at $80.....**Calves.**—As cool weather sets in, calves are sent here dressed rather than alive, as they can be shipped from longer distances and the transportation is less. Some still come alive, and sell for more money. Good to prime milk-fed are firm at 9½c. @ 11c. ₱ lb.; common to fair sell at 7½c. @ 9c.; mixed lots, half grassers and half milk-fed to slaughterers at 5½c. @ 7c.; and common to best grassers to feeders at $6@ $9 per head. Hog-dressed are worth 13c. @ 15½c. for milk-fed, and 7c. @ 10c. for grassers.....**Sheep and Lambs.**—The arrivals have not been so large as is usual at this season of the year. And still the trade has been slow, with low rates up to the present week, when ½c. @ ½c. were added to the prices, leaving sheep about as they closed last month, but lambs have declined. They are gradually approaching the price of fat sheep. Canada continues to give us the greatest number of lambs, while the largest run of sheep is from Ohio. Poor to medium sheep are selling at 4¼c. @ 5¼c. ₱ lb.; fair to good at 5½c. @ 6c.; and prime to best selections at 6¼c. @ 6½c. Lambs range from 6c. @ 7c. ₱ lb., a few choice reaching 7¼c.....**Swine.**—Here we have a large increase in numbers, and the market first declined, but has since rallied, closing firm. Live are worth 5¼c. @ 5½c., and city dressed Western 6½c. @ 7¼c., the latter price for light pigs.

How shall he Manure a Hill

which is too steep to get a team up with a load, is the question with "B. W." He should get clover to grow by using a bushel of plaster, and perhaps a bushel of salt, per acre, spread on the crop early in May. If once a good crop of clover can be got, and that be plowed under, the land may be kept in fair yielding condition by renewing the clover once in four years.

EVERYBODY

IS RICHER THAN

ANYBODY!!!

As drops of rain unite to make the boundless flood, so the mites that "Everybody" contributes make the monuments of the world.

It is the Masses who are Rich—rich men are comparatively few and far between.

A Five-Cent Savings Bank accumulates money faster than a "National" bank. Cabbages pay better than cauliflowers, for "everybody" eats cabbage, and only rich people eat cauliflowers.

If you want a project to succeed, get "everybody" interested in it, and it is sure, however wild it may seem.

Webster's Spelling-Book is the most profitable book ever published, because "everybody" uses it.

Crœsus himself could not pay for the sugar that "everybody" uses in his tea.

If the *American Agriculturist* were sold for ten dollars a year, its publishers would starve. There are not rich agricultural readers enough in the country to pay for its engravings alone. It is only when the publishers adopt the great principle that

"Everybody is Richer than Anybody,"

and the price is cut right down to the capacity of "*everybody*," that it succeeds.

"Everybody" takes it at $1.50, and so the publishers are able to spend the really princely sum it costs to keep the staff of writers and engravers—and to keep them for the exclusive use of its own readers.

When we say "everybody," we mean the great industrial class to whom "everybody" belongs—the great mass of the people.

The circulation is *incomparably greater* than that of any other similar paper in the world, and some of its readers, at least, think it gives ten times as much genuine information for the money as any other paper does. At the same time,

ITS PUBLISHERS ARE NOT SATISFIED.

THEY WANT TO MAKE IT TWICE AS GOOD.

To this end it only needs still more subscribers. If "everybody" who now takes the paper would urge it upon "everybody" they know *who ought to subscribe for it*, it would soon double its subscription list, and then the *American Agriculturist* would be incomparably better and cheaper than even it now is. Present subscribers would get much more for their money, and

EVERYBODY WOULD BE MUCH BETTER OFF.

Remember that

EVERYBODY

is made up of

ANYBODIES,

and that it is for the *self-interest* of "anybody" who may see this article to set at once at work to help the publishers to carry out their plans.

Noteworthy Facts.

1st.—*The circulation of* American Agriculturist *and* Hearth and Home *is greater than the combined circulation of half of ALL other similar journals published between the Atlantic and Pacific Oceans.*

2d.—*The Publishers have to provide but one set of business offices, clerks, printing-rooms, mailing-rooms, etc., instead of fifteen or twenty, and only two corps of editors, information gatherers, etc.* **Therefore,**

A.—*They can expend much more in gathering reliable information, valuable engravings, etc., and give vastly more for the same money. "A word to the wise," etc.*

B.—*Their advertising space is far more valuable, and from this revenue they can give the most valuable premiums to those sending clubs of subscribers.*

A Special Request.

The reader is requested to carefully look through pages **433, 434, 435, 436,** in this paper. We can not afford space to repeat all the contents of those pages again. We believe the offers made on those pages are really worthy of general attention. Great pains have been taken to get together a large assortment of the *best articles*, those that are *useful* as well as *pleasing*, and no better opportunity can ever be offered to our readers to secure for themselves one or more of these valuable articles. Please read through the descriptions and see what they are. Every word that is said about them can be confidently believed. Over **Thirteen Thousand** persons have made up clubs of subscribers, and in return have received one or more of the premium articles *free*. The great amount of valuable information and interesting reading-matter given during a year in the *American Agriculturist* and *Hearth and Home*, at the low subscription rates—rates so low as to little more than cover the cost of the printing paper—can but be useful to every reader. It only needs a little showing of the papers, and a little explanation of their character, value, and cheapness, to induce most persons to take them for a year. A very trifling economy in some direction will furnish the few cents per week needed to pay for both journals. The premiums given will pay any person well for the little time and trouble required to show and explain the papers. There are persons enough in the vicinity of every Post-office to make up one or more premium clubs; and, except at places where nearly every one now takes both papers, every one of our present readers may easily collect a premium club, large or small, and obtain a fine article without expense. We therefore again ask every reader to turn to pages 433-436, see what is offered, and put forth a little effort to secure a premium. **Now** *is just the time to do it. All new subscribers, now coming in, for* 1872, *are at once entered upon our books and receive the remaining numbers of the* American Agriculturist *for this year without extra expense.*

TAKE NOTICE that *American Agriculturist* (monthly) and *Hearth and Home* (weekly) are two **entirely different** journals, in reading matter, engravings, etc., as much so as if published a thousand miles apart. The fact that they are issued from the same office merely adds to the value of each, by affording extra facilities and a saving of expense, so that each can have a greater amount expended upon the paper itself. The reader, of course, knows what the *American Agriculturist* is. *Hearth and Home* is a very large 20-page weekly, full of useful information and interesting reading for *every* Hearth and Home. It gives an immense amount of splendid *Engravings* of a high character, and it supplies to the reader the News of the world for each week, brought up to the hour of going to press. This is given in a clear style, and in so carefully prepared and condensed a manner as to meet the wants of busy men and women who desire to keep up with the world, to be intelligent, but who have not time to wade through acres of printed matter. Both journals will be found useful in every household. *Hearth and Home* is the cheapest journal in the world, considering its character, engravings, and careful preparation. It costs but $3 a year, though fully equal to others published at $4 and $5 a year; still further, it is supplied in connection with the *American Agriculturist* for $4 a year (for the two).

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 can not 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.

Life Insurance—"Mutual Benefit" Companies.—In reply to many inquiries, we answer that we can not commend the plan of these companies to general adoption. For example, it is proposed that 1,000 persons between the ages of 51 and 60 unite, and first pay in $18 each ($18,000), and $9 a year for annual dues ($9,000), which $27,000, and the annual $9,000 besides, goes for offices and other expenses. Then, on the

death of any one of the number, *all* the rest pay $5 each. If only 13 die each year, the assessments upon the survivors will be $65 each, in thirteen separate instalments. The company has to make 13,000 separate assessments and collections during each year from 1,000 persons scattered all over the country, and each member must pay $74 a year. But 13 deaths a year is far too low an estimate. It would give an average length of life, to each, of 132 years, for it would take nearly 77 years for 1,000 persons to die, at the rate of 13 a year, and 77 added to the original 55 years equals 132 for each. The plan might work if a class of 1,000 persons all resided near together, so that the numerous assessments could be readily and quickly made. Everything considered, we believe the plan in general use, that of paying a fixed sum per annum for a given amount of insurance in a responsible company, is far preferable. We have not, in this item, discussed the personal responsibility and reliability of the parties managing these "mutual benefit" companies—a matter of no little importance to those who fall in with the theories put forth by them.

SUNDRY HUMBUGS.—The skill and ingenuity of the swindling gentry is often surprising, and we scarcely wonder that many persons of fair intelligence are entrapped by their plausible schemes. If this talent were turned to honest account it would be very useful to the country. We have before us, recently received circulars—written, printed, and lithographed—of no less than thirty-two schemes for getting money from people without returning any adequate equivalent; several of them pocket all the money received, sending absolutely nothing in return.....**"C. O. D."**—One of the common methods of securing confidence is the offer to send articles "C. O. D." (collect on delivery), under the pretense that parties can examine them and decide upon their merits before paying for them. This is all very honest in appearance, but really a sham. In all cases, a part of the money must be paid in advance. ☞ Every one should understand that these "C. O. D." parcels can not be taken from the express offices or be examined until the accompanying bills and charges are paid. If suspicion be aroused, and a parcel be refused, or returned after examination, the operator retains the percentage of money previously paid to him. Never have anything to do with ordering or receiving C. O. D. parcels, unless for things known to be good, and ordered from well-known, reliable parties.....**Watches, Jewelry.**—Hundreds of thousands of dollars are annually wasted in ordering low-priced (not *cheap*) watches. Oroide watches, watches cased in some wonderful new metal or metallic compound, cheap watches from auction, from failed dealers or manufacturers, watches by tickets, by lot, by gift enterprises, etc., etc., are continually offered by advertisement and by private circulars. And the same of jewelry. The truth is, that good watches, like coin, like wheat, and like cotton cloth, are always worth and will bring a standard price, no matter how many dealers or manufacturers fail. You might just as well think of buying, at a great discount, the genuine gold dollars of a failing firm as of getting genuine, good watches or jewelry at half-price. When you go after plated cases, or any other metal cases than those made of coin-silver or gold, you are sure of "paying too much for the whistle" of getting unreliable articles at enormous prices, as compared with their actual value or lack of any real value—no matter what the puffing circulars may assert. A poor time-piece is worse than none; it leads to errors and wrong calculations just when one most relies upon it. A very low-priced *good* watch is an impossibility. We would not take as a gift a watch of which the works—the "running gear"—did not *cost* at least $10 to manufacture, aside from the case. A silver case should weigh at least 2½ ounces of coin silver, worth $3 to $4 for the silver, and $3 to $5 more for making up plain. The pinchbeck or other low-priced cases cost nearly as much to manufacture. It is therefore always cheaper to buy the real silver. Good, reliable works (not reckoning case) *cost* all the way up from $20 to $50, or more. The above will show the unreliable character of a dozen cheap watch circulars now before us. One is only safe when he gives them all the go-by, and deals only with reliable, well-known parties, who can be found if wanted. More than half of all the circulars offering these cheap watches are from despicable swindlers, who operate only at distant points, and pocket all money sent them. Their circulars indicate immense establishments; their base of operations are small attic rooms, always closed to actual callers. The pretense of wishing to send you a good watch as a sample, and to secure you as an agent, is always a trap.....**"Sun-light Oil"** is an unmitigated humbug, as we have often shown, and no one should invest a dime in any recipes or "family rights" to make it.....**Electrical** appliances for the hair, etc., are nonsensical, when not sheer humbugs. ...The **"Spanish Policy"** scheme, an unmitigated cheat, is run by a thief, who changes his name and address every few days. His latest assumed name received is J. W. Parker, 16 South Fifth Avenue, N. Y.....**"Howard Association."**—Several new readers are referred to our past denunciations of these so-called benevolent associations, run by advertising individuals. Put no confidence in a single one of pretended doctors of "sexual" and private diseases, who make great and benevolent pretensions by circular and letter. Your money is what they are after, and if they get the slightest hold upon you, by a letter even, we would not give much for any money you have left when they let go their hold. Their highest skill is in writing plausible letters.....The **"Marriage Guide,"** now advertised by the Jersey City Picture Company, is such an absurdity, that we wonder where, even among the most ignorant and simple people, there can be found foolish buyers enough to pay for printing the advertising circulars, to say nothing of postage.....**Derby's Aikin Scheme.**—We are glad to see that J. C. Derby announces a positive close of his Aikin S. C. Land Distribution, *alias* Sale, *alias* Lottery, for there will then be one less of these lottery enterprises, and if the lists are filled, the 616 lucky ones, drawing prizes of $5 and upwards, will know what they get, and the **18,384** who get no prizes for their $5 tickets will know that also..... The **Louisville** (Ky.) Library Lottery is carpeting Broadway, near the Astor House, with its documents. The boys carry off the pictures pretty freely. Wonder how much will remain for the library after expenses are paid? Ditto of the Omaha Scheme. Ditto of the S. C. Land and Immigration Association. Ditto the Cosmopolitan Benevolent Society of Nevada, *alias* School Lottery. Ditto the Diamond Gift Distribution for French War Victims in Washington *and* New York. If anybody has $5 to invest in these enterprises, we are sure he will find it an every way better investment to send it to the Chicago sufferers—one almost as sure to get a present return, and sure to yield a perpetual return in inward satisfaction, infinitely greater than can be reasonably hoped for from any investment in these various lotteries, dubbed Library Aids, etc.....**Medical.**—A Dr. Dixon, of Ohio (not of New York City), sends his circulars to postmasters asking them to distribute them, and offering in return to doctor themselves or families or intimate friends free of charge! This reminds us of the coffin-maker who wanted an editor to advertise for him and take pay from his shop!.....A New York man is offering to send lots of medicines, circulars, etc., to those who simply pay expressage, and take his pay when the medicines are sold. In this way a flood of vile stuff is being pushed upon poor, suffering mortals all over the land. What a pity the thousands of tons of deleterious trash, *alias* patent and secret medicines, were not all concentrated in Chicago about October 9th! The loss of other property would have been in part compensated, and a hundred lives would have been saved elsewhere for every one lost in the fire.....**"Queer."**—A correspondent in Dakota writes us that that region and the whole North-west is still being flooded with the pretended counterfeit money circulars. To what has been already said by us, we need only add that every dollar sent to these swindlers has been pocketed, and no counterfeit money ever returned. The result is, the loss of much money by those who are *dishonest* enough to want to swindle others; and, fortunately, no counterfeits have been put into circulation to bother good people. Among the new names assumed by operators in this line we find: Alex. Stephens, 56 John st.; Jason Phelps, 688 Broadway; S. T. V. Ludlow, 189 Broadway, *alias* Job Spencer, 190 Broadway; Dr. J. Homan, 340 Canal st.; J. Townsend Palmer, 33 Park Row; Day & Wallace, 143 Fulton st., who are at it again, etc.

Trenching a Garden.—"E. O. A.," Monmouth Co., N. J., wants to know how to trench a garden, and how deep it should be dug. Trenching is an expensive process, and should be thoroughly done if at all. Two feet is the least depth advisable. Remove the surface soil of a space a yard wide and two yards long, lay this on one side; then dig out one yard square of the subsoil to the proper depth, and lay that also on one side. In its place put the square yard of subsoil remaining, breaking it up finely. Then dig up another square yard of surface soil and place it on top of the subsoil last removed. Thus one square yard is finished. Then continue in this manner with this strip, and when it is finished work backwards on another to the place where the commencement was made. Thus work backward and forward until the garden has been gone over, and the earth first removed must be used to replace the last piece dug out. Manure should be mixed with the soil and subsoil as the work proceeds.

"Love Powders" very Dangerous.—In our Humbug column we have often cautioned our readers against the advertisers of various "love-powders," lotions, medicines for private diseases, etc., and characterized them as dangerous. Here is one actual illustration among thousands we could give: A young man (whose residence shall be nameless, for the sake of his friends) desired to secure the affections of a worthy young lady, and to help him he sent $1 to Reeves & Co. (shown up in these columns some time since), and procured a so-called love-powder, warranted to secure the love of the person to whom it was given. He put part of it into some figs, and handed them to the young lady. For some reason she suspected him, and so informed him. He at once ate the figs in her presence, to show his innocence. The result was, the powder removed the skin from his mouth, laid him up under the doctor's care for two months, nearly costing his life. An examination of the remainder of the powder showed it to be mainly *Cantharides* (blistering fly). The young man was obliged to confess, and the thing getting out, he now, in addition to being severely injured, has to bear in the community the *sobriquet* of "Shop-Fly." There are multitudes of cases of suffering from such like medicines and powders, where the friends of the victim are ignorant of the cause.

A New Work on Architecture.—Atwood's Country and Surburban Houses. By Daniel T. Atwood, Architect. Illustrated. Orange Judd & Co. Most of the works upon architecture are too expensive, not only in the books themselves, but in the plans which they present, for persons of moderate means. In the present volume the author aims to give designs for houses which will meet the wants of a large share of country and suburban dwellers. Besides giving plans he discusses the general principles of building, and matters which demand attention before commencing to build. Price, by mail, $1.50.

The Value of Wood-Ashes for Wheat.—A "Subscriber" send us the following as his experience in using wood-ashes, viz., that in quantities of only eight bushels per acre they have a marked effect; that they push the wheat forward several days, thus getting it ahead of that critical period when it is so apt to be attacked by rust; that they strengthen the stem and increase its solidity. All of which, and much more, we can readily indorse. In fact, ashes are an excellent application for all crops, and especially for an orchard.

Advice to Seedsmen.—A correspondent in Danville, Ky., asks us to publish the following: "Persons having Lucern seed for sale will please advertise in the *Agriculturist*."—We comply with our friend's request, for the purpose of saying that all first-class seedsmen keep all kinds of seeds. If a dealer in a large city, like New York, Philadelphia, St. Louis, etc., receives an order for a seed that he has not in stock, he will send about among other seedsmen and find it. If he will not do this, he is no sort of a seedsman and had better go into some other business. A seedsman can not catalogue his whole stock in an advertisement. Send to several for catalogues, and you will no doubt find Lucern and every other desirable seed.

Preserving Eggs in Winter.—"E. A. B.," Herkimer Co., N. Y., asks how to preserve eggs for winter use. We have kept eggs perfectly good from October to March in the following manner: A piece of lime, as large as a quart-dipper, is put into five gallons of water, and salt added until an egg will float. This is strained and put into a clean keg, into which a loose head is made to fit easily; a knob is fitted to the head for a handle. The eggs are put, as they are gathered, into the liquid, and the loose head placed on them to keep them below the surface. The keg should be kept in a cool place in the cellar. The liquor will not freeze except at a lower temperature than freezing point. Eggs thus preserved will sell readily as "limed eggs" until fresh eggs come, and are almost as good as fresh ones.

Young Farmer, a youth of 17, at Mt. Vernon, Ind., complains that we do not give sufficiently specific directions for performing the various farm operations, and especially that we do not tell him what plows and other implements to use. When "Young Farmer" gets older, he will learn that each section of the country has its favorite farm implements, and were he to visit his neighbors and the county fairs he would see an abundance of excellent varieties. Our advice is to use those farming utensils made nearest home, provided they will accomplish the purpose. We can not publish a full treatise upon agriculture in every issue of the *Agriculturist*. We are obliged to assume that certain fundamental principles are understood by our readers. "Young Farmer's" letter is a very neatly put and sensible one, and the best we can say to him is that when he puts us a

question upon any particular point, we will try to answer it to the best of our ability: We like such young farmers.

Surfeit.—"J. H. S.," Union City, Pa., has a horse that has the surfeit; he asks what can be done for him. The animal is out of condition or has been allowed to become heated and suddenly cooled. Give bran mashes and keep the bowels loose. Feed moist feed with crushed oats and a little linseed meal, but no corn. Keep the stable well ventilated and administer some tonic medicine.

Peat or Turf as Manure.—A. Sprecher, Black Hawk, Wis., asks whether he can use turf or peat as manure, without preparation, and what would be the best crop to raise the first year after it is applied. Peat, when dried, is very indestructible, and in this state is a poor manure. If piled when dug it will on exposure to the frost become fine and fit for application to grass land, for which it is best fitted. For any other crop it is not of much value without some preparation. Lime (four bushels to the cord of peat) is the best material to reduce it to a state fit for use.

Seed Wheat.—"J. B. M.," Hamilton Co., Ohio, asks which is the best seed wheat, and if we could send him a sample and prices; also, if we could supply him with some. For our own use we would choose the Diehl or the Treadwell. The first is a white wheat, the latter an amber wheat. Both yield well and are favorite wheats among millers. The Diehl is perhaps the hardiest. Any seed dealer whose advertisements appear in our columns, would supply these or other wheats at market prices. We do not deal in seeds, nor do we know the price of these wheats. Something above the price of ordinary wheat is charged by the seedsmen for seed, but this depends on the scarcity of the seed and its purity.

Weeds Plowed under.—A Subscriber, Ora Oak, Wis., asks if a crop of weeds plowed under benefits the soil. We do not think any benefit is derived from permitting weeds to grow and then plowing them down. If weeds have grown unavoidably, of course we would plow them in, but would rather make a clean fallow. Great mischief is often done by permitting weeds to grow, in the hope of getting some benefit from them as manure. Seeds will mature and propagate at a very early stage of the plant, and when it is supposed to be in blossom they are often ready to seed the ground for many future crops.

Wheat and Clover.—R. Garcia, Powhatan C. H., asks how to make forty acres of poor land grow good wheat and clover. If we could answer this satisfactorily, we should have no anxiety as to the source of our bread and butter for all time to come. In fact, we should possess something equal to the philosopher's stone. This must be a work of time and some expense. Probably a dressing of lime to commence with, and grass gradually brought in, would be a proper course. Ample information on this subject can be gathered from the back numbers of the *American Agriculturist*.

How to Kill Sassafras Bushes.—R. Garcia. Sheep will soon destroy them by browsing the leaves and twigs, or they may be plowed up and gathered and burnt, but many years will be required to effect their entire removal. This must be followed up by clean culture every year after the first plowing, and cutting the sprouts persistently.....C. Hoffman. We do not know of any way of killing sprouts by "chemicals," that is practicable. Cutting while in full vigor is the only available method.

Wire Fences.—S. F. Brayman, Kane Co., Ill., says a wire fence, really serviceable, is more expensive than a board fence, with lumber at $20 per thousand. He builds a fence with seven wires at equal distances apart, posts of white oak or cedar, six feet apart, and set alternately on either side of the wires, when fastened with staples. Staples, however, are objectionable, and he recommends the posts to be bored with a half-inch bit and the wires passed through them. This prevents cattle or horses from breaking the staples when pressing against the wires. The extra cost of this fence he thinks is repaid in its impenetrability by unruly cattle, who will readily break through an ordinary wire fence.

Ashes—the best time to apply them.—H. M. Wilson, Portage Co., Ohio.—The best time is, as soon as they can be procured; they can be spread at once from the wagon in which they are hauled as easily as at any time, and one time is as good to apply them as another.

Lice on Poultry.—"Tormented," Metuchin, N. J., is plagued with hen-lice. They are in his chicken-house, in his horse stable, and in his dwelling house. He bought a book, entitled "What I Know about Farming," by a well-known author, and then bought a farm to carry out the ideas therein set forth. But an undesirable stock has taken possession of his premises, and his author knowing nothing about them, he seeks further light.—Remove the horse, wash him thoroughly with carbolic soapsuds daily, or twice a day, until he is free from them, or they will eventually kill him. Tear out of the stable and the chicken-house all the fixtures, and give it and them a coat of hot whitewash, with an ounce of carbolic acid dissolved in a pailful of it. Anoint the fowls beneath the wings with a mixture of lard and kerosene oil—two parts lard to one of oil. The lice will not live on the human person, but if among the clothes they may be got rid of by washing with soap and hot water. If they are destroyed out of doors they will disappear from the house. Burn the nest-boxes, and make new ones, and paint them with crude petroleum. Also study the back numbers of this paper.

Glanders.—A "Subscriber" asks if glanders causes a running at one nostril only, or if both are affected. In its first stages it is almost impossible to distinguish glanders from nasal gleet. Glanders is shown by the nature of the discharge, which is gluey and sticky, and often adheres to the nostril, and is also glossy in appearance. The lining of the nostril is also ulcerated, and there is a peculiar expression of the nose, caused by the raising of the nostrils, which we have never seen in any other disease. In gleet the nostrils are of a dull, leaden color, without any spots, and the discharge runs or parts freely and is not adherent.

Curry-Combs and Cards.—G. Pauls, St. Louis Co., Mo., uses a curry-comb which he says is a great improvement on the old-fashioned square ones. It is rounded on the corners, and is more convenient to use on this account. He wants a good card to scratch stock. In this item of cards an improvement is much needed. The old-fashioned one is of the weakest description, and soon becomes clogged with hair, dust, and dirt. What is wanted is a metal frame shaped like a gridiron, on the bars of which the teeth are fixed. This will give room for the dirt to pass through, and it can be easily cleared from all such matter. Then, with good steel-wire teeth, such a card will do good service.

Pears Cracking.—"J. G.," Redding, Ct. We can not tell you why your pears crack, and we should like to see some one who could.

The Peerless Potato.—Harry Cropsey, having seen a statement in the *N. Y. Evening Post* that the Peerless was a failure, writes that he planted half a bushel on April 24th, and on August 19th dug nine and a half bushels of the finest potatoes he ever saw.

Horses Slobbering or Running at the Mouth.—J. C. Adams, Kalamazoo, Mich., wants to know why his horses are thus affected after pasturing on young clover. "Is it the clover, or, if not, what is it?"—We can not tell; it has been a subject of investigation with the writer for some time, but it has not yet been traced to a satisfactory source. It has been said to be caused by St. John's wort in the pasture; but our fields, or at least the one specially concerned, was quite free from this weed. Others attribute it to the webs of spiders, thickly woven over the fields, which are taken up with the clover into the horses' mouths. Can it be any acrid principle in the young clover which affects the salivary glands? We suggest the following experiment: Feed the grass cut from the field which produces this effect, in the stable, carefully examining it, and observing that it be free from any weeds, and also from spiders' webbs. If the effect still continues, it may be attributed with certainty to the clover. The slobbering may be stopped by feeding a quart of bran at a meal.

Lime for Fruit-Trees and for Land.—J. A. Stout, Adams Co., Ohio, asks how he should apply lime to his soil, which is a light "poplar and sugar-tree" land, produces well, but does not last. Also if lime is good for young fruit-trees.—Lime must be used cautiously and with judgment, as it is exhaustive if not backed up with a good deal of vegetable matter. It should never be mixed in a compost heap when stable manure is the main ingredients. When sods, weeds, ditch-bottoms, swamp-muck, leaves, etc., are used, then lime may be mixed in. It will hasten the decomposition. In general, when barn-yard manure is used, that should be first plowed in; after that the lime should be spread, according to the amount of inert vegetable matter in the soil, at the rate of from 10 to 50 bushels per acre. Then harrow in the seed with the lime. Land in which limestone exists is improved by lime equally with that free from it; because limestone is practically without effect on vegetation. Lime is very beneficial to young trees, but, as with other crops, fruit-trees will not grow on lime and ashes alone.

Grass in Wheat.—E. S. Mudgett, Belknap Co., N. H. The plant sent is Chess, or Cheat.

Draft of a Roller.—"L. D. I.," Beaufort, Mo., wants to know whether the tongue of a roller should be opposite to its center, level with the axis, or framed above the roller, to secure the lightest draft. It will make no difference, theoretically; the draft in both cases must be from the axis of the roller, and therefore the least cumbrous and simplest mode of connecting the tongue will be direct from the iron rod which passes through the center. Every inch, however, that the frame is raised above this point will raise the line of draft from a perpendicular to the plane of the horses' shoulders, and so a proportionate amount of the horses' labor will be expended uselessly.

Fall Wheat for Name.—A "Subscriber," Manhattan, Kansas, sends us a sample of wheat yielding thirty-five bushels per acre; weight per bushel, sixty-five pounds. It is a very fine white wheat and looks like White Mediterranean, but we have found so much dissimilarity between Eastern wheats and those grown west of the Mississippi, that it is difficult to name it with certainty.

Brick-Clay.—An "Old Subscriber," Fall River, Mass., has some swamp land underlaid with a bed of blue clay. How can he try experiments in brick-making without burning an entire kiln? First ascertain if the deposit is sufficiently extensive to be available for brick-making, and induce a brick-maker to examine it. He will say at once if the clay is suitable.

What is the Matter with the Sheep?—"J. R. R.," Clarksville, Tenn., has lost some sheep in the following manner, viz., they leave the flock and refrain from feeding. Before they die they swell up, and a frothy foam escapes from their nose. These are similar symptoms to what we have seen follow poisoning with laurel (*Kalmia angustifolia*). If this plant is found on J. R. R.'s farm, we think this is the cause of the trouble, and it should be thoroughly eradicated, as sheep will occasionally feed on it if it is within their reach. If not past remedy when discovered, sweetened milk given freely will lead to a recovery. These are also symptoms of rot, but this disease is not very frequent in this country, except in very wet pastures. If on parting the wool the skin is seen to be of a yellow color on the brisket, and the eye has lost its bright color and appears pale and muddy at the corners where it ought to be bright red, then the disease may be the rot. The animal should be destroyed, lest it communicate the complaint to the flock.

Ventilation of Ice-Houses.—I. M. Graham, Pinewood, Tenn., sends a sketch of his ice-house, which does not keep ice very well. The air is warmer in the house in August than outside. Should there be ventilation? If so, where and how much? The principle involved in this question is, that where there is evaporation the temperature of the surface at which the evaporation occurs is reduced. Also, there can be no continued evaporation unless the air is in motion. Therefore, when a current of air is admitted into the upper part of an ice-house, the moisture is carried off, renewed evaporation occurs, and the temperature is lowered. So that rain and sunshine are excluded and the covering is abundant, the ventilation may be as free as possible, but only at the top. See illustration of ice-house in this number.

The Prairie Farmer.—In the great calamity which befell Chicago, the daily papers were all suspended. We are glad to learn from Mr. Thomas, one of the proprietors, that it fared better with the *Prairie Farmer*. They were able to save their subscription books, files, and much other valuable material, and the regularity of their issues was not interrupted. Of course the destruction of their building is a great inconvenience to the proprietors and all concerned, but they, with true Western energy, will soon be at work again as if nothing had happened.

Drain-tile Machine.—"D. H.," Page Co., Va., wants a good drain-tile machine. There are several of these machines manufactured, and it would seem to be to the interest of the manufacturers to advertise them.

How to Get the Seed out of Clover.—"R. G." There are machines called clover-hullers, for this purpose; but nearly all of the seed may be got out by placing a board in front of the common thrashing machine and leaving only a small place for

the clover to come out, when the space around the cylinder will become choked, and a rubbing motion will occur which will loosen the seed and separate it from the pods. It may then be cleaned in the fan-mill. Or the chaff may be sown after it is thrashed from the stalks with the common flail. This will answer equally well as sowing cleaned seed. Clover seed does not separate well, except in dry, frosty weather, or unless it has been exposed to rain in the field, and dried.

Sawdust.—B. Nelson has four horses and fifteen head of cattle. He wishes to know how he can best make use of sawdust which he can get from a sawmill a fourth of a mile off, and if it will be cheaper than swamp-muck drawn three fourths of a mile. If this sawdust is of hard wood it is better than that from pine. But in either case he had better use it liberally as bedding for his cattle and horses. When piled it will rot rapidly and make excellent manure. Swamp-muck may be more beneficially used as manure alone, or mixed with salt or lime, than sawdust. Try and use both.

Low Mallows.—"F. B." asks how to get rid of "mallows," or "pot-cheese," a weed that he finds troublesome in his garden. This weed delights in a moist, rich soil, and in such a position is difficult to eradicate by half measures. In spading the garden, all the roots should be picked out and destroyed. This is the most satisfactory method, and never fails if persevered in and if backed up by care to prevent stray plants from seeding. "One year's seeding makes nine years' weeding" should be thought of daily by every farmer and gardener, and acted upon as often.

To Restore Worn-out Lands. — A Subscriber, Greenwood, Del., has some white-oak flats covered with sedge that will not bring five bushels of corn without manure, and manure can not be had. How shall he improve them? There is certainly no hope for these flats but in green crops. If they will produce corn at all, they ought to produce some clover. We would apply ten bushels of lime per acre, or more, if means will admit of it, plow the sedge and weeds under, and sow clover seed in the spring. When the clover is started, sow a bushel of plaster per acre. In May or June, next year, when the clover is in blossom, plow it under, and a crop of early corn may be taken and clover seed sown when the corn is laid by. Thus, alternating clover and corn, plowing the corn-stalks under, the land ought to improve. It is up-hill work improving land without manure.

Civil Engineering.—"J. C. G.," Monmouth Co., N. J., asks if a young man with a common-school education and considerable attainments in mathematics, can hope to attain proficiency in civil engineering without pursuing a general course of study.—A general knowledge of the cognate sciences is of very great assistance to a civil engineer; but mathematical knowledge is essential. An engineer might be able to lay out a road, with its gradients and curves, with no other knowledge than that of mathematics and the use of his instruments; but he could not test the accuracy of his work understandingly without knowing something of astronomy and physical geography. In fact, the intimate connection of the physical sciences is such, that to be proficient in one a student must be able to travel with more or less certainty over the whole ground. The University of Ann Arbor would be an excellent institution for such a course of study.

Oxeye Daisy.—A. D. Burns, Alleghany Co., Pa., has his farm infested with the oxeye daisy, and wants to exterminate it.—There are hundreds of farmers in A. D. B.'s position; in fact, this is the most common weed to be seen in the Eastern and Middle States. And yet it can be easily destroyed. If plowed under before the seeds become ripe, or if pastured with sheep, it can be got rid of. Mowing before maturity will also prevent its re-appearance. It is often introduced by purchasing timothy seed grown on land infested with it. Care should be taken to avoid this.

Lucern.—T., Prince George Co., Va., asks: What is the time for seeding, quantity of seed per acre, and the quality of land required for growing lucern; also the price of the seed.—Lucern should be sown in the spring, at the rate of 10 lbs. of seed per acre, if in drills, or 15 lbs. if broadcast. It should, if possible, be sown in drills fifteen inches apart. We, however, have got a good stand, *in clean ground*, by sowing broadcast. The land must be fine, mellow, deeply plowed, and rich. Weeds are very injurious, and crowd out the young plants, which are slow in starting. For this reason sowing in drills is to be recommended, as the cultivator can then be used. When fully established it will yield heavy crops of green fodder, and may be cut, if on rich soil, once a month. All kinds of stock will eat it eagerly. Pigs seem especially fond of it. It is a long-rooted plant, and a perennial. For plowing under it is possibly equal to red clover. The seed costs about 40 cents per pound.

Cider and Cider-Presses. — August Diedrich, Dubuque, Iowa, wants to get a cider-press. The old-fashioned wooden cider-press is in our opinion the best. Those which have iron about them convey an unpleasant flavor to the cider and darken the color. The old press, being wholly of wood, has no ill effect on the cider, and besides is of far greater capacity. The barrels to hold the cider should be perfectly clean. Brandy casks are the best, if they can be procured. Whisky or alcohol barrels come next, but should be well washed before using. No barrel in which vinegar has been kept, should be used for cider. Where a common, old-fashioned mill is not available, the Buckeye Mill is as good as any that we know of as a substitute.

Plowing under Buckwheat, or Applying Lime.—"J. H. S.," Honston, Texas Co., Mo., has a field of forty acres, worn-out land, which yielded last year two and a half bushels of wheat per acre. It is now in buckwheat, which promises to yield at least 800 bushels. He had intended to plow this under, but now wishes to know whether it would be better to save the crop and sell it at 50 cents per bushel, and buy lime at 20 cents per bushel, and apply that instead. The land is intended for red clover next spring.—We would advise the latter course. The fact that such a fair crop of buckwheat is possible to be raised shows that the land has some heart left in it yet. If the straw and chaff of the present crop can be used as litter and turned into manure, and put on the field, it will help somewhat, in addition to the lime; as it will furnish some vegetable matter to the soil. From the facts given, we judge that this field needs lime as much as anything.

Those Little Pigs again. — What sympathy we have discovered towards little pigs deprived of their maternal parent! A correspondent from "Wichita" gives us his experience. He has raised three different litters without loss, on milk from a fresh cow in one instance, from a nine-months milking cow in another instance, and in a third instance on *cream*. He gets up the first three or four nights and feeds them three or four times. They soon learned to eat, and wanted more. To sum up the matter, milk and water, milk cold or warm, milk and mush, and cream are all available sources of nutriment, to be given often and in small quantities. We would add this advice: Don't pamper the sow before littering; keep her down in flesh somewhat, and give her no rich feed for two weeks before her time; give roots or clover that will have a gentle laxative effect, and prevent heating of the blood and fever. If a sow costs a hundred dollars, she ought to be fed without pampering equally with one costing five dollars. There will then be less risk of losing her on these occasions.

Stock Running at Large.—The practice of allowing stock—cows, hogs, and sheep—to wander about the public roads is a troublesome and very wasteful one. A great portion of the value of the feed of an animal properly fed and kept in yards is returned in the shape of manure; but if stock is allowed to roam at large, all the manure dropped by them becomes the perquisite of some long-headed farmer who keeps the road-drains and gutters open on to his farm, so that he receives all the wash after every rain. A very noticeable cause of the poverty of the stock met with in districts where this custom is observed, is the promiscuous mixing up occasioned by allowing animals of both genders to run unchecked. In such localities a farmer can not tell when he can expect a calf or a litter of pigs, and often they come at most unseasonable times and of very undesirable parentage. Thus, without order or system in this particular, and from want of care generally, the stock becomes next to worthless, and is hardly worth the feed it consumes. Besides, it is very unfair to others who keep better stock and keep them in pastures. Wandering stock is generally unruly, and will occasionally get into other fields than their owners' at times when their presence can do mischief which their owners can not repair. It would be better for all concerned that no stock of any kind should be allowed to run at large. In well-ordered and prosperous communities this practice is considered the reverse of proper or profitable.

Composting Muck, Ashes, and Cotton Seed.—J. M. Clair, Johnson Co., N. C., wants a work on the above subject. We do not know of any. The process of composting such simple materials is easily performed. They need to be brought into contact in such a manner that the more active fermentation of the cotton seed shall induce a similar action in the more inert muck, which, at the same time, shall be incorporated in such quantities as to absorb all the fertilizing gases—as ammonia—given off either during the fermentation or by the chemical action of the potash on the decomposing cotton seed. To bring about these results, the muck should be in layers of not less than six inches, and should be moderately damp (except on the top, which should be dry, so as to absorb the moisture given off by the lower layers). The cotton seed should be in layers of two or three inches. The ashes should be mixed evenly among the muck. When a good heat has started, fresh, dry muck should be heaped on the top if any strong smell is apparent, or plaster might be spread over the heap. When the active fermentation has ceased and the heat has disappeared, the heap should be turned over, when it will heat once more, and should receive the same cautions attention. It will then be thoroughly rotted, and is ready for use. A shovelful applied in the hill would be about right. Had we a quantity of cotton seed, we should as soon think of using it in this manner as we should of using an equal quantity of flaxseed. As an article of feed, rich in oil and mucilage, it is equal to flaxseed. For the meal, Northern farmers have to pay prices equal to flaxseed-meal, and find it profitable to do so. Unless obliged by circumstances, we should not use it for manure.

Crops and Prices.—From a careful revision of all that we have seen, read, and heard, we gather that the crops throughout the United States and Canada have been in the main satisfactory, not to say abundant. The wheat crop has suffered somewhat from the drouth early in the season, and from the chinch-bug in certain localities, and it is doubtful if the large estimates of the yield will be realized. Oats have been an abundant crop generally, and corn, although injured in some places by a dry summer, will be greatly above the average. In European countries, with the exception of France, where the crop is seriously deficient, and in England, where the wheat crop is undoubtedly below the average, a good yield has been secured. We may therefore expect that the foreign demand, though it will probably be good, will not be excessive, and that present prices may be maintained for wheat and flour. As European populations can not be induced to use corn as an article of food, it would be unwise to look to them as a means for disposing of the certain abundance of this crop. But we find throughout the Western States that hogs are abundant. These will furnish a means of consuming a large proportion of the excess, and as pork is very low, a large demand will probably arise which will ease the market of the surplus. The great fire in Chicago has consumed a considerable amount of the large stock on hand there. Pork and corn, reacting in the market very much on each other, necessarily rise and fall together. Any rise in pork, then, will favorably affect corn. Throughout Southern Illinois and Missouri, the drouth has seriously shortened the hay crop and late pasturage, and generally throughout the country hay is scarce. In the East, the deficiency is partly made up among the more thoughtful and forehanded farmers by means of other fodder crops, and though possibly others may have to get rid of a portion of their stock, yet we do not look for any necessary sacrifice of values on that account. Kansas is full of cheap cattle from Texas, and drovers are afraid of touching stock.

Bee Notes for November.—*By M. Quinby.*

If, as is often the case this month, the apiarian does not feel quite satisfied that all is right with his bees for winter, he can look them over again on any cool day. He may see things that escaped his observation in warmer weather when the bees were less compact. Any weak stock should be united with some other; or, if that is not convenient, kill the bees rather than let them freeze or starve. Unfilled boxes, or such as contain so little honey as not to be worth removing for the table, may be saved for another year. Dry comb should also be saved for the same purpose. Hives containing bees may be painted now without injury to them, and new hives ought also be painted, that they may thoroughly dry before another year. Use different colors, that each bee may know its own hive at a glance.

Protect hives standing out of doors by wire cloth placed over the entrance, leaving a passage for bees only. Ventilation should be secured by holes two or three inches square at the bottom. A good plan for accomplishing this is to have a box, two or three inches deep, of the same size as the bottom of the hive, set under it, with a hole in one of its sides covered with wire cloth. Let it be where the wind will not drive directly through it.

The Great Fire in Chicago has stirred the heart of the whole Christian world more than any single event of this century. The particulars have been so thoroughly discussed already, that we need add nothing here, except to say that, in this city at least, there has not only been sympathy in every heart, but action in every hand, from the poor, ragged newsboy on the street, who gave his few pennies, to the contributor of tens of thousands. We were pleased at the *impromptu* action of those employed in this office. Though many had suffering relations at Chicago, to be relieved by themselves, and almost all gave liberally to other Chicago Relief Funds, the following sums were quickly gathered in this office—*viz.*: From 22 printers, $69.25; from 38 artists and engravers, $102; from 23 *employés* in publishing department, $54; from 37 *employés* in the press-rooms, $61; from 18 women and girls in the folding department, $8.25; from 25 electrotypers (Lovejoy, Son & Co.), $50. To this the publishers added about as much more, and sent the following telegram:

NEW YORK, October 17th, 1871.

To HON. R. B. MASON,
Mayor of Chicago, Illinois:

Six hundred and fifty dollars ($650)—*for relief of Chicago sufferers, contributed by Employes of American Agriculturist and Hearth and Home, and by the Proprietors—subject to your order, whenever needed.*

ORANGE JUDD & COMPANY,
245 *Broadway, New York.*

To which the following response came:

CHICAGO, October 18th, 1871.

TO MESSRS ORANGE JUDD & CO.:

Heaven bless the generous Employés. The "Chicago Relief and Aid Society" will draw.

R. B. MASON, Mayor.

The Fires in Michigan and Wisconsin.—The heart sickens as we read the accounts of these extensive fires. No long recital could be more eloquent than the statement that hundreds have perished by fire, and that thousands have lost their all, and are houseless, homeless, and helpless. God comfort these sufferers, and so touch the hearts of the prosperous that they may send them much-needed aid! It was well to help Chicago. It will be better to help these poor, scattered, and needy people.

Sending Grapes and other Fruit.—We received a box of grapes and the following letter from Cornwall (no State): "I send you a small package of grapes, of a new kind, which please examine, test, and name. Be kind enough to state in the next *Agriculturist* your opinion of same, and oblige an 'Old Subscriber.'"—We give this as a specimen of the many indefinite things which come to us. If "Old Subscriber" had given us his name, we should have written to ask in what way his grapes were "new." They seem to us, and to other very good judges of grapes, very much like one of Rogers's hybrids, and probably No. 4, or Wilder. It is, in our "opinion," a very fair grape, and it is our "opinion" that no one should write to an editor upon any subject whatever without giving his full name and address.

Ayrshire Herd-Book.—The American and Canadian Ayrshire Herd-Book is the title of a volume just received. It contains the third volume of the Ayrshire Herd-Book, edited by J. N. Bagg, Esq., West Springfield, Mass., which indeed makes up the bulk of the volume, but this is prefixed by two previous records, and as a whole possesses the greatest value to the breeder of Ayrshires. The work contains the pedigrees of 530 bulls and 1,132 cows, belonging to the herds of the most noted breeders of Ayrshires in the United States and Canada. The names and addresses of 333 Ayrshire breeders are given; twenty-seven of these live in the British Provinces, and the others are scattered through twenty-one of the States of the Union. The book is embellished by photographs and engravings of noted animals.

Plants Named.—O. H. Leavitt, No. Turner, Me. *Corydalis glauca*, or Pale Corydalis, a handsome plant in cultivation; has yellow and red flowers, and is quite common upon rocky hillsides....."J. A. M.," Eastmanville, Mich. *Adlumia cirrhosa*, Alleghany Vine, or Climbing Fumitory; cultivated as an ornamental vine; it is figured and described in March *Agriculturist*, 1865. .....J. E. Darby, Dexter, Iowa. No. 1 is *Setaria viridis*, sometimes called Green Foxtail, or Bottle Grass; No. 2 is *Setaria glauca*, or Foxtail. Both species are annual grasses, and can be destroyed by mowing often enough to prevent their seeding, and sowing good varieties. Neither are valuable for hay....."J. B.," Dalton Station, Ill. *Erigeron Canadense*, or Canada Flea-bane, or Horse-weed; a very common weed throughout the United States, and varying in hight from 5 inches to 5 feet..... "J. B.," Venango Co., Pa. *Gypsophila paniculata*; its delicate white flowers are valuable for dressing bouquets. .....L. Woodworth, Niagara Co., N. Y. No. 1, *Chrysopsis Mariana*, or Golden Aster. No. 2, a species of *Aster*, which can not be determined from the small and incomplete specimen sent....."Mrs. S. J. H.," Elyria, Ohio, No. 3, *Centradenia rosea*, a low, bushy plant from Mexico, bearing very numerous white and rose-tinged flowers; not very common, but sometimes found in choice conservatories. No. 4, *Alstræmeria psittacina*; belongs to the *Amaryllis* family, and is a native of South America; a very pretty and free-blooming greenhouse plant. No. 6, a species of *Croton*. No. 7, *Epiphyllum*; belongs to the Cactus family. The other specimens are too poor to name. Those who wish plants named should prepare complete specimens, consisting of the flowers, fruit, or seed, and a portion of the stem with the leaves on....."Old Subscriber," La Porte, Ind. *Staphylea trifolia*, the Bladdernut. An interesting shrub or small tree.....Mrs. D. D., Clarence, Mo. The White Day-Lily, *Funkia subcordata*. .....J. A. Linebaek, Salem, N. C. No. 1, Variegated Funkia. No. 2, *Aucuba Japonica*, a charming climber. ..... Ella Corbett, Perry, Ga. A Coral-root (*Corallorhiza*) of some kind, but too much crushed and decayed to make out the species. Plants should be dried before inclosing them.

Having Things Handy.—The writer lately had occasion to hire a passage in Southern Illinois on a light road-wagon, and the horse, being fractious, broke one of the shafts. The driver had nothing to repair the damage with, and was "stuck." Fortunately there was close by a neat-looking farm-house, which seemed so well appointed in every respect, having gates well hung, etc., that we were led to go there for assistance. The farmer kindly came to our help with brace and bit, a couple of small carriage-bolts, and a piece of wire. The broken shaft was repaired in a few minutes, and we were under way again, thankfully remembering that farmer who had "things so handy." During the few minutes we were in his company, we discovered that he was one of a club that subscribed to the *Agriculturist*. He will therefore see that his kindness is not forgotten.

Native Grapes.—"C. Horst," Washington Co., Wis., wishes to improve a lot of wild grapes, and asks how to do it. Also, he is unable to distinguish the various cultivated grapes, and asks us to give descriptions of them. The best way to "improve wild grapes" is to dig them up and put out others. Any other mode will be time wasted. To describe the various cultivated grapes would take the whole paper. Buy Fuller's or Husmann's book, or send to Isidore Bush & Son, Bushburgh, Mo., for their illustrated catalogue.

Thorough-bred Negretti Sheep.—We have just seen ten of these animals—four rams and six ewes—recently arrived from Germany. We judge them to be Merino. They are very fine in wool, which covers their whole body, limbs, and faces, excepting a very small portion of the tip of the nose. They are in the hands of Godeffroy, Brancker & Co., 5 South street, who have their full pedigrees.

Traveler's Guide to New York City. New York: J. S. Redfield. Price 25 cents. This is a well-prepared little work, which points out the principal objects of interest and tells how to reach them. It gives to strangers, visiting the city for the first time, advice which, if followed, would prevent much swindling by sharpers. A good map accompanies the work.

The Chicago Papers.—The agricultural papers published in Chicago are the Prairie Farmer, the Western Rural, and one upon an agricultural specialty, the National Live-Stock Journal. In another item we have alluded to the energy which the Prairie Farmer displayed in keeping up its issues. Its half-sheet has just come to hand, dated October 14th. It gives a full account of the fire, and the first map of the burnt district that was published. Among its acknowledgments of aid and sympathy we find the following:

"Offers of aid in a trying time like this always strike upon the hearts of the recipients with peculiar impressiveness. The Prairie Farmer Company acknowledges many of them in various ways, but it must particularly mention the contents of a dispatch received on Thursday from Orange Judd & Co., of New York. It read as follows:

"'What can we do for you? Command us. If you send copy, will issue your next number at our expense.'

"Having our paper in this modest form nearly ready for the press, we could not avail ourselves of the offer, but our thanks are none the less hearty for the kindness."

We supposed that the Western Rural was still printed in Detroit, or we should have extended our sympathy to it. This paper comes out with a "Fire Extra," in which it states that it lost all, save its account books and lists of subscribers. It promises to go ahead as lively as ever within a month. We wish it much success, as we have few more welcome exchanges than this. The Stock Journal saved its books and will go on without interruption. Its October number was destroyed, but will be reprinted.

Gas-Lime.—"V. S. D.," New York, asks what is the real value of this article, how should it be used, and should it be mixed with stable-manure? Gas-lime is most valuable applied to coarse-grass lands, or on a fallow. It contains chlorine, sulphur, and ammonia, and after some exposure to the atmosphere the sulphur in combination with it (which renders it injurious to vegetation in its fresh state) is changed to sulphate of lime. It is thus about equal in value to ordinary lime that has been thus exposed. It should not be brought into contact with stable-manure, unless at the moment of application to the soil.

Power of a Suction-Pump.—M. H. Polhemus, Somerset Co., N. J., has a spring, 145 feet distant from the house and 20 feet below the level of the ground on which it is built. He asks if a common suction-pump will raise the water through this length of pipe. The theoretical hight to which a suction-pump will raise water is 34 feet, but friction and the imperfect vacuum obtained reduce this to 28 feet in practice. Against the excess of 8 feet in this case must be offset the friction occasioned by the water passing through 145 feet of pipe. Here it is obvious that the kind of pipe used will affect the result. A smooth, tin-lined lead-pipe would probably enable the water to pass with so little friction that the pump would raise it successfully. Cucumber-wood pipe (which is the best wooden pipe) of 1⅝ inch bore *might* succeed, but the margin is so close that the pump must be most perfectly made or it would fail. All curves should be avoided, and a straight stream obtained.

Cabbages and Onions.—Edw'd Skinner, Orange Co., N. Y., states that one of his friends has very fine cabbages in an onion-field while the cabbages in his garden are infested by worms, and asks if we think the strong odor of the onion kept them away. We do not. There is very little odor about a growing onion, unless it is bruised.

"Some Pumpkins."—"W. J. P." writes us about a "volunteer" pumpkin-vine which produced 60 pumpkins, averaging 12 lbs. each. Good for one vine.

Mulching Raspberries.—J. Van Loon, Wis.—It will no doubt be of great benefit to mulch with five or six inches of straw, as you propose. Clear off what weeds there may be, and put on the mulch when freezing weather sets in.

A Large Egg.—W. E. Horwill, New Utrecht, L. I., sends an egg weighing 4 oz., 28 inches in circumference, from a Brahma fowl, but it is not stated whether light or dark.

Great Nettle.—"E. H.," Hickok, Pa.—We know of no nettle bearing the name of *Urtica major*, nor can we find such in a pretty full botanical library. The nettle sometimes used in Europe as a substitute for flax is *Urtica dioica*. We do not know where the seed may be had.

A Southern Cabbage Pest.—S. Service, Fairfax Co., Va.—The insect which is committing ravages upon the cabbages in your vicinity is, as you suspect, the *Phytocoris lineolaris* of Harris's Insects, and the *Capsus oblineatus* of Say. A very good account of it will be found in Riley's 2d Report of the Insects of Missouri, where it is given the name of Tarnished Plant Bug. We hope to say more about it another month.

House-Fly.—"E. G. H."—The common fly breeds mostly in manure heaps. Some individuals pass the winter hidden in crevices, and come out in spring in sufficient numbers to supply the demand.

Apple and Pear Orchard.—"H.," Brooklyn, N. Y.—We have frequently stated that we must decline giving advice to any one as to where he had better locate. It is a responsibility that we do not care to assume.

Old Postage Stamps.—"J. A. L.," N. Carolina. The Government does not buy canceled stamps. They are of no value save as paper stock.

Seeds of the Hard Maple.—A. G. Weed.—Mix them with dry sand, and keep in a cool place where the temperature will be uniform. They should not get too dry, nor should they heat by lying in a mass.

Ogden Farm Papers.—No. 22.

I have received the following: "Thinking of trying your plan of farming, I think a few details would be of benefit to me as well as to many others.

"1st. How many hands would you recommend keeping to do general farm work and to till the following crops (and take care of four horses, five cows, calves, pigs, etc., all soiling), six acres drilled and hill corn, three acres potatoes, one acre sweet corn, two and a half acres of the following, cabbages, tomatoes, Lima beans, beets, onions, egg plants, etc., three acres wheat to harvest, twelve acres oats to put in and harvest, and other work pertaining to a run-down farm of fifty acres? In addition to the above, two acres of beets, mangolds, etc., and drawing all the above seven miles to market. If not asking too much of you, how many hands do you employ on your farm? Now, you must not think me too inquisitive, since I have not asked a balance-sheet, but only such questions as will be of benefit to many beginners as a guard to not doing too much with little help.

"2d. Would you advise keeping cows for butter when bran is worth $22 to $35 per ton, hay $16 to $25, corn 85 cents and upward per bushel, and butter bringing 20 cents to 50 cents per pound, not averaging more than 35 cents the year round? Is 15 pounds of hay, 6 quarts of bran, 6 quarts of meal, too much feed for a cow per day, in a raw state?"

I do not exactly know what my friend's idea of inquisitiveness may be. In the sense of asking questions, he certainly has that quality. In the sense of asking improper questions, he is entirely blameless. Nor do I mean by this to imply that the request for my balance-sheet, to which he refers, was in any respect improper, though, having spent a good share of my time, first and last, gossiping with brother farmers in stores and grist-mills, I am not at all blind to the fact that even simpler questions than these lead to my being hauled over the coals and chaffed about in a sufficiently uncomplimentary way to satisfy any modest man's highest ambition. But, unless one has a particularly tender hide, the skiving that he gets in a few years' experience of the twaddle of country neighborhoods will turn his cuticle to leather, and, unless his wits are unusually dull, will teach him the art of chaffing back again sufficiently for his own protection. I generally know, when I write, just about what sort of comments I shall elicit from a class of numbskulls that collects at the Four Corners store on a rainy afternoon for the discussion of book-farmers such as I; and I am sufficiently used to the process not to be deterred by it from writing whatever I think more intelligent men may be glad to read. Therefore, no one need apologize for asking whatever questions he pleases. If they are answered at all, it will be simply from a desire to give, not to him alone, but to many, information that may be of practical value to them.

In the case at hand, I fear that the desire must remain in a great measure unfulfilled; for it is not only beyond the scope of a newspaper article—it is beyond the ability of man to give a satisfactory reply to the all-embracing questions that are propounded. There are so many circumstances that affect the requirement for manual labor on such a farm as is described, and so much depends on the executive ability of the farmer himself, that no rule can be laid down which would be applicable to any two places or to any two men. To answer the personal question first: I employ, all the year round, about an average of four men and two boys. But we have a hard, old farm to renovate, not far from one hundred head of horses and horned cattle, beside the smaller animals, to take care of, and much soiling and steaming to do. Yet, with all this help, though we do make some progress in the general effect, we are much more often behindhand in our work than in advance of it, and it would be difficult to find a farm where the conveniences for the care of stock in winter and in summer are better adapted for economical working.

In the case before us there is the equivalent of about twenty head of stock. To feed these, and to take proper care of them (soiling), I should consider to be about half-duty for a man. The hauling seven miles to market and back will spoil the time of another man, so far as the farm work is concerned. A third, with the unoccupied time of the stock tender, might be sufficient. The market-garden item is still more difficult to calculate for. Peter Henderson says that fully one man to the acre throughout the year will be required for such gardening as is done near New York City. I find that in my market-garden, of about ten acres, I need five men in summer and three in winter. If it were not for my greenhouses I could get on with two men in winter. My work is perhaps a little more complete than that my correspondent contemplates, and he may be able to get on with one gardener employed by the year, and another to help him out in April, May, and June. If the land is fertile, clean, and easily worked, he may be able to accomplish everything he describes with considerably less help than I have named, but, as I said before, it is only guess-work at the best, and I might almost as well undertake to tell him whether he had better, in going to market, drive around by the north road or go straight over the hill. That is to say, I have not the knowledge of his location and circumstances necessary to give value to my opinion, except in a very general way. I will venture, however, to say, as a fixed fact from which there is no escape, that if he attempts all he proposes with an insufficient working force, he will wish that he were something else than a high farmer and market-gardener.

In the manufacture of butter at the prices named for fodder and for the product, the most that can be said in favor of it is that it affords a fair home market for home products, and gives a fair return for money spent in buying food. For the profit of the operation we must look to the value of the manure. But if this is duly appreciated the profit will not be considered insigoificant, especially so if it is used in the gardening operations, at least so far as the farming lands can be made to do tolerably well without it. Fifteen pounds of hay is not too much for the daily rations of an average sized cow, but in my judgment 6 quarts of meal and 6 quarts of bran would be about right for *two* such cows. I should prefer to give 10 quarts of bran and no meal, unless my object were to force fresh cows to their utmost product, and have them dry off in condition for the butcher. In that case, all the corn-meal they can be made to eat, with a little bran for "condition's" sake, will not be too much—the more the better. If I were to advise you in the matter, I would suggest that as you are near to a very good market for butter (Philadelphia), it will pay you to devote yourself to the manufacture of an extra quality of butter, such as you can readily sell for considerably more than the price you name. You may be helped in this by the introduction of some Jersey blood into your herd, and still more by adopting the best processes for butter-making, and giving all their details your personal attention.

It is rarely advisable to use the personal letters of a friend in public communications, but the following so completely takes away the glory I was hoping to achieve, that it would be hardly fair to withhold it:

"I was made aware two years ago by Dr. Potter, the inventor of a milk-cooler, that if milk be immediately deprived of its animal heat, the cream will rise through any hight; 'ten feet,' he said, 'if you choose to set it so deep.' His theory was that if the heat was allowed to remain long, it favored a lactic fermentation, or other chemical change, which prevented the free separation of the cream from the milk. Still, I did not profit by the hint. But recently I read an account of some Holland dairies in which deep crocks were used. So I got to thinking, and it occurred to me that people, in setting in shallow pans, were merely, in ignorance, accomplishing the early cooling, though they imagined the necessity was shallowness. So I went to the Ironclad Can Co., and said I wanted a slender, tall can.

"'You want an Orange County Creamery cooler,' they said. 'They use in the factories 8 × 10 inches.'

"'Make me one—and a conical skimmer.'

"We set it with 15 or 16 inches of milk in a deep spring reservoir, where it *floated upright*, the heavy ironclad bottom ballasting it. At the end of 36 hours skimmed it, and set the skimmed milk. We *got no more cream* from it. We next set it 48 hours, and the milk still continued perfectly sweet. I then ordered a full set, 8 × 25, and we are skimming at 24 hours. I intend to try 12 hours, and if satisfied that we get all the cream, that little pool (holding 5 cans) will be more than ample.

"Near the stone house I have another reservoir, 4′2″ × 4′6″, which will hold 30 cans, and a live spring boiling up in the bottom.

"Just as I got my set going, I saw the last Journal of the R. A. Society, containing a lecture by X. A. Willard, delivered in Maine, and found it all described, and the cooler and skimmer figured; and I now find in Ogden Farm Papers in August that you have been at it too. I believe it will be generally adopted."

So it seems again that there is "nothing new under the sun," and I shall not be surprised to hear that one of the sorest sorrows of old Job himself—that patient herdsman—was the discovery that Jacob had used deep milk-cans before him.

However, although I was so late to discover the merits of this deep setting of milk, I am none the less anxious to spread the knowledge of its advantages. Every day brings evidence that, in avoiding some almost insuperable difficulties in summer butter-making, it is even more effective than I had at first conceived it to be.

In general farm matters there is nothing of especial interest to report. We jog along very much as usual, well satisfied of the benefits of soiling, and not especially dissatisfied with our results in any respect, save that, in spite of thorough cultivation and heavy manuring, we still feel the ill effect of the deep plowing of about ten acres of the farm in the autumn of 1868. For ordinary crops it does very well, probably much better, because of the deep

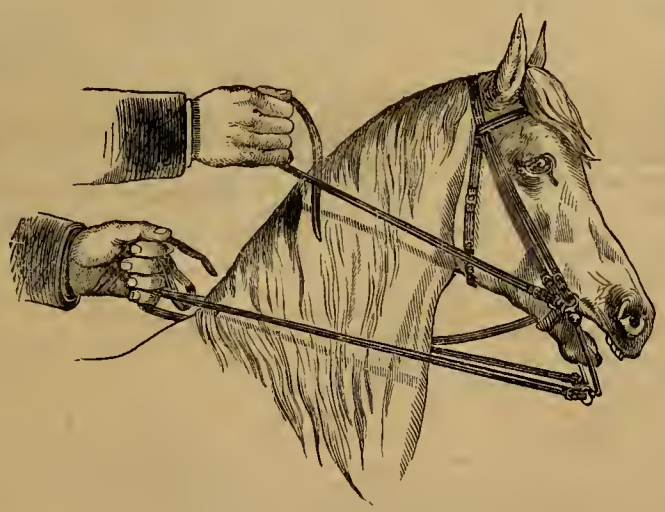
plowing, but about two acres of carrots planted upon it will bring a very insignificant result, because of the injurious effect of the upturned clay on the delicate and slow-growing seedlings.

Riding on Horseback.—No. 7.

Although you may have taught the horse to stand perfectly at his ease while standing still, and to be "light in hand and light on his legs," you will find that the moment you attempt to move him forward at a walk, he will throw out his nose at the first step, and be as ungainly as ever. Take hold of his mouth immediately and endeavor to supple his neck. If he continue the resistance, halt him at once, bring his head into position, and let him rest a moment before advancing again. He will soon learn to walk with his mouth light. If he seem to step too short, as though too much restrained by the curved position, press him lightly with the heels to send him forward. You will soon learn when the free movement of the horse indicates a just balance (or equilibrium) between the forehand and the hind quarters. It is this that you must always study to preserve—drawing back the head when there is too much forward tendency, and applying the legs when the horse goes, as horsemen say, "behind the bit," that is, with an uncertain, short step.

The next step is not to trot, but to move backward at a walk. This you can attempt only when the use of the curb causes the horse to bring in his head *before* it shortens his step. Get him well collected at a halt; apply the legs until you feel a forward tendency of the weight, showing that the hind legs are free to step; then draw backward on the curb to such a degree that the horse, to preserve his balance, will step backward, that is, the horse's weight being in perfect balance between your legs and hand, so that you can send it in either direction—throw it backward by the use of the hand, causing the horse instinctively to step in that direction, to prevent falling, just as when you force his weight forward he advances his feet to receive it. This is the secret of Baucher's treatment, and its perfect mastery, accompanied with practiced skill, is perfect horsemanship. As soon as the horse has taken a single step backward, loosen the rein and withdraw the legs from his sides, and pet him and praise him, to show that he has done what is desired—which knowledge is dearer than oats to a kindly-tempered horse. After a little he will take two or three steps backward, and in time will move backward as gracefully as forward.

Having taught all you can teach of movements in a direct line at a walk, repeat the lessons at a trot. You will have the same difficulty as in the former case, and you will probably be longer in overcoming it. The faster the motion, the greater the tendency of the horse to throw his weight forward and to bear on the bit. Don't try to draw him back by an extra pressure on the curb, but hold your hand firm and touch him gently with the spurs; this will drive his hind legs under him and take the weight from the forehand. He will in time learn that he can go more easily and more safely with his weight on his haunches than on his shoulders, and his gait will then become easy instead of hard. When he trots perfectly, teach him, which will be easier, to gallop with the same collected motion. In doing this, pursue the same routine that has been laid down for the walk and the trot; that is, do not allow the horse for a moment to carry his head too low or too far out, to *bore* on the bit, as though he would drive his fore feet into the ground, neither let him commit the opposite fault of throwing his whole weight on his haunches as if to rear, and so make every step a miniature jump. The habit of "boring" is inveterate with some horses, and can not easily be contended against by ordinary means. Baucher had a device (which he withheld from publication) that is very effective. Both curb-reins and the left snaffle-rein being held in the left hand (in its proper position), the *right* snaffle-rein *only* is taken in the right hand and drawn upward, so as to press the snaffle against the corner of the mouth on one side, as shown in the engraving. This has an effect that an upward pressure on both snaffle-reins entirely fails to produce, and its knowledge has given to the personal pupils of Baucher a great



BAUCHER'S TREATMENT OF BORING.

advantage over those who have learned his system from his books alone.

The gallop will never be perfectly easy and perfectly safe until it is what is called perfectly "cadenced"—the fore feet and the hind ones striking the ground with equal force and both neck and tail being perfectly supple. A horse traveling in this way may trip over a rolling stone at every tenth step without danger of falling, and he will perform a journey of twenty miles with much more ease to himself and his rider than he would make even five miles with (as is usual) most of the force of every leap falling on the fore feet.

In accomplishing all this as much depends on the perfect balance of the rider's temper as on the balance of his weight. Above all must nothing provoke or startle him to a rough handling of the bit, which is his chief means of communication with the horse; a mistake will be interpreted precisely as an intention would be, and a very few mistakes will suffice to confuse all previous teachings. "Firm as a grasp of steel, yet soft as the touch of love," this describes the perfect hand, and while it should yield to the horse's proper movements and restrain his improper ones, as it can do only when guided by instinctive intelligence, it should be as independent of the movement of the rider's body and of his efforts to keep a proper seat as though it were an iron hand attached to the pommel of the saddle. The legs, too, should be ever ready to perform their office—the thighs, to preserve the rider's seat, and the lower limbs ever on the alert to restrain any interruption of the equilibrium by reason of a faulty position of the horse's hind legs.

An Egg Farm.

BY H. H. STODDARD.—*Seventh Article.*

The proper management of the breeding stock is a very important part of the scheme, for there must annually be raised a large supply of pullets of the right quality. The profits of the establishment depend largely on the excellence of the fowls, and as they can be multiplied very fast from a chosen few, no pains should be spared to secure the very best as a source from which to stock the whole farm. There is but one way to do this, and that is to keep individual birds in experimental yards in order to test their merits, recording the degree of excellence and the pedigree of the best with as much care as would be given to breeding cows or horses.

We will suppose it is designed to produce a strain of Leghorns that shall excel in prolificness, laying at an early age, and in other requisites. Procure a pullet from A and a cockerel from B, and put them in yard No. 1; purchase of C and D one bird from each, for yard No. 2, and so on, always taking care that no specimens are obtained from any locality where disease has prevailed. The smaller breeding yards are used as experimental yards, and to allow each cock a proper number of mates, two or more half-blood Brahma pullets (whose eggs can be distinguished by their color) are added. Give each Leghorn a name or number, and enter in a book all details necessary for testing progress in improving the breed, such as weight, the age at which laying commenced, and the yield of eggs during the first year, at the expiration of which banish all but the best hens. The second year set the eggs of the reserved extra fowls, and keep the chickens produced by each pair separate from all others. At the age of five or six months, cull out the most promising pullets and cockerels, and pair them for testing and recording pedigree and prolificness as before. By mating the produce of the original birds from A and B with the produce of those from C and D, finally the four stocks will become blended in one. Proceed in this manner a number of years, and when in the course of time a very extra prolific and vigorous hen has been found, which reached full size and commenced laying early, and whose ancestry have excelled in the same respects for several generations, as shown by the book, then from her eggs cocks are raised from which to breed to replenish the main stock of layers at the itinerant stations. These cocks are put in the larger breeding yards, each with a flock of ten hens, and no further accounts are kept of the prolificness of individuals.

After new stock is introduced to the experimental yards, as must be done yearly, care is taken for a series of years to avoid breeding akin, and as purchases will be made from fanciers, who to fix the conventional points have most likely bred close and impaired strength, crossing will immediately give a decided increase of vigor. Towards the last, however,

when sufficient stamina has been gained, and the stations are to be stocked, close breeding is resorted to. This is to increase the yield of eggs, the philosophy of the matter being as follows: Just as a fruit tree girdled or severely root-pruned will give a profuse yield and then die, and as various domestic animals will for a

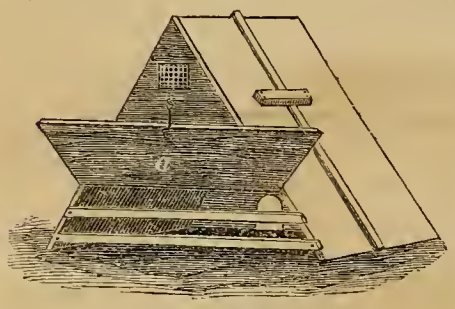


Fig. 1.—CHICKEN COOP.

short time be more prolific after removal to unaccustomed climates, so the violent attack on vitality which occurs when there is in-and-in breeding, is met by an energetic attempt of the organism to propagate in unusual numbers and thus maintain its kind. There has been much confusion on this point, for while scientific naturalists have insisted that no animal can thrive under continued close breeding, practical

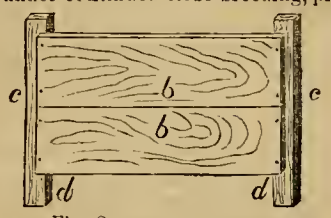


Fig. 2.—FLOOR OF COOP.

poultry keepers have pointed to the prolificness of in-and-in bred fowls as a proof that there was no deterioration. The fact is, individual perfection and rapid increase are to a certain degree incompatible. Under our plan of aiming chiefly to secure great quantities of eggs, we purposely give the constitution of the birds a shock in order to increase fecundity, having first, however, carefully built up, for some years, by careful selection and good sanitary conditions, sufficient strength to withstand the assault. This course may appear inconsistent, but experiments have shown us that it is correct.

The Brahmas are bred in the experimental yards with a different basis of selection. The best sitters, and those with the shortest legs and the least black upon the plumage, are preferred. Brahmas can be bred very light-colored in a short time. The white barn-yard fowls are selected also with reference to persistence in sitting, and particularly for their ample wings. The experiments need not be carried out to such an extent with these last - mentioned breeds as in case of the Leghorns, which fill such an important part.

Fig. 3.—SECTION OF COOP.

In the breeding and experimental yards, the fowls must be fed and managed in every respect with the greatest care. Over-fattening is to be deprecated above all other things, and may be avoided by burying all the grain to make the birds exercise by scratching. The supply of grain should be moderate; meat should be given very often in very small quantities, and the allowance of fresh vegetables should be ample. Free range would be very desirable for all the breeders, but as it is impracticable, scrupulous care must be taken to furnish artificially natural conditions. Though the birds of the laying class in the experimental yards are rated according to their prolificness, yet the test is merely a relative one, for they are not forced to profuse laying by stimulating feed.

The construction of the coops for young chickens remains to be described. A chicken coop must be adapted to warm weather and cold and especially to rains, be easily cleaned, and made rat-proof nights. The old-fashioned triangular pattern (fig. 1) secures all this, and also gives small chickens a chance to escape under the eaves from the feet of the hens. Two hens are put together with their broods, for reasons which will be given in another place. The size proper to accommodate a double brood is $2\frac{1}{2} \times 3\frac{1}{2}$ feet upon the ground, with roof 3 feet from eaves to peak. A bit of scantling is fastened to each roof for a handle. The door, *a*, is hinged to open upwards. There is a small door at the rear that will allow chickens to pass, but not grown fowls. An opening for ventilation is made near the peak, and covered with wire cloth. Take inch boards, *b b* (fig. 2), and nail strongly, planed side up, to the cleats, *c c*, and clinch. Let both ends of each cleat project three inches, and the outside edge of each two inches. This is the movable floor, and must be of such size that the coop shall rest entirely upon the projecting ends and edges of the cleats, then when the doors are closed all rain will be shed outside the floor. In fig. 3, a section of the coop shows the floor in its place. When the doors are closed at night, leave the large one, *a*, ajar $\frac{1}{2}$ inch or 1 inch, according

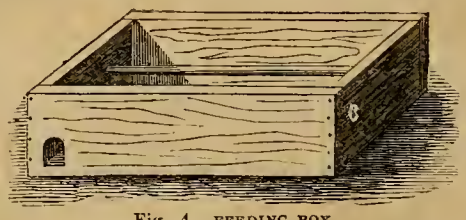


Fig. 4.—FEEDING BOX.

to the weather, for air, and fasten it with wooden pegs stuck in holes through the cleats, at *d d*, which will make the coop perfectly rat-proof. Once a week, after opening the door *a*, to enable the chickens to escape through the slats out of the way, slide the coop slowly lengthwise of the cleats away from the floor, which must be scraped thoroughly; then give it a shovelful of dry earth and replace. You will always have a dry, inodorous apartment, and will not shut up chickens in close, foul air.

All the chickens destined for the itinerant stations, must, as mentioned in the first article, be fed indirectly. For two days only are they and the hens fed upon the floor of the coop. Then for a week they are fed in the box given in fig. 4. It has no bottom, and the top, not shown in the figure, is temporary, and composed of loose boards. Place it so that its door shall meet the small door in the coop, having first dropped in the feed at the corner *e*, and covered the box with the boards in such a manner as to admit a little light. After a week, the chickens, being strong enough to venture some distance, are fed from a box of tin, 6×16 inches

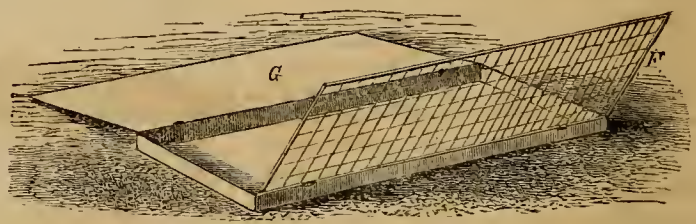


Fig. 5.—FEED-BOX WITH GRATING.

and $\frac{3}{4}$ inch deep (fig. 5). A wire grating, *F*, with meshes 1 inch square, protects the feed from the feet of the chickens but admits their bills. The grating is covered at pleasure by a lid, *G*, both being hinged to opposite sides of the box. When such boxes are placed in a row (fig. 6), each filled with feed, one for each coop, with the lids down, a snap-hook is attached to a ring which is fastened to each lid, and a wire connects with all the hooks. One pull opens all the lids and the chickens are at dinner.

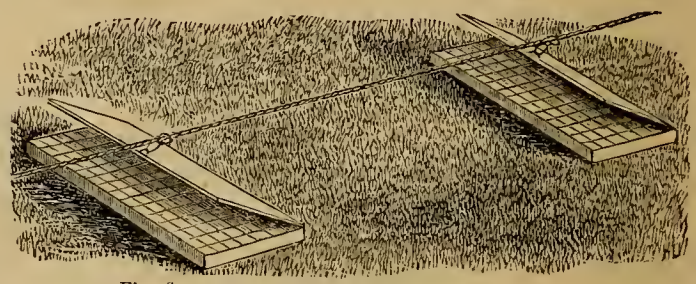


Fig. 6.—ARRANGEMENT FOR OPENING FEED-BOXES.

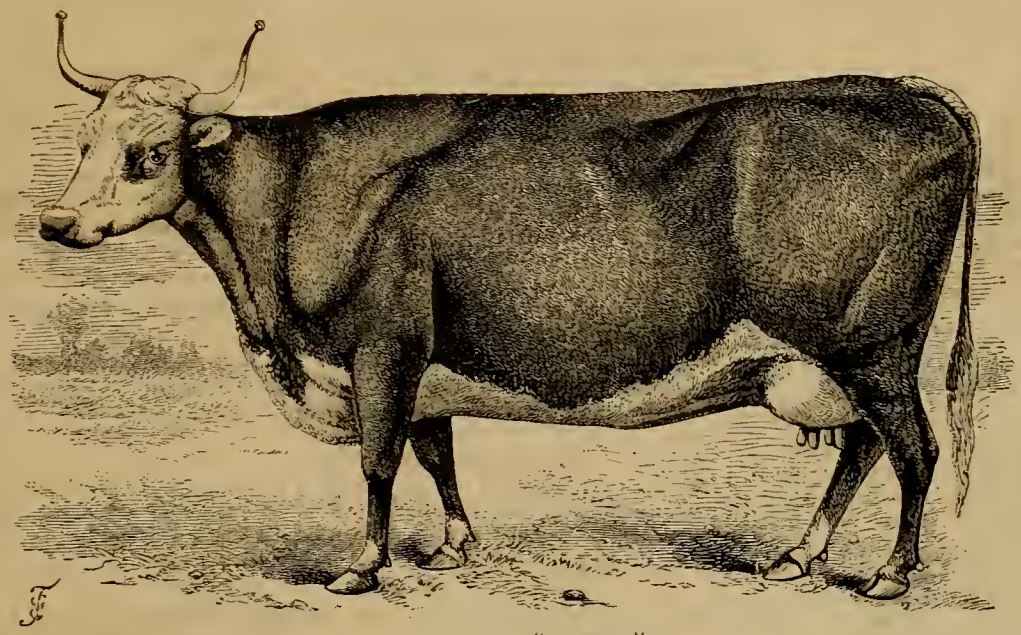
These feed-boxes are carried to the granary to be filled, using a wheelbarrow in which many may be packed at a time. The coops are 20 feet apart, in a single row, and the wheelbarrow is rolled along the line, and the boxes, with lids closed, are put on the side of the coops near the small doors, which are shut, in order that the hens may not worry when the chickens are feeding. The hens are fed and watered in cups, fastened to the inside of the coops as high as they can reach. The cups are filled once each twenty-four hours, after dark in the evening, so as not to attract the attention of either hens or chickens. When the chickens are a month old, a part of their feed should be buried near the coop early in the morning, before they are let out, so that they may scratch during the day. Whenever it is rainy, the box used the first week for feeding (fig. 4) is resorted to again for that purpose.

The additional *time* required to feed chickens indirectly is slight, if operations are systematized. All the chickens of the experimental stock, and of the Brahma, and white Barn-yard, and Half-blood classes also, are reared at a separate part of the farm, and fed directly.

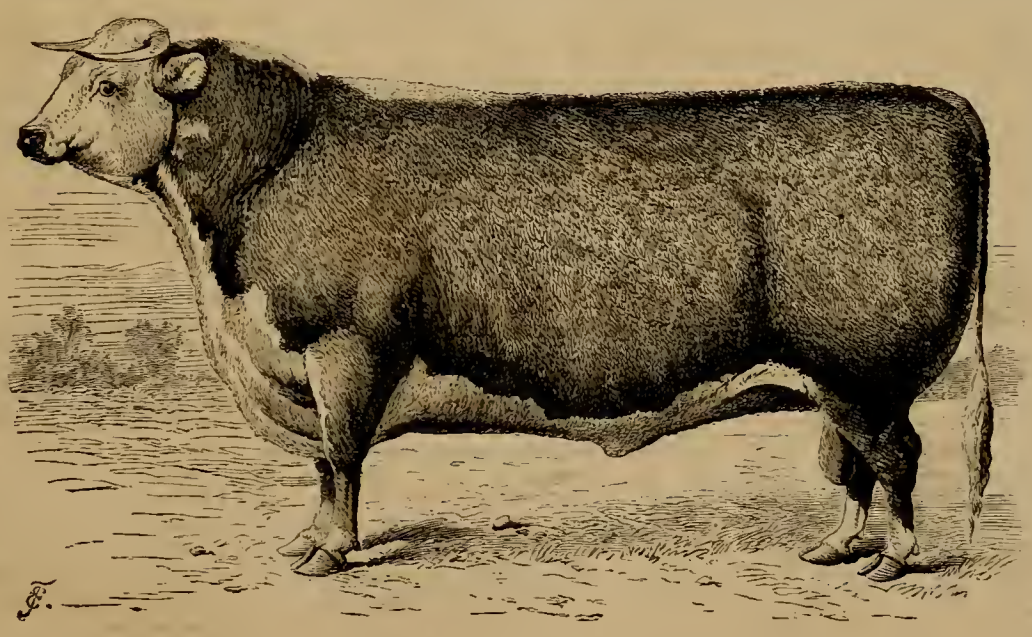
When the hens are removed from the chickens, the latter huddle together nights upon the floor for some weeks, but when old enough to perch, the box (fig. 4) is placed upon the movable coop-floor, and the coop is placed upon the top of the whole, the box being of such size that the eaves and sides of the coop overlap sufficiently to shed rain. The box has two perches permanently fastened to it, one of which is seen in fig. 4. This roost is rat-proof, and a bushel or so of dry earth keeps it clean.

A Colorado Immigrant.

Many persons are looking wistfully to the far West, and debating the question whether they can better their condition by removal. They have a great longing for exact information in regard to the state of things in these new regions. We can not better meet this want than by giving a bit of personal history which we learned from George Ratcliff, of Bear Canyon, Douglass Co., Colorado Territory. Mr. Ratcliff's farm is situated upon both sides of West Plum Creek, about twelve miles from its mouth, where it falls into the South Platte. It is just at the foot of the mountains, and timber, mostly the hard pine, is easily procured. He came out here eleven years ago, in the time of the mining excitement, with little more than his hands. He and his wife are English. They have enjoyed uninterrupted health, and have had four children born to them in the last five years, good specimens of the Anglo-Saxon race. They have prospered in this new country, and have laid the foundation of a handsome fortune. We drove up to the house about noon, for the purpose of watering the horses, but found so hospitable a reception that we stayed several hours to look at the crops and stock. Mr. Ratcliff owns two hundred acres of land, for which he has been offered $2,000, but thinks it worth $3,000 now that the narrow-gauge railroad runs so near it. He has 200 head of cattle, which are increasing rapidly in numbers and value. A good cow in milk is worth about $65, yearlings $25, and calves $15. Butter, marketed at Denver, is worth forty cents a pound. The winters are mild and pleasant, and cattle graze the year round. There is a large range for stock unoccupied, and he can raise as many cattle as he likes. He has opened a ditch on the west side of the creek, which brings the water from above in sufficient quantity to irrigate 50 acres. This only cost him twelve days' labor. He has this year about 16 acres in crops, of which 13 acres of oats and wheat have been irrigated twice. Generally it requires but one irrigation, but this season has been much drier than usual. He takes three, and sometimes five, wheat crops in succession from the same land. Both wheat and oats were very heavy in grain, though the straw was not of large growth. He estimated the wheat at 35 bushels the acre, and the oats at 80 bushels. The land is laid off into plats ten or twelve paces wide, bordered by shallow watercourses. The water is turned into these courses and diverted by the use of a shovel to either side, until the whole land is completely saturated. It took eight days only to irrigate thirteen acres twice, and secure these heavy crops. Mr. Ratcliff is cultivating other crops, which look as well as anything we ever saw in a rainy climate. He has the Early Rose potato, which yields 300 bushels to the acre, and brings from eight to four cents a pound, according to the time they are marketed. Onions are worth five cents a pound, and the yield is marvelous. Cabbages, tomatoes, cucumbers, and melons do well. Mr. Ratcliff has been back to England on a visit, but returned to Colorado perfectly satisfied. He has a house, a large log-barn, and other out-buildings. There is still plenty of land, at Government prices, in Colorado.



HEREFORD COW "VERBENA."



HEREFORD BULL "COMPTON LAD."

A Pair of Herefords.

It is somewhat remarkable that a breed of cattle so popular in England as are the Herefords should have obtained so slight a foothold in this country. Among the earliest importations of this breed, if not the earliest one, was that made by Henry Clay, about the year 1816. They were bred for a while at Ashland, Ky., but soon disappeared in favor of the Shorthorns. A large importation was made in 1840, and a portion of this herd, then on the farm of Erastus Corning, near Albany, N. Y., was described in this journal in 1843. This fine herd, which was afterwards removed from one point to another, is said by Mr. L. F. Allen, in his recent work on American Cattle, to have "run out." The same may be said of some other importations. Mr. F. W. Stone, of Guelph, Canada, has one of the largest herds of Herefords on this continent, and is still, we believe, a successful breeder. It is probable that the great popularity of the Shorthorns has diverted the attention of breeders from the Herefords, and this, combined with the generally inferior dairy qualities of the breed, has made their career in this country so uncertain and unsuccessful. It is as working oxen and beef cattle that the Herefords are most prized. The oxen are large, powerful, intelligent, and quick under the yoke, and it is claimed by those who have used them that Hereford grade oxen approach perfection as working animals. As beef cattle, the Herefords maintain a high rank in England, on account of their early maturity and the excellence of their flesh. Writers upon breeds differ as to the original color of the Herefords. Now the color is usually some shade of red, "with white faces, throats, bellies, and sometimes backs, and occasionally a roan of red and white mixed, and, more rarely, an almost clear white, with red ears, is found among them." We give portraits of a cow, "Verbena," and bull, "Compton Lad," exhibited by H. C. Burleigh, Esq., of Fairfield, Me., at the last New England Fair, and which took the first premiums in their class.

Walks and Talks on the Farm—No. 95.

Mr. J. W. Varney, of Ohio, says: "If you will tell me how to kill Ground Ivy, I will tell you how to kill Red-root or Pigeon-grass. I had a field that was badly invested with Red-root. I cut and thrashed the wheat on the field; then spread the straw evenly over the field, making sure to cover the parts well where the Red-root had nearly taken full possession; then burnt the whole. This was done four or five years ago, and I have not seen a stock of the pest on that field since. Burning the straw and stubble on the ground made a clean sweep of the seed. If you find any better plan, please let us know."

I am too short of straw to adopt this plan. In my case, it would be far better to prepare the land for winter wheat, and then *not sow it.* The Red-root would grow just as well as if wheat was sown. Then, in the spring, plow under the red-root, and sow spring wheat, barley, or oats. This would be just as effectual as the burning. The only difference in the two methods is that one kills the plants before they go to seed; the other lets the plants go to seed, and then burns up the seed. When it is an object to get rid of straw, the plan is a good one. But I do not think I am obliged to give a recipe for killing Ground Ivy, as the Red-root recipe is of no use to me. Those readers of the *Agriculturist* who can use this remedy for Red-root should, in justice to Mr. V., send us their methods of killing Ground Ivy.

John S. Bowles, of Hamilton County, Ohio, writes me a very interesting private letter, giving the details and results of his farming operations. There is nothing I like better than to read such letters. If farmers would *talk* less, and read, write, and think more, agriculture would make greater progress. Mr. B. says: "I still stick to hogs, in spite of low prices. I have now exactly 165 head. I endeavor to have a lot of about 30 ready for market every three months all the year round. Horse-power thrashing machines are out of date in this neighborhood. Steamers have effectually driven them away. I should never have run a thrashing machine, but I wanted an engine to shell and grind and cook my corn, and I thought it might as well earn something at thrashing as not. In shelling corn, fuel costs me nothing, as the cobs alone run the engine. I am inclined to think that cooking food for young hogs has another advantage besides the mere saving of grain and saving of time in fattening them. I think they are *less liable to disease.* At any rate, I *know* that I have fewer hogs die, in proportion to the number kept, than any other farmer in this vicinity; and I have fewer die now than before I commenced to cook, four or five years ago, although I keep three or four times as many." This is quite in accordance with what I should expect. Most of the swine diseases arise from indigestion. Clean and well-ventilated quarters, with regularity in feeding, giving no more than they will eat up clean, and then letting them have a comfortable bed, where they can lie down quietly and digest their food, and turn it into pork—these are the essential conditions in feeding pigs profitably. And anything that will facilitate digestion will have a tendency to keep them healthy, and, provided they are of the right sort and have all the food they can digest, they will grow with great rapidity. I suppose cooked grain is more easily digested than uncooked, and I regard this as the one great reason why it pays to cook grain for pigs. It is no use wasting money in cooking food for ill-bred, slow-growing hogs, that can digest food as fast or faster than they can assimilate it—or, in other words, faster than they can convert it into pork.

Mr. B. proposes to fatten some sheep this winter and sell them in the spring. He says: "I can buy good, thrifty sheep, such as the butchers kill, weighing about 100 lbs. each, for $3.50 per head. Next spring they will sell for $6 and probably $6.50 per 100 lbs., gross weight. I think I can calculate with certainty on $6.50, as wool is rising all the time, and farmers next spring will hate to part with their sheep. Clover hay is, or will be, worth $18 per ton, and corn 50 cents per bushel. What I want to find out is, how much hay a sheep will eat between December 1st and March 10th, or say 100 days?"

I think we may estimate that for sheep weighing about 100 lbs. it takes about 2 lbs. of hay per day, or its equivalent, to keep the sheep alive and healthy, without gaining anything in weight. Give them 1 lb. of corn per day in addition, and a good sheep ought to gain 2 lbs. per week in live weight. The account with 100 sheep would stand as follows:

Dec. 1st, 1871—	
100 sheep, 100 lbs. each, @ $3.50	$350
10 tons of clover hay, @ $18	180
180 bushels corn, @ 50c	90
	$620
March 10th, 1872—	
100 sheep, 128 lbs. each, @ $6.50	$832.00
Manure from 10 tons clover hay, @ $9.64	96.40
" " 5 tons corn, @ $6.65	33.25
	$961.65

This shows a very fair profit. On farms where there is plenty of good wheat straw, the sheep can be wintered at less cost. The profit does not come from the increase of weight of the sheep so much as from the increase in price, and provided the sheep are fat enough in the spring to bring the highest price, a few pounds less tallow on each sheep will make little difference in the result—certainly nothing like as much difference as that between the cost of hay and straw. So far as the amount of nutriment is concerned, corn at 50 cents per bushel is far cheaper than hay at $18 per ton. The most prevailing folly is in wintering sheep on straw alone. A little corn, *in addition* to the straw, will keep the sheep in good health and vigor, and pay better than most agricultural operations with which I am acquainted.

"Cattle are very low," continues Mr. B., "and I shall feed a few that I raised myself, instead of selling them now. Beef cattle bring only $3.25 to $3.50 per 100 lbs. I propose to try a little cooked food for them, as I have a steam-engine and a power cutting box. I shall cut up corn-fodder and straw, and mix with corn-meal and hulled cotton-seed, and wet and steam the whole together. Hulled cotton-seed (not the cake, but the kernels containing all the oil) is worth in Cincinnati $30 per ton. Corn-meal, allowing 1/8 for grinding, is worth $20 per ton." With labor so high and food so cheap, I do not see how it can pay to cook food for cattle that are worth only 3½ cents per pound. Low prices and high farming are not profitable concomitants.

I have just got back from Chicago. Things are done there on a grand scale. I expected to find them disheartened at the low price of beef and pork. Not a bit of it—or at least they are as enthusiastic as ever. They believe in themselves—and in each other—and they have reason to. Standing in Dexter Park during the swine show, I heard a Chicago man talking to "Fighting Joe Hooker" and Gen. Logan. "This," said he, "just where you sit, is the center of the county. Twenty years ago not a railroad came into Chicago; and now see!" And truly it *is* marvelous. Close by was the great Union Cattle Yard, with long trains of cattle, hogs, and sheep coming in and going out every hour. The day I was there nearly 3,000 head of cattle were received, over 9,000 hogs, and not quite 1,000 sheep; and so it is every day in the year. There was to me a peculiar fascination in watching the discharge of these cattle from the cars, speculating as to where they came from and what they had seen in their short but eventful lives.

"But," says the Deacon, in rather an impatient tone, "I came over to hear something about the Great Swine Show."

I hardly know yet what to say about it. I think I was more interested in the cattle and hogs in the yards than in the prize pigs. The latter merely showed what could be done by men who raise pigs to sell at high prices. The former showed what was being done by the farmers of the West in raising cattle and hogs for the butcher. And I was perfectly astonished at the general excellence of the hogs in market. It seems to me that a marvelous improvement has taken place during the last few years. Western farmers need say no more about the necessity of a breed of pigs that can get their own living and stand rough treatment. It is evident to me that thousands of these hogs had received better care and better food than we at the East usually give our swine. *We*, if anybody, want a hog that will pick up his own living. We can not afford to stuff our pigs with grain at all times. We have to keep them on the slops of the house and dairy, and on clover and other cheap food, giving them only a little grain until they are shut up to fatten. If any one needs a large, slow-maturing breed, that will live on cheap food, it is the farmers of the Eastern and Middle States, and not the farmers of the West, where corn is cheap. These hogs in the Chicago market have had all the corn they could eat. But they are not fat. On the average, they would not dress over 200 lbs., while they are capable of being made to dress 400 lbs. and upwards.

"I see what you are driving at," remarks the Deacon, "and I want to hear about the show."

Well, it was the grandest exhibition of well-bred pigs, probably, that the world has ever seen. There were some *five thousand* pigs in the show-yard. What interested me most, and what in fact I went on purpose to see, was the Magie or Poland-China breed. They were there by the thousand. Judging from the few I had previously seen, I thought them a great, coarse, overgrown, flop-eared, rough-haired, big-boned kind of common hog, without style or comeliness, that, with an unlimited amount of food, would at two or three years old attain a great weight.

There were a few of this breed at Chicago that nearly answer the above description—hogs that would weigh 1,000 lbs., with legs as thick as those of a well-bred ox, and with great, thick ears that almost reached to the ground. But, on the whole, the breed is far superior to what I suspected. Many of the specimens shown are nearly as refined as the Berkshires. In fact, a

casual observer might suppose they *were* Berkshires.

"Are they as black as the Berkshires?" asks the Deacon, who has a decided prejudice against color.

Some that were shown were almost white, but the greater portion were black hogs with white spots. There seemed to be no uniformity in this respect. From what I could learn from the breeders, I judge that they are aiming to get them blacker and blacker. Several told me that the blacker they got them the finer they became, and the easier they fattened.

The Magies and Berkshires were the two leading breeds at Chicago. I think there must have been nearly or quite two thousand of each breed on exhibition. It was too much of a good thing. The judges must have had a hard time, and got little thanks for their labors.

Chester Whites, in comparison with the Magies and Berkshires, were "nowhere." I should judge that this breed is hardly holding its own. And the same will apply to the Cheshires. Black seems to be the winning color at the West.

The "Suffolk, Essex, small Yorkshire, and other small breeds," were all huddled together, black and white, in one class. There was a good pen or two of imported "*Lancastershire*" pigs shown in this class. I suppose they are essentially Yorkshires. There were also two or three pens of capital Suffolks from Canada, some of them recently imported from England. There was a very fair show of Essex, and the most interesting fact in regard to them, was that the home-bred pigs were far superior, at least in my judgment, to some just imported from England by a leading Canadian breeder. And why should we not raise just as good pigs here as they can in England? We ought to be able to raise better, and I believe we shall soon do it. To me, the word "imported" adds no value to any animal. I heard the man in charge of Mr. Wood's Essex tell some one that a particularly fine sow was "*imported* from Mr. Thorne"!

The show of "crosses" was not as interesting as I expected. The largest exhibition in this class showed pigs from a Magie sow, sired by a boar that was "part Berkshire and part Magie," and I imagine part Essex also! This is crossing with a vengeance. If he had taken a part Magie sow, and put her to a *thorough-bred* Berkshire or Essex, he would probably have had pigs worth looking at. If there is one principle in breeding well established, it is that we should use none but thorough-bred males. And I doubt the policy of the Swine Breeders' Association offering prizes for *cross-bred boars*. A show of cross-bred pigs raised solely for the butcher would be very useful, but to offer prizes for them as a breeding stock is a mistake.

Financially, the show was not a success. There is probably not a town or county fair in the United States where the attendance is not larger than it was at this grand National Swine Show. The Association should hold its exhibitions in connection with the State Fair.

The grand prize of one thousand dollars for the best show of swine, not less than ten nor more than twenty, was awarded to the Berkshires of Mr. Clay, of Kentucky. There was an imported Berkshire boar on exhibition that was said to have cost "one thousand guineas in England." Our English friend Sotham remarked that he did not believe it. "No *Englishman*," he said, "would have the conscience to ask such a price."

Lucern in California.

Mr. Joseph Enscoe, of Antelope Ranche, Loyalton, California, writes: "In the July number of the *American Agriculturist* Walks and Talks says the Doctor has been to California, and that there is a weed there which is called clover. I suppose him to refer to Alfalfa, or Chili clover, and if so, I think an article in your valuable paper, giving an account of its merits and demerits, mode of culture, etc., would be highly appreciated by your California readers. I understand that a man below me has 400 acres of this weed. But little is known in regard to its cultivation. It is said to seek water even at the depth of forty feet. I have tried to obtain some published treatise on the culture of Alfalfa, or Chili clover, but have been unable to succeed. The seed is scarce. It is worth 25 cents per pound, down to 15 cents, according to quality."

Alfalfa, or Chili clover, is simply Lucern (*Medicago sativa*), a well-known plant cultivated in Europe, and to some extent in this country, for soiling purposes as well as for hay. You will find an article in regard to its value, cultivation, etc., in the American Agricultural Annual for 1871. But it is not at all probable that this is the plant to which the Doctor referred as a "weed." Prof. Brewer, of New Haven, to whom we sent Mr. Enscoe's letter, says they have a species of Lucern in California (*Medicago denticulata*) that is called "Burr clover." He is not aware that it is cultivated, but it is protected and cherished as a valuable forage, and has spread over much of the State. We think this is the plant to which the Doctor referred.

Prof. Brewer, like all others who have had any experience in regard to it, speaks in the highest terms of Lucern as a forage plant. "For several years," he says, "I have made diligent inquiries as to the best forage plant in the dry climates of Southern Europe, and the answer was uniformly, Lucern (*Medicago sativa*). In California the Chilian variety appears to do better than the European variety. But I want to see the experiment fairly tried between it and seed from the drier parts of southern Europe. Its cultivation is extending in California as rapidly, perhaps, as is possible in a State where the great cry is for some never-failing forage plant, that will stand the drouth, too close feeding, a too wet winter, and do all this without either care or cultivation. Unfortunately Alfalfa requires care in getting it started, and takes some years to come into its best value, and then needs a fence around it to prevent too close feeding in times of scarcity. The land needs to be deeply plowed and prepared with care, and during the first year the crop should not be fed very closely. When well rooted, it is exceedingly tenacious of life, the tap-root running very deep—I know not how deep, but I have seen roots twelve feet long, and I doubt not they sometimes run much deeper; and when well set it is very long-lived. European authorities speak of roots known to live 40 and even 60 years. The herbage is coarse but very nutritious, and the amount produced very large, either as hay or pasture."

There can be no doubt of the great value of Lucern as a cultivated crop for soiling purposes. On rich land, kept free from weeds, it will yield four or five crops a year, and it is very nutritious, and all animals eat it readily. It will stand drouth better, probably, than any other forage plant. But it will not stand *weeds*. The point which is of most interest to our readers in California, Colorado, and other sections liable to long-continued drouths, is, whether Lucern (*Medicago sativa*) or the Burr clover (*Medicago denticulata*) can be grown as we grow clover and grass, and whether this Burr clover is as nutritious as Lucern. We should like to hear from our California readers on these points.

Winter Grazing.

This term will strike the Eastern reader unpleasantly, for it is associated in his mind with bare fields, stack-yards, frozen earth, and shivering cattle. In the trans-Missouri country, we have a vast region where winter grazing is a fixed fact, without any of the disagreeable accompaniments of the rainy and snowy climates east of the Mississippi. The eastern limit of this climate is about the 98th degree of longitude west from Greenwich, which crosses the Union Pacific R.R. near Grand Island. Nearly all the country west of this line, extending from Texas far into the British Possessions, is one vast natural pasture the year round. The climate is not well understood by many of our Eastern people. It is entirely unlike that of the Atlantic and the Mississippi Valley States. Judged by our standards at the East, four fifths of this region would be uninhabitable on account of its elevation above the sea level. On this coast, seven thousand feet would be about the snow line. In the Rocky Mountains it is nearly twice that hight. They have good summer weather in its season at ten thousand feet above the sea level, and it is only the cool nights that make the raising of Indian corn impracticable. The terminal line of vegetation on the White Mountains is about 5,000 feet, on the Alleghanies 5,500 feet. The grasses grow luxuriantly on the Rocky Mountains up to ten thousand feet, and we have seen a heavy growth of timber on Pike's Peak, and on other summits, as far up as 12,000 feet, and a smaller growth of evergreens 15,000 feet high. In the North, South, and Middle Parks, eight to ten thousand feet above the sea level, the winters are less severe than in the Atlantic States. The rainfall over the greater part of this region is about twenty inches annually, and the larger part falls in the month of May. This gives the grasses a vigorous start, and in June they are fully matured. By the 1st of September these grasses have become a perfectly cured hay, as nutritious as any the Eastern farmer puts into his stacks or barns. The proof of its excellence is the fact that thousands of sheep and cattle feed upon it all winter, and come out in the spring ripe for the butcher. There is none of that pining which is inseparable from all out-door feeding in winter in the Eastern States. There are not only the "bunch" and "gramma" grasses, but the species are numerous, and every valley has its complement of them. This fact of abundant fodder for all graminivorous animals is as well established as any fact in our agriculture. It is this which makes this vast region so attractive to the stock-grower.

Water-Rams.

The frequent inquiries received about elevating water by means of the water-ram induce us to describe the machine and illustrate its mode of working. In figure 1 we give a sectional view, showing the valves. It will be seen that the supply pipe, which should be somewhat more than twice the diameter of the discharge pipe, brings the water from a spring, which must be elevated at least four feet above the ram, and

distant forty or fifty feet from it. The mode of working is as follows: The current of water

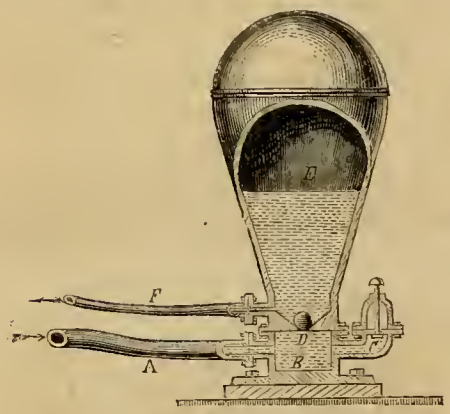


Fig. 1.—SECTION OF WATER-RAM.

flowing down the supply pipe *A* (fig. 1), acquires a sufficient velocity to raise the valve *C* and close the orifice. The current thus suddenly stopped, causes a great pressure on the water in the chamber *B*, which is equal to the velocity and weight of the amount contained in the supply pipe (less friction). This pressure forces up the valve *D*, and permits the access of a quantity of water into the large chamber *E*, which relieves the pressure, and the water in the supply pipe comes to a rest, and the valve *C*, being relieved from

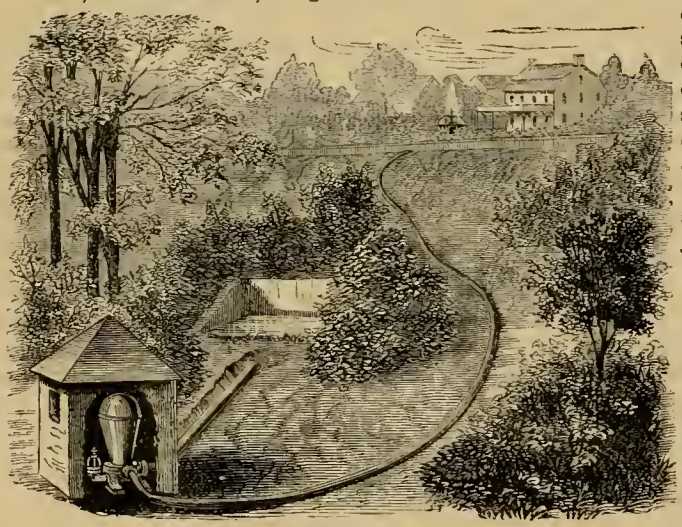


Fig. 2.—RAM IN OPERATION.

pressure, falls down and opens the orifice. But there being a fall of four feet, the current again commences, and the water passes off by the orifice over the valve *C*, until the velocity has increased so much as to shut this valve again, when the same round of effects ensues. Thus the ram seems to throb and pulsate like a living thing, each pulsation forcing a quantity of water into the reservoir. But this reservoir contains some air, which, being elastic, acts as a spring, and not only reduces the violence of the pulsations, but forces the water out of the chamber into the discharge pipe in a steady stream. It can be easily seen that it only needs to proportion the sizes of the pipes to raise the water any desired hight. If the hight is increased, the quantity is diminished. With perfect workmanship the ram is a very permanent machine, and without care and attention throbs away day and night, for year after year. As a matter of course, it must in winter be safely protected from frost. The cost of the ram is from $10 to $50, and a spring may be utilized that will furnish from three quarts of water per minute up to 75 gallons. For instance, a No. 5 ram, costing $18, would, with a fall of three or four feet, use seven gallons of water per minute, elevating about half that quantity to a hight of fifty or one hundred feet. The cost of the pipe would be additional to the cost of the ram. Figure 2 shows the arrangement of the whole thing when complete. When the cost of the ram and pipe is considered, we could not hesitate on the score of economy to recommend any farmer who has a suitable spring, to bring the water to the house and barn. Considering the constant and wearying labors of the women in a farm-house, the saving to them by having a constant stream of pure spring-water running at the house, would alone pay the interest on the cost twice over, or more, while the benefit accruing to the stock by reason of a bountiful supply of water of a fitting temperature for them to drink will equal the principal in a single season. What investment can then pay better?

Paving Barn-Yards.

"A Subscriber," Madison Co., Ohio, wishes to pave his barn-yard in the cheapest manner. The paving of barn-yards is a matter of great economy to a farmer, and it is a wonder that so great a proportion is permitted to remain unpaved. The whole of the work can be done by the farm help, and therefore no money need be laid out. The best material is cobble-stones, chosen of a regular size and shape, the best shape being one longer than it is broad, or somewhat the shape of an egg, blunt at the largest end. The yard should be evenly graded with the plow, and carefully leveled, so that the lowest spot is just where the drainage is wanted, either in the center or at one corner. Then, with the tool represented at figure 1, scoop out of the loose earth a hole large enough to receive the end of the stone, place the stone in the hole, and proceed with the next—ramming the stone down partly with the end of the handle where is seen the iron ferule. Care must be taken to make the holes deep enough to permit the tops of the stones to maintain a regular level. When a few stones are placed, the operator should stand on them, and then the loose earth scooped up will fall between them, filling up the hollows and making all solid.

When the yard is laid all over, the rammer

Fig. 1.—PAVER'S TOOL.

(fig. 2), which is a round piece of wood as heavy as can be conveniently handled, and shod with an iron ring, should be used to drive the stones down solidly and firm, keeping a level surface. When the yard is finished, a barrel of water-lime may be procured, and a thin coating of cement brushed all over, which will make it water-tight. All liquid manure may then be saved, and this item alone will soon pay the expense incurred. With a yard thus paved, and well littered in the center, everything can be kept clean and comfortable. There will be no mud in winter, no danger of cows slipping and injuring themselves, for the surface is rough, and gives a good hold for the feet. Hogs can not root it up when turned out in the yard, and a general improvement will be experienced in everything appertaining to the barn and barn-yard.

Fig. 2.—POUNDER.

A Piece of Copper Wire.

Something to mend with—that is the great need of us all, especially of those who live in the country, and whose traps are sometimes "rattle-traps," and have a way of breaking

Fig. 1.—COIL OF COPPER WIRE.

at inconvenient times. An old officer of the Coast Survey, who had spent thirty years in field service, once told us that he never went from camp in the morning without having a spool of copper wire in his wagon, and that, as a consequence, he never had a breakdown that he could not repair on the road, or in the woods, or wherever he might be. Harness, wagons, tools, everything almost that is subject to breakage, may be stoutly mended with copper wire, which is flexible and tough.

The best size for such use as we are now considering is the size of a rather large knitting-needle, of which a piece two yards long may be coiled up to about the size of a watch (fig. 1), so as to be carried in the pocket—the end being wound around the coil, to keep it in place. This will, then, always be at hand ready to mend a broken tool.

A longer piece of the same wire, tightly wound on a spool or on a stick, may be always kept in the wagon to repair any damage to it or to the harness. Such a spool as carpenters use for a chalk-line will carry enough for any purpose. If the tongue of a buckle breaks, its place may be supplied as shown in fig. 2. We recently broke the spring of a carriage when far from home, and soon mended it, so that it

was used safely until there was an opportunity to have it repaired, more than a week later.

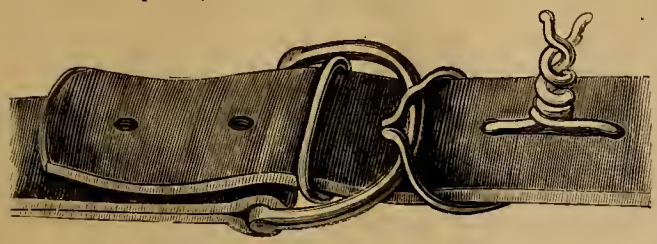


Fig. 2.—MENDING A BUCKLE.

The break in the spring is shown in fig. 3, and the repairing in fig. 4.

We have sometimes while plowing mended a broken trace-chain in two minutes' time, saving a two hours' trip to the blacksmith to have an S-hook put in; and a broken whiffletree has been so bound as to be made strong enough for a season's work without leaving the field. In short, there is hardly anything that can be mended with a string or a rope that can not be much better done with copper wire; and no farmer who has once learned its utility would willingly be without it.

If the supply is kept on a stick or a spool, it should be wound on so evenly and tightly that it will lie perfectly solid, and allow a good strain to be given as it is wound around a broken spade-handle, or anything else that is to be mended. For this reason, the wire, as it comes

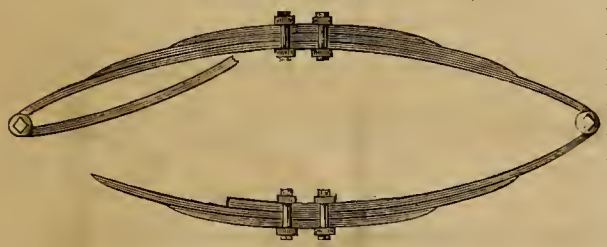


Fig. 3.—THE BROKEN SPRING.

from the store, should be fastened by an end to a nail in the fence, or otherwise, so that it can be

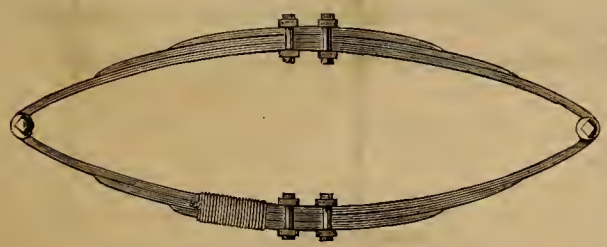


Fig. 4.—THE SPRING MENDED.

drawn taut. One turn of the wire near the fence should then be taken around a hammer

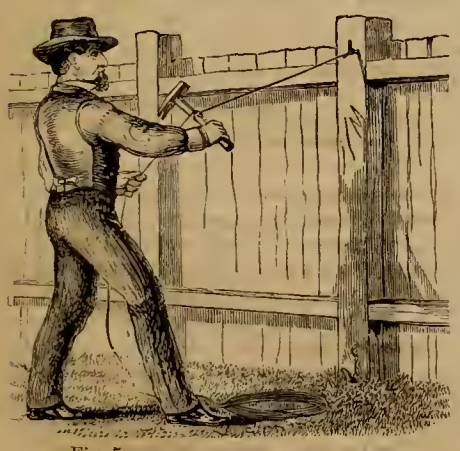


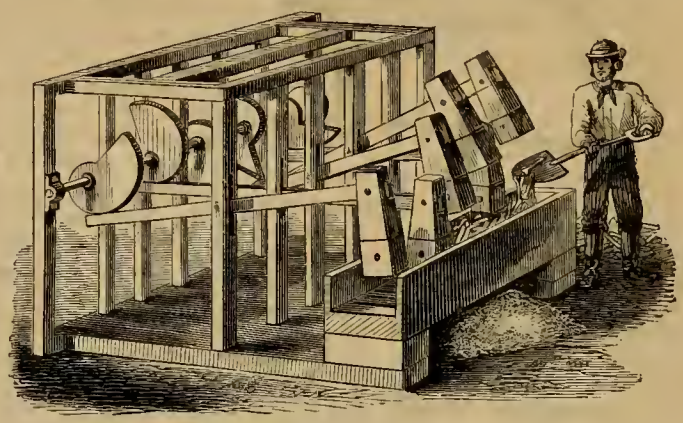
Fig. 5.—STRAIGHTENING THE WIRE.

handle, or other smooth piece of hard wood, which being drawn back in such a way as to make the wire slip tightly around it (fig. 5), will remove all kinks, and leave the wire smooth and straight. By the same process, a wire that has been once used can be again made smooth, to be wound on the spool for future use.

PRESERVING ROOTS. — As roots are a very bulky crop, and require much room to store them in cellars, in fact much more than many barns have capacity for, it is often more convenient to store most of them in the field. We are of opinion that they keep better thus stored—coming out much juicier and sweeter at the end of the winter. A very convenient and rapid mode of pitting them is to take the plow and open out a row of hollows through the field, twenty feet long and six feet wide, leaving spaces of six feet between the ends of each, finishing them with the shovel until the pits are a foot deep. Draw the turnips, and pile them up as high as they will stay without rolling down. Then, with the plow, turn furrows on to the heaps, and keep plowing earth towards them until there is sufficient to cover them a foot and a half in depth. As the pits are in a row, this is rapidly and easily done by passing down one side and up the other. The roots are then in heaps of about 200 bushels each, which can be taken successively as they are wanted for feeding. In storing roots in this manner, they will be sometimes found touched with frost at the north end of the pits, unless some coarse litter is thrown over them there as a protection. This should be done if possible, but otherwise no protection is necessary. If this plan is followed in storing roots, no great expense is necessarily incurred in providing cellar room. A cellar that will hold one pit at a time conveniently is all that is necessary, as that amount can be drawn in at any time without trouble. Carts are much handier than wagons for such work as hauling roots—the unloading is the work of but a moment.

Bone Mills.

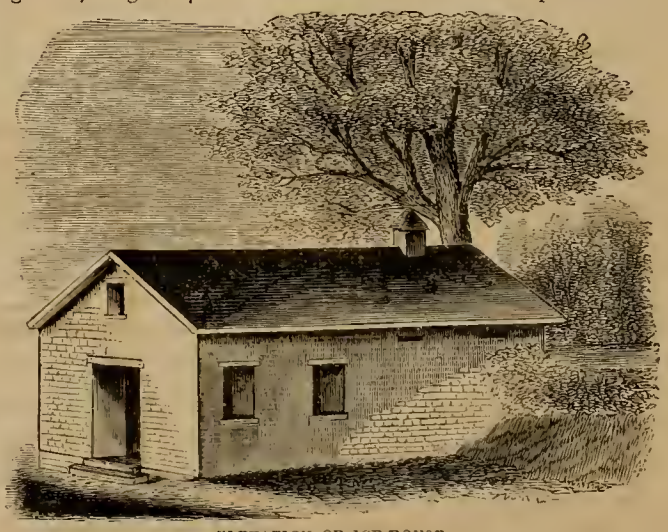
Increased attention is being given to the use of bones for manure. It is quite imperative on farmers to restore them to the soil whence they have been taken if they would keep up the fertility of their farms. The great difficulty in the way is the high price of the bone when reduced to a proper state for manure. Bones can be got in quantities for $20 a ton, but ground bone is worth something like twice that sum. We are often asked if there is a machine for crushing bones that can be got at a reasonable price, and can be relied upon as efficient. Several bone mills are advertised, but we have not seen them in operation, and can not say how well they work. We give a drawing of a stamping machine, which we think might be put up for the purpose of crushing bones for their customers by some of the country millers who stamp and grind plaster. The bones might be afterwards ground in a pair of burr-stones used for plaster or feed. This mill might be put together for a comparatively small sum by any millwright, as it is wholly of wood excepting the stamp-heads and stamping block, which are cast iron. Mills of this kind can be run by five horse-power. Such a business as this, interesting as it does a whole community, could be well undertaken by a co-operative company of farmers, or an agricultural society, who could doubtless rent the power of almost any country miller who has water-power. There is no patent on the stamp-mill. It has been in use for many years for breaking stone and the hardest kind of ore, both of iron and copper, and has done its work well. We do not see, therefore, why it should not crush bones of the toughest kind perfectly.



STAMPING-MILL FOR BONES.

An Ice-House with a Cool-Room.

We are requested to give plans of an ice-house which shall include an apartment in



ELEVATION OF ICE-HOUSE.

which meat or milk may be kept cool. One very important item in putting up such a building is the location. This should be dry, and if

possible on the side of a hill, into which a part of the house may be built. This will enable the unloading of the ice to be much more easily accomplished, as the door may be made in the back of the building, and the sled or wagon drawn close up to it. The blocks of ice will not then need to be lifted in piling them up. A drain should be made to carry off all water

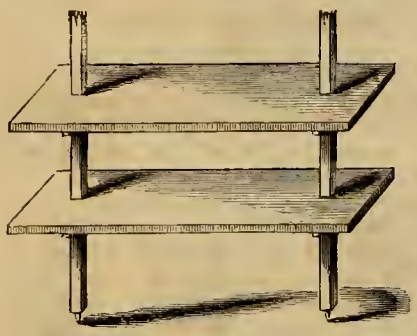


Fig. 2.—SHELVES IN MILK-ROOM.

from the melted ice. A piece of lead pipe, bent in the shape represented at *a*, fig. 3, should be made to carry off the water; any current of air would thus be prevented from entering at the bottom, which would be fatal to the preservation of the ice. The size of the ice-room should not be less than ten feet inside. The walls are double. They may be of common boards, battened over the cracks, and a space of ten inches should be left between them. This space may be filled with any light, dry, porous material. Sawdust, tan-bark, swamp-moss, chaff, or charcoal-dust would either of them be excellent material for this purpose. The filling should be carried up to the eaves. The roof need not be double, but it should be tight, and ventilators should be made just below the eaves and out of the roof, to allow a free current of air through the top of the house. The doorway leading to the milk-room needs no door, but short boards put across as the ice is built up, which may be taken away again as

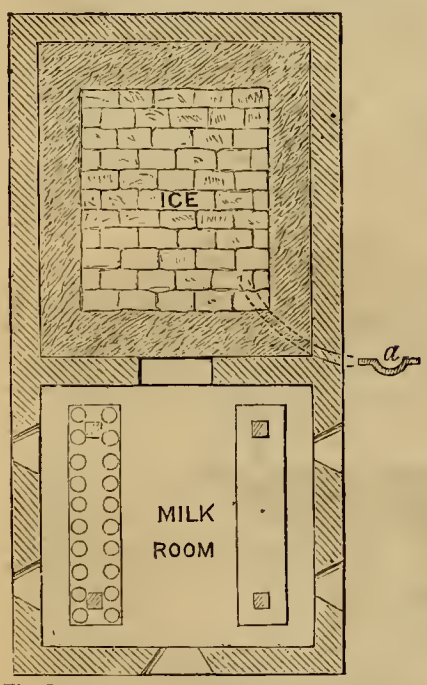


Fig. 3.—PLAN OF ICE-HOUSE AND MILK-ROOM.

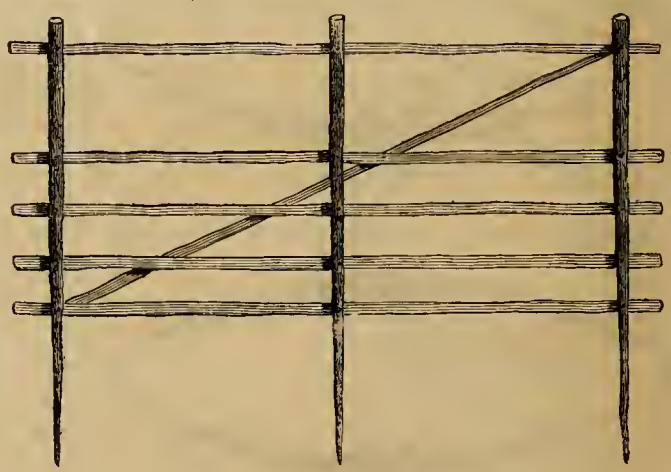
the pile is decreased by use. The ice should be cut in blocks nearly of a size, and packed away as closely as possible, filling up all crevices with small pieces. Choose cold weather for this business, and open the house so that it may be thoroughly reduced in temperature. Pack around the ice a foot of sawdust or tan-bark, well trodden down, and put two feet in depth on the top of it. The dotted space in fig. 3 shows the sawdust. The milk or meat room is seen at the front of the plan, with ranges of shelves on each side, and windows at each side for ventilation. They may be closed with wire-gauze double windows, to exclude the heat in summer, and shutters. The shelves are built on central posts which pass through them, and on which cross-pieces are fixed (resting in slots cut in the post) to sustain the shelves. The posts rest on small iron pins, which fit into a hole in a flat stone or brick in the floor, and are fastened to the ceiling above. The shelves should be placed so far from the walls that mice can not leap on to them, and as they can not climb up from the posts, the milk, meat, etc., on the shelves are preserved from them. Fig. 2 shows the construction of these shelves, and fig. 1 the whole building, which is all the better for being shaded by a few trees. A coat of whitewash over the whole, including roof, would keep the interior much cooler, as the heat would be reflected and not absorbed.

Shelter for Stock.

We should provide comfortable shelter for stock, not only from motives of humanity, but also because it affects in a large measure the profits of keeping and feeding them. Every inch of snow melted on the back of a cow or an ox will tell on the profits of that animal next season. There will be so much the less butter and so much less beef for the owner to sell. So much more risk, too, of losing his animals altogether, when, having passed through the snows and sleets of a hundred wintry nights, they come weakened and worn-out to gasp under the first hot suns of the spring. Thus it is we hear of this farmer having a cow "lifting," or that one having an ox that requires the help of three or four neighbors to get him on his legs. And what showing would the cost of feed of these animals make on the account-book, if such a farmer keeps one! He would find that a large portion of his feed had become dissipated in the frozen air of the north winds; that a good portion of hay or corn had gone to melt ice and snow and evaporate cold rain-water, and that what was left after these things had been done, had barely sufficed to keep life in his beasts. For in this case philosophy, or science, or book-knowledge, call it what you will, is thoroughly corroborated by practice. If two beasts are fed alike, except that one is kept well stabled and the other out of doors exposed to the cold, the one thus exposed will consume just double the amount that the other will, and will be in worse condition besides. Every man who keeps a cow knows this to some extent, though he may not know the exact figures. Here we give them—they are the result of a careful experiment made by a trustworthy feeder, viz.: Two lots of sheep (of five each) were selected, of equal weights and conditions. One lot was kept out of doors and unsheltered, the other kept in a close pen. The lot unsheltered ate 1,912 pounds of turnips against 886 pounds eaten by the other lot. The gain in weight was 23 pounds per head in the first lot and 28 pounds per head in the second. The profit can be figured out by any man who knows what turnips and mutton are worth. Had not the feeding been abundant, some of the exposed sheep would have died. And yet sheep will stand more exposure than calves or heifers, or even full-grown cattle. Notwithstanding all this, every winter's day one may see young calves humped up and stiffened with cold, shaking in the keen breeze, and their owners knowing at the same time that a year's growth is thus frozen out of them. This comes of not figuring up profit and loss.

Sheep-Hurdles.

Light, cheap, easily made, and easily erected hurdles are a necessity where sheep are kept. The hurdle figured on this page is made of small round poles from two to three inches thick; the cross-bars are of smaller poles, split, and may be either nailed on to the upright posts, or the ends trimmed and inserted into holes bored in the posts to receive them. They should be nailed to the middle post, and the ends should be secured by nails. A wooden mallet is used to drive them into the ground, when they are required to pen sheep feeding on turnips, or where the ground is soft or mellow enough. Where the soil is too hard to drive them, a light iron bar is used to make the holes, into which the sharpened points are driven with the



SHEEP-HURDLE.

mallet. The winter is the proper season in which to procure the materials for such things as these, and put them together, ready for use when needed. Fifty hurdles, ten feet long, will inclose a quarter of an acre; sixty will inclose half an acre, if placed correctly.

Oats with Wheat.

We occasionally see the practice of sowing oats with fall wheat recommended. It is claimed by those who practice and defend this plan that the oats shield the young wheat plants and protect them from the effects of frosts; that, dying down after the first heavy frost, they form a sort of mulch, which not only affords protection to the wheat during the winter, but nutriment afterwards, when they rot in the spring. We do not consider this reasoning sound, and the custom we think one not to be commended. If a mulch is required—and nothing can be more desirable under certain circumstances—let a mulch be given that will not rob the wheat

plants of greatly needed nourishment. Every blade of oats growing in a crop of fall wheat is a weed which exhausts the soil and smothers out the crop. The apparent gain (if any) is only secured by a fatal weakening of the wheat. A weak stand will inevitably suffer by winter-killing, when a vigorous one would survive perfectly. Thus the practice brings about the very conditions it is intended to prevent. We strive to clean our soil, and enrich it in preparation for a crop, and then undo our work or destroy its effect by crowding that crop with rank-growing weeds. For oats grow much ranker than wheat, and the crowding and smothering effect is in fact a greater injury than the abstraction of nutriment from the soil. A few tons of straw or swamp hay scattered over the field would be a mulch without doubt. But we do not care to mulch our wheat. We would prepare the ground well, sow early in drills, let the drills run across the line of prevalent severe winds, which will prevent exposure by drifting of soil from the roots, and let the crop have the advantage of all the light and air possible without covering it with any mulch. If a mulch is used, let it be when danger is apprehended from severe weather on bare ground in the winter, and when the wheat is dormant. But not when it needs all the strength it can gather from manure, air, and light to prepare its forces to resist the severity of winter.

Fall Plowing of Corn-Stubble.

There are more good reasons than one, why a corn-stubble should be turned over before winter. Having been in grass the previous year, there was a sod turned down in the spring. That sod is very unevenly mixed in the soil. If it was a good heavy clover sod, with strong roots, there will be a large amount of vegetable matter still left in the soil that was unappropriated by the corn crop. This should now be thoroughly mixed up by a fall plowing, that whatever soluble matter remains may be absorbed with more facility by the soil; besides, the intimate mixture will render the soil more open and amenable to the influences of frost, air, and moisture. Then the refuse of the corn crop, the large amount of stalks and roots turned under now, while they still contain some portion of sap, that will cause them to rot when buried in the moist soil, will add considerably to the store of nutriment for the following crop of either oats or barley. Left standing exposed during a whole winter, corn-stubs become dried up and difficult to rot, and are found, after a plowing and harrowing, scattered over the surface in an uncomfortable manner. This may be prevented by fall plowing, and a benefit snatched from what would be otherwise a nuisance. Then one more but chief advantage is the forwarding of the spring work, enabling the spring sowing to be done in good season, that the corn-ground may be attacked in time. It is not your forehanded farmer who gets bad crops because of bad seasons, late springs, and late plantings, but he who is always driven by his work, and has always two things waiting to be done, and he knows not which to do first. Such a farmer is always in a quandary, works hardest, and has most trouble, most anxiety, most losses, and, alas! smallest crops and least profit.

Topping and Tailing Turnips. — With proper care, a large amount of extra feed can be gathered in the process of taking up turnips or mangels. As soon as the time has arrived for taking up the roots, a man provided with a sharp, heavy hoe walks along the rows and strikes off the tops. These are gathered up, and carried either to the barn or feeding sheds, or to the fields, where they will supply sheep or horned stock with a large amount of additional feed. A plow is then run along the rows by a steady hand, which removes the soil from one side of the roots. They can now be gathered and thrown into heaps with a pronged hoe. The hoe should be struck into the earth just beneath or on one side of the root, and a sharp jerk will throw it to the heap. If it is desired to tail the turnips, the sharp hoe should be used to cut them from the tap and fibrous roots; and, at the same stroke, as the hoe is withdrawn, the turnip is thrown out and jerked on to the heap. This process, however, leaves in the ground a large amount of feeding material, and though the turnips require less room to store them when neatly trimmed, we do not think the gain adequate to the price paid for it. As they may be stored in the field, room is not so much an object as amount of feed secured.

Making a Fish-Pond.

F. I. N. writes that "he has good facilities for making fish-ponds, with abundant springs and swamp or waste land, and that many farmers in his vicinity are in like condition."

There is no difficulty whatever in his having fish-ponds, well stocked, in a few years, if he will make the ponds and put in the fish. It is not expensive to make a pond, wherever there is a permanent brook flowing through a hollow or swamp. Of course, the size of the pond will depend somewhat upon the lay of the land and the quantity of water in the stream. Sometimes fifty dollars spent on a dam will flow fifty acres or more. Often the ponds are already made for reservoirs or milling purposes, and are just as good for raising fish as if they were constructed expressly for that purpose. If a brook is already stocked with trout, they will multiply much faster with the aid of a pond. Nothing need be done but to stop fishing in the brook, and let the trout multiply for three or four years. They will increase faster if you supplement natural by artificial breeding. Ten thousand young fry put into the brook every spring, will help the stock very much. You can raise the fry yourself, or buy them, as suits your means and convenience. It is merely a question of dollars and cents. In brooks and ponds, stocked with other fish than trout, we have no hesitation in recommending the Black Bass (*Grystes nigricans*) for all northern waters. This fish has been thoroughly tested, in many experiments, for over twenty years, and is admitted by all sportsmen to be unsurpassed as a game-fish. It is many times more prolific than the trout, and will make fine fishing in less than half the time. It grows much more rapidly, and in three years from the egg you get one and two pound fish. In old ponds, where feed is abundant, they are frequently taken weighing from four to six pounds. They will hold their own amid the most destructive fresh-water fishes. Many claim that the flesh is quite as good as that of the trout and salmon. All we claim for it is, that it is an excellent table fish, good enough for anybody. In any well-stocked water it requires no feeding. The owner has only to put in his adult Black Bass, and they will take care of themselves, and make money for him while he sleeps. Scores of ponds in the Northern and Eastern States have been stocked with this fish, and we have yet to hear of any dissatisfaction. We know of one forty-acre pond, stocked two years ago, that is now valued at $10,000, and it will probably pay the interest on that sum as long as fish run.

Couch or Quack Grass, and a Properly Managed Summer-Fallow.

A correspondent desires us to give our views on the best methods of destroying Couch grass, and also on what a properly managed summer-fallow should be. First, as to the Couch grass. We know of no way of destroying this but plowing, harrowing, and bringing the roots to the surface, and *gathering them up and burning them.* They are then effectually disposed of. Let this be done persistently and thoroughly, and the pest will be got rid of. If a common harrow does not bring the roots to the surface, make some teeth slightly curved forwards at the bottom, and use them in the harrow, and all the roots will be torn up in time. Second, our ideas of a properly managed fallow are that it should consist of plowing, harrowing, rolling (if necessary), picking up and destroying weeds that can not be killed by any other means, and by the use of all the devices known to agriculture to reduce the soil to a proper tilth and destroy all weeds. If these two things are done by any means—and whatever they may be we do not care, so that the ends are accomplished—we should then say that we had a properly managed summer-fallow. But a fallow that presents a green surface is not properly managed, nor is one in which roots that are tenacious of life are permitted to lie on the surface in the vain hope that the heat of the sun will kill them, but which revive and sprout with the first shower. Work on a summer-fallow must be constant and judicious to be effectual. On page 341, vol. 24, *American Agriculturist*, is a drawing of a couch-grass rake, well adapted to tear up the roots, bring them to the surface, and gather them in rows.

Making Cut Shingles.

Producing shingles by hand is a now nearly unused method, for the shingle-machine has been found to shape them much better, and more cheaply. In some parts of the country, far from steam-mills and pine timber, cut shingles are still manufactured.

The work from which these sketches were taken was being carried on at Guyandotte, a town in West Virginia, at the confluence of the Guyandotte River with the Ohio, where some primitive ways of doing things are still in vogue.

To commence at the beginning, we should go up the river to where the gigantic Tulip-Poplars grow, see them cut down and trimmed, divested of their bark, and hauled to some low-lying, convenient spot near the river, where the raftsmen can take advantage of the spring floods to float them on that beautiful, hurrying stream down towards its mouth, near which point our shingle-makers happen to be located for a season. But few of the many noble trunks, rafted every year from their mountain fastnesses, are detained by the shingle-makers. Only the shorter ones, unfit for other uses, are doomed to become roofing material in their hands, they have first to be hauled up the steep bank by an ordinary horse-windlass, and so wound up to the level, as we

see in fig. 1, when it is rolled off the little car to make room for another load. The logs are next sawed into lengths, as seen in fig. 2, a horse being the motive power again. These lengths are about twenty inches, and have to be split into sections before they can be steamed or boiled, as they must be, in order to prevent their splitting under the knife while being finally cut in shingle shape, thin at one end. Instead of the ordinary iron wedges used by rail-makers, two ax-heads (see fig. 3), driven in with a heavy wooden maul, are preferred, because, the blades being wider, they are less liable to split the wood out of line and waste the material. When a number of logs have thus been reduced to chunks of an average width of ten inches at the broadest point, they are put into the soaking trough (fig. 4), which is filled with water, kept as hot as possible by a fire underneath, and are thus fitted for the cutting operation. This is performed by a machine somewhat on the principle of the guillotine, inasmuch as it has a descending knife, under which the block is thrust, as far as the guides will allow. The knife does not fall by a weight, however, but is drawn down by lever power (fig. 5), one man being required to hold the wood to the knife, and another to bear down on the lever when it is in position. The cut is instantaneous, and as the shingle is severed from the block, the workman lifts it from the frame with his right hand and tosses it on the heap at his right or left, as it proves sound and of the full size or not, when he instantly replaces the remainder of the block under the knife, now raised again, and the motion is repeated until it is entirely cut up. Two men, accustomed to the work, go on very rapidly, and are able to keep a couple of boys busy in bunching, or packing in bundles (fig. 6), such as the ordinary sawn shingles are put up in. Each bundle is intended to contain two hundred and fifty, fastened together by cross-bars with a stick running through them, and prevented from slipping out by pins through the ends.

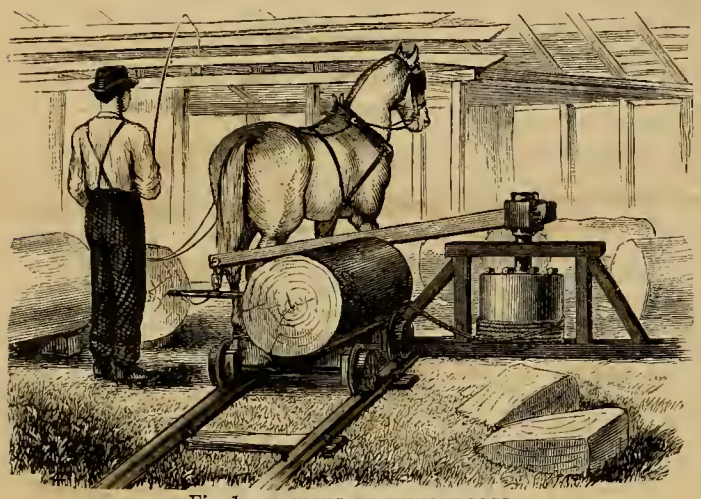


Fig. 1.—HAULING UP SHINGLE-LOGS.

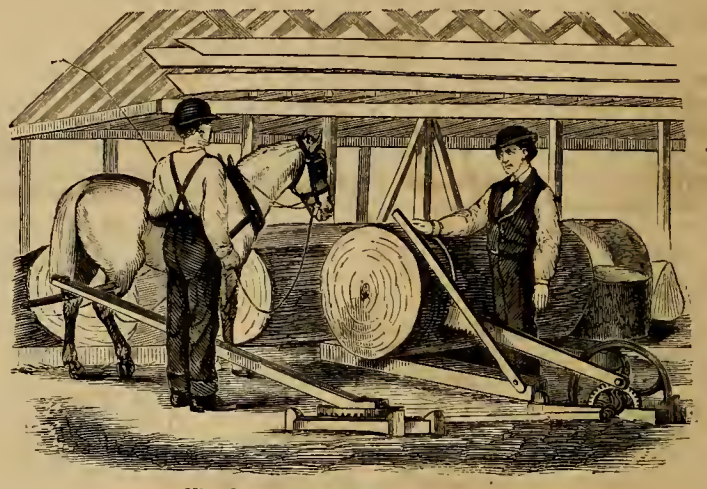


Fig. 2.—SAWING LOGS INTO LENGTHS.

Fig. 3.—SPLITTING THE LOGS.

Fig. 4.—STEAMING THE BLOCKS.

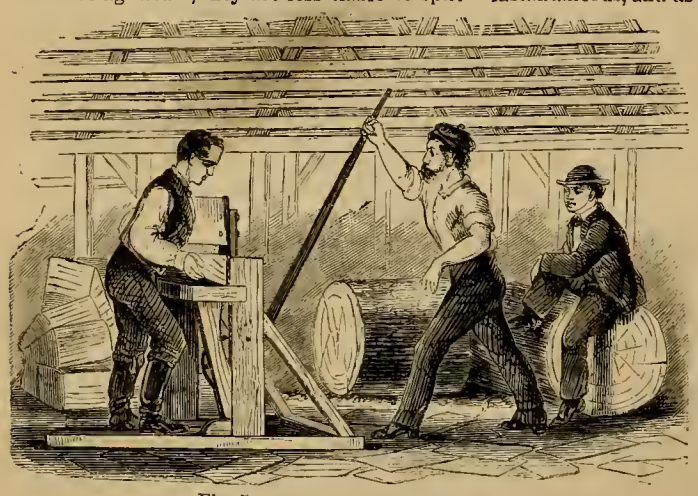


Fig. 5.—CUTTING THE SHINGLES.

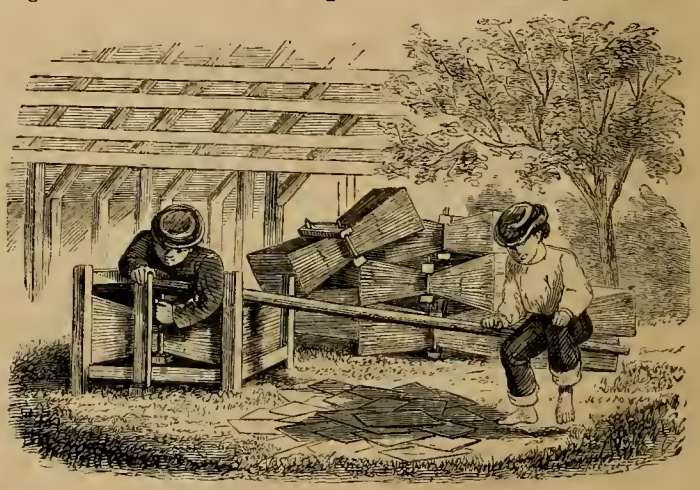


Fig. 6.—PACKING THE SHINGLES.

These poplar hand-made or cut shingles are not so large or so even as sawed pine shingles, nor do they command so good a price, and although they serve every purpose for which they are intended, are not likely to remain in use much longer, even in the South.

The Virginian Agave.

Almost every one has either seen or read of the famous Century-plant, or *Agave Americana* of tropical America. This grows to a gigantic size, and is remarkable for the length of time it requires in cultivation at the North to accumulate sufficient energy to make its first and only bloom. The majority of those who have seen or read about this floral wonder are probably not aware that we have within our own temperate limits a representative—an humble one, it is true—of this giant Agave. In Virginia and Southern Illinois we have the Virginian Agave, *Agave Virginica*, which grows far southward into Florida and Texas. A friend sent us a specimen, which bloomed this year, and enabled us to present a drawing of it. It makes a low tuft of thick and fleshy leaves, a foot or so across. The leaves are often furnished with spiny teeth on the margins. The flower-stalk grows with great rapidity, and reaches the hight of five or six feet. Unlike the Century-plant, it does not branch, but the flowers are arranged in a simple spike around the summit of the stem, and keep on developing for some weeks. The flowers (about an inch long) are purplish without, yellow within, and somewhat fragrant. Altogether, it is a plant more interesting than showy, being a representative in our cold climates of a genus that furnishes some of the most striking features of tropical scenery. Those who have described this plant fail to state if, like the Century-plant, it exhausts itself with the effort of flowering. The root looks sound, and we shall have to learn this point, as we do many others, by experience, and next spring we shall know all about it. The engraving gives a portion of the flower spike, about half the natural size, and a very much reduced drawing of the whole plant, to show its habit.

VIRGINIA AGAVE.—(*Agave Virginica.*)

The Partridge Pea.

Sometimes we give representations of plants that are neither useful nor ornamental, but of such common occurrence, that many friends send them to be named. By publishing an engraving we are able to answer a large number of inquiries at once. The Partridge Pea is very common in sandy soil. It is an annual, with a spreading stem about a foot high, and bearing pinnate leaves of from ten to fifteen pairs of small leaflets. The foliage is very delicate in appearance, and is somewhat sensitive, the leaves closing gradually when the plant is disturbed or plucked. The flowers are in small clusters, bright yellow, and showy. The petals have often a purple spot at the base. The flowers are succeeded by flat pods about two inches long. The botanical name of the plant is *Cassia Chamæcrista.* It belongs to the Pea Family (*Leguminosæ*), although the flowers have not the peculiar shape that characterizes the members of the family that we are the most familiar with. The genus Cassia is a large one, and many of the tropical species are grown in greenhouses. The drug known as Senna is the leaves of several Eastern species, and the leaves of a tall-growing native species, *Cassia Marilandica*, the Wild Senna, are used for a similar purpose by some physicians, but they are very much less active than the imported article.

PARTRIDGE PEA.—(*Cassia Chamæcrista.*)

Plants for a Small Greenhouse.

BY JAMES HOGG.

[The articles in August and September upon building and heating a small greenhouse have met the wants of a number of readers, who now ask for a selection of plants with which to stock the house after it is built. We referred the matter to Mr. Hogg, who has given such a collection as he should procure himself. In looking over the list we find things that some may consider old-fashioned, but they are not the less meritorious on that account. The list allows a considerable range in selection.—Ed.]

In making a selection of plants for a greenhouse which will be mainly in charge of its owner, and not under the care of a professional gardener, it is desirable to select hard-wooded plants chiefly, as they are the easiest cared for, and do not require as high a temperature to grow them well as do soft-wooded plants; yet some of these latter, such as Pelargoniums, Cinerarias, and winter-blooming bulbs, and succulent plants, as Aloes and Cactuses, are almost indispensable in any collection.

It is a common fault with inexperienced amateur cultivators to purchase any plant in the nursery collections that may strike their fancy, without any inquiry as to their facilities for or any reference to their experience or skill in cultivation. This leads to much disappointment, and at times to disgust, with plant culture. In making such purchases, strict inquiry should be made as to the mode of cultivation, and whether the necessary attention can be given to the plant, and if one is satisfied that the proper cul-

ture can not be given, the plant should not be purchased, no matter how beautiful it may appear in the hands of a skillful gardener. In addition to this, none but strictly winter-blooming plants should be grown in the small greenhouse of an amateur, as the object in having such a luxury is not to make the greenhouse a storehouse for summer-blooming plants, but to have a continual bloom during the dreary winter.

Our selections, therefore, will have especial reference to this desideratum, and we shall divide them into separate classes. We can only briefly name the most suitable genera and species, for our space will not admit of an extended notice or description of each.

HARD-WOODED PLANTS.

Abutilon. This is a well-known genus of easily grown plants. They grow rapidly, but take up much room in the greenhouse, and on this account should be severely pruned. They require plenty of light. In our opinion, they often displace plants of greater beauty.

Acacias are all beautiful, but some species grow to a great size. *A. decurrens* and *A. cultriformis* are two of the best.

Ardisia crenulata, desirable on account of its bright, glossy foliage and brilliant red berries.

Azaleas. All the varieties of Chinese Azaleas are elegant, but owing to their being so numerous, and new ones being brought forward every year, it is difficult to say which are the best. We have grown the following varieties with much satisfaction: Admiration, pure white, striped, and flamed with salmon; Baron de Vriere, pale rose, spotted and shaded with crimson, and edged with white; Beauté de l'Europe, white, spotted, and striped with rose; Criterion, salmon rose, edged with white; Empress Eugenie, bright rose, with black spots on the upper petals; Fielder's, white, pure white; Eulalie Von Geest, rose color, shading to white on the edges of the petals, with carmine spots; Iveryana, white, striped, and shaded with rose; Magniflora de Spae, white, washed with salmon, bordered with white, and with dark spots; Narcissiflora, double white; Vittata rosea and Vittata Fortunei; these last two being early winter-blooming varieties.

Burchellia capensis—Beaufortia decussata—Bouvardia leiantha, and its varieties.

Camellias. No collection is complete that does not include several varieties of this superb plant. Of the numerous varieties in the catalogues we recommend the following as being perfect in form and free bloomers, opening their flowers easily, which many varieties do not. The Double White; Candidissima, white, blooming late in the season; Fimbriata, white, with the edges of the petals fringed; Bonomiana, white, striped, and spotted with deep red; Lady Hume's Blush, blush white; Imbricata, deep rose, with large splashes of white; Bealii, deep, rich crimson; Myrtifolia, carmine, shading to pale rose; Saccoi nova, varying in color from pale rose to carmine, and sometimes spotted with white; Teutonia, produces flowers all red or all white, or sometimes half white and half red on the same plant; Commensa, or Reine des Fleurs, vermilion red, sometimes splashed with white; Donklaarii, is a single-flowered variety, with very large vase-shaped flowers of a deep crimson color, spotted with white.

Chorizema varium—Coronilla glauca—Correa pulchella—C. speciosa, and their hybrids.

Citrus, or Orange. The best varieties for ordinary greenhouse culture are the Myrtle-leaved, the Bergamot, and the Seville, or Bitter Orange. This has very large flowers. The Otaheite is a very pretty, dwarf-growing species. Lemons, Limes, Citrons, and Shaddocks are only suitable for large conservatories, as they take up a great deal of room. The three varieties we have named above, are moderate growers and free bloomers.

Daphne odora—D. Indica rubra—D. Fioniana and *D. Cneorum—Dracæna ferrea* and *D. indivisa—Diosma ericoides* and *D. ciliaris—Eranthemum pulchellum—Erica Mediterranea—E. arborea* and *E. persoluta—Eutaxia myrtifolia.*

Fuchsia—F. serratifolia—F. corymbiflora and *F. speciosa* are free winter-blooming varieties; the ordinary varieties do not bloom until April and May—*Genista ramosus* and *G. rhodaphne—Habrothamnus elegans* and *H. corymbosus—Heliotropium Peruvianum*, and its varieties—*Hoya carnosa—Jasminum revolutum—J. grandiflorum* and its double-flowered variety—*Justicia carnea—J. speciosa* and *J. nervosa—Kennedya Marryattæ—K. coccinea—K. rubicunda*, and *K. bimaculata—Linum trigynum—Libonia floribunda.*

Myrsiphyllum asparagoides and *Mandevillea suaveolens*, both fine climbers.

Melaleuca elegans and *M. speciosa—Metrosideros floribunda* and *M. semperflorens—Pittosporum Tobira*, and the variety with variegated leaves—*Polygala myrtifolia* and *P. Dalmaisiana—Pimelia decussata.*

Rhododendron arboreum, and its various hybrids. Many of these latter, as *R. Russellianum*, are of much dwarfer habit than the original species. A number of new species from the Himalayan Mountains have been introduced of late years; many of these are remarkable for their large foliage and flowers; they require a cool, moist atmosphere. *R. Falconeri, R. Gibsoni, R. niveum*, and *R. ciliatum* are very fine.

Rondeletia speciosa—Rhyncospermum jasminoides, a beautiful climber—*Thea viridis*, the Tea plant—*Viburnum Tinus*, the *Laurustinus*, and Monthly Roses.

SOFT-WOODED PLANTS.

Begonia fuchsioides and *B. Ingramii.*

Calceolarias. These are generally raised from seeds, obtainable in fine variety at any of our leading seed stores—and the same remark applies to Cinerarias.

Pelargoniums of nearly all the species. Of these the varieties are so numerous, and new ones are so rapidly being brought out, that it is better to make the selections from the catalogues from time to time. *P. Comptoniana* is a true winter-blooming species.

Pentas carnea and *P. rosea—Cuphea eminens* and *C. platycentra.*

Primula Sinensis. Of this species there are now a great number of varieties, both single and double, white, and of various shades of red. All the double-flowered varieties are desirable, and of the single varieties what are known as the fringe-flowered and the fern-leaved are the finest.

Ruellia formosa—Strelitzia regina and *Tetratheca verticillata—Calla Æthiopica* and the variegated-leaved variety — and winter-blooming Carnations and Pinks.

SUCCULENT PLANTS.

Aloe margaritifera—A. retusa and *A. variegata—Rochea coccinea—Crassula versicolor* and their varieties—*Sempervivum arachnoideum and S. tabulæformie—Cereus grandiflorus—C. Maynardii* and *C. speciosissimus—Epiphyllum crenatum—E. speciosum—E. Jenkinsonii—E. May-Fly—E. truncatum*, with its varieties, *violaceum* and *Russellianum—Echinocactus Eyresii*, and *E. Ottonis.*

BULBOUS PLANTS.

Hyacinths—Narcissuses—Early Tulips—Crocuses—*Amaryllis Johnsoni—A. vittata* and their hybrids, and *A. undulata.*

Lachenalia tricolor and *L. quadricolor—Ixia crocata—I. viridiflora* and *I. speciosa—Oxalis flabelliformis—O. versicolor—O. rosacea* and *O. speciosa—Ornithogalum arabicum—O. aureum*, and *O. thyrsoides alba — Sparaxis tricolor—Tropæolum tricolorum—T. Jarrattii* and *T. pentaphyllum.* These three are delicate climbers.—*Cyclamen persicum*, and its varieties.

TERRESTRIAL ORCHIDS.

Bletia hyacinthina — Cypripedium insigne—Calanthe veratrifolia — Cymbidium aloifolium, and *C. sinense.*

FERNS.

Davallia Canariense—Platycerium alcicorne—Adiantum Capillus Veneris, and *A. cuneatum—Blechnum corcovadense—Pteris cretica albo-lineata—P. serrulata*, and *P. serrulata-variegata—Onychium Japonicum—Cyrtomium falcatum—Lastræa Sieboldii*, and *Didymochlæna pulcherrima.*

Fruit-Growing about Leavenworth.

The fame of Kansas as a fruit-growing State, honestly won by competition with all the States in fairs held at the East, where the largest and choicest displays take place, had awakened an eager desire to visit Leavenworth, one of the largest and longest-settled towns in the State. It may be that Dr. Stayman, whose heresies about pruning and planting had been troubling the wise men of the East, had something to do with our curiosity. There is generally quite as good occasion for heresy in the garden as in the pulpit, and we always like to meet a man who fights against dogmatism, even if he is a little dogmatic himself. We were hardly prepared for the display of fruits at the Planter's House, on the occasion of the reception of our party. Though prepared under many disadvantages, and drawn mainly from the immediate vicinity, it would have done honor to any State exhibition. A friend took us out to Dr. Stayman's house in the suburbs of the city, where we found a fine display of fruit. But we there learned that the Doctor had met with so many discouragements on the bottom land of the Missouri, that he had given up fruit-growing in the valley and gone on to the bluffs, some two miles out of the city. Others, less fastidious, keep planting in their city yards, and though they have some blight among the pears, and some varieties of apples fail, they are in the main successful, and raise a great abundance of apples, peaches, pears, plums, and grapes, besides the smaller fruits. Grapes seem to be entirely at home in this valley, all the way from St. Louis up, and we presume much farther north. We found Dr. Staymau where we always like to meet a fruit grower, under his own vine and apple-tree. He has selected the south-east spur of a bluff that extends for miles along the west bank of the Missouri. It is a limestone soil, and the rock crops out in some places. The land was in a rough state, and covered with brush, when he took it in hand a few years ago. The only preparation of the soil was the removal of the brush and deep plowing. The bluff is 160 feet above the Missouri River. The reason for selecting this spot was the more even temperature which he found to exist here. The thermometer shows that the air is five degrees warmer at morning, and five cooler at noon, than in the adjacent valley. This difference in temperature is found to be very favorable for grapes. And this difference probably exists between the high bluffs and the valleys all through the State It is a fact of very great importance to all the settlers, who are just begin-

ning to plant orchards and vineyards, in this region. The high bluffs yield the most perfect fruit in the greatest abundance. The soil is a fine loam, naturally underdrained, and was plowed eight or ten inches deep. The varieties of grape planted are principally the Concord and Ives' Seedling. The vines are planted in rows, eight feet apart each way. The supports consist of five poles, four feet long, driven in the line of the rows, for each vine. One foot of the poles is driven into the ground. The system of pruning and tying is very simple. Each vine is allowed to make four canes. These are spread out upon the poles, two upon each side, and tied at each pole. Thus each cane is four feet long.

While the old canes are bearing fruit four new ones are matured, and the old canes are cut away each year. The pruning for fruit is principally done with the thumb and finger, at three different times. Just before the blossom unfolds the shoot is pinched back close to the last bunch left for maturing. They are pinched back a second time, as soon as the leaves are out enough, leaving one leaf beyond the bunch. The third time the same rule is followed, which makes three leaves to each bunch of grapes. All the poor, imperfect bunches are pinched off, leaving about twenty-five pounds to each vine. The new canes are allowed to grow without any check. Following this system, one man will take care of four acres of vineyard. The vines are in perfect health, and the fruit as fine as anything we ever saw of these varieties. He gets about ten cents a pound for his grapes.

The Doctor grows peaches in great perfection. The varieties that succeed best are Early York, Early and Late Crawford, Early Tillotson, and a Seedling that matures by the Fourth of July. The ground devoted to peaches is kept under the plow, and the soil is stirred three times in the season to keep down the weeds.

The Doctor's heresy comes out in his apple-trees, and, what is better, the fruit comes with it, in unparalleled abundance. He plants fifteen feet apart, upon a system that provides for the removal of a part of the early-bearing, short-lived trees. He does not prune, and aims to keep the ground shaded, and the trunks of the trees shaded. This he thinks essential under the hot suns of Kansas. The Cooper's Early White is only twelve feet apart. Young trees, that had been out only four years, were judged to yield four bushels of apples on the average. The apples were of very uniform size, and exceedingly fair. The Pennock is a very large, handsome apple, and though not first-rate in quality, brings good prices in market. The Doctor was getting a dollar and a half a bushel for his apples, at Leavenworth.

Evergreens from Seed.—We continue to have inquiries in regard to raising evergreens from seed. The whole story may be briefly stated. Success depends, in the first place, upon good seed, and in the second place upon the care of the seedlings the first year. They must be shaded or the sun will burn them up, and they must not be too wet or they will rot. Young evergreens require more care than an ordinary farmer, in the press of other work, is likely to give, and if he wishes trees for his own planting, it will be much cheaper for him to purchase young trees of those who make a business of raising them. It is not likely that one farmer in fifty who attempts to raise evergreens from seed will be successful. Young plants a year or two old can be bought at very low rates and can be successfully sent by mail, and it will be much better for those who wish only a few hundreds or thousands, to send to a nurseryman.

Autumn Colors of Foliage.

We have before suggested that we should, in selecting trees for planting, keep in mind the character of their autumnal foliage. It is so pleasant to have bits of bright color here and there, and they will be all the brighter if brought out against a background of evergreens. We made a good hit in this way by accident, having planted a Sorrel-tree (*Oxydendrum arboreum*) in full view from our study-window. We admire the tree for its abundant long strings of Lily-of-the-Valley-like flowers, and placed it near the house. This autumn its foliage has ripened up to a rich crimson, against which the white seed-vessels, which look almost like the flowers which preceded them, show in fine contrast.

There is scarcely anything so brilliant at this season as the Virginia Creeper. We daily pass a hemlock directly upon a river bank, and upon its trunk is a dense patch of the foliage of the creeper that in previous years had been a wonder of color. This year it turned a dull brown, and remained so for several days. The other evening we found the brown changed to a blaze of scarlet. The color had come in a single day, more brilliant than words can describe. This happened on a warm day, when there had been no frost for weeks. Indeed, it is now well established that frost has little or no agency in producing the autumnal tints of our forests, the most brilliant effects being produced in warm seasons, when the leaves have an opportunity to ripen completely.

Mr. Quinn sent us this spring some cions of a Japanese pear which he said was worth growing for the beauty of its foliage. The leaves are of enormous size, about as large as one's hand, and of a fine, glossy green, which in autumn turns to a brilliant scarlet. We have not seen the fruit and do not know what species of pear it is, but it is highly ornamental, either in its green dress or in its flaming colors.

Sending Plants and Seeds by Mail.

No part of our mail service is more valuable than that which carries a pound of vegetable life to any part of our country for eight cents. A package, weighing not over four pounds, can be sent from shore to shore at this rate. It not only brings the seed store to every man's door, but it bridges the long distance between the emigrant and his old home, and performs one of the most acceptable offices of friendship and love. It enables parents to follow their children to their new homes in the trans-Missouri country with constant remembrances of the most valuable kind, at the time when they are most needed. Nothing can be more desolate than a young man in his first season, who has gone out from an Eastern home to pre-empt or homestead upon a Western prairie. His first shelter is a dug-out or log-cabin, with a roof of poles and dirt. There is no fence, no garden, no vegetables, no fruits—nothing to which he has been accustomed. However much he may feel the want of these things, there is no nursery or seed-store close by, where he can supply his need. Every want is pressing, and everything calls for immediate attention. Field crops must be attended to, for he must have the money to pay up or meet the annual interest, or he loses his claim. Under this pressure, the garden is sometimes uncared for for years. What a boon it would be to the young man if his friends at the East would send him a few of the seeds that are going to waste in their gardens, a few of the plants or roots that would never be missed from their abundance! A thoughtful friend at the old home can in a few hours completely stock a settler's garden, and make him happier all the coming year. Strawberries, raspberries, blackberries, gooseberries, grapes, pie-plant, asparagus, and the seeds of all vegetables, fruits, and flowers, are easily gathered and sent by mail. A cigar-box, 4×4, and ten inches long, will easily hold 200 strawberry-plants, and by proper trimming the weight will not be over three pounds. The plants can be packed with a little damp moss in a very short time, and sent to the post-office. In less than a week they will be in the hands of your distant friend—a pleasant remembrance at the start, and the material for love-feasts in the coming years. Let our readers remember the pioneers as they gather their seeds, and make provision for another year.

How to Become a Florist.

BY PETER HENDERSON.

R. L. G., of Desmoines, Iowa, asks a question that has been proposed to me certainly a score of times during the past year, a question which, no doubt, concerns others of your readers, and to whom this reply may have some interest. He wishes to know whether, in order to become a florist, it would be best to enter some large establishment for a few years, or whether it is possible for him to learn from reading only. I reply, if he can afford it, it will be to his advantage, by all means, to serve at least two years in some well-conducted establishment—one that has been long enough established to have made the business a success, for the best index of ability in any business is success. I have said, if he can *afford* it, as for the first two years, unless he prove himself unusually smart, he will not likely be paid more than enough to pay his board, for he is simply an apprentice under instructions, who has come with the design of leaving when he has acquired a knowledge of the trade, and just at the time that he begins to be of use to his employer.

But to those to whom it would be inconvenient to place themselves thus under instructions, a knowledge of the business could be unquestionably obtained from books, particularly if actual practice were followed conjointly with the reading. There are upward of a hundred of my patrons (about one tenth of whom are ladies), located in nearly every State of the Union, who have worked themselves into the florists' business, exclusively by reading and their own practice, having had no opportunity for other instruction. In not a few cases some of these have got ahead of what is known as professional gardeners, those who have had no other experience than that received in private gardens in Europe, which by no means fits them for the American style of commercial floriculture. The increase of taste for flowers for the past twenty years has been truly wonderful. A gentleman who has a turn for statistics in this particular line, informed me that he had begun to procure information from all parts of the country, of the numbers engaged in the trade, together with the capital employed. He said that his investigations for this locality, taken in the rough, extending in a radius of ten miles

from the center of New York Island, proved that the number of florists' establishments was about five hundred, and the capital used in stock and structures upwards of $6,000,000. If the number of establishments is nearly correct—and there is no reason to doubt it—I am certain that the value is not overestimated, as we have at least half a dozen establishments where the capital used in stock and buildings must be nearly $100,000 each. And this, too, in New York and its suburbs, where the taste is lower than it is in either Boston or Philadelphia. In those places, no doubt, their excellent horticultural societies have done much to refine the tastes of the people, and it is to be regretted that neither New York nor its adjacent cities, with probably over two millions of people, have a single horticultural or floricultural society.

LADIES' TRESSES.—(*Spiranthes cernua.*)

Ladies' Tresses—Spiranthes.

Those who in October search for the Gentians and the few late flowers, must have met the very striking one represented in our engraving. The pure white color, and the singular spiral arrangement of the flowers upon the stem, are sure to attract attention, and besides these it has a very sweet odor, more like that of a spring flower than of one of late autumn. The name *Spiranthes* means spiral flower, and is applied to a genus of which we have six species. Three of them have the flowers in one row, and the other three, like the one we figure, have them crowded in three rows. The one under consideration, the largest as well as the most abundant species, is the Nodding Ladies' Tresses, *Spiranthes cernua.* The genus belongs to the large and interesting Orchis family, which contains so many members noted for the singular structure and great brilliancy and beauty of their flowers.

A great number of the plants of this family are epiphytes, or "air plants," as in the moist atmosphere of their tropical homes they live attached to the branches of trees and without any connection with the soil. All of our Northern Orchids — and we have some very beautiful ones—are terrestrial, and, like the Ladies' Tresses, are rooted in the earth. The species we have figured varies much in size and foliage, it growing from 6 to 20 inches high, and specimens have been found which nearly reached the hight of three feet. The long and narrow leaves, which spring from the root, have frequently decayed by flowering time, leaving only those which clothe the stem. We have never tried to cultivate this species, but think it could be grown without difficulty, as it is frequently found in rather dry ground.

Snow-Drops.

A single Snow-drop does not amount to much—a generous clump of them is bright and cheery. Some talk about their blooming in February, before the snow is off, but those who write thus in this country must have copied from English works. With a very favorable climate we never have succeeded in getting them in bloom before the end of March or the first of April. Those who love delicate little flowers will admire the Snow-drop. Our engraving shows it of its natural size. It makes no show, but it is welcome for its modesty. An eccentric literary man in England who was very fond of confectionery, used to hide little parcels of sugar-plums in all sorts of out-of-the-way places, in order to enjoy the pleasure of coming upon them unexpectedly. That is the way in which we like to grow Snow-drops—put a dozen or two bulbs here and there, and then forget all about them. In spring, when one is looking about to see how things are waking up, it is a real pleasure to come upon the delicate white flowers.

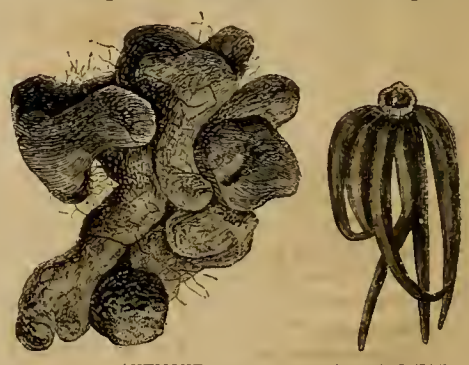
SNOW-DROP.

Snow-drops, like other bulbs, should have been planted earlier, but if the ground is still in good condition they may yet be put in and do well.

Anemones and Ranunculuses.

The bulb catalogues include the Anemones and Ranunculuses, though they are not bulbs in any sense of the word. They are merely dried and dormant roots or root-stocks. As may be seen by the engraving, the Anemone root looks like a piece of ginger that had been trodden upon, and the Ranunculus root is not unlike a many-pronged tooth. Nothing can show less appearance of life than do these, and it may be on account of their unpromising looks that American cultivators so seldom try them. We have succeeded fairly in an ordinary border without any special preparation, only covering the soil with a good coating of litter. To get the best results the soil should be light and rich, well-rotted cow manure being the best fertilizer, and this should be given in abundance. When the planting is done, cover with litter, or, what is better, put down a frame of boards and fill it with leaves. The colors of Anemones are white, red, and blue, while those of Ranunculuses vary from white and yellow to blackish purple, and frequently diversified with spots and stripes.

Snow-drop Bulb.



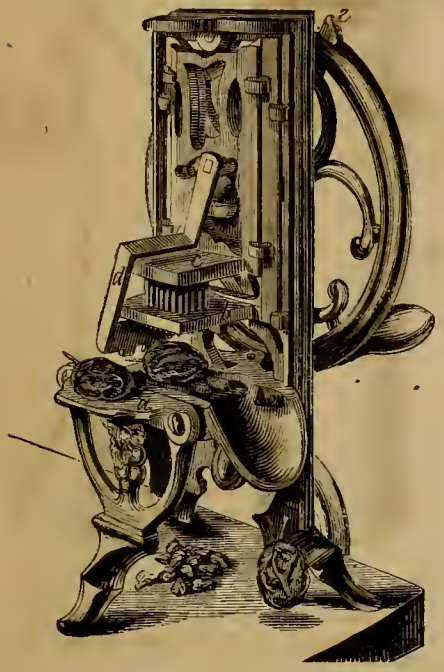
ANEMONE. RANUNCULUS.

THE HOUSEHOLD.

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

A Raisin-Seeder.

A few days ago we saw in a store a little machine which looked like a bit of European workmanship. It had a crank, and when that crank was turned



RAISIN-SEEDER.

there were all sorts of motions, evidently intended to accomplish something, but what that something was we could not guess, and, giving up in despair, had to ask. Here was a pretty position for an editor of a household department—not to know at sight what a household implement was intended for. But we had our compensation. We took possession of the little machine, and submitted it to one after another, and no one could guess what it was for. At last came Mr. Judd, who has the

Fig. 3.

Fig. 4.

quickest eye for "crinkums" and the sharpest mechanical talent of any one within our knowledge. He turned the machine, and looked at it in all ways, and then—gave it up. This ingenious machine is for removing the seeds from raisins, and we have had it figured as an illustration of the wonderful mechanical ingenuity that is at work to facilitate the simple operations of the household. Every housekeeper knows that raisins are all the better for being stoned, and she also knows how tedious is the operation when performed in the ordinary manner. With this machine, the stoning is performed with comparative rapidity. It has so many parts and so many movements, that it is not easy to represent it in a drawing. The machine being fastened to the table by a clamp, the raisins are pushed one by one upon the grating, *a*. The crank being turned, the plate *b* comes down and holds it in place; then the plate *c*, which contains numerous blunt needles which pass through holes in plate *b*, is pressed down. These needles punch out the seeds of the raisins through the grating *a*, and to make sure that they will be removed, there works underneath this grating a blunt knife, moved by the notch *d* upon the moving wheel. As the driving wheel revolves, the arm *e* comes over, and pushes the seeded raisin away to make room for another. We are aware that this may seem to be complicated when shown in an engraving, but if one sees the machine in operation it appears simple enough.

Egg-Beaters.

It is an old saying that "there is science in sucking eggs." Be this as it may, there is no little philosophy involved in beating eggs. The light, snowy froth which is yielded when the whites of eggs are properly beaten is well known to all good housekeepers. No amount of rubbing of the whites of eggs will produce it—they must be *beaten*. Now, the result of the beating, by whatever mechanical means it is brought about, is to mix air in minute bubbles with the white of the egg; the finer the bubbles, and the more of them, the lighter and stiffer will be the froth. The simplest and the primitive way is to beat the eggs with a fork. This requires a good deal of time and labor, but when properly done produces good results. A few days ago we requested our neighbor Baldwin, who keeps a furnishing store in Murray street, to show us all the different kinds of egg-beaters he had in his store. The number was appalling, and it was wonderful to see the various ingenious methods that had been devised for accomplishing so simple a thing as the beating of an egg. We have figured a few of the leading forms. Starting with the idea of a fork, we have several wire beaters, which are only forks in a modified form. Figure 1 shows one of these. There are a half-dozen more, differing only in detail. Next, in fig. 2, we have the wires of the beater contrived so as to form a pear-shaped body; this makes a very large beater, and can only be useful to confectioners and in hotels. It is a refinement on the old bundle of twigs so long used by confectioners and bakers. We next have, in fig. 3, a very efficient egg beater in the form of a spiral wire. The base of the spiral rests upon the bottom of the plate or other dish containing the egg, and the handle being moved up and down causes a very satisfactory frothing of the egg. This is only moving the wires in a different manner from that provided for in figs. 1 and 2. Then we have a whole series of revolving beaters, some of which are to be screwed to the table, and others are held in the hand while the crank is turned. Some have revolving wire frames, and others have flat strips, to which a rapid rotary motion is imparted by a system of cog-wheels; one of these is shown in fig. 4. There are other devices for obtaining a rotary motion. Figure 5 gives an egg-beater to which the motion is imparted by rolling it between the hands. A very ingenious implement is shown in fig. 6, in which the hollow handle has a spiral groove within it, and when this is pushed up and down, the beater is made to revolve with great rapidity. Quite different from the egg-beaters we have already mentioned is the one shown in fig. 7, which acts somewhat upon the principle of a churn. The cylinder into which the eggs are put has a conical bottom, and the dasher is a cone of tin perforated with small holes. It is claimed that by moving this dasher smartly up and down the egg is speedily brought to a froth. We might fill several pages with figures of the different egg-beaters, but we have already given a sufficient number to show the leading features of their construction, and the principles upon which they operate.

Fig. 1.

On the Treatment of Husbands.

BY FAITH ROCHESTER.

Adam set the rest of mankind a bad example in more respects than one. "The woman thou gavest to be with me, she tempted me, and I did eat," whined he, when called to an account for his disobedience. Ever since that day, women have been blamed for most of the mischief done by men. It seems to be a common sentiment among men that women can make of them pretty much what they choose, yet they are very much afraid of any direct interference.

Fig. 2.

One of the most prominent lady writers of the day, in one of the largest and best weekly papers, has lately been trying to show women that, by suitable management, they can, if they will, get the reins of government into their own hands, and drive men, in a stupid, blindfolded sort of way, wherever the wily drivers choose. I don't like that kind of advice. It is always painful to see one person managing to get influence over another for his or her own personal ends. When we see a woman trying to "manage" her husband, to wheedle him into some plan of hers without the concurrence of his own judgment, we may feel sure at once that there is something wrong about their marriage. The wife does injustice to herself, and to her husband also.

I am thankful myself for any influence that enlightens my understanding or corrects my will—for

anything that makes me more reasonable and ripe as a Christian woman. But no finite creature has any right deliberately to hoodwink my proper faculties,

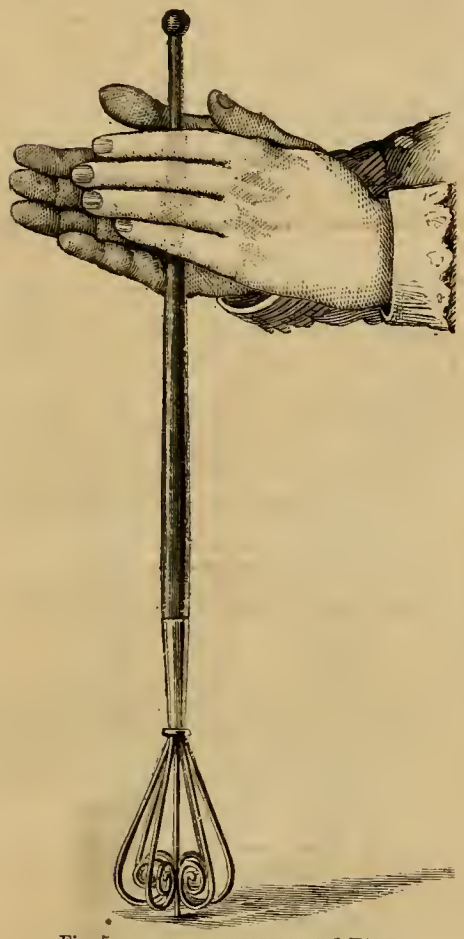


Fig. 5.—BEATER REVOLVED BY HAND.

and lead me about by my weaknesses. The "golden rule," then, forbids my treating others in this way.

It is a part of the ideal of a perfect marriage that there should be capacity for entire frankness between the husband and the wife. They should be able to reason together when they differ in opinion—as the best people sometimes will. Neither ought to desire to conquer the other, but they should seek together to find the right way, and if they are patient, and keep their hearts turned the true way (listening for the Divine Providence), they will come to a speedy agreement, and neither will have inclination to rejoice over the other's mistake.

Among the men of the generation that is gradually passing away, one sees many specimens of arbitrary manners in the family. These elderly men often seem to consider everything about the house and home as part of their own personal possessions. Not only is it "my farm" and "my barn," but "my furniture," "my household arrangements," and "my children." These men always believe that "home is woman's sphere," but even there their wives have no "right," except to do everything in the way of their husband's preference.

There are young husbands who are setting out in the same unlovely way of life. Can not their wives save them by timely frankness? "Sweet little wives" will dislike to attempt this. It will pain them to resist the tide or to seem to criticise. But if they have the intelligence to see what these early sprouts of masculine tyranny and impudence will pretty surely grow to if left unchecked, they will find a way to be frank without harshness, and, in most cases, their very dislike of wounding, or of asserting any superiority of judgment, will make itself felt, and win love in return.

I wonder if I make my meaning plain? I wished to say that I believe in a standing of frank friendliness between husband and wife—in a relation where each respects the tastes, habits, and conscience of the other, where each is willing to hear to reason, and to "speak the truth in love." And I do *not* believe in trying to buy love or favors of any kind, by presents of jewelry and trinkets, or by good dinners and fascinating costumes. Wives should try to please their husbands because they love them and wish to do them good. *For the sake of the manliness of men*, a footing of equal rights between husband and wife is necessary in the family.

It is not "love according to wisdom" that keeps a wife in literal subjection to her husband. It is not kindness to him. It cultivates the domineering, animal nature, instead of true spiritual graces, in the husband. Of course there would be no gain in reversing this, and putting the husband in subjection to the wife. It is contrary to the nature of the true woman to wish to rule others. I think it is also contrary to the best ideal of *man*. The weak, the ignorant, the vicious, we must lead and enlighten and control, for their own good, and for the good of the society of which they are members; and those who are strong, and wise, and good, must bear a certain rule over the immature members; but if society will bend its energies chiefly in the direction of the *prevention* of weakness, ignorance, and crime, we shall become, more and more, a truly *self-governing* people.

Letter from a Housekeeper.

CHICKEN PIE.—My English friend, who is, by the by, an excellent cook, criticised the chicken pie at the picnic. I thought it very nice indeed—the meat tender and well seasoned. But she thought there was not gravy enough.

"In our country, this meat would be entirely surrounded with a little of the chicken jelly."

"And you don't put a cup in the center?"

"Never in a meat pie. You see, the gravy runs up into the cup, and when cold forms a jelly there, whereas you want the jelly around the chicken or veal, or whatever it is."

"Tell us your way, if you please. How do *you* make a chicken pie?"

"If the chickens are young, I joint them and season with white pepper and salt, sprinkling a little over each piece. I do not stew them, but arrange the parts in a deep earthern pie-dish. After the meat is all in, I place a few bits of butter on top, and pour in enough cold water to nearly cover the meat. A little pounded mace is an excellent addition. I now put on the pastry cover, pare the edge, and ornament as I think best. It must be baked in a moderate oven for an hour and a half to two hours. When the pastry is done, the oven-door may be left open, or a brown paper laid on the top of the pie. I never put in the breast-bone or the back and neck. If these are boiled down with a bit of bacon or a ham bone, the gravy will be nice to put in the pie after taking it from the oven, to supply the waste made by cooking." I think there is hardly anything nicer than an old-fashioned

Fig. 6.

PUMPKIN PIE, and my English friend, for a wonder, thinks they are good, and has asked me to tell her how I make them. I cut the pumpkin into thin slices, and boil it very tender in as little water as possible. When nearly done, be careful it does not burn, as it is apt to do so. When done, drain off the water, and let the pumpkin steam or dry on the back of the stove for ten or fifteen minutes. Now mash and rub through a sieve. The more milk you put to it the more eggs you will require, and the less milk the less number of eggs. A quart of rich milk to a quart of pumpkin, and three or four eggs, is a good rule. Ginger and nutmeg are my favorite spices, though many like cinnamon and cloves. Sugar or molasses may be used for sweetening. I use sugar in proportion of two heaping tablespoonfuls to a pie. You must have a

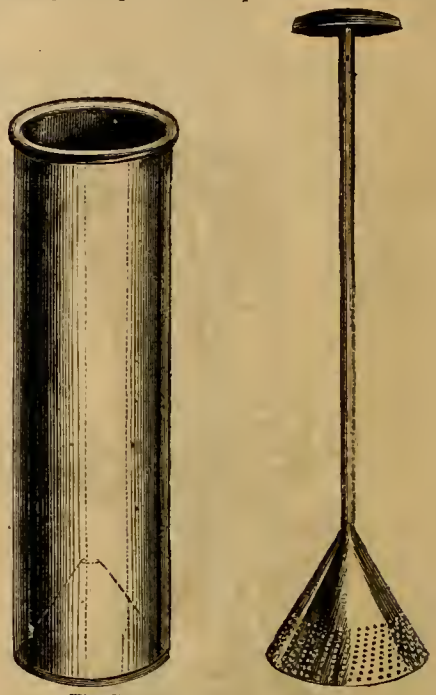


Fig. 7.—CYLINDER AND DASHER.

very hot oven for these pies, as it is difficult to brown them without. It is a good plan to heat the batter scalding hot before putting it in the pie.

What is to be done with all these

GREEN TOMATOES? But they make a very fine pickle, and if you think best some of them may be preserved. I find that they give very great satisfaction when made into what we call

FRENCH PICKLE.—Cut up in slices one peck of green tomatoes and one dozen small onions. You need not peel the tomatoes. Put them in layers, and sprinkle salt over each layer, and let them stand over night. Now take a quart of vinegar and water, and let the onions and tomatoes boil in it for twenty minutes. Pour off the liquor, and bring them again to a boil in another quart or more of vinegar, to which has been added two teaspoons of mace, two of ginger, two of cloves, two of allspice, one red pepper without the seeds, two teaspoons of cinnamon, and a little more than a half-pound of brown sugar. Let them boil well together for a few minutes, when they may be put away for winter use.

Our TOMATO PRESERVE is made as follows: To every pound of tomato allow a small lemon. Grate the yellow part only of the lemon, and squeeze out the juice. Add a root of ginger, and cover with water. Boil together for nearly an hour. Then take out the tomatoes, and if the liquor is not clear strain it. To every pound of tomatoes, before boiling, add a pound and a half of white sugar to the liquor. Return the tomatoes, and let them boil gently until the syrup enters and they look transparent. Set them aside for a few days, when the liquor may be scalded again and poured over the tomatoes; when they may be put away for use.

CARROT PIES.—If carrots are scraped, boiled tender, and sifted, and afterwards prepared in the same way as pumpkin, with perhaps a little more milk and eggs, they will make an excellent pie.

Now is the time to gather, dry, and store away for winter use any herbs the garden affords.

PARSLEY DRIED is, I think, as nice as when freshly picked. It is certainly more convenient. I put mine in a scanty layer on a paper in the oven, leaving the doors open. It will very soon dry in this way, and will not lose any of its beautiful green color. It will, however, be crisp. I now crunch it to powder, and cork it up in a bottle, from which a tablespoonful can be taken at a moment's notice at any time. It will not do to dry other herbs in this way, as many will discolor.

BOYS & GIRLS' COLUMNS.

Street Shows in London.

BY OLIVE THORNE.

Wouldn't you think it fanny to see a baby of three years old, walking on stilts three or four times as long as she was herself? And not only walking with perfect ease, but dancing several fancy dances, playing the tambourine, and going through various other exercises, at the top of those fearful stilts?

Well, you would not only see that—if you went to London—but you would see a good many other street performances that would seem very odd to you.

You must know that there are so many people to do the work of London, that wages are very low, and the father of a family can not always earn enough to support them. Often, every one of the family, down to the baby, has some way of earning a few pennies, to help buy bread.

But though there are hundreds of trades at which people work, that you never heard of, and many ways of earning a living that you would think horrible, still there is not work enough for all; so many people earn their bread by some show, or street performance.

You've heard of "Punch and Judy," and probably know that it's a sort of play theater, where the actors are wooden dolls, whose owners move them, and talk for them. I don't know how many dozens of these there are all the time traveling around London.

But I will tell you about a different kind of street show:

There were two little girls, not very long ago, the daughters of a woman famous for walking on stilts, who were trained, almost before they could stand, to walk on stilts themselves. At three years old they had learned well enough to go into the streets to earn a living.

Think of a baby of three earning its own living!

The mother could really do marvelous things. She could stand on one stilt, take off the other, and go through a gun exercise, using the stilt as a gun, and all the time, you must remember, standing on one stilt.

They are not made like our stilts. They are fastened tightly just below the knee, and the arms are left free.

It was a funny sight, I can tell you, to see the mother and the two little girls, dressed in gay, spangled dresses, walking the streets, on a level with the second-story windows. When they saw people interested, and thought they could earn something, they would stop, and go through their exercises. Of course they always drew a crowd; and when they finished, and handed around a tambourine, most everybody would give a few pennies.

Besides the stilts, these babies learned to walk and dance on a rope, before they were six years old.

Now I want to tell you young folks a secret. These babies were no smarter than other babies. They learned their wonderful tricks by simply—*practising*. At all hours of the day—when just out of bed, or just going to bed, before breakfast, and after dinner, they always had their practicing tools by them, and every few minutes they would try, either to walk on the broomstick their father put between the rounds of two chairs, or to take some new step on the stilts.

Don't ever let me hear any child say "I can't," when *babies* can learn to walk a rope.

Another street-showman of London is called a "Posturer," and he does such things as circus performers do, such as turning wonderful summersets, balancing poles on the chin, keeping a dozen balls in the air, etc.

Some of them imitate the conjurers, swallow knives, eat fire, and such pleasant little things. Of course they always draw crowds.

Then there's a "Street Reciter." He goes to hotels and saloons, everywhere that he finds men idle and ready to be amused. He repeats poems and other pieces, and often he is a very good speaker. When he gets through, of course he don't forget to pass around his hat.

Telescopes pointed to the heavens from the street corners are common here as well as in London.

One of the most comical street shows is a set of mechanical figures—that is, figures that move by machinery inside of them. The showman has a sort of platform, and the little dolls walk around, and do various funny things to amuse people.

Besides all these, and many that I can't remember, they have not only plenty of hand-organs, but performers on nearly every kind of instrument small enough to carry.

It is sad, when there's so much useful and necessary work to be done in the world, to see grown men obliged to sing ballads or speak pieces in the streets, to put bread in their mouths.

Aunt Sue's Puzzle-Box.

That fish story in the September number has proved a terrible poser. However, I suppose the puzzlers are studying their Natural Histories, and that I shall have more to say about it in December. I will give you a nice, easy lot this month.

DECAPITATIONS.

1. Behead an article of furniture, and leave an animal growth.
2. Behead a fruit, and leave an organ.
3. Behead certain water, and leave what you would not wish to be. E. L. CLARK.

CROSS-WORD ENIGMA.

4. My first is in great but not in small.
   My next is in stable but not in stall.
   My third is in red but not in pink.
   My fourth is in water but not in drink.
   My fifth is in nice but not in good.
   My sixth is in pine but not in wood.
   My seventh is in quick, but not in slow.
   My eighth is in make but not in sew.
   My whole is a flower, you know it well;
   So now, dear friends, its name pray tell.
   FANNIE BROOKS.

GEOGRAPHICAL ANAGRAMS.

5. Chewer's test. 8. Nose trap.
6. Beat in school. 9. A strap.
7. Nine oil maps. 10. Red dens.

ADOLPH M. NAGEL.

PUZZLE.

11. Search Holy Writ, and you will see
    A noted warrior fought with me.
    Behead, on mountain tops I'm seen,
    Or in the briny deep have been;
    Behead again, transpose, beware!
    Or I may prove a fatal snare.
    If you again my head should sever,
    No matter how informed or clever,
    'Tis all in vain, give up the route,
    For you can never find me out. F. H. C.

12. I am composed of 13 letters:
    My 1, 8, 3, 11, is a command.
    My 4, 8, 10, is a girl's nickname.
    My 7, 2, 11 is an article of clothing.
    My 6, 5, 12, is a quadruped.
    My 9, 7, 2, 1, is not real.
    My 13, 5, 3, 7, is something worn by young ladies.
    My whole may be found on the map of the United States. MARIA L. BROOKS.

CHARADE.

13. My first a pronoun is I ween,
    My next a political name is seen.
    My whole doth tell of time that's past,
    And shows how long good men did last. J. P.

(Fill the following blanks with words pronounced alike but spelled differently.)

14. A —— stood near the cage of the ——.
15. A —— person led the ——.
16. The —— was a man of ——.
17. The —— played upon a ——.
18. A large —— grew near the ——.
19. The —— fell upon a —— man.

THE ITALIAN BOY.

20. My whole, when suitably prepared, is an article of food; beheaded I am something used in cooking it; behead again and show what you often do with it; behead again, and leave a preposition; again, and leave a beverage. REEN ROSS.

420. *Puzzle Picture.*—This young lady has evidently met with a sad catastrophe, which is the reason she covers her face. See if you can make out the puzzle.

PI.

21. A thelih herat kasem a blomogin gavise.

ANSWERS TO PUZZLES IN THE SEPTEMBER NUMBER.

THE FISH STORY.—1. Maid. 2. Plaice. 3. Cod. 4. Alewife. 5. Weak. 6. Hodmandod (hudman Dodd). 7. Tom Cod. 8. Cat. 9. Dog. 10. Old Wife. 11. John Dorec. 12. Poor John. 13. Whale. 14. Pilot. 15. Trumpet. 16. Weak. 17. Ruffe. 18. Bleak. 19. Perch. 20. Rock. 21. Fish. 22. Pole. 23. Shad. 24. Hake. 25. Pike. 26. Wiffes. 27. Pipe. 28. Bib. 29. Star. 30. Ling. 31. Moon. 32. Ray. 33. Blue. 34. Horn. 35. Groper. 36. Flounder. 37. Granter. 38. Shote. 39. Sucker. 40. Red-eye. 41. Bounce. 42. Hound. 43. Poll. 44. Sleeper. 45. Sound. 46. Dab. 47. Lump. 48. Miller's Thumb. 49. Grampus. 50. Mango fish. 51. Cachalot. 52. Bass. 53. Carp. 54. Needle. 55. Razor. 56. Sword. 57. Scabbard. 58. Dragon. 59. Gar. 60. Drum. 61. Electric Eel. 62. Smelt. 63. Growler. 64. Angel. 65. Globe. 66. Deal. 67. Bream. 68. Weever. 69. Shiners. 70. Skates. 71. Salmon. 72. Tobacco-pipe. 73. Basket. 74. Bait. 75. Sole. 76. Pole. 77. Basket. 78. Poor John. 79. Sound. 80. Red-eye.

ANAGRAMS.—1. Elaborate. 2. Solicitude. 3. Personation. 4. Literature. 5. Comforting. 6. Centipede.

REBUS.—415. Every man and woman in North America should subscribe for the *Hearth and Home* and *American Agriculturist*.

416. I'll go to tell Him all I've done,
And fall before his face;
Unworthy to be called a son.
I'll seek a servant's place.

AUNT SUE'S address is Box 111, P. O., Brooklyn, N. Y., and NOT 245 Broadway, New York.

AUNT SUE'S NOTICES TO CORRESPONDENTS.

CHARLIE W. T.—Nothing gives me greater pleasure than to hear that "pa and ma helped."

In answering the "Opposites," Nos. 4, 5, and 6 seem to have furnished the greatest variety of answers. To "English nose," *Salem* answers "Turkey," *Hetty* "Franchise," and *Townsend W.* "Duchy;" to No. 5 ("invisible"), they give "incited" and "insight;" to No. 6 ("penniless"), "senseless" and "scentless." Let us have some more "Opposites."

Glad to hear from Mrs. H. J. N., Mrs. M. H., and F. W. Hall, E. M. R., V. Y., O. A. G., and Mary A. S.

Thanks for puzzles, etc., to F. W. Hall, R. T. Isbester, and G. T.

M. E. L.—Numerical enigmas are not particularly "acceptable," especially those constructed upon my own name; nevertheless I thank you for the trouble you took, and for the kind thought involved.

MINNIE.—This isn't just the place to discuss love matters, although love is admitted to be quite a puzzle. If you are really serious, and "have no mother to consult," send your address to your "Auntie," and she will advise you to the best of her abilities.

M. M. P.—I will make inquiry about the matter, and tell you the result.

Glad to hear from Freddie W. B., S. D. M., Mary A. C., Mamie W., S. M. Shaw, Bennie, and J. H. G.

Thanks for puzzles, etc., to H. Du B., J. T. G., Sallie, M. D. T., and Alpha.

H. G. T.—Your pleasure adds to mine; thanks.

The Doctor Talks about Bears.

The boys had been to see the animals at Central Park, and came back delighted with their half-holiday. The bears seemed especially to interest them, and for several days they talked about bears, and made sketches from memory of those they had seen in the Park menagerie.

"Now, uncle," said Walter, "please tell us something about bears; you have been so much in the wilderness that you must know all about them."....."It is not probable that any one knows 'all' about them, but I will tell you about a few that I have seen—provided you will, in the first place, tell me what is a bear."....."A great, shaggy animal," said Arthur. "And sits up on his haunches, and has claws," added Walter....."That will not do; dogs are great and shaggy, and can be taught to sit upon their haunches, and cats and tigers have claws. We must find some peculiarities that distinguish bears from dogs, tigers, and all other animals." Finding that the boys had not, in their watching the habits of the animals, noticed their peculiar make, I referred Walter to a small compendium of natural history for a description. He turned to the word Bear, which referred him to *Ursina*, where he read "plantigrade carnivorous animals, cartilage of nose elongated and movable, carnivorous tooth bluntly tubercular."—"Whew! uncle, that is just the way with your books; one is none the wiser for them! Oh! yes; a bear is a planti-something, and a carni-something, and now we know all about it."..... "As you spent some hours among the bears, and did not notice that they were carnivorous or plantigrades, perhaps you will condescend to learn what these terms

GRIZZLY BEAR. SUN-BEAR, OF ASIA. BLACK BEAR. CINNAMON BEAR.

BEARS AT CENTRAL PARK.—*Drawn and Engraved for the American Agriculturist.*

mean." This brought him back to a teachable mood. He was then told that carnivorous animals are those which eat flesh, and differ from those which live upon vegetables by the form of their teeth, which are of such a shape as to cut or grind their food, as may be required. Those animals that live entirely upon flesh have teeth that cut like shears. A naturalist can tell by looking at the teeth of an animal what kind of food he lives upon. Bears live upon a mixed diet, and their teeth are less savage than those of wolves and tigers. That hard-looking word plantigrade means walking upon the sole of the foot, which serves to distinguish the bears and raccoons from other carnivorous animals, as all the others walk upon their toes and fingers only, the heel of the foot not touching the ground. There are four if not five different kinds of bears found on this continent. The Black Bear is the best known, and is found in a wider range of country than any other. The Cinnamon Bear, from the Rocky Mountains, is so named on account of its color. Some think it is only the Black Bear with a brown coat on, but others think there are differences besides that of color. Then there is the Grizzly of the Plains and California, the largest, most powerful, and most ferocious of all our bears. There are specimens of these three at the Park. The Polar Bear is only found within the Arctic regions, and is also a formidable animal.

"The Black Bear is the most common, and is the most frequently seen in captivity. It is found in most parts of the country that are well wooded and not very thickly settled. They seldom or never attack any one, unless they receive the first assault, when they sit up on their haunches, and fight with their fore-legs. If you should ever meet with a she-bear with her young, you had better give her a wide berth, as the mother bears are apt to be very cross and savage."...."What does the bear feed upon?"

"Both animal and vegetable food. It will eat any small animals, and to settlers in new countries it is often troublesome, by carrying off their calves and pigs. A bear will carry off in his arms a pig nearly as large as himself. Acorns and other nuts furnish a considerable share of the bear's food, and he is very fond of huckleberries, raspberries, and other wild fruits. He often makes forays upon cultivated fields, and shows a great fondness for roasting ears of corn and sweet apples. Bears, like boys, have what is called a "sweet-tooth," and are particularly fond of honey. They will rob hives whenever they can get a chance, and are great bee-hunters. When they find a bee-tree—which you know is a tree in which bees have found a hollow and there made a home—they climb the tree, and gnaw at the hole until they get at the honey. Of course the bees defend their stores, but the bear is so fond of honey that he is willing to endure their stings, so he gnaws away and growls. It might be some consolation to the bees, if they only knew it, that the constant growling kept up by the bear, on account of their stings, often attracts the attention of the hunter and guides him to the spot."

"Do bears live in winter by sucking their paws?"

"It is, or used to be, a popular notion that bears passed the winter in sucking their paws. Nothing could be more absurd. Like many other animals, the bear hibernates—that is, passes the winter in a quiet and dormant state. The bear finds a hollow tree, or a den among rocks, or, failing these, it scoops out a hole in the earth. During the autumn nuts of all kinds are abundant, and at this season the bear gets very fat. When cold weather comes on, he retires to his den, where he remains perfectly quiet, and to shield his nose from the frost puts his paws over it, which has given rise to the notion that he sucks his paws. He is supported by the fat stored up in the fall, but he does not get it through the paws."

"How do they catch bears, uncle?"

"They are sometimes shot, but as the skin, which is of considerable value, is likely to be injured in this way, they are usually taken in a trap of some kind. What is called a dead-fall is built of logs, and so arranged that when the bear disturbs the bait a mass of heavy logs falls upon and crushes him. The regular trappers, however, use a steel trap, made like those used to catch rats, only many times larger. Bears, if taken young, are readily domesticated, and are easily taught to do amusing tricks. I once saw one at a public garden near New York that was very fond of soda-water; he would open a bottle, and drink it with the greatest relish. It made a good sale for soda-water, as a large number would purchase bottles for the sake of seeing the bear open them."

"But, uncle, tell us something of the wild bears you must have met with in your wanderings."

"I can not; for in truth, though I was three years in a famous bear country, I never saw but one bear. I gave chase to him, but he was going down a rocky hill, and could travel much faster than my horse. I have lived upon bear's meat by the week, and have happened along just as several recently killed grizzly and other bears were being skinned, but it so befell that I never saw a live wild grizzly, though I have helped eat more than a dozen."

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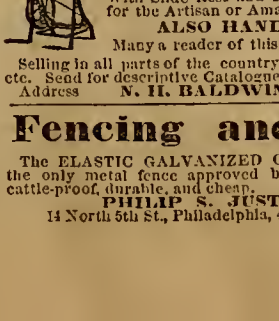

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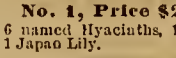

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The design of this Premium List is fully explained on page 368 of *Amer. Agriculturist*, Oct., 1871, which please see.

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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; otherwise it is not.

[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; also at the rates of $4 a year for both papers together.]

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* **2nd** *and* **4th** *columns, or from the 3d and 5th, or wholly from the* **6th** *column.*

Table of Premiums and Terms, For American Agriculturist, and for Hearth and Home, for the Year 1872.

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No.	Names of Premium Articles.	Price of Premiums.	(1) American Agriculturist. Number of Subscribers required at $1.50	(2) *Or* (3) American Agriculturist. Number of Subscribers required at $1.	(4) *Or* (5) Hearth and Home. Number of Subscribers required at $3.00	(4) *Or* (5) Hearth and Home. Number of Subscribers required at $2.50	(6) **Both** Papers together. Number of Subscribers required at $4.00.
1	*Knives and Forks (Patterson Bros.)*	$14 00	21	70	11	35	13
2	*Knives and Forks* (do. do.)	$18 50	27	90	14	45	16
3	*Knives and Forks* (do. do.)	$22 00	33	110	17	55	19
4	*Knives and Forks* (do. do.)	$25 50	39	124	20	62	22
5	*Carver and Fork* (do. do.)	$5 00	13	37	7	19	8
6	*Fluted Steel* (do. do.)	$2 50	6	25	3	13	4
7	*French Cook's Knife, Fork, and Steel*	$3 00	8	30	4	15	5
8	*Pocket Knife* (Smith & Clark)	$1 50	4	....	2	....	3
9	*Pocket Knife* (do. do.)	$2 00	5	22	3	11	4
10	*Pocket Knife* (do. do.)	$2 50	6	25	3	13	4
11	*Ladies' Pocket Knife* (do. do.)	$2 00	5	22	3	11	4
12	*Multum in Parvo Knife* (do.)	$3 50	8	30	4	15	5
13	*Cake Basket (Lucius Hart Manf'g Co.)*	$12 00	19	65	10	33	11
14	*Casters and Fruit Basket* (do. do.)	$30 00	44	140	22	70	25
15	*Revolving Butter Cooler* (do. do.)	$8 00	16	52	8	26	9
16	*Card Receiver* (do. do.)	$7 00	15	49	8	26	9
17	*Nut-picks and Crackers* (do. do.)	$12 00	19	65	10	33	11
18	*Half Dozen Napkin Rings* (do. do.)	$6 00	15	45	8	28	9
19	*One Dozen Teaspoons* (do. do.)	$6 00	15	45	8	28	9
20	*One Dozen Tablespoons* (do. do.)	$12 00	19	65	10	33	11
21	*One Dozen Table Forks* (do. do.)	$12 00	19	65	10	33	11
22	*Child's Cup* (do. do.)	$2 75	7	27	4	14	5
23	*Gold Pen, Sil. Case (George F. Hawkes)*	$3 25	8	30	4	15	5
24	*Gold Pen and Silver Case* (do. do.)	$5 00	12	37	6	19	7
25	*Gold Pen, Handle gold-tipped,* (do. do.)	$6 00	13	37	7	19	8
26	*Ladies' Gold Pen and Rubber Case* (do.)	$6 00	13	37	7	19	8
27	*Ludden's Patent Revolving Pencil*	$1 50	4	19	2	10	3
28	*Ludden's Patent Revolving Pencil*	$3 50	8	30	4	15	5
29	*Amusette*	$6 00	13	37	7	19	8
30	*Baby's Chair (L. O. Colvin)*	$4 00	9	32	5	16	6
31	*Parlor Kaleidoscope*	$7 00	16	52	8	26	9
32	*Moore's Floral Set (Moore Manf'g Co.)*	$1 00	3	24	2	6	2
33	*Steam Engine*	$1 00	3	24	2	6	2
34	*Garden Seeds for a Family (40 Kinds).*	$5 00	12	33	6	17	7
35	*Flower Seeds for a Family (100 Kinds).*	$5 00	12	33	6	17	7
36	*Garden Seeds & Flower Bulbs(Selection).*	$2 00	5	22	3	11	4
37	*Set of Field Croquet*	$8 00	16	52	8	26	9
38	*Sewing Machine (Grover & Baker)*	$55 00	60	240	30	120	33
39	*Sewing Machine (Florence)*	$63 00	70	275	35	138	39
40	*Sewing Machine (Wilcox & Gibbs)*	$55 00	60	240	30	120	33
41	*Bickford Family Knitting Machine*	$25 00	38	120	19	60	21
42	*Washing Machine (Doty's)*	$15 00	21	70	11	35	13
43	*Clothes Wringer (Best—Universal)*	$9 00	17	54	9	29	10
44	*Blanchard Churn*	$8 00	16	52	8	26	9
45	*Melodeon, 4-octave (G.A. Prince & Co.'s)*	$67 00	78	295	39	148	43
46	*Melodeon, 5-octave* (do. do.)	$112 00	138	400	69	200	76
47	*Piano, Splendid 7-oct.(Steinway & Sons)*	$625 00	600	1550	300	775	330
48	*Silver Watch (American Watch Co.)*	$40 00	50	150	25	75	28
49	*Ladies' Fine Gold Watch(Am. Watch Co.)*	$100 00	110	350	55	175	61
50	*Breech-loading Pocket Rifle*	$16 00	24	80	12	40	14
51	*Double Bbl. Gun. (Cooper, Harris & H.)*	$30 00	46	150	23	75	26
52	*Tool Chest (Patterson Bros.)*	$45 00	60	190	30	95	33
53	*Charles Pratt's Astral Oil (1 can, 5 Gal.)*	$4 00	9	32	5	16	6
54	*Barometer (Woodruff's Mercurial)*	$10 00	18	58	9	29	10
55	*Barometer (Woodruff's Mercurial)*	$15 00	22	75	11	38	13
56	*Buckeye Harvester Mower*	$125 00	150	450	75	225	83
57	*Patent Cylinder Plow (R. H. Allen & Co.)*	$18 00	27	90	14	45	16
58	*Collins & Co.'s Cast Cast-Steel Plow*	$25 00	38	120	19	60	21
59	*Hand Cultivator and Weeder (Comstock)*	$9 00	17	54	9	27	10
60	*Cahoon's Broadcast Seed-Sower*	$10 00	18	58	9	29	10
61	*American Submerged Pump*	$15 00	19	65	10	33	11
62	*Pump and Sprinkler (Page's)*	$5 00	13	37	7	19	8
63	*Family Scales (Fairbanks & Co.)*	$14 00	21	70	11	35	13
64	*Building Blocks (Crandall)*	$2 00	6	20	3	10	4
65	*Pocket Lanterns (One Dozen)*	$9 00	17	54	9	27	10
66	*New American Cyclopædia (Appleton's)*	$80 00	96	325	48	163	53
67	*Worcester's Great Illustrated Dictionary*	$10 00	18	58	9	29	10
68	*Any Back Volume Agriculturist* (Post Unbound. Post-paid.)	$1 75	....	....	....	....	2
69	*Any Two Back Volumes* do.	$3 50	....	20	....	15	4
70	*Any Three do.* do. do.	$5 25	13	37	7	19	8
71	*Any Four do.* do. do.	$7 00	15	47	8	24	9
72	*Any Five do.* do. do.	$8 75	17	54	9	27	10
73	*Any Six do.* do. do.	$10 50	19	61	10	32	11
74	*Any Seven do.* do. do.	$12 25	21	68	11	34	13
75	*Any Eight do.* do. do.	$14 00	23	74	12	37	14
	—(Each add'l Volume at same rate)		....	....	....	....	....
76	*Fifteen Vols. XVI to XXX*	$26 25	36	118	18	59	20
77	*Any Back Volume Agriculturist* (Bound. Post-paid.)	$2 50	....	24	....	12	2
78	*Any Two Back Volumes* do.	$5 00	....	36	....	18	6
79	*Any Three do.* do. do.	$7 50	16	48	8	24	9
80	*Any Four do.* do. do.	$10 00	18	60	9	30	10
81	*Any Five do.* do. do.	$12 50	21	71	11	36	12
82	*Any Six do.* do. do.	$15 00	24	82	12	41	14
83	*Any Seven do.* do. do.	$17 50	27	92	14	46	16
84	*Any Eight do.* do. do.	$20 00	30	102	15	51	17
85	*Any Nine do.* do. do.	$22 50	33	110	17	55	18
	—(Each add'l Volume at same rate)		....	....	....	....	....
86	*Fifteen Vols. XVI to XXX*	$37 50	50	150	25	75	28
87	*Farmer's Boy's Library*	$5 00	12	33	6	17	7
88	*Farmer's Boy's Library*	$8 25	16	52	8	26	9
89	*Farmer's Boy's Library*	$11 25	20	65	10	32	11
90	*Farmer's Boy's Library*	$15 75	25	85	13	42	15
91	*Farmer's Boy's Library.*	$20 00	30	102	15	51	17
92	*Any Back Vol. Hearth & Home (Bound).*	$4 00	9	32	5	16	6
93	*Any Two Back Vols.* do. do.	$8 00	16	50	8	25	9
	—(Each additional Volume at same rate.)		....	....	....	....	....
94	*A $10 Library (Your Choice)* (Allsent paid through by Mail or Express)	$10 00	18	58	9	29	10
95	*A $15 Library* do.	$15 00	24	85	12	43	14
96	*A $20 Library* do.	$20 00	31	106	16	53	18
97	*A $25 Library* do.	$25 00	38	125	19	63	21
98	*A $30 Library* do.	$30 00	44	144	22	72	25
99	*A $35 Library* do.	$35 00	50	162	25	81	28
100	*A $40 Library* do.	$40 00	56	177	28	89	31
101	*A $45 Library* do.	$45 00	62	192	31	96	34
102	*A $50 Library* do.	$50 00	68	207	34	104	38
103	*A $60 Library* do.	$60 00	80	237	40	119	44
104	*A $75 Library* do.	$75 00	100	282	50	141	55
105	*A $100 Library* do	$100 00	125	360	63	180	70
106	*A Choice of Good Books.* (See Description.)	....	....	....	....	....	....

☞ *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 12, 23 to 28, 34, 35, 36, 68 to 91,** *and* **94 to 106** *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.—(No.* **33** *mailed for 30 cents extra.) The other articles cost the recipient only the freight after leaving the manufactory of each, by any conveyance desired. See* **Descriptions** *of Premiums on* **Next Page.**

Descriptions of Premiums.

(For number of Subscribers required, see Table, page 433.)

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 guarantee, 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 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 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.—Multum in Parvo Pocket Knife.—This is a most attractive as well as useful Premium. It comprises, in one knife-handle, a large and a small blade, a screw-driver, a saw, a strong hook, a nut-cracker, a brad-awl, a gimlet, a corkscrew, a pointer, a slim punch, and, in addition to this, it can be used for various other purposes which will at once suggest themselves to any smart boy or man. The knives will be sent anywhere in our country, post-paid.

No. 13.—Cake Basket.—A new pattern, oval-shaped, nicely chased—a very taking, useful, and *beautiful* table ornament. This, with other articles that follow, is made by the **Lucius Hart Manufacturing Co., of Nos. 4 and 6 Burling Slip, New York City,** and is warranted by them to be of the best triple plate. Mr. Hart, "the veteran Sunday-school man," was engaged in the same place and business for nearly a quarter of a century. We have known him and his work for many years, and have taken pleasure in commending and guaranteeing its value to be as represented. We believe the Company which bears his name is fully sustaining his reputation. 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. 14.—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 and of equally good quality as the preceding.

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. 13.

No. 16.—Card Receiver.—This is a beautiful ornament, as well as a useful article. It is finely chased and gilt-lined, and, like the three preceding, is from the **Lucius Hart Manufacturing Co.**

No. 17.—Nut Picks and Crackers.—Here are twelve nut-picks, elegantly chased, of medallion pattern, with two handsome nut-crackers, in a morocco-covered case. From the same house as No. 13.

No. 18.—Half-Dozen Napkin Rings.—These rings are beautifully chased, and in a morocco-covered case. From the same house as No. 13.

No. 19.—One Dozen Teaspoons.—No. 20.—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. 13. They are far *cheaper* than anything we have found at half the price, and well worth working for.

No. 21.—One Dozen Table-Forks.—The same description and remarks apply to these as to No. 20. 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. 22.—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 keepsake.

Nos. 23, 24, 25.—Gold Pens: *with ever-pointed Pencils, in extension, coin-silver cases.*—Premium No. 23 contains the best No. 4 Gold Pen; and No. 24 the best No. 6 Gold Pen, which is the same style, but larger. No. 25 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 an excellent reputation. We have known the maker and his goods for many years, and can recommend them.

No. 26.—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.

Nos. 27, 28.—Ludden's Patent Magic Revolving Pencil.—This is a beautiful Pocket Pencil, which is extended or closed by pulling or pressing the head. They are made with great care, and every Pencil warranted to work perfectly. They are gold-plated, and will last for years. We offer two patterns, one for ladies, with ring for chain, at $1.50 each, and one of heavier and firmer plate, at $3.50. They are made by **Ludden's Gold P. and P. C. Co., Wm. A. Ludden, Agent, 195 Broadway,** who has been in the business thirty years.

No. 29.—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. This premium, 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. 30.—Baby's Chair.—This beautiful Premium will delight mothers and babies everywhere. It is a chair, in combination with a limited spring, suspended from a hook in the ceiling of a room. It gives a young child such a variety of amusement, such varied and healthful exercise, allowing free motion and action for limb and muscle, that it becomes almost an indispensable article to the nursery. It is made of black walnut, nicely finished, upholstered in green, blue, or red, with cords to match, and sold, with the hook, for $4. **L. O. Colvin, 94 Waverley Place, Newark, N. J.**

No. 31.—Parlor Kaleidoscope.—A most pleasing article—one which can not fail to delight all who receive it. The Kaleidoscope is handsomely finished, with brass object-box, mounted on a neat black-walnut stand. The changes and combinations of colors which may be seen are exquisitely beautiful, and almost numberless. The younger members of the family, especially, will find great entertainment in this elegant premium, which a little effort will secure for them.

No. 32.—Moore's Floral Set.—This is a beautiful Premium—a complete set of **Ladies' or Children's Garden Tools** for the cultivation of flowers, consisting of a Floral Hoe, Spade, Fork, and Rake. They are made of the best steel and iron, with finely polished hard-wood handles, light, durable, and highly finished, and each set inclosed in a box. They will be found very convenient in the garden and greenhouse, and are pleasing toys for the little folks. Made by the **Moore Manufacturing Company, Kensington, Ct.**

No. 33.—Steam-Engine.—This is a veritable steam-engine; one that will GO; and a capital, intensely interesting, and instructive article for boys, and grown-up people too. Our eleven-year-old boy ran his engine an average of an hour or more a day for six months; he has exhibited it in motion to many of his playmates; has hitched on various toy machinery, and it appears to go just as well as when first started.

No. 34.—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. 35.—Flower Seeds.—Like No. 34 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. *Delivered free.*

No. 36.—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 you to select from the list below 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, 25c.; Dioscorea Batatas, or Chinese Potato, per doz. bulblets, 25c.; Moore's Early Concord Corn, pkt., 25c.; Laxton's Alpha Peas, pkt., 25c.; Trophy Tomato, ¼ oz. pkt., 50c.; ½ oz. Marblehead Mammoth Cabbage, 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, 30c.; 1 pkt. New Black Pekin Egg-Plant, 25c.; 1 pint Carter's First Crop Peas, 30c.; 1 pint Crosby's Extra Early Sugar Corn, 25c.; 1 pkt. (ten 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, 50c.; 1 Lilium lancifolium rubrum, Japan Lily, red, 40c.; 1 Lilium lancifolium album, Japan Lily, white, 40c.; 1 doz. Gladiolases, fine mixed varieties, $1.50; 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), $1.50; 4 doz. Tulips, double and single, early and late (for fall planting), $2.00; 100 Crocuses, fine varieties (for fall), $1.00.

No. 37.—Set of Field Croquet.—The game of Croquet is so pleasing, and has become so pop-

ular, that we believe many will be glad to avail themselves of the opportunity of obtaining this new and beautiful Premium upon terms as easy as we propose.

Nos. 38, 39, 40.—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 $21 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. 41.—Bickford Family Knitting Machine.—This is a practical and efficient machine, simple in construction, works very easily, makes scarcely any noise, occupies but little space, can be attached to any common table, and be removed instantly by simply turning a thumb-screw. It can be worked by any person of ordinary intelligence, after a careful perusal of the accompanying book of instructions and a little patient practice. A great variety of articles have been made with this machine, and it is capable of producing many more and different kinds. A complete stocking, heel, toe, and all, can be knit in ten minutes by a skillful operator, and socks, sacks, hoods, skirts, mittens, undergarments, etc., in remarkably quick time. Send for circular, to **Dana Bickford, General Agent, 689 Broadway, New York.** For 52 subscribers at $1.50, or 162 at $1.00, we will send the machine with black walnut table, price $33.

No. 42.—Doty's Improved Clothes Washer, with the Metropolitan Balance Weight. Over sixty thousand families in the United States are now using the Doty Washing Machine, and we believe the improved machine has no superior. The "help" use it and like it. Send for descriptive circulars to **R. C. Browning, 32 Cortlandt St., New York,** or to **Metropolitan Washing Machine Co., Middlefield, Ct.** It goes cheaply by freight or Ex.

No. 43.—Universal Clothes Wringer.—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 fibers 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.

No. 44.—Blanchard Churn.—The manufacturers of this churn have been engaged (father and sons) in the making of churns for over fifty years! They have devoted much time to the scientific investigation of the chemical process of butter-making, and developing the best means for aiding it. They believe they have succeeded, and now offer "The Blanchard Churn" as in every respect the best one ever made. It is not a new thing, as over thirty thousand are now in actual and successful operation. It has no cog-wheels or gearing of any kind. It brings the butter as quickly as it ought to come. It works the butter free from butter-milk in the churn, without any change of dasher, quicker and better than it can be done by hand. It works in the salt in the same way. These churns are manufactured by Porter Blanchard's Sons, and are supplied to us by **R. H. Allen & Co., 189 Water st., New York.** The churn in the list is No. 5, for about 8 galls. of cream. For 15 subs. at $1.50, or 45 at $1, we will give No. 3, for 2 galls. cream, price $6; and for 18 subs. at $1.50, or 58 at $1, we will give No. 7, for 18 galls. cream, price $10.

Nos. 45, 46.—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 *twelve* 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 as 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.

No. 47.—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. 48.—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, enable 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. 49.—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-jeweled, 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. 50.—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. ☞ 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. 51.—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 caliber 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. 52.—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 Adz-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., 22c.; 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 Screwdriver 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., 14c.; 5 in., 17c.; 1 Flat File, 8 in., 30c.; 1 Wood Rasp, 50c.; 1 Soldering Copper, 60c.; Solder, Nails, etc., $1.25=**$45.**

No. 53.—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 Guarantee 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 fully indorsed by the highest scientific authorities in the land. 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 10 subscribers at $1.50, or 65 at $1.00, we will send a case containing **12** one-gallon Guaranty Cans of Oil, which may be distributed among a club.

Nos. 54, 55.—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. Woodraff 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—and of special value and interest now with the Government Weather Reports.

No. 56.—Buckeye Harvester Mower.—The Buckeye Mower is so widely and favorably known that we need not describe it particularly. In 1870 this machine received the premium at twenty-eight field trials, and several 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. We can give, as Premiums, any of the Buckeye machines.

No. 57.—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 20 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 inches deep, $15.00.

No. 58.—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 ax. 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 manufacturers' 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 St., New York.**

No. 59.—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 10 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, Ct.,** who furnish descriptive circulars to all applicants. See cuts in *American Agriculturist*, page 127, 1869, and page 118, 1870.

No. 60.—Cahoon's Broadcast Seed-Sower.—This is an article that the majority of farmers would be glad to own. The Premium offered is the **Hand Seed-Sower.** It sows from four to eight acres per hour, at a common walking gait, throwing wheat and rye about 33 feet wide; barley, 30 feet; hemp, 28 feet; oats, 23 feet; clover, millet, and Hungarian seed, 22 feet; and timothy 18 feet. The bag and hopper will hold about 22 quarts—as much as a man can well carry at once. The manufacturers warrant this machine to sow 50 acres of wheat, or 35 acres of oats, or 30 acres of grass seed in ten hours. Made by **D. H. Goodell & Co.,** and sold by **R. H. Allen & Co., 189 and 191 Water St., New York,** who are the General Agents, and will send circulars if desired.

No. 61.—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 two 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 pump is set in the well, and nothing but the perpendicular brake and spout appear above the platform. Send for Circulars, to the **Bridgeport Manufacturing Co., Bridgeport, Ct., or 55 Chambers St., New York.**

No. 62.—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 about 40 feet. It is so arranged that the stream can be instantly changed to drops, spray, or mist. *For circulars, etc., address the potentee and manufacturer*, **N. Page, Jr., Danvers, Mass.**

No. 63.—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, or 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. 64.—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. This is one of the most successful toys ever invented.

No. 65.—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. 66.—New American Cyclopædia.—We can not 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 St., New York. ☞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. It is worth a year's effort in raising subscribers.

No. 67.—The Great Dictionary.—WORCESTER'S LARGE PICTORIAL UNABRIDGED EDITION, containing **1854 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 and Tileston, Boston.**

Nos. 68 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 **$100,000.** Those obtaining premiums for less than fourteen volumes can select any volumes desired, from XVI. to XXX. inclusive. For ordinary use, the sets of numbers unbound will answer.

Nos. 77 to 86.—Bound Volumes of the Agriculturist.—These are the same as Nos. 68 to 77 above, but are neatly *bound* in uniform style, and cost as more for binding and postage. Sent post-paid.

No. 87.—Farmer's Boy's Library.—A few dollars' 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.* One such 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. Any smart boy can easily secure this Premium, and he will have two sterling works by a well-known, practical farmer. They are Allen's New American Farm Book, and Allen's American Cattle.

No. 88.—Farmer's Boy's Library.—Both the books in No. 87, and also Herbert's Hints to Horsekeepers, and Henderson's Gardening for Profit.

No. 89.—Farmer's Boy's Library.—The four books in No. 88, with the addition of American Agricultural Annual for 1871, American Horticultural Annual for 1871, and Harris on the Pig.

No. 90.—Farmer's Boy's Library.—The seven books in No. 89, with the addition of Thomas's Farm Implements, Tim Bunker Papers, and Waring's Draining for Profit.

No. 91.—Farmer's Boy's Library.—The ten books in No. 90, with the addition of Fuller's Grape Culturist, Breck's New Book of Flowers, and Hunter and Trapper—in all **13** fine volumes.

Nos. 92, 93.—Bound Volumes of Hearth and Home.—These volumes are neatly and uniformly bound in cloth, with title in gilt on back and side. With their beautiful engravings, and abundance of useful and entertaining reading for all the members of a family, they will prove valuable additions to any library.

Nos. 94 to 105.—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 94 to 105 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*. ☞ Let the farmers of a neighborhood unite their efforts, and through these premiums get an agricultural library for general use.

No. 106.—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 only for clubs of 25 or more. The books will be sent by mail or express, prepaid through, by us.*

AMERICAN AGRICULTURIST

FOR THE

Farm, Garden, and Household.

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

ORANGE JUDD & CO., PUBLISHERS AND PROPRIETORS. Office, 245 BROADWAY.

ESTABLISHED IN 1842. Published also in German at $1.50 a Year.

$1.50 PER ANNUM, IN ADVANCE. SINGLE NUMBER, 15 CENTS. 4 Copies for $5; 10 for $12; 20 or more, $1 each.

VOLUME XXX.—No. 12. NEW YORK, DECEMBER, 1871. NEW SERIES—No. 299.

TRIAL OF WORKING OXEN.—*Drawn and Engraved for the American Agriculturist.*

The fast horse has so generally monopolized attention at our agricultural shows, that at the New England Fair, held last September, it was gratifying to notice the interest manifested by the spectators in the trial of working oxen. A pair of well-trained oxen are, in their way, as well worthy of an admiring crowd as a fleet horse, and we are glad to see respectable prizes offered for them. The proper training of oxen requires much patience on the part of the drivers and manifests great intelligence on the part of the animals. A man can not train oxen properly until he has first trained himself in the ways of patience, perseverance, and quietness. Unlike the horse that is guided by rein and bit, the ox moves only by word and motion. There is something very imposing about a well-kept, well-developed pair of oxen of a good breed. Every muscle indicates strength, and the beasts move with a deliberation and dignity that convey the idea of immense power. Then, when they bend their necks to the yoke of the trial load, their expression seems to say, "This is nothing to what we could do if we tried." We have never seen oxen so thoroughly and intelligently use their strength as in "stumping" and "logging" upon a Western clearing. They seem to know quite as much about this work as their drivers, and to lay out their full power just at the right moment. For work of this kind they are incomparably superior to horses. For general farm uses horses will usually be preferred, but for certain heavy labor the ox will always be the favorite, and he has the great advantage, that, when the time of his utility is past, he can be converted into beef. The above engraving is from a sketch taken by one of our artists, at the trial of working oxen at the New England Fair.

Contents for December, 1871.

INDEX TO "BASKET," OR SHORTER ARTICLES.

Calendar for December.

Day of Month.	Day of Week.	*Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon.* Sun rises.	Sun sets.	Mo'n rises.	*N. Y. City, Ct. Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois.* Sun rises.	Sun sets.	Mo'n rises.	*Washington, Maryland, Virginia, Kentucky, Missouri, and California.* Sun rises.	Sun sets.	Mo'n rises.
		H. M	H. M	H. M.	H. M	H. M	H. M.	H. M	H. M	H. M.
1	F	7 10	4 29	8 16	7 5	4 34	8 21	7 0	4 39	8 27
2	S	7 11	4 29	9 16	7 6	4 33	9 21	7 1	4 39	9 25
3	S	7 12	4 28	10 17	7 7	4 33	10 21	7 2	4 38	10 25
4	M	7 13	4 28	11 22	7 8	4 33	11 24	7 2	4 38	11 27
5	T	7 14	4 28	morn	7 9	4 32	morn	7 3	4 38	morn
6	W	7 15	4 28	0 26	7 10	4 32	0 28	7 4	4 38	0 29
7	T	7 16	4 28	1 32	7 11	4 32	1 32	7 5	4 38	1 33
8	F	7 17	4 28	2 43	7 12	4 32	2 41	7 6	4 38	2 41
9	S	7 17	4 28	3 55	7 13	4 32	3 53	7 7	4 38	3 51
10	S	7 18	4 28	sets	7 14	4 32	sets	7 8	4 38	sets
11	M	7 19	4 28	4 10	7 15	4 32	4 15	7 9	4 38	4 21
12	T	7 20	4 28	5 4	7 15	4 32	5 10	7 9	4 39	5 16
13	W	7 21	4 28	6 10	7 16	4 33	6 16	7 10	4 39	6 22
14	T	7 22	4 28	7 22	7 16	4 33	7 27	7 11	4 39	7 33
15	F	7 22	4 29	8 38	7 17	4 33	8 43	7 12	4 39	8 47
16	S	7 23	4 29	9 52	7 18	4 33	9 55	7 12	4 40	9 58
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18	M	7 24	4 29	morn	7 19	4 34	morn	7 14	4 40	morn
19	T	7 25	4 30	0 10	7 20	4 34	0 11	7 14	4 41	0 12
20	W	7 26	4 30	1 15	7 20	4 35	1 15	7 15	4 41	1 14
21	T	7 26	4 31	2 17	7 21	4 35	2 16	7 15	4 42	2 15
22	F	7 26	4 31	3 10	7 21	4 36	3 10	7 16	4 42	3 14
23	S	7 27	4 32	4 21	7 22	4 37	4 17	7 16	4 43	4 14
24	S	7 27	4 32	5 21	7 22	4 37	5 16	7 17	4 43	5 12
25	M	7 28	4 33	6 20	7 23	4 38	6 15	7 17	4 44	6 9
26	T	7 28	4 33	rises	7 23	4 39	rises	7 17	4 44	rises
27	W	7 28	4 34	5 16	7 23	4 39	5 21	7 18	4 45	5 28
28	T	7 29	4 35	6 10	7 23	4 40	6 16	7 18	4 46	6 21
29	F	7 29	4 36	7 9	7 24	4 40	7 14	7 18	4 47	7 19
30	S	7 29	4 37	8 9	7 24	4 41	8 13	7 19	4 47	8 17
31	S	7 30	4 37	9 11	7 24	4 42	9 14	7 19	4 48	9 17

PHASES OF THE MOON.

MOON.	D.	BOSTON. H. M.	N. YORK. H. M.	WASH'N. H. M.	CHA'STON H. M.	CHICAGO. H. M.
3d Quart..	5	2 2 m.	1 50 m.	1 38 m.	1 26 m.	0 56 m.
New Moon	11	11 18 ev.	11 6 ev.	10 54 ev.	10 42 ev.	10 12 ev.
1st Quart..	18	3 57 ev.	3 45 ev.	3 33 ev.	3 21 ev.	2 51 ev.
Full.....	26	4 51 ev.	4 39 ev.	4 27 ev.	4 15 ev.	3 45 ev.

AMERICAN AGRICULTURIST.

NEW YORK, DECEMBER, 1871.

This month closes the thirtieth volume of the *American Agriculturist*. During these thirty years it has labored earnestly, and in a good degree, we trust, effectively, for the advancement of American agriculture and the improvement and interest of American farmers. We can not complain of a want of appreciation. No agricultural paper ever before attained half the circulation of that enjoyed by the *American Agriculturist* for 1871. We have reason to expect a still greater number of subscribers for 1872. No editors ever had more liberal publishers, no publishers ever had more willing editors. What we have done in the past is nothing in comparison with our hopes and intentions for the future. We believe in ourselves and in our readers. We have faith in good farming; and we are endeavoring to show our faith by our works. The agricultural editors of the *Agriculturist* are practical farmers. We live on the farm, and our monthly "Hints about Work" are the result of our own experience and observation. The year now drawing to a close has been, in many respects, a discouraging one to farmers. Butter, cheese, pork, and beef are low. Wool has done a little better and the prospects are encouraging. Those farmers who sold their sheep and bought cows, will probably now sell their cows for half what they cost, and buy sheep at double what they got for them. We urged our readers not to sell their sheep, and cautioned them against rushing into the dairy business. We would say now: If you have sheep, keep them; if you have cows, do not sell them. It is a good time for any one to buy cows who proposes to establish a permanent dairy. Select the best, get a good bull, and aim to improve the herd. There is still money in the dairy business. Pork-packers lost heavily last winter. They will try to get back their money the present season, and the probabilities are that we shall be obliged to sell our pork below the cost of production. In a year or two it will be our turn. The low price of pork will increase consumption at home and abroad. American hams, bacon, and barreled pork will be introduced into new markets and to thousands of new consumers in different parts of the world. We lose money by the transaction, but we shall get it back in the end. Those farmers will make a mistake who sacrifice good breeding stock.

It is never so dark as just before dawn; and dark as have been our prospects the past season, we mistake the signs of the times if a bright day is not rapidly approaching. We shall get better prices for all our products.

But good prices alone do not make good times. We need good crops, good stock, and a less cost of production. Now is a good time to think and talk about these matters and lay plans for the future.

"We need more capital." Certainly we do—and the same is true of all occupations, in trade, commerce, or manufactures. But what is capital? It is simply *labor*, or the means of procuring labor. We have heard farmers bemoan their lack of capital while they spent several hours a day, in winter, smoking and talking around the stove at a village grocery. Many farmers need enterprise and pluck much more than they need capital.

Hints about Work.

Make the House Comfortable.—We have no patience with a man who allows the windows to rattle in the casements, while with a hammer, a few nails, a lath or two, and a little putty, he could, in an hour or two, make the house snug and comfortable. We believe in thorough ventilation, but it should be under our control. There are thousands of homes where the inmates spend a wretched winter simply for want of a little attention to such matters. See that the outside doors fit snug. A storm house inclosing the door most exposed, or where the family are going in and out frequently, is a great comfort. A damper in the stove-pipe prevents the heat from going up the chimney, and saves fuel. See that the wood-house is well supplied with dry wood ready for the stove, and that there is some kindling always prepared ready for use. Where coal is used, and in the absence of charcoal, have a barrel of dry corn-cobs ready for starting fires.

Let the family room be well lighted, and make home attractive to the young people. Let there be no lack of good books and useful papers. Pleasant winter evenings at home constitute one of the great charms of country life. It is here that character is formed, and the future usefulness of our children in a good degree determined.

A comfortable family room, warm beds, nutritious food, and plenty of sleep, will enable a farmer and his family to spend the winter pleasantly and profitably. There is plenty of work to be done, and the cold, instead of benumbing the faculties, will stimulate exertion. Do not spend your winter days by the stove, or in complaining of hard times.

Attend to the Animals.—Next to the family the most important duty is to make our domestic animals comfortable. There is great profit in it. Warmth is, to a certain extent, equivalent to food. And, what is of far greater importance, it *saves digestion*. It is sometimes said, when speaking on this subject, that corn or hay is a costly fuel, but this does not tell half the story. When an animal is exposed to storms and loses an excessive amount of heat, this heat has to be supplied from the blood or from flesh and fat. And good meat, fat, or butter is certainly a very expensive fuel to burn in the animal stove. Many farmers who think it a great waste to burn "body maple" in the house, allow their cows to burn butter in the barn-yard. This is precisely what thousands and tens of thousands of farmers do every winter. We implore every reader of the *Agriculturist* to provide some shelter for his animals—if it is nothing more than a shed of evergreen branches or corn-stalks.

Give the Animals Enough to Eat.—Next to exposure, one of the most serious drawbacks to profitable stock feeding is the want of a liberal and regular supply of nutritious food. Many farmers can not be made to understand that an animal eats a large amount of food merely to keep it alive, and that all the profit the owner derives from keeping the animal, comes from the food eaten in excess of this amount. If straw will keep an animal alive, all the profit of keeping the animal is derived from hay or grain fed in addition to the straw.

Feeding Cattle and Sheep on the bare ground may be

necessary in certain circumstances, but, as a rule, it is a most wasteful practice. Do not say you are short of "capital," and that you can not afford to buy racks or lumber to make them. What you want is industry and pluck. If you can not do anything better, make a rack out of a few rails or poles, placed alongside the barn, or shed, or fence.

Cooking Food for Stock will doubtless pay where everything is convenient, and where well-bred stock is kept and liberal feeding is required. But not one farmer in a thousand is ready for the work. His farming, his stock, and his system of feeding are not up to it. There are many other things of far greater importance for him to attend to. To plow under clover in the summer and steam corn-stalks in the winter shows great ignorance of the fundamental principles of good agriculture. It will seldom, if ever, pay to cook in order to save *food;* but it will frequently pay to cook in order to *save digestion*. It will not pay to cook food for store cows; but it might pay well to cook for milch cows that are capable of turning more food into milk than they can digest. It will not pay to cook food for breeding sows that can eat and digest *more* food than they require; but it will pay well to cook for a lot of well-bred young pigs that are capable of converting into flesh more corn-meal than they can digest in the raw state.

Milch Cows, if fed liberally, may be milked until within six weeks of calving. In ordinary cases, however, it is better to let them go dry for two months or ten weeks. The cow and the calf will both be stronger; and any fat or flesh stored up during this period will, in the case of a good cow, find its way to the milk-pail next summer. For this reason we advocate liberal feeding, even when the cows are dry. Some of our associates think and practice differently, but the writer's own experience is in favor of drying off the cows as here indicated. Because a good milker is always thin before the end of the season, many farmers advocate keeping cows thin in order to make them good milkers. They mistake cause for effect. The cow is thin because she is a good milker, not a good milker because she is thin. There is a great prejudice against corn-meal for milch cows. If fed without judgment it may be injurious, but in our own experience we have never known two quarts of corn-meal a day, cooked or uncooked (but far better cooked), have any other than the most beneficial effect. Do not forget to card the cows, or to give salt regularly and an abundant supply of fresh (not ice-cold) water.

Horses that have worked hard during the autumn had better rest a little this month, rather than towards spring. But much depends, of course, on what there is to be done. If horses are well fed steady work does not hurt them. And it costs so much to keep a horse that we can not afford to let him lie idle unnecessarily. Horses that have been pampered in the city are rejuvenated by a winter's run at a straw stack, but farm horses are seldom benefited to a like extent by such treatment. The only advantage in turning them out is that it saves the labor of taking care of them. They ought to have a warm shed to run into in stormy weather.

Sheep.—Sheep may be allowed to run out on the pasture as long as they can find anything to graze; but they should have other food in addition. On grain farms the most economical way of wintering Merino sheep is on straw, with half a pound of corn or oats per day. Long-wooled sheep and fattening sheep should have a little better feed—say one pound of bran, half a pound grain, and all the straw or corn-stalks they will eat. Fattening sheep should be allowed more grain as they become accustomed to it. Pea and bean straw, if well cured, is excellent for sheep. Clover hay should be reserved for feeding towards spring.

Swine.—Except where corn is very low, it will not pay to keep fattening pigs after cold weather sets in. Better dispose of them early and reserve the feed for the young pigs. The latter will probably pay for all the extra grain they receive. Certainly, if kept at all, pigs should be kept well. Fall pigs should have all the food they can eat and digest the first winter.

Ditching.—On low, mucky land, where there is sufficient fall to allow the water to pass away freely from the ditches, the frost will seldom be so severe as to prevent ditching this month, and the work can be done to great advantage.

Work in the Horticultural Departments.

The amount of work that can be done now will be limited, but still every day something may be accomplished which will make the labor of the coming spring easier. The long evenings will give one ample time for study and reading, and thus enable the gardener to profit by the experience of others, and to obtain better results from a given amount of labor. Every year new books are being published upon different branches of horticulture, many of which are very valuable even to a person well versed in practical horticulture; and no thinking gardener can afford to be without them, especially if he wishes to keep pace with the new improvements which are constantly being made. Outdoor work will have to be suspended in many northern localities, but many things can be done under cover, such as mending tools, painting, preparing labels, etc.

Orchard and Nursery.

Cions.—Cut cions when the trees are not frozen. Choose only those which have made a vigorous and healthy growth. Store in sawdust or sand in the cellar, taking care to label each variety. Copper wire is best for tying up the bunches, as twine is liable to rot when buried in damp earth.

Fruit.—The secret of keeping fruit during the winter is to place it in a cellar where the temperature is as low as 36°, and where it varies as little as possible from this.

Manure may be carted upon the orchard during the winter; or it may be carted to some convenient place, and the coarser portions allowed to rot.

Mice and Rabbits.—Tread the snow firmly around the trunks of the trees, to prevent mice from injuring the bark; rabbits may be kept off by smearing the lower part of the trunk with fresh blood.

Pruning.—If the weather is mild, orchards may be pruned at any time, and the large wounds coated over with gum shellac, varnish, or common paint, to prevent decay.

Root-Grafting can be done when the weather is too cool to work outdoors. Take care to preserve the different varieties distinct. After the grafts are set, place them in boxes of earth in the cellar.

Seeds.—If any seeds of stone fruits still remain out of the ground, bury them before the ground freezes too hard, first mixing the seeds with earth.

Water.—See that surface drains are made, to take off all standing water from the orchard and nursery.

Fruit Garden.

Many of the directions given under the Orchard and Nursery will apply equally well here.

Protection must be given to the tender plants. The tender varieties of raspberries are to be laid down and covered with earth, and in extreme northern latitudes grapes do better if so treated.

Strawberries.—Cover the ground between the rows with a good mulch of hay, taking care not to cover the plants themselves too thickly.

Grape-Vines.—Finish trimming, and save wood of choice varieties, to propagate from. Cut the wood into lengths of two or three eyes, tie in bundles, and cover with earth in a well-drained spot.

Kitchen Garden.

Whenever the weather is mild, and the ground open enough, use the spade or plow. The soil is much better if exposed to the action of the frost during the winter, and besides it can be sooner worked in the spring. See that the fences are tight, so that stray cattle can not get into the garden and trample over the beds and paths.

Roots.—If the roots are not all stored away for the winter, it should be attended to immediately, before the cold becomes severe. If one has not a root cellar, the best way is to store the roots in pits in the open ground. These should be 2½ to 3 feet deep, 6 feet wide, and as long as necessary; stack up the roots in sections reaching across the pit, two feet long and as high as the surface of the ground. The sections are to be six inches apart, and the space between filled with earth. The pit, when filled, will present alternate sections of roots and earth. Finish the pit by placing a layer of straw on the top, and then covering with a foot or more of earth. The top should be slanted like the roof of a house, to allow the water to run off.

Parsnips, Salsify, and Horse-Radish are hardy, and may be left in the ground without protection. Enough of these must be taken up for winter use.

Spinach and Leeks give a little covering of hay.

Cabbages.—Store in trenches, with the heads inverted; cover with six inches of earth, and finish off smoothly, to shed rain.

Manure.—Do not neglect to take advantage of everything that can be had for making manure. See that plenty of dry earth and leaves are stored for bedding and composting.

Seeds.—Thrash and winnow all seeds that are to be saved for planting; store away from mice.

Flower-Garden and Lawn.

Clear up all leaves, old vines, and everything which will detract from the neat appearance of the immediate surroundings of the house.

Trellises and Stakes.—See that these are not left exposed during the winter. With proper shelter they may be made to last for several years.

Protection.—Give the tender roses and deciduous shrubs proper protection. The former may be laid down and covered with sods, and the latter tied up with a covering of straw. Tender evergreens must not have the straw tied too closely around them, as they are often smothered in this way. The best method is to drive stakes around them in a slanting direction, like an inverted cone, and then cover with straw, or evergreen boughs.

Bulbs.—It is not too late to plant now in many places, where the ground is open, but it must be done soon. Give the beds a covering of straw.

Herbaceous Perennials.—Cover the less hardy sorts with leaves. The hardy varieties will also do better if treated in the same way, or if they have earth drawn up to them.

Wistarias.—In very cold latitudes these do best if taken down and covered with a little earth.

Cold-Frames.—Whenever the weather is mild, remove the sashes from the cold-frames containing the half-hardy things. See that no mice are harbored to destroy the plants.

Lawns can be manured with well-rotted compost.

Greenhouse and Window Plants.

Heat.—During the day the temperature in houses where plants are to bloom, must not be less than 65°, and it ought not to fall to less than 45° at night. In the Camellia-house, for example, where it is desirable to prevent the plants from flowering as long as possible, the heat need only be a few degrees above the freezing point at night.

Bulbs.—Bring the bulbs which were placed in the cellar to form roots, to a warm house, where they will soon flower. If only a few pots are brought out at a time, flowers may be had until quite late.

Air must be admitted whenever it is safe, only taking care that the ventilators are opened upon the side opposite to which the wind blows.

Water.—Apply water with care, and do not give enough to make the earth soggy. The plants should have an occasional sprinkling overhead, to wash off dust. If this is allowed to accumulate, it soon fills up the breathing pores of the leaves and renders the plant unhealthy. This is more necessary with house plants than with those of the greenhouse.

Insects, such as green fly, thrip, scale, etc., will infest plants in spite of all precautions, and the only way is to keep up a constant warfare against them. The green fly is easily destroyed by tobacco smoke; the other two must be treated with a thorough washing of whale-oil soap, applied with a cloth to the bark of shrubs, and with a sponge to the foliage. The red spider can usually be killed by frequent sprinklings of water, as it particularly dislikes moisture.

Sods.—A good quantity of sods ought to be piled up and allowed to decay, as they make the best soil for potting that can be had. If it is desirable to hurry the growth of any plant, a little well-rotted stable manure may be mixed with the soil.

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. 17, 1871, and for the corresponding month last year.

1. TRANSACTIONS AT THE NEW YORK MARKETS.

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
27 d's *this* m'th.	437,000	4,646,000	1,207,000	217,000	1,135,000	1,719,000
28 d's *last* m'th.	329,000	4,316,000	1,924,000	261,000	541,000	2,116,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
27 days *this* m'th.	304,000	4,116,000	2,781,000	77,000	981,000	1,605,000
28 days *last* m'th.	391,000	4,259,000	3,710,000	114,000	296,000	1,601,000

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

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
27 days 1871	437,000	4,646,000	1,207,000	217,000	1,135,000	1,715,000
26 days 1870	511,000	3,916,000	1,574,000	89,600	847,000	1,716,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
27 days 1871	304,000	4,116,000	2,781,000	77,000	981,000	1,605,000
26 days 1870	329,000	3,447,000	1,549,000	61,500	239,000	1,856,000

3. *Exports from New York, Jan. 1 to Nov. 16.*

	Flour.	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
1871	1,506,653	20,579,704	10,872,069	437,547	90,134	39,211
1870	1,693,508	15,735,848	379,926	92,431	134	23,020
1869	1,304,834	16,197,951	1,595,282	130,048	46,504	84,969
1868	842,393	4,809,527	5,645,795	153,093	61,598	149,479

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

	Wheat, bush.	*Corn,* bush.	*Rye,* bush.	*Barley,* bush.	*Oats,* bush.	*Malt,* bush.
1871.						
Nov. 14	2,552,735	1,604,403	235,072	296,590	2,450,197	136,756
1870.						
Nov. 9	2,092,900	300,000	116,800	400,400	2,125,000	——

5. *Receipts at head of tide-water at Albany each season to Nov. 7th:*

	Flour. bbls.	*Wheat.* bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.
1871	233,000	18,184,000	18,124,000	707,700	2,528,000	4,823,200
1870	359,000	13,918,300	4,584,300	529,900	2,206,800	5,210,900

CURRENT WHOLESALE PRICES.

	Oct. 17.		Nov. 17.	
PRICE OF GOLD	113¾		111¾	
FLOUR—Super to Extra State	$6 25 @	7 75	$5 70 @	7 40
Super to Extra Southern	7 20 @	10 25	7 00 @	10 25
Extra Western	6 85 @	10 00	6 45 @	10 50
Extra Genesee	7 75 @	9 25	7 45 @	9 00
Superfine Western	6 25 @	6 85	5 70 @	6 30
RYE FLOUR	4 60 @	5 80	4 20 @	5 15
CORN-MEAL	3 50 @	4 50	3 60 @	4 45
WHEAT—All kinds of White	1 65 @	1 80	1 65 @	1 76
All kinds of Red and Amber	1 50 @	1 68½	1 52 @	1 67
CORN—Yellow	78 @	80	80 @	82½
Mixed	77 @	79	79 @	81
OATS—Western	52½@	55	53½@	56
State	53½@	54½	54 @	55
RYE	92 @	1 06	90 @	95
BARLEY	80 @	1 19	87½@	1 13
HAY—Bale ₱ 100 lbs	1 05 @	1 50	1 10 @	1 60
STRAW, ₱ 100 lbs	55 @	1 00	60 @	1 10
COTTON—Middlings, ₱ lb	20½@	21	18¾@	19½
HOPS—Crop of 1870, ₱ lb	20 @	30	20 @	30
Crop of 1871	35 @	65	35 @	62
FEATHERS—Live Geese, ₱ lb	70 @	78	70 @	80
SEED—Clover, ₱ lb	10¾@	11	11¼@	12¼
Timothy, ₱ bushel	3 00 @	3 35	3 00 @	3 25
Flax, ₱ bushel	2 03 @	2 06	1 90 @	1 95
SUGAR—Brown, ₱ lb	8½@	11¼	8 @	10¾
MOLASSES, Cuba, ₱ gal	20 @	45	20 @	37
COFFEE—Rio (Gold, in bond)	14¾@	16¾	13½@	15¾
TOBACCO, Kentucky, &c., ₱ lb	7¾@	14	7¾@	14
Seed Leaf, ₱ lb	12 @	65	11 @	65
WOOL—Domestic Fleece, ₱ lb	50 @	68	50 @	68
Domestic, pulled, ₱ lb	37 @	65	37 @	62
California, unwashed	26 @	40	30 @	42
TALLOW, ₱ lb	9¼@	9¾	9¼@	10
OIL-CAKE—₱ ton	39 25 @	40 50	39 00 @	41 00
PORK—Mess, ₱ barrel	13 12 @	13 25	13 20 @	13 25
Prime, ₱ barrel	10 00 @	10 25	9 50 @	10 00
BEEF—Plain mess	7 00 @	11 50	7 00 @	11 00
LARD, in trcs. & barrels, ₱ lb	9½@	10¼	9¼@	10¼
BUTTER—State, ₱ lb	20 @	35	20 @	40
Western, ₱ lb	11 @	20	11 @	25
CHEESE	7½@	13¾	8¼@	14¼
BEANS—₱ bushel	1 10 @	3 50	1 70 @	3 50
PEAS—Canada, free, ₱ bu	1 25 @	1 35	1 28 @	1 25
EGGS—Fresh, ₱ dozen	27 @	32	25½@	28
POULTRY—Fowls	14 @	17	12 @	17
Turkeys, ₱ lb	14 @	18	12 @	19
Geese, ₱ pair	1 50 @	3 00	1 50 @	3 00
Ducks, ₱ pair	75 @	1 25	62 @	1 00
VENISON—₱ lb	14 @	20	12 @	18
POTATOES, ₱ bbl	1 25 @	2 50	1 25 @	2 50
SWEET POTATOES, ₱ bbl	1 50 @	3 00	1 75 @	2 75
CABBAGES—₱ 100	3 00 @	7 00	3 00 @	7 00
BROOM-CORN—₱ lb	10 @	15	6 @	13
APPLES—₱ barrel	2 00 @	4 75	1 50 @	4 50
PEARS—₱ barrel	4 00 @	10 00	5 00 @	15 00
GRAPES—₱ pound	5 @	10	3 @	7
QUINCES—₱ barrel	5 00 @	9 00	— @	—
CRANBERRIES—₱ barrel	7 00 @	10 00	8 50 @	10 25
BUCKWHEAT FLOUR—₱ 100 lbs	3 00 @	3 50	3 00 @	3 50

Gold has been down to 111, closing November 16th at 111⅜, against 113¼ on the 17th of October....The receipts of produce, since our last, have been quite liberal....Receivers of Breadstuffs have met the demand from shippers as well as home buyers with considerable promptness, and at prices which show a pretty general reduction, though toward the close, with an easier freight market and rather more favorable reports from Liverpool, a fair degree of activity prevailed, particularly in Flour, Wheat, and Corn, with more steadiness in values.....There has been an unusually free movement in Barley, which has been purchased quite extensively on speculative account, closing much stronger as to price....Provisions have been moderately sought after, at fairly supported prices. The chief inquiry for Butter has been from the home trade, and for the finer makes of State, and nice, fresh lots of Western. Fresh roll Butter has been in better request, but the re-made old stock, offered as roll butter, has been neglected and nominal in price, as neither dealers, packers, nor grocers were deceived by the offerings in this form. The export trade in both Butter and Cheese has been comparatively light, the foreign advices not having been sufficiently encouraging to justify free purchases for shipment.....Wool has been offered sparingly, and at prices which buyers have been unwilling to pay; hence business has been dull.....Cotton, Hops, and Tobacco have been moderately sought after, closing about steady at our quotations.....In the line of Grass Seed the only show of activity has been in Clover Seed, which has been in brisk request, mostly for shipment, at firmer prices.

New York Live-Stock Markets.

WEEK ENDING	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	*Tot'l.*
October 23d	8,662	137	1,538	41,396	41,144	92,897
October 30th	6,223	132	1,822	26,134	54,089	88,423
November 6th	7,554	100	2,311	36,470	42,632	89,067
November 13th	8,942	106	1,335	32,565	38,725	82,183
Total in 4 Weeks	31,381	485	7,536	136,565	176,590	352,570
do. *for prev. 5 Weeks*	44,409	580	13,213	158,225	169,498	385,926

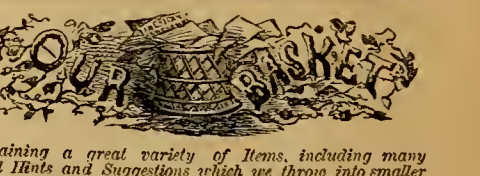
	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per Week	7,845	121	1,884	34,141	44,147
do. do. *last Month*	8,882	116	2,643	31,615	33,899
do. do. *prev's Month*	8,703	94	3,009	30,355	23,737
Average per Week, 1870	6,847	97	2,249	28,151	17,108

Beef Cattle.—In comparison with the previous month—that greatest month for moving live stock—there has been a falling off of 1,000 cattle per week, and the market closes stronger. Prices declined at first, but have recovered during the past week, the final sales being about ¾c. higher than they were at the opening. Poultry is now plenty and cheap, and goes a long way towards supplying the place of beef. Other meats are also plenty, pork being much lower than usual at this season of the year, so it is only a matter of surprise that cattle sell as well as they do. The average quality of the cattle has been good, Texas sending in lightly. Dealers in that kind of stock have become convinced that it is useless to run in cattle direct from their native prairies, as such droves are too poor to bring remunerative prices. When kept a year or more in Kansas, Illinois, or some other good grazing State, they make passable beef, worth at the present writing 8c. @ 9c. ₱ lb., net weight.

Below we give the range of prices, average price, and figures at which large lots were sold:

Oct. 23d, ranged 6¼@12¼c. Large sales 9½@10¼c. Av. 18
Oct. 30th, do. 8 @12¼c. do. do. 10 @11½c. do. 10½
Nov. 6th, do. 8 @13 c. do. do. 10½@11½c. do. 10¾
Nov. 13th, do. 7½@13 c. do. do. 10 @11½c. do. 10¾

Milch Cows.—The change from green to dry feed causes a shrinkage of milk, and more cows are required to keep up the amount contracted for by the producers. This has caused a good demand for fresh cows, and prices have advanced about $5 per head, helped by the higher price of beef. They vary from $45 to $55 each for poor, $65 to $75 for medium to good, with a few choice at $80 to $85.....**Calves.**—Live calves continue to fall off in numbers, while more are sent in dressed. It is cheaper to send them in dead, and they can be sent from greater distances, and will keep in cool weather if not sold at once. And still prices are lower, the demand running upon other meats. Good to prime milk-fed calves are worth 9c. @ 10½c. ₱ lb.; common to fair sell at 7c. @ 8½c.; mixed lots, half grassers and half milk-fed, of large size, 4c. @ 6½c.; and common grassers at $6 @ $9 per head. Hog-dressed are worth 12c. @ 14½c. for milk-fed, and 5c. @ 9c. for grassers.....**Sheep and Lambs.** These are coming forward more freely, and lambs sell for more money, choice lots reaching 8c. Sales were made during the month at 8¼c., for some extra State lambs of 80 lbs. Sheep are in fair request, most sales being at 5¼c. @ 5¾c. Scarcely anything exceeds 6¼c., and it takes fine 110 @ 120 lb. Canadas to reach those figures. Poor to medium sheep are selling at 4½c. @ 5¼c. ₱ lb.; fair to good at 5¼c.@5¾c.; and prime to best selections at 6c. @ 6¼c. Lambs range from 6c.@7½c. ₱ lb., a few choice reaching 8c.....**Swine.**—The arrivals of hogs have been the largest ever known, and prices rule lower than at any time since the war, having declined about ¼c. since the low rates one month ago. Heavy losses have been sustained in the trade, many a car-load selling here at very little more than they cost in Chicago. Country dressed are arriving freely from this State and Jersey. Live are worth 4⅞c. @ 5¼c.; city-dressed Western 6c. @ 7c.; State and Jersey, 6½c. @ 7½c., the latter price only for light pigs.



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.

Remitting Money: — Checks on New York City Banks or Bankers are best for large sums; make payable to the order of **Orange Judd & Co.....Post-Office Money Orders,** for $50 or less, are cheap and safe also. When these are not obtainable, **register** letters, affixing stamps for 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 the above three methods is safe against loss.

Postage: On *American Agriculturist*, 3 cents a quarter, in advance; on *Hearth and Home*, 5 cents per quarter. Double rates if not paid in advance at the office where the papers are received. For subscribers in British America, the postage must be sent to this office for prepayment here.

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 last fifteen volumes (16 to 30) 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.

SPECIAL PREMIUM.—Thomas' Smoothing Harrow and Broadcast Weeder.—We consider this so good an implement that we have made arrangements with the manufacturers to offer it as a premium. Mr. J. J. Thomas has so wide and so good a reputation, both as a writer on agricultural subjects, and as author of "Farm Implements and Farm Machinery," that his name alone would be a safe guarantee for the goodness of a farm tool or machine. This harrow has, however, been tested by other good judges, who agree that it is a really valuable article. It is a thorough pulverizer of the soil and good cultivator of growing crops. It is of easy draft, takes a sweep of nine feet, can harrow twenty acres a day, and it leaves the ground as fine and smooth as a garden-bed. For 38 subscribers to *American Agriculturist*, at $1.50, or 120 do., at $1, or for 19 subscribers to *Hearth and Home*, at $3, or 60 do., at $2.50, or for 21 subscribers to both papers, at $4 for the two, we will send the harrow, worth $25. Send for descriptive list to J. J. Thomas & Co., Proprietors, Geneva, N. Y.

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 afterward send 10 more subscribers with only $8; making a club of 20 at $1 each; and so of the other club rates.

Products of Washington Territory.—Messrs. Jay Cooke & Co. exhibited at their office in New York specimens from Olympia and other places near the terminus of the Northern Pacific Railroad. There were apples and pears of wondrous size and fairness, vegetables of gigantic proportions, and—what is most important—grain of various kinds of a plumpness and weight that will make it necessary for California and Oregon to look to their laurels. All these from a place known only a few years ago by the general name of the North-west Coast.

"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.

The Chesapeake and Ohio Railroad, which is being rapidly pushed out from the seaboard to the Ohio, will open up not only many splendid farming regions, but will also bring into market vast treasures of coal that have been stored up for untold centuries ready for our day and age. We do not see how the bonds of this road can fail to be as safe an investment as can be found. Messrs. Fisk & Hatch, the agents, give the particulars in our advertising columns.

A New Lift and Force Pump.—Geo. E. Waring, Jr., of Ogden Farm, writes: "The pump advertised in the September number by the American Pump Company, is the best pump of its kind that I have ever seen. It is as good for the kitchen-sink as a common pitcher-pump—and it costs but little more—and is as good to force water to the top of the house or (in a jet from a hose nozzle) over the roof, or to water a greenhouse with, as an elaborate affair costing from five to ten times as much. We have long needed a good force-pump, that could be used for all sorts of work about a house or barn, and now we have got one. I consider mine worth much more than it cost me, simply to wash carriage-wheels with, and to shower horses' legs when they are inclined to get out of order."

Hydraulic Rams.—A "Subscriber," Waterville, Me., points out an error, or rather an omission, which was perceived by us when too late to remedy, in the article on water rams in the *Agriculturist* for November. It is stated that a No. 5 ram, etc., using 7 gallons of water per minute, would elevate half that quantity to a hight of fifty or a hundred feet. There should have been added the words "every fifteen to thirty minutes."

Supplement to Bicknell's Village Builder: Containing Eighteen Modern Designs for Country and Suburban Homes of Moderate Cost, with Elevations, Plans, Sections, and a Variety of Details, all Drawn to Scale, also a Full Set of Specifications, with Approved Form of Contract and Estimates of Cost. New York: A. J. Bicknell.—The foregoing title is so descriptive of the contents of the work that but little need be added, save that several architects in New Jersey and Massachusetts have contributed the designs, and that they are in what is now the popular style of suburban dwellings. The designs are neatly executed, and the part relating to specifications and contracts can not fail to be useful. Price $5.

The Hundred-Dollar Trophy-Tomato Premium.—As our readers are aware, Col. Waring offered last spring a premium of $100, to be awarded in the judgment of the editors of this paper for the largest specimen that should be sent to this office, of a Trophy Tomato, grown from seed purchased directly from him. A large amount of fruit was sent in for competition, which was duly examined and weighed. The season was unfavorable for the growth of this fruit, at least in this section of the country. The largest specimen submitted weighed 2 lbs., but it was not of "perfect" form, although its shape was not at all objectionable for ordinary purposes. This was raised by a Mr. Heath, of Bristol, Ct. A specimen submitted by S. Hemmenway, Jr., Potsdam, N. Y., would have received the prize, if size had not been an important condition. This tomato was large enough for any use, and the most perfect in form, ripeness, and solidity, that we have ever seen. Its weight, however, was only 12 oz. The premium of $100 was awarded to Mr. Thomas J. Hand, of Sing Sing, N. Y. His largest specimen weighed 21⅞ oz. and was unexceptionable in all respects, though not quite so fine as Mr. Hemmenway's. We learn that Col. Waring has secured Mr. Hand's entire crop of seed, and that he will renew his offer of a $100 premium for the coming year. The Trophy Tomato has been a complete success, and we are glad to have been instrumental in making it known.

Hearth and Home—Fiction.—"M. F. W.," New Sharon, Iowa, would like to subscribe for *Hearth and Home*, but he has heard that it publishes stories, and "would like to know whether this is the case or not, as I do not wish to bring fictitious reading into my family." *Hearth and Home* does publish fictitious stories, but they are not so good as some we could refer "M. F. W." to. Let him refer to Luke xv, and he will find a most touching story, beginning, "A certain man had two sons." Certainly, if the Saviour chose the parable, which is one form of fiction, to impart some of his best-remembered teachings, there is nothing in fiction itself that should prevent others from using it. Fiction may be prostituted and rendered mischievous, as may any other form of literature, but "M. F. W." will not find anything in *Hearth and Home* that he can not safely take into his family.

Fowls for Exhibition.—As the season for the annual poultry shows is at hand, we offer a few rules for preparing birds for exhibition that may be of service to the novice. They should be entered by trios, each fowl of which must match with the others in color of feathers, legs, and eyes, as well as age, size, and general appearance. It is necessary that the trio be made up and confined in a small space for some days before the show, in order that they may become thoroughly acquainted. Otherwise they may fight and spoil their appearance. But care should be taken that they do not become dirty, or impaired in health, or get their plumage worn, by being caged too long. A good way is to put them for a few days, alternately, in a roomy yard and then in a coop of show-room size. They should be coaxed and petted, when young, so as to not show wildness. For ten days before the show, feed one part linseed meal to three parts corn-meal, daily, and an occasional handful of hemp-seed. This will increase the luster of the plumage. Add a little boiled meat, and plenty of raw cabbage. The feathers of white or light-colored birds should be washed, if at all stained, in warm water to which a little soda has been added. Wipe with a soft cloth and place in a covered basket before a fire to dry.

IT WILL PAY to supply yourself, your sons, and your workmen with good *papers* and *books*. $5 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.)

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.

SUNDRY HUMBUGS.—A long chapter of humbug exposures, in type, is unfortunately crowded over to our next paper, by the Index, which takes off four pages of space this month. Among the schemes and names in the article are: Bank of England Notes; Sawdust and "Qneer;" B. F. Grayson; Robert M. Jameson; Wm. and Jno. Wood; Wm. Potter; Hudson Wood & Co.; Dr. Lorand; Dr. J. Hermans; G. M. Washburn; B. H. Longstreet; Spanish Policy; G. W. Jackson; Wm. T. Neal; Louisville, Ky., Library; A West Virginia Sister of Charity Gift Enterprise; Luther & Son; a Minn. N. W. Book Co.; Turkish Lozenges (dangerous); Consumption Cure, by returned missionaries and other ministers; and all advertised cures; professed Cancer Cures; University Medicines; R. H. Foster; Sarah B. Lambert; Books of Recipes; Prophylactical Star; Good Samaritan; Newspapers advertising Quack Medicines, Patent Medicines, Swindlers, etc., etc. We shall continue a faithful showing up of the various swindlers so long as they continue operations. This department of the paper will alone save to individuals, and the people at large, ten times its entire cost to the country.

Crops and Prices.—Now that the reports of the crops all over the world are in, it is found that the anticipated large yield will not be realized, and yet there will be abundance to supply all wants. With the present facilities for procuring rapid information, the effects of good or bad yields of crops are immediately discounted, and markets are influenced accordingly. Whether the prices of grain will maintain themselves throughout the season, depends greatly on circumstances quite foreign to the amount to be marketed. The state of the money market will probably influence them more than anything else. Farmers, therefore, who hold on to their crops will do so as speculators, and will have to take the risk of profits or losses as such.

Forest Trees: A New Work.—"Forest Trees for Shelter, Ornament, and Profit," is the title of a recent work by Arthur Bryant, Sr. Mr. Bryant has long been known as one of the most eminent horticulturists of the West, and is at present the President of the Illinois Horticultural Society, and anything from his pen is sure to be founded upon intelligent experience. Mr. Bryant has long made the propagation and cultivation of forest trees a specialty, and we know of no one better qualified to give instructions to others. The advance sheets of the work show that the author has taken a large view of the subject, as he discusses not only the methods of raising trees, but their meteorological and economical relations. The illustrations are well done, and the work presents a pleasing mechanical appearance. Sent from this office by mail for $1.50.

Aucuba—Akebia.—In the item "Plants Named," on page 409, last month, the types made us say that *Aucuba Japonica* is a charming climber. We of course intended to write *Akebia* Japonica.

One of Many.—We very frequently receive letters like the following, in regard to the esteem in which the *Agriculturist* is held. This comes from Ohio: "Have been a subscriber for several years; should not like to do without it, although I am not a farmer, having only one acre of ground in town or city of A——. I have about 200 grape-vines—principally Concord and Creveling, with some twelve or more other varieties. I also grow several varieties of raspberries and blackberries. Am a carpenter by trade, but do not work at it at present, as I have been in the mail service for two years and a half, as route agent."

If the Dogs kill the Sheep, the only remedy is to kill the dogs. If the owners of the dogs can prove damages, pay them. But at any rate kill any dog that is discovered prowling about the premises. Or if he is a respectable dog that is worth training, put a charge of peas in a shot-gun, and when the dog is about 50 yards distant, let him have a taste of them. He will not like it; and one or two doses will convince him that home is the pleasantest place for a well-behaved dog to spend his evenings. He will also be likely to tell his friends that there is something about a sheep-farm that renders it an unhealthy place for dogs to visit.

Rolling Spring Grain.—"J. A. C.," of Wisconsin, asks "if it is a good plan to roll spring wheat, barley, and oats after they have come up, and if so, how high should the grain be, and should the roller be heavy or light?"——We usually roll our barley with an ordinary two-horse roller, a few days after it comes up. It can be rolled with safety until it is three or four inches high. We roll not so much for the benefit of the crop, as to have the land smooth for the convenience of harvesting. We should be glad to hear from the readers of the *Agriculturist* on the subject. We apprehend that much depends on the character of the soil. The rolling sometimes, in our experience, caused the land to bake worse, apparently, than if it had been left unrolled. Still, on the whole, we think the practice beneficial.

Sows that have Lost their Appetite.—A correspondent in Minnesota has some sows that "will not eat corn, rough or boiled, corn-meal, or barley-meal, or oat-meal, made into slops. They will drink milk, but that is not to be had." Try them with scalded bran or fine middlings, mixed with sufficient water to look like milk. Let them have all the bran they will eat or drink, and give no corn or other grain. If not diseased, they will recover their appetite on this diet. Let them have clean, dry, warm but well-ventilated pens, and plenty of opportunity for exercise out of doors. Give them all the salt, ashes, and charcoal they like to eat, and if possible let them root in the fresh earth. A few roots or potatoes might help them.

How to Get Rid of the Woolly Taste in Mutton.—Mr. Collins, of Michigan, writes that he has a way of dressing mutton which makes it sweet and palatable, and entirely destitute of woolly taste. "As soon as possible after the sheep is dead, skin the legs and hang up. Then make an opening in front, as high up as possible, and turn in with a cup or dipper as much cold water as the carcass will hold—usually from one to one and a half pailfuls. Then go on and skin and dress as usual." We do not see the philosophy of the plan, but it is simple and easy, and is worth trying. The method we try to adopt is, to make the sheep *quite fat* before killing. We have never known it fail. There are sheep which it is almost impossible to fatten. On such we would try the water-cure.

One Hundred Pounds of Pork from 7 or 8 Bushels of Corn.—"I. H. S.," East New York, is feeding seven pigs with one and a half bushels of ears of corn per day, but can not make pork at the above rate. How can he mend his practice? By shelling and grinding his corn, and either soaking it in boiling water or cooking it and feeding the mush cold, there will be a large saving. Feeding corn in the ear is expensive.

The Best Time to Haul Lime.—"S. O.," Middletown, Ct., asks when to haul and spread lime. There is no better time than the present. Unload it from the wagon into small heaps; a bushel every two rods each way, would make forty bushels per acre. It will soon slake by exposure to the weather. Spread as soon as it becomes fine.

Sniffles in Hogs.—E. P. McClure, Grant Co., Ind., asks how this disease operates and the remedy. We are not acquainted with any complaint thus named, but suppose it is what is known as "cold," which affects the head and snout. Harris, in his work on "The Pig," recommends a table-spoonful of Glauber salts with a little ginger, and a dry, comfortable bed.

Violets.—R. L. Schrock, Laclede, Mo., has had two pots of Violets for 18 months, and they do not bloom. The plants are too old. They should have been turned out last spring and new offsets taken this fall for winter blooming.

Peat.—"F. W. de R.," Rockingham Co., N. H., sends a specimen of peat, dug out of a salt marsh, where it lies beneath two feet of clay, and wants to know if it is valuable as manure. It contains much undecomposed vegetable matter, and would need to be dug in the fall and suffered to freeze during the winter, when it would make a valuable addition to the manure pile. It would also make a good fuel, if properly prepared. It approaches more nearly to the character of the Irish peat, which is extensively used in Ireland for fuel, than any other we have met with.

A Good Pig.—G. W. Fourge, Fulton Co., New York, sends the following account of a pig he lately dressed, viz.: a pig, six months and twenty-six days old, and dressed 311¾ pounds. He asks who will beat it.

What is the Best Stock for an Ordinary Farmer to Keep?—This depends on the purpose for which the stock is kept. If a milk or cheese dairy, Ayrshire blood should be infused into the best native stock that can be picked up. If butter is wanted, the Jersey stock would be preferable. If beef as well as butter is desired, and the pastures are light, Devons should be chosen. If the pasture is rich and feed abundant, Hereford or Durham grades would be the best. Whatever stock is chosen, should be introduced by means of a thorough-bred young bull; the use of which on fair native stock would soon result in a great improvement.

How Young Pigs were Raised.—John G. Caulkins, Knoxville, Tenn., had three little pigs left, when four weeks old, to root for themselves. They were fed milk five times a day, and soon some wheat bran was added; after three months were fed new shelled corn, soaked in milk, four times a day. Killed at four months, they weighed 91, 89, 92 pounds. How could they have been made into more pork in the same time? As this is the season for pork stories, we shall be glad to hear from some of our readers an answer to this question. We do not doubt but many will improve on these weights. We have done it ourselves, by feeding corn-meal and milk, also boiled mush, cold.

Osage Orange.—E. F. Johnson, Niagara Co., N. Y.—You are rather far north for the Osage Orange to be a sure thing. One-year-old plants are set in the spring. Unless you have some local knowledge of the success of the Osage, you had better use Honey Locust.

Cedars.—"T. B. P.," St. Lawrence, N. C.—The best time to set cedars is just as they are starting into growth. If the roots once get dry they will not succeed at any time. If you have to carry the plants any great distance, the roots must be surrounded by damp moss, or some other means taken to keep them moist.

Double Geraniums.—"R. L. S." William Pfitzer, scarlet, and Madame Lemoine, pink, are good sorts.

To Pull Stumps.—Geo. E. Lee, Hulton, sends a plan to pull up small stumps. He takes a young white-oak or hickory tree, 30 or 40 feet long, and thick enough not to spring much, fastens a short chain with a hook to the end of it, takes a turn round the stump to be extracted (the hook is attached to a root, to get a good hold), and by means of a team hitched to the other end, the stump is twisted out of the ground.

Bricks and Leather.—"N. W.," Wise Bluff, Texas, wishes to engage in brick-making and tanning leather, with a capital of $3,000, and wants all the information about the best modes and best machines for these businesses. Unfortunately our space is too limited, or we would gladly accede to N. W.'s request. We will say, however, that $3,000 may start a brick-yard, but would go a very short way towards establishing a tannery. It would be a small tannery that would not have over that amount constantly invested in bark alone.

Grease from Bones.—"P. S." asks if the grease which rises on the surface of the acid in which bones are dissolving, is useful as a manure, or as a soap grease. It is of more value to make soft-soap.

Number of Feet in an Acre.—Chas. Sims, St. Louis Co., Mo., ask the number of square feet in an acre, and parts of an acre. One acre contains 43,560 square feet, half an acre 21,780 feet, a quarter of an acre 10,890 feet. A square of 208¾ feet makes an acre. 208¾ feet in length, and 104 feet 4 inches in width, is half an acre, and a square of 104 feet 4 inches is equal to a quarter of an acre. A city lot 100 feet long by 25 feet wide is less than a sixteenth part of an acre.

The Northern Pacific Railroad is a national enterprise, and as such is interesting to every citizen of our country. As we have before remarked, it will open to settlement a rich agricultural region capable of supporting and employing the entire people of three or four of the smaller nations of Europe. We are glad to learn that the route is proving more favorable even than was anticipated by the projectors. The bonds of the road, paying 7-30 interest (2 cents a day on each $100), are convenient, pay a good interest, and are a desirable investment. They are in the good hands of Messrs. Jay Cooke & Co., whose announcement is given on the cover page.

Plowing Sod-Land for Corn.—"W. E. H.," of Clay Co., Mo., has a ten-acre clover-field, that has been down five years, and during this time has received several liberal dressings of stable manure. He intends breaking it up for corn, and asks our opinion as to whether it would be best to plow it in the fall and again in the spring, or not to break it up till spring? The soil is deep, dark upland. Much would depend on circumstances, but in our own case, unless the sod was very tough and we could break it up *very early* in the fall, so that it would rot before winter set in, we should prefer not to break it till just before planting in the spring. "Should it be broken deep or shallow? We can not tell. As it has received such liberal top-dressings of manure, shallow plowing, say six or seven inches, would probably give the best corn the first year.

Good Returns from a Small Flock of Sheep.—W. H. Rathbone, of Ct., writes: "We have only 15 sheep, about half of which are grade Cotswold, the remainder grade South Downs; only twelve of the ewes brought lambs, remaining three were yearlings. The twelve ewes brought 17 lambs, which were all sold by the middle of July at 10c. per lb.: total weight 1,247½ lbs., a fraction over 73 lbs. each. One of the sheep was killed by dogs, before shearing. From 14 sheared we had 55½ lbs. wool, sold at 55c. per lb., $30.52. Total from 15 sheep, $155.27, or $10.35 from each sheep. The lambs all came in March, with the exception of two, which came the last week in February. The sheep are all good mutton. So you see that the capital is not impaired, as the sheep are all young."

Farming on the West Coast of Mexico.—"Constant Reader." Our personal knowledge of the agriculture of the western coast of Mexico is confined to the northern portion, Sonora and Sinoloa. There cultivation without irrigation is impossible; with it all the cereals yield good crops, and sugar-cane and many of the tropical fruits may be grown. You could probably get statistics of the several States from the Mexican Minister.

Curing Cats.—"C. W.," Alleghany, Pa., asks how to cure a cat that nearly chokes with worms. We never knew of a case of this kind, and can not advise from experience. If the cat was ours, we should experiment a little. Take a piece of stout cord and a "sizable" stone. Tie one end of the cord securely to the stone, and the other end around the cat's neck. Then throw the stone into the Alleghany River.

Transplanting Hickory Trees.—J. Williamson, Adams Co., Iowa. Hickory trees have such strong tap-roots and so few fibrous ones, that it is very difficult to transplant them. The chances of success would be greater, if you were to dig down and cut off the tap-root with a sharp spade, and let the trees remain another year before attempting their removal.

Rolling Land for Corn and Potatoes.—"E. W.," of Kansas, wishes to know "if there would be any benefit in rolling potato or corn ground, either before or after planting, provided it was free from lumps." Many farmers think the roller, by pressing the particles of surface soil more closely together, checks evaporation and keeps the soil moist. Where the ground is lumpy this is undoubtedly the case, but where it is entirely free from lumps, we think, as a rule, there is little to be gained by rolling. A thorough harrowing will consolidate such soil deeper and better than a roller.

When to Apply Ashes, Lime, and Guano.—"I. L.," Pontiac, Mich., asks when to spread ashes, lime, and guano. Lime and ashes may be spread in the fall, but guano is best spread early in the spring.

How Much Oil-Meal?—Jas. Smith, Woodsville, O., wants to know how much oil-meal may be fed to fattening beeves, without waste. It is best to commence gradually, as this feed is often too laxative at first. One quart at a feed, mixed with wheat-shorts, with a handful of salt, would be a good way of commencing; and the quantity may be increased gradually to four quarts. But coarse feed, as straw, with plenty of hay, should be fed in abundance, even if roots are supplied. Cattle fed on oil-cake meal should be well littered.

What Agricultural Books to Read.—A young farmer in Wisconsin says he intends to devote his evenings this winter to reading agricultural books, and asks what he shall select. The best works on agricultural chemistry are Professor S. W. Johnson's *How Crops Grow*, and *How Crops Feed*. They are perhaps too scientific for ordinary readers, but for the student there is nothing equal to them. Boussingault's Rural Economy, though somewhat out of date, is a work that every one interested in the application of chemistry to the cultivation of the soil and the management of farm stock should read and study carefully. Allen's New American Farm Book is the best work on general farming, while Harris on the Pig is well worth reading, even by those not specially interested in the subject. It discusses principles of great importance to every one engaged in raising farm stock. There are many other valuable agricultural books, but these will do to commence on.

Proportion of Lime to Sand in Mortar.—"I. D. S.," Sacramento, Cal., asks in what proportion lime and sand should be mixed for building-mortar. The proper proportions are 3½ parts sand to 1 lime. This depends somewhat on the "fatness" or quality of the lime, and unless the lime is rich, 3 parts of sand in measure would be sufficient. In mixing up a cubic yard of sand with 9 bushels of lime a cubic yard of mortar only will be the result, the mortar being less bulky than the materials separately. One third the bulk of water is sufficient, and too much is injurious.

Artesian Wells.—H. B. Gay, Springfield, Mass., asks the cost of sinking an artesian well in Massachusetts. We do not know that there should be any greater cost in sinking these wells in that State than in Wisconsin or elsewhere. Near Fond du Lac, in Wis., there are a great number of them, and the cost of sinking through ordinary limestone rock is, for depths less than 100 feet, about one dollar per foot. Where the rock is shelly and "caves," or where tubing is necessary, the cost is much greater. We have known of oil-wells that cost from 4 to 10 dollars per foot. So much depends on circumstances, that no estimate can be made with certainty.

Sprain of the Back Sinews.—"A. G. B.," Barry Co., Mich., has a colt that is not right in his hind foot. He has difficulty in raising it and acts as though he had a springhalt. Without knowing more about it, we should say the colt has a sprain. This may be proved by passing the fingers with pressure down the sinew, and where the pressure causes the colt to flinch, will be the seat of the sprain. Absolute rest, with a bandage round the part, kept wet with cold water, will be the best treatment; patience will also be required.

How much Land is Necessary to Keep a Cow?—Wm. Johnson, Allentown, Pa., wishes to keep a cow on half an acre of ground; can he do it?——Yes, if the ground is sufficiently rich and properly managed. Half the ground should be in clover, which will be ready to cut in June and will last three months; one fourth should be put in corn for fodder, in drills two feet apart, planted quite thickly in the row (12 grains to a foot), and well hoed and weeded; this may be used occasionally to help out the clover, if necessary. The remainder of the ground should be put in turnips, or sugar-beets, or partly both, and *may* yield 200 bushels, which, with the stalks left over, will feed the cow through the winter and until the clover is ready again. Remember, the tops of the beets and turnips will last quite a time, if used economically. Keep them in a cellar in a heap, well pressed down and covered with boards.

Bee Notes for December.—*By M. Quinby.*

Let the bees have a chance to fly out some of the latest warm days, and then as soon as the weather is cold they may be housed. It is well understood that strong stocks should be selected for wintering. They should be in a perfectly dark room, and the temperature kept at all times above the freezing point. It takes about fifty stocks to generate sufficient heat to make it warm enough, in a room fifteen or twenty feet square. Like other animals they consume less food when kept comfortably warm, than when exposed to inclement weather. There is an advantage in housing bees in large numbers, as it takes less honey to keep up the proper warmth, smaller colonies being warmed by their proximity to large ones. To get rid of moisture, box hives may and should be turned bottom up. In movable combs the honey-board may be raised a little for the same purpose. Smaller numbers may be kept in a dry cellar. Very strong stocks will winter on the stand out doors, but much better in straw than in wood. Straw hives may be entirely closed, except a small opening at bottom, as the moisture will pass out, while the warmth is retained. Wooden hives will need opening at top to let out moisture, and however well protected by straw, heat will pass from these openings.

These remarks, of course, do not refer to some modern hives, in which the space allotted for boxes in summer is used in winter for straw or some other such material to keep the bees warm; such I think the intelligent bee-keeper will adopt as soon as he comprehends his true interests. In any case there should be proper ventilation and mice be excluded. Now is a good time to study bees and their culture. Much that is deeply interesting may be found in their habits and physiology.

Ogden Farm Papers.—No. 23.

The other day I had an auction. A neighbor had been selling off his stock, and I arranged to bring over the auctioneer, and such of his sparse company as would come, to try their hands on a few native and grade cows that I am obliged to get rid of in order to make room for my thorough-breds. I put up the choice of a half-dozen three-year-old natives. The one selected was a very good Devon-like animal that had cost me, a year ago, $39. She had come in in July, was again in calf, and was then giving about nine quarts. She commenced at $10, and struggled her way slowly up to $22.50, at which price she was sold. I adjourned the auction, having bought as much "food for reflection" as I could afford at the price.

My first reflection was that if I had depended on "the good old kind"—or native cattle—in my operations, I should have found myself, now, in a position to have an auction that it would not have been in my power to adjourn. That discretion would have lain with a gentleman of our community who, by virtue of his office, wears a stove-pipe hat with a cockade on it—for the sheriff is a "high" sheriff with us. My next reflection was that farmers are the most panicky lot we have. Hay is worth about twenty per cent more than it was a year ago, and some one has said that the crop is short at the East, and that the price is going up. So, with hay enough in their stacks to winter more stock than they have, Eastern farmers want to sell out everything they have that can eat hay, and to sell them at any price. With butcher's meat retailing at twenty-five cents a pound, we are all rushing to sell out for the value of hide and tallow—just as Ohio shepherds sold their sheep a few years ago for the price of their pelts. I don't profess to be better than the rest, especially as I still have to buy hay, and my "natives" must be thrown into the pool at the best price I can get for them. I also reflected that such sacrifices had better be left, as much as possible, to people who do *not* take the *American Agriculturist*, and that I should advise all readers of these papers to buy thorough-bred stock that can be sold in the face of such a market, as I sold Thrift the other day, for a dozen times the price of my Devonish heifer. This reflection was an extremely short-lived one. The only reason why thorough-bred stock is salable at high prices is because it is scarce; and if every one had it, it would cease to be scarce, and would be sold for a song whenever such a scare as the present one occurred.

So the more I reflected the more I became convinced that I was dealing with problems that were beyond my reach, and that the law of supply and demand must work out its results in its own harsh way, until we know more about it than we now do. It must, however, be safe to say that the "ups and downs" in

farming are absurd, and ought to be avoided by a simple exercise of common sense on the part of farmers themselves. If we will make a resolution not to change the system of our business with each change of the market (and, having made it, will stick to it), we may be sure of a good *average* result. Those who are constantly changing lose in a panic more than they make in a rise. It is the steady goers that win in the end. It is all very well to say that you can't afford to winter cattle that you could only sell in the fall for half their value. Unless you are *obliged* to sell, you need pay no attention to the price, but quietly wait until they will sell for their real value. Cattle will not go out of fashion in our day, nor will they ever, for many months, together, sell for less than they have cost to raise; so, when they get down to low-water mark, as they now are, it is the wisest plan to take good care of them and have them in condition to sell when the reaction comes and they will fetch more than they are worth.

The spasms that attend the business of cattle-growing are still more marked in the case of swine. These are slaughtered so unmercifully, and their breeding is so much suspended when they get below a certain price, that they are quite sure, within a year or two, to rise far beyond their real value; then the extraordinary price stimulates an excessive over-production, and this in its turn brings on a depression. Of course, we can not do much to counteract this tendency, but if we are shrewd we can do something toward profiting by the rise, without losing too much by the fall. My plan would be to keep always on hand a certain number of breeding sows, and to keep them breeding as steadily as possible. After each period of high prices, when it began to be evident that the change was coming, I would sell the pigs as "roasters" at six weeks old, and sell them for what they would fetch. If no one wanted them, I would kill them as fast as the sow's health would allow, and in either case would let her take the boar again as soon as she would. After a few months of such prices as are now prevailing, when everybody is "going out of pork," and when it is selling for less than the cost of production, I would commence to save all my litters and to raise every thrifty pig I had, even if I had to buy feed for them. In this way I should feel quite sure of meeting a reaction that would enable me to sell my whole product at much more than an average price. Especially would it be well to have a good stock of young breeding sows for sale, as the demand for these is always very active after the price gets well up again.

I have been annoyed more than once, when I have spoken of the price at which I have sold my butter, by the remark that I received such a price only because I happened to live in Newport, where there are rich and extravagant people who do not care what prices they pay, but that my experience is no criterion for farmers who are not so situated. Now, in the first place, the richest and most extravagant men I have known are far from being the most careless of the price they pay for butter. Their purse-strings fly utterly loose in the matter of wine and cigars, and all manner of luxuries, but a difference of ten cents a day in the cost of their butter is a serious matter with them. The fact is, our American training has been "thrifty," and its effect still shows itself. We have been brought up to keep a close watch of the spigot, and even when, in the days of our prosperity, we knock the bung entirely loose, force of habit makes us still hold fast at the smaller vent. Hence it is natural for us, all our lives, to consider it a sort of personal triumph to save as much on our month's butter as we spend on our day's cigars.

In the next place, it is by no means a limited class that is willing to pay a high price for good butter. Indeed, the people to pay such prices are much more abundant than the butter to supply them. This is a theory I have always held, and I am glad to be able to bring practical proof of its soundness, by stating that I have just closed a contract for my entire supply with one of the largest butter and cheese dealers in Boston, a man who is handling tons of "best" butter at 30c. to 35c. per lb. He pays me, to begin with, 75c., and promises an advance when winter sets in. After I had made this engagement I was offered 85c. by another customer. My man not only pays me this price—he makes an advertisement in the Boston papers of "Ogden Farm Butter," and behaves generally as though he considered it a good thing to have got hold of it.

Now, why is it that my butter commands at wholesale more than twice the retail price of "best" butter? Simply because it is of *extra* good quality; hard, firm, high-colored, well flavored, and well worked. It is put up in neatly ornamented half-pound cakes; each of these is wrapped in a square of damp muslin, and they are packed on shelves in an ice-box, so that they reach the market in the most attractive form. No pains are spared to make everything as appetizing as possible, and the butter really costs as much as two cents a pound more than it would if put up in the ordinary way.

Notwithstanding all this, I could not possibly make such butter as I do from any other than Jersey cows, nor could I be sure of having it *always* good if I did not set my milk in deep cans, immersed in cold spring water.

For the majority of my readers the foregoing account of my butter business will be only so much chat to be taken in at one ear and let out at the other; but there are a few who will try to take a hint from it, and these few do not need to have its lessons pointed out for them. They will see that a Jersey bull, a set of deep milk-cans, and the utmost thoroughness in all the little details of making and marketing, will enable them to sell their butter at twice their present prices. There need be no fear of overstocking the market with really "gilt-edged" butter. It will always be scarce and high. For instance: Mr. Sargent, of Brookline—at whose feet I sit in dairy matters—sells his whole product to Hovey (my customer) for $1.15 per pound, and Hovey sells it for $1.25. I hope, in time, to equal him.

An Egg Farm.

BY H. H. STODDARD.—*Eighth Article.*

Vigor and thrift in chickens depend, in the first place, upon the quality of the eggs set. Those obtained from breeding stock managed as described in the preceding article, will hatch strong and healthy chickens; observing one precaution. Care should be taken never to set eggs laid near the close of the season, when the hens have been very prolific, for such will produce chickens deficient in vigor. The production of eggs in great numbers is, in the best laying breeds, abnormal. The wild jungle fowl, in common with all birds in a state of nature, lays no more than she can cover, and this is true of domestic hens of sitting breeds, that steal their nests. It is the daily removal of the eggs by the keeper, and the supply of an abundance of nutritious food, that causes great prolificness. There are some species of wild birds that will produce from three to ten times their usual number of eggs, during a season when their food is abundant, if their nests are continually robbed. But when hens lay twenty or more per month, for several months, the eggs are impaired. This is one reason why chickens hatched in summer are sometimes so deficient in vigor, compared with those produced in early spring. For the sake of economy it is important to have as few non-impregnated eggs as possible. Over ninety per cent will be impregnated if the breeding cocks are strong and sprightly, and no more than ten hens are allowed in a flock. It is a good plan to keep two cocks for each group of breeding hens, and shut them up, alternately, one day at a time, in a small but comfortable coop, entirely out of sight of the hens. The eggs should not be kept more than a week or a fortnight before being set. Those laid the same day should be given to one hen, so that the whole brood may hatch simultaneously, for new-laid eggs hatch several hours sooner than those that have been laid a considerable time before being set.

Artificial hatching and rearing are not economical. Even if incubators should become so perfected as to be capable of hatching as great a proportion of eggs as hens, there is no way of rearing the chickens artificially, and securing ventilation, warmth, cleanliness, and room for exercise, without greater outlay in labor and building materials than is necessary when hens are employed. Young chickens can not be kept warm enough, during cool nights, under an artificial mother, by their own heat, unless they are in a small apartment, kept so close as to produce very foul air. If good ventilation is attempted, there must be artificial heat supplied, and this needs an apparatus very nicely regulated, or the chickens will suffer from extremes of temperature. The cost of fixtures for heating, and of fuel, and of separate inclosures large enough for each brood to exercise in, would be great, and, what is of more consequence, the amount of attendance involved would make the plan entirely impracticable, except in case of high prices for early chickens or blooded fowls.

The nests of sitters should be made at bottom of damp earth, packed to a concave shape. It is not necessary to place them upon the ground, or to sprinkle the eggs with water, if this rule is followed. It is proper that the eggs should be in some way exposed to moderate dampness during incubation, as otherwise too much of the water in their composition evaporates. An elevated box furnished with nothing but dry litter is not suitable. Cover the earth with straw, bruised until pliable and broken short. Long straw is apt to become entangled with the feet of the hen, causing breakage of eggs. It should not, however, be cut by a machine, because the sharp ends of the pieces will come in contact with the skin of the hen, or that of the delicate chickens. In very cold weather line the nest with feathers. We have successfully hatched eggs by preparing a nest thus, in a room where during part of the time of incubation the temperature was below zero. Set hens in large numbers at a time, having kept some of them upon artificial eggs till all are ready. Of course, an entry must be made in a book of the family or strain, and other particulars of each clutch.

There are various methods of managing fowls while sitting, of which one of those securing a separate room for each will answer for a small establishment, but keeping them with the rest of the flock in a house such as was described

in the fifth article, takes the least time of any, when great numbers are to be set, allowing an attendant to exercise oversight systematically and punctually. If it is attempted to keep each sitter in a large separate room, much outlay is necessary, while again, if small rooms are used, the hens are not easily made to take exercise, without which they will not thrive, especially if they sit a double term. Another objection to separate rooms is, that if feed is placed so that the hen can leave her nest to eat at pleasure, rats are baited to the spot, or if each room is made rat-proof, it will be too expensive. To feed and water individual birds in separate apartments takes much time, and if several are placed in one room, they must be looked to, or two will take to the same nest. But if surveillance is attempted, it will be handier to carry it out by placing many in a large room.

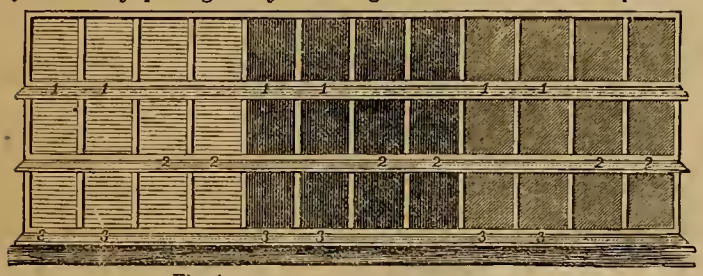


Fig. 1.—PLAN OF HOUSE FOR SITTERS.

[NOTE.—By mistake alighting-boards were shown on only one side, in the illustration of the interior of the house for sitters, but there should be three on each side.]

The nests are guarded against the depredations of rats by the fine wire netting described on page 332. The use of the coarse netting that alternates with the fine, is as follows: Half the labor of managing chickens is saved, by confining in the same coop two hens with their broods. They will agree perfectly, if well acquainted beforehand. We take a hint from nature here; such wild birds as live chiefly on the ground, sometimes incubate and lead their broods in company. While sitting, adjoining hens form a particular acquaintance through the coarse meshes of the netting, and at the same time they can not interfere with each other, or roll the eggs from one nest to another.

Without a special system of management, a considerable number of sitting hens can not incubate and feed in the same apartment without confusion, but by the following plan each is made to know her own nest and return to it after feeding. In the first place, the laying hens, before offering to sit, are induced to choose nests scattered evenly through the whole building, by properly distributing nest eggs and keeping half of the nests closed. The nests on both sides of the house are divided vertically into three sections, one at each end of the room, and one at the center, by painting each division a special color—the center black, and the ends respectively red and blue. The contrast assists the fowls very much in determining their places. No more than three pairs of sitters should be allowed to each division, or eighteen clutches on each side of the building. The six birds belonging in the middle division remember their places very readily, because they are so far from either end. To prevent those at the ends from making mistakes, as soon as the laying season commences, one end wall of the room is covered with straw, or evergreen boughs, and the other left bare. All birds, wild or domesticated, possess a keen sense of locality, and a few neighboring objects enable them to recognize their nests. The nests that are used for hatching are numbered by affixing movable labels, and every sitter is distinguished by having a feather or two painted, the color showing her division, and the position of the mark, upon her head, or body, or tail, signifying a number corresponding to that of her nest. This enables the attendant to correct mistakes by the birds (which will, however, be rare) before fastening them in daily. The colors show distinctly upon the white ground of the feathers. This plan appears somewhat whimsical, but it is simple and convenient. Figure 1 shows the numbers on a side of the room, arranged as if for eighteen clutches, the nests not numbered being for the use of laying fowls in the mean time. The shading represents the three different colors of the divisions. The sitters are assigned places two by two as above stated, and each of a pair of nests and each of the occupants receives the same number. Only three numerals are necessary to designate three dozen nests in all, in one house. The incubating hens should be fed early in the morning, before any of the others are ready to lay. Those not sitting are shut into the yard; the large doors of coarse wire-work that prevent hens from roosting on the alighting boards at night, are raised (at one side of the room only) and the pieces of wire-cloth before the separate entrances to the nests of the sitting hens are removed and placed in front of the nests frequented by the layers. Next, grain is thrown upon the ground in view of all the sitters on that side of the room, when a call to which they are accustomed will cause them to leave their nests, after which the large doors are lowered and the hens are left from ½ to ¾ of an hour, according to the weather, while the poulterer is repeating the operation at the other buildings. When the hens are off, inspect every nest to detect broken eggs or anything else amiss. The sitters upon one side are all admitted to their nests at once, by raising the large

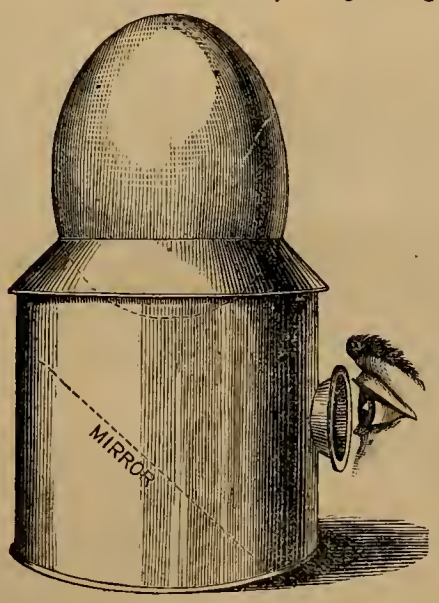


Fig. 2.—EGG TESTER.

wire doors, and then shut in safe from rats or the intrusions of laying hens, by the separate pieces of wire-cloth. Repeat the operation at the nests on the opposite side of the house.

Examine the eggs after the hen has been upon them ten days by the well-known method of placing them between the hands and attempting to look through them at a strong light; or a better way is to use an "egg-tester." The tester represented in figure 1 is a very simple one, which we have used with satisfaction. It has been previously figured in the National Live Stock Journal, and its use is becoming common among poultry raisers. It consists of a tin cup, 3 inches high and 2½ inches in diameter, narrowed at the top, leaving a round opening large enough to partly admit an egg endwise. An oval mirror is fastened in a slanting position across the cup, by projections of tin or solder. The eye is placed opposite an opening, ¼ inch in diameter, and 1 inch from the bottom of the cup, the opening being furnished with an eye-piece. Enough light will be transmitted through the egg to form a distinct image of the yolk upon the mirror. Return to the hen only those eggs that appear opaque or clouded, and use those which show clear, orange-colored yolks as feed for chickens.

When hatching is progressing, remove gently once or twice the empty shells that might otherwise overcap the unhatched eggs, but further than this do not interfere, as a chicken worth hatching will contrive to get itself hatched. Let the chicks remain in the nest 48 hours without being fed, allowing the hen meanwhile water, and a handful of dry grain, placed in dishes by the nest. When removed to the coops, put in each double brood thirty chickens—less if it is cold weather.

Country Roads and Bridges.

BY W. J. CHAMBERLAIN, HUDSON, O.—*Concluding Article.*

TURNPIKING.—Figure 1 represents a cross-section of an ordinary country turnpike. Our highways are about sixty feet wide. Fifteen feet may well be spared on each side for grass and for shade trees, leaving thirty for the turnpike and its ditches. The bottom of the latter should be about sixteen inches lower than the middle of the turnpike, and the ascent should be a curved slope, as given in the figure.

THE IMPLEMENTS REQUIRED ARE—first, a strong, good, wheel-plow; second, a team-scraper or two; third, a thirty-toothed harrow—the square-hinge harrow and Geddes' (not patent) "double A" are both good; fourth, a heavy roller; fifth, farm tools, such as shovels, hoes, mattocks, steel rakes, etc. The old-fashioned scraper needs no description. That with a cast-iron edge, running back a foot, the rest of wood, is best if of the right shape.

Figure 2 represents a simple scraper that will move dirt much faster in ordinary turnpiking. It consists of a light two-inch plank, about 14 inches wide and 8 feet long, with tongue and handles, and a sharp, steel edge, often made of an old saw-mill saw, as given in the figure. The edge slants forward. The tongue is rigid. Figures 3 and 4 represent an improvement on figure 2. It is shorter and wider. The tongue is hung by pivots or hinges, at each end of the scraper-board, close to the cutting-edge. It loads better, is held far more easily, cleans the bottom angle of the ditch, as figure 2 can not, and dumps and spreads admirably.

THE WORK OF TURNPIKING.—The plow, with a steady, strong team, should turn a *straight* furrow on each side toward the middle of the road. It should be 3 inches deep, and 9 feet from the middle of the highway, and the plow should be tipped so that the outside of the furrow shall be an inch lower than its inside. This makes an inclined plane and facilitates

scraping. The wheel of the plow should now be raised an inch, and a furrow four inches deep plowed, inclined as before, then others in the same way to the number of six. The last will be 8 inches deep and 15 feet from the middle of the road. This plowing should be done as soon as the ground is settled in the spring, so as to run the furrows, when necessary, straight through the beaten wagon-track, which often crooks. Later in the season this is beaten so hard that it can not be plowed. Then, too, there is no grass to "bother" in April. The supervisor should himself do this work, and see that the furrows are *straight*, parallel with the fences, and at the right distance from them. The furrows, as soon as plowed, should be well harrowed and left to rot until May or June. This work *should* be done in the fall, that the sod might fully rot, but the supervisor is not elected until spring.

Fig. 1.—SECTION OF TURNPIKE.

If the scraper, figure 2, is used, three of the six furrows should be replowed as at first. The scraping is done thus: Two men set the edge of the scraper, just behind the three furrows, and the team draws an eight-foot section of them to the middle of the road. The distance is only twelve feet. Then the team backs diagonally for another load, the men carrying the scraper by the handles (*a*, *a*) at the end of the plank. When the three furrows are finished, three more are plowed as at the first plowing, and scraped as before. These furrows are deeper, and will require two scrapings in each place to make a clean job. If the ditch needs to be deeper, three, or even six more furrows may be plowed. But the first six, done as described, will make the middle of the turnpike sixteen inches higher than the bottom of the gutter.

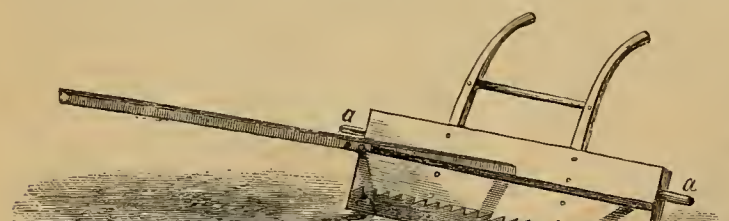


Fig. 2.—RIGID PLANK SCRAPER.

When the six furrows have been scraped as described, there will be six ridges of dirt (side by side, their bases touching) the whole length of the job. The harrow, driven several times over them, will level them nearly enough; the scraper, figure 2 or 3, will improve the surface; the hoe, rake, or potato-hook must dispose of sods and stones, and the roller finish the work.

The scraper, figure 2, is a simple, home-made thing, but puts dirt on the turnpike much faster than the ordinary team-shovel. This spring I saw two men and a team, plow, scrape, and finish thirty-five rods of turnpike in ten hours, and it was a smooth, handsome job, too. True, it was on a narrow by-road, and four instead of six furrows were plowed, but with the old-fashioned scraper and hand-leveling it would have taken three times as long. The common scraper, too, leaves the dirt in hillocks, and unless these are leveled with the greatest care, there will be a billowy road. New turnpikes are commonly wretched roads the first year. The objections to the scraper, figure 2, are—first, it is very hard work for the men. They must lift it out of the earth, and carry it back ten feet or more for every load. Second, it is hard work for the horses. They must back up each time and then draw two men besides the load of earth. The scraper, figure 3, has not these faults nor those of the old one. It is far easier for man and beast than either. It loads without any one riding, and with perfect ease for the holder, carries its load with no work to him, dumps without heavy lifting, levels its own earth, and keeps its handles out of the dirt and mud, and where the holder can reach them easily (see figures 3 and 4). The tongue helps the holder manage the scraper, and keeps the traces from under the horses' feet. The sharp, steel cutting edge, the purchase the chain gives the operator, with the draft so near the cutting edge, and the fact that the scraper can be set at any required angle, make it possible to drive it into the hardest ground. It can even be used for leveling knolls and hummocks in meadows without first plowing. Only one man is ever needed to manage team and scraper, while the old one needs a driver and holder, and figure 2 really needs a driver and two holders. Figure 2 is certainly an improvement on the old scraper, but figure 3 is a still greater one on figure 2. Figure 2 is, however, home-made, and costs perhaps not more than $5, *besides* the steel edge. Figure 3 is patented, is made only in Chicago, and costs $12, besides freight. A good old-style scraper costs $10.50. I shall sell mine as soon as I can, and use only figure 3. If a road district can not afford the $12 for figure 3, it ought to have both other kinds. Both figures 2 and 3 are admirable for smoothing rough roads in the spring, and for leveling new turnpikes.

After a rain a new turnpike is apt to rut, and should be re-leveled with scraper fig. 2 or 3, and with the hoe. If it is so leveled, after two or three rains the surface gets packed and there is no more trouble. Otherwise the ruts and holes grow deeper and deeper after each rain. New turnpikes, as I have said, are notoriously bad roads. It is simply because they are not properly leveled at first, especially where the old scraper is used, and are not kept in repair. A supervisor should reserve a part of his funds for this purpose. What would be thought of a railroad company that should not repair its road for a full year after a new track was made? A word in regard to

THE GENERAL APPEARANCE OF HIGHWAYS.—Some farmers, sometimes whole neighborhoods, get into the habit of leaving their wagons, sleds, lumber-piles, stones from meadows, apple-tree brush, etc., in the highway. "It is *so handy*." But how a road looks full of such truck! The wagons, etc., should be in the barn or tool-house, the stones under fence corners or in walls or pits, and the brush in fire-wood or ashes. A nice turf should cover the vacant space each side. The grass can be mowed with profit, where animals are kept from the streets, as they should be. Many farmers *own* several acres of road. They bought it with their land, and *pay yearly taxes* on it. The public have a right to use it for a road, but not *for a cow and hog pasture*.

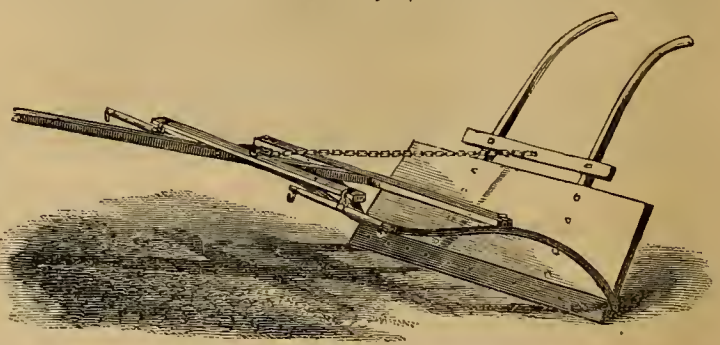


Fig. 3.—FLEXIBLE PLANK SCRAPER, LOADING.

A certain town in Massachusetts has a society whose sole object is to beautify the highways, and it is a luxury to drive through the streets of that town. No unsightly objects meet the eye. No plows show their rusty mold-boards to the traveler. No wagons slowly rot beside the lazy farmer's barn. No mud-holes are kept in repair by a dozen nasty hogs. No nice turf is rooted into an unsightly mass of dirt by abominable snouts. Would that there were more of such towns! Public sentiment can at least drive rubbish and hogs from the streets. If it rises high enough to plant and keep in thrifty growth a double row of elms, future generations will see Temple streets and Hillhouse avenues elsewhere than in New Haven. If property owners were aware that well-kept and properly shaded roads added greatly to the value of their farms, they would be more ready to secure them than they are at present.

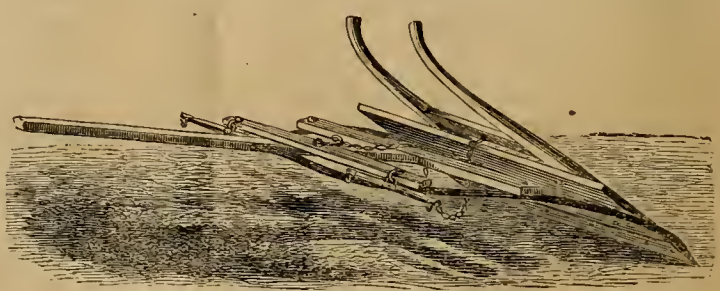


Fig. 4.—FLEXIBLE PLANK SCRAPER.

The Cow-Bunting.

BY ERNEST INGERSOLL, OBERLIN, O.

The striking peculiarity which gives to the Cow-Bunting bird a distinct character, is its strange yet undeniable habit of depositing its eggs in the nests of other birds, and leaving them entirely to the mercy of strangers. Unaccountable as this practice may seem, it yet has its parallel. The ancients, even, were well aware that the Cuckoo, of Europe, never constructed for herself a nest, but dropped her eggs into the nests of other birds; but among the thousands of species spread over the globe, no other instance of the same uniform habit has been found to exist, until discovered in the Cow-Bunting.

HOODWINKING THE CROWS.—(*See page* 453.)

The nests usually selected by the Cow-Bird are those of birds smaller than herself; though here in the West—a fact which seems not to have been observed by some Eastern ornithologists—birds as large as the robin, wood-thrush, and song sparrow are among her chosen nurses.

About the middle of May, when the small birds are beginning to lay, the females leave the flock and skulk through the hedge-rows and brier-patches with a stealthy, restless air, which plainly betokens that some anxiety of no small account agitates the mind of the dusky lady. Moving in short, spasmodic flights, she at last pauses above an old, brier-hidden stump, glances hurriedly right and left, and dives into the briers. She remains but a moment, then springs out, not as before, stealthy and suspicious, but with a careless, joyous air, straight up to the top of the nearest tree, pouring out with all her power the "liquid, glassy" notes which constitute her best song. But see, as if summoned by the exultant cry of the Bunting, approaches on swift, sure wings, a Maryland Yellow-throat, and darts into the bushes like a flash of sunlight. There, she has come out again and perched on that smilax! No, it is not the same bird! Yes, it is, but how different! She went in blithe, and bright, and merry—she comes out restless, drooping, seeming almost stricken dumb with some mysterious terror. Let us go and discover the cause of her strange conduct. Ah! yes, now it is plain. There, at the foot of the mossy stump, sunk among the fallen leaves, and arched over by sprays of moss, is the Yellow-throat's nest—dry leaves and grass, lined with hair. There are three white, brown-dotted eggs, and one larger, porcelain white, peppered all over with brown and lavender dots, which become confluent near the large end. It is that large egg that caused the Yellow-throat's consternation. The Cow-Bunting has been here. But what will the Yellow-throat do? Nothing. She will lay another egg to complete her complement of four; then one of her eggs must be thrown out, because there is not room enough in the nest for five. She will sit upon them all, and hatch out the Cow-Bird's only; for that matures a considerable time before the Yellow-throat's. After the Cow-Bird has broken the shell she will remove from the nest her own three remaining eggs, and devote herself to the nourishing of the foundling, until it is large enough to take care of itself, and a hard enough task it will be, too. That is what the Yellow-throat will do if nothing happens. Something does happen, for we take the large egg out of its snug place among the small ones, and throw it so far that it is certain never to return. We prefer that one life rather than four should be sacrificed.

"It is a singular freak of nature, this instinct which prompts one bird to lay its eggs in the nests of others, and thus shirk the responsibility of rearing its own young. The Cow-Buntings always resort to this cunning trick; and when one reflects upon their numbers, it is evident that these little tragedies are quite frequent. The Cow-Bunting seems to have no conscience about the matter. Its egg is usually the first to hatch; its young overreaches all the rest when food is brought; it grows with great rapidity, spreads and fills the nest, and the starved and crowded occupants soon perish, when the parent bird removes their bodies, giving its whole energy and care to the foster child."

Occasionally, however, the intruder fails in her thievish purpose. If she happen to visit a nest which has not yet been occupied, the rightful owner seems invariably to abandon it in disgust. Some birds, as the Goldfinch, build a new nest over the stranger egg, even though their own must also be buried. Only one egg seems ever to be laid in the same nest; but the Buntings are not scrupulous about leaving a card where some of their congeners have also been visitors; so that frequently I have found three of these parasitic eggs in the same nest.

The Cow-Bunting is well known throughout the eastern half of the Union, and, as with every common bird, has received a variety of titles, suggestive of haunts and habits. Arriving from the South early in the spring, with their cousins the redwings, they do not, like them, separate into pairs, but into small flocks in which the females predominate in numbers. Thus they remain all summer in a sort of indiscriminate concubinage—a practice seemingly consistent with their anomalous nidification. In the fall the young forsake their foster parents and collect together in small parties with their older congeners and the redwings, committing common depredation on the Indian corn. By the last of October they have all moved off to the South, taking advantage of favorable winds to carry them on, and by short flights soon reach their winter quarters among the rice-fields of the Gulf States.

THE COW-BUNTING.

Walks and Talks on the Farm—No. 96.

"No. 96." And is it so that I have written these "Walks and Talks" for ninety-six consecutive months? I am told that they have done good. Many persons, strangers to me personally, have written to thank me for them; only two, so far as I know, have written to the publishers of the *Agriculturist* asking that they be discontinued. Mr. Judd, who is certainly a good judge, tells me I ought to write them as long as I live. Be that as it may, I feel profoundly grateful for the kindness manifested towards me in the past, and the interest which so many seem to take in my farm work. The Deacon and I are plain, unpretending people. We lead rather a quiet, uneventful sort of life. There are thousands of better farmers than either of us. But the Deacon is a close observer, and has had great experience, and if I have had sense enough to "draw him out," and then tell the readers of the *Agriculturist* what he says, who shall say me nay?

The best farmer between me and the city is a German, who a few years ago worked by the month on the farm he now owns. He saved a little money; then rented a farm "on shares;" then he bought it; then sold and bought a larger one; and now he has one of the best farms in the neighborhood, worth $20,000. He is very industrious; never seems in a hurry, but is always ahead with his work. You always see him at church Sundays, and on his farm week days. He raises a good many calves, and when I was only half through husking he had his corn in the crib and the stalks in the barn, and fifteen head of young cattle on the stubble picking up the leaves and scattered ears. He has enlarged and reshingled the old barn, given it a coat of paint, put on gutters, and conducts the water into a large cistern. His fences are in perfect order. The whole farm, garden, and orchard is a pattern of neatness and thrift. No water stands on his low land, no weeds go to seed on his pastures. His back lot, adjoining the woods, was covered with partially decayed stumps, brambles, and weeds. He set fire to the stumps, cleared the land, summer-fallowed it, and sowed it to Dichl wheat, and got (this year) forty bushels per acre. And it is now in wheat again, and is probably good for over thirty bushels next harvest. Everything he does prospers. He is a "lucky" man—that is, he has *good sense*, and has health, strength, energy, and industry to use it.

It is curious how some men succeed, and others, with equal or better opportunities, fail. "It is not in man that runneth to direct his steps." But, at the same time, it is equally true that the causes which lead to success or failure are pretty generally under our own control. I have sometimes thought that the great difference in men was the ability or inability to "see a point," as a friend of mine expresses it. It is eminently so in the legal profession. A mere talker sometimes wins temporary reputation as a "jury lawyer;" but no lawyer who can not "see a point" ever attains real eminence in the profession. It is so in all professions. An editor who can not see the real point of any subject he is discussing had better quit the business. People are too busy to read column after column of words with no point to them. How often do men put a heavy building on a weak foundation, or make a machine very strong at some unimportant point, while the parts where the strain comes are made of the poorest and lightest material! They can not "see a point." I have an old crowbar on my farm that is thicker and heavier at the upper than at the lower end. I once heard a gentleman, who is regarded as an authority on such subjects, say that "timothy, weight for weight, is the most nutritious of all the grasses," and at the same time declare that a mixture of different grasses, weight for weight, is far more nutritious than timothy alone. *He* can not "see a point."

A farmer, more than most men, needs to cultivate this faculty. Every day questions arise as to what had best be done, and when and how to do it. The man who can think clearly, and will patiently look at the matter in all its bearings, taking everything into consideration, will decide wisely and act promptly. His stock will be well attended to; implements and machines in repair and in their proper place; work will be done systematically and cheaply; there will be no loss of time; nothing of real importance will be neglected, and it will be done in the best manner and at the best time. On the other hand, we need not go far to find a specimen. A farmer may have his head full of miscellaneous knowledge, may be a "great reader," a fluent talker, and a ready writer, but if he can not think, if he lack common sense, if he can not "see a point," his brain, his farm, and all his affairs will be in confusion. He will always be in a hurry; never has time to attend to necessary duties, but spends hours and days in doing something of no consequence to himself or any one else. He has a dozen jobs on hand unfinished. He feeds extravagantly for a few weeks, then gets tired and lets his stock pick up a living as best they can. He can tell you the leading characteristics of the different breeds of cattle, sheep, and pigs. He has tried many of them. But he can not see the main point in regard to their successful breeding and management.

It took me three years to convince our pathmaster that it was just as well to lower the water two feet below the road as it was to raise the road two feet above the water—and a good deal cheaper. He finally let me work out my tax by digging a ditch on the side of the road. I am not sure that he sees the point, but the road is now dry, firm, and good. I lowered the water two feet below the road for half the money it would have cost to raise the road six inches.

Mr. Glover, of Illinois, writes: "I should be glad if you would show how the manure from a ton of bran is worth more than the bran at $14." I am glad to have this question asked, although it is not an easy matter to answer it. Some things must be taken on trust. Mr. Lawes' celebrated table showing the composition of thirty-one different articles of food, and the value of the manure made by animals consuming them, is the result of years of careful investigation and experiments in the field, the feeding sheds, and the laboratory. I can not give all the details, and few farmers would read them if I did. Suffice it to say that the evidence comes as near demonstration as the nature of the subject will admit. It should be understood, however, as stated in "Harris on the Pig," page 139, that the estimate of value is "relative," not absolute. The value of the manure made from a ton of wheat straw is placed at $2.68; that from a ton of clover hay at $9.64; and that from a ton of bran at $14.59. But I do not claim that the manure from a ton of wheat straw is always, on all soils and for all crops, worth $2.68; but where such is the case, the manure from a ton of clover hay is certainly worth $9.64, and that from a ton of bran $14.59. If the manure from the ton of straw is only worth $1.34, that from a ton of clover would only be worth $4.82. If in Illinois, on Mr. Glover's farm, the manure from a ton of straw, *drawn out and spread*, is only worth 67 cents, that from a ton of clover would be worth $2.46, and that from a ton of bran $3.65.

To determine the actual value of a manure is not an easy matter. In Illinois, for ordinary farm crops, it is not worth as much as it is in Western New York, not merely because the land is richer, but because produce is lower. On my farm, if I have a field properly prepared for wheat, I should probably get, without manure, 20 bushels per acre. Now, judging from Mr. Lawes' long-continued and accurate experiments, I should have reason to expect that the manure from a ton of bran, the liquid and solid excrements being all carefully saved and thoroughly decomposed without loss, so that the ammonia would be immediately available, if applied to an acre of this wheat would give 30 bushels per acre. In other words, the manure would give me 10 bushels of wheat. Good Diehl wheat is now worth $1.70 per bushel. And the ten extra bushels, after deducting the extra cost of harvesting, thrashing, and marketing, would net me at least $15. So that the estimate of $14.59, as the value of the manure from a ton of bran, is not far out of the way. And if this is correct, then the other figures in the table are correct also.

This estimate of the effect of the manure on the first crop is based on the supposition that the ammonia is nearly all available the first year; but there would be an excess of other plant-food left for the following crop of clover. The land, too, where the heavy wheat crop has grown would probably be cleaner, and it would produce a greater growth of clover, and this in turn would make the land (or the farm) richer, and so the effect of the manure would be felt for many years.

Where wheat only brings half the above price, the manure would not be worth more than half the estimate. And it must not be forgotten that the manure is supposed to be drawn out and spread on the land. It would cost as much to draw out the manure in the one case as in the other, while the increased produce obtained from its application is worth only half as much. This would make a serious deduction from the estimated value of the bran for manure, but it would make a still greater deduction from the estimated value of straw. On the whole, therefore, I believe that the table of values is relatively correct. It is worthy the careful study of every farmer. In the whole range of agricultural literature, I know of nothing that has done and is still doing so much good, and I think I have a right to feel proud of the fact that I was the first to call attention to its real, practical value, and to publish it two years in advance of its appearance in the Journal of the Royal Agricultural Society of England. The more the table is studied, and the better it is understood, the more will its value and importance be appreciated.

So far, I am delighted with my white-mustard experiment. We had an oat stubble on which the clover and grass seed had failed. The field is back of the Deacon's farm, and for want of a good outlet through his land I am unable to drain it properly. Until this is done, it is throwing time and money away to try to raise grain

crops. How to get it into grass was the problem I had to solve this spring. My English friend, Mr. Medcalf, suggested *mustard*. It was a new idea to me. We plowed the field three times—in other words, summer-fallowed it. Then, in July, we sowed it to white mustard, and at the same time seeded it down with clover and timothy. The clover is a good catch, and if it stands the winter the experiment will be a decided success. The mustard proves a far more valuable crop than I expected. It has given me more food than I know what to do with. I am feeding it out *ad libitum* to all my stock except horses. The Merino sheep at first did not seem to like it, but after a few days ate it with avidity. The Cotswolds seemed to know what it was, and fully appreciated their privileges. The pigs literally devour it. Even the little, growing ones, that I feed as high as I know how, eat considerable of it, and it seems to enable them to digest their other food more perfectly. I have not seen any voided grain since we commenced to feed the green mustard. My breeding sows get little else than mustard, and thrive well on it. Of course, it would not fatten a pig alone, but it is unquestionably a useful auxiliary food. I have over ninety pigs, little and big, and find the mustard a great saving to the corn crib. We have been feeding the mustard (Oct. 21st) to the cows for a few days, and so far it has not affected the taste of the milk. The cows eat it greedily, and if it does not affect the milk I shall certainly try mustard as a soiling crop next year.

You can sow the mustard at any time in the spring after all danger of frost is past, and in two months it will be ready to feed off or mow for soiling. The land may then be sown again, and a second crop obtained in September, October, and as late into November as severe frosts keep off.

It seems to me that in sections where wheat is not grown, and where land has to be seeded with oats, mustard might be grown with great advantage. Two crops might be grown in a season. The first crop might be plowed under for manure, or fed off on the land, as thought best. The second crop should be seeded down with timothy and clover. I am assured that the few English farmers who have tried it find it one of the very best crops to seed with, say in July—getting a large crop of hay the next season. A little artificial manure, such as superphosphate, or even plaster, has a wonderful effect on mustard, and in such a case it is just the crop for poor land that is in good mechanical condition.

We have just killed one of our grade Cotswold-Merino lambs, not seven months old. He weighed alive 96 lbs. The blood weighed 2½ lbs.; offal, 21 lbs.; skin and feet, 18 lbs.; waste, ½ lb.; carcass, 54 lbs. Is not that a pretty good lamb from a common Merino ewe that cost only $2.40? I raised 74 such lambs from 60 ewes, and was foolish enough to sell 70 of them to the butcher in July, most of them better lambs than this one. Unless a farmer raises *very early* lambs, and has good opportunities for disposing of them to the best advantage, it will pay better to keep them—if they are kept well and are of the right kind. I think I never saw better-wooled sheep in my life than these grade Cotswold-Merinos. They are covered with wool from the nose to the toes. I am inclined to think that in our climate, and for ordinary farm management, these grade sheep will prove more profitable than the pure long-wooled sheep. The latter require better treatment than ordinary farmers are willing to bestow. If they were prepared to give the requisite food and care, no sheep, where money is in demand, would pay so well. But they certainly will not bear neglect as well as Merinos. And this is true of all good stock. It is a truth which farmers need to know and feel and act upon.

These grade Cotswold-Merino sheep require better treatment than Merinos, but nothing that any farmer can not readily bestow without changing his rotation or management. They get along very well without roots; require merely good pasture, good clover-hay, and a little bran, and a few oats or peas in winter would not hurt them nor do the manure heap any harm.

Nearly all our farmers now burn more or less coal. Many who have still plenty of wood, say it costs more to prepare it for the stove than to buy coal, the use of which saves a great deal of work in the house.

What shall we find for our farm men to do in the winter? is a question well deserving thought.

My experience in underdraining two winters ago was, on the whole, so satisfactory, that I propose to do still more at it the coming winter. The main point is to get everything ready before winter sets in. The open ditch into which the main drain is to discharge should be cleaned out, and made so wide and deep that there will be no danger of the water setting back. The next thing is to determine where the underdrains are to be cut, and stake them out. Then take a plow, and turn two or three furrows away from *each side* of the line of stakes, being careful to go as straight as possible. With the right kind of plow, and three or four horses abreast, you can make a dead-furrow fifteen or eighteen inches deep. And it is also a good plan to run the plow once or twice along the dead furrow to break up the subsoil as much as possible. The more loose soil there is in the furrow, the less danger will there be of its freezing solid. In my case, the first snow we had was blown into these deep dead-furrows, and although the winter was a severe one we had no trouble from the frost. A slight frozen crust was sometimes formed on the loose earth, but rarely if ever so hard that the pick had to be used.

There is no difficulty at all in *digging* the drains. The point where skill and experience are required is in laying the tiles. The drains must be cut to the required depth and the tiles laid and covered up at once. In my case, in some instances, I did not lay the tiles until we had finished cutting the drain the whole length, but it is somewhat risky. Better lay the tiles as you go along. There will usually be water enough in the drains to show you the proper level. Your own judgment will tell you better how to do the work than any description. You must be careful to get every tile deep enough, and at the same time not too deep. It is necessary also to put a little something at the end of the last tile to prevent the water carrying loose earth into the drain.

On low, mucky land, where there is a good outlet, this kind of soil is seldom so frozen beneath the snow that open ditches can not be dug at any time during the winter. But the work ought to be laid out and the land staked before winter sets in, and when you can see where the ditches are required.

On my farm, I have no difficulty in finding plenty of work that can be profitably done in winter. If stones are placed in large heaps where they can be got at, they are cheaply drawn on sleighs or stone-boats to where they are required to make stone wall or for building purposes. One winter I drew the stones in this way to make over one hundred rods of fence. I could not have found time for the work at any other season.

We must make up our minds to pay men as much for working on the farm as they can earn in other pursuits. If they can get $1.25 per day the year round in a factory or on a railroad, we must furnish a similar compensation in one form or other on the farm. If we only want men for six or eight months, and that during the busiest season, we must be prepared to pay higher wages than those who give constant employment. We shall never have reliable labor until we make it worth a good man's while to stay with us year after year. And we can do a great deal to induce such men to settle in the country by building and renting small houses, or by selling an acre or two of land to some steady married man who wants to own a home of his own. There are many such men who would rather work on a farm than at any other employment, who are absolutely *compelled* to leave the country and go into the cities or villages because they can not get a house to live in. And, as a result, we frequently have to pay men from 20 to 30 per cent more per day than they get in the immediate neighborhood of a city. Farmers have this matter entirely in their own hands. They must either build houses, or sell land to those willing to build. Every good, honest, industrious married man who settles in the country increases the value of farm property. The greater the population, if of the right kind, the greater the value of land. We can not too often remember that it is labor and not land that produces wealth. It is a loss to the community to have a man lie idle all winter. And in this country there is certainly no lack of employment for any man who will work at reasonable wages.

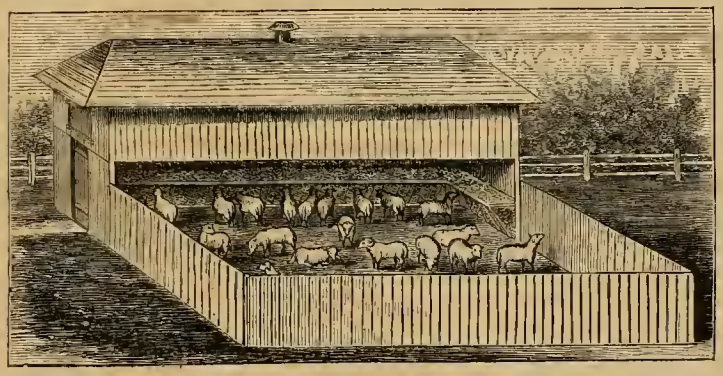
Hoodwinking the Crows.

One of our artists gives a sketch of a device to which he resorted in order to rid himself of the crows that made too free with his newly-planted corn. He made several cones of stiff paper, and upon the inside of the larger end of these he spread a ring of old and gummy linseed oil—a mixture of oil and rosin just so thick as not to run would answer the same purpose. The cones were lightly and carefully inserted in holes made in the soil, and a few grains of corn dropped into the point of each. The suspicious crows, after careful inspection, would put their heads in to reach the corn—what happened then is sufficiently shown in the engraving, given on page 451. Our friend did not do the birds any serious bodily injury, but he remarked that they were "very much disgusted."

Sheep Pens and Racks.

Sheep that are not being prepared for market do not thrive well during winter, unless they have exercise and a well-ventilated pen. We have used a pen similar to the one here figured, which we found very convenient in many respects. The building may be of any hight, but the upper floor is only six feet from the ground, which gives a large amount of storage room above for hay. The floor should be of matched boards, or the cracks should be otherwise closed up to prevent hay-seed or chaff from dropping on to the wool. The front of

the shed is boarded to within four feet of the ground, leaving that space open, that the sheep may go in or out when they please. The feeding-rack is placed round three sides of the shed,

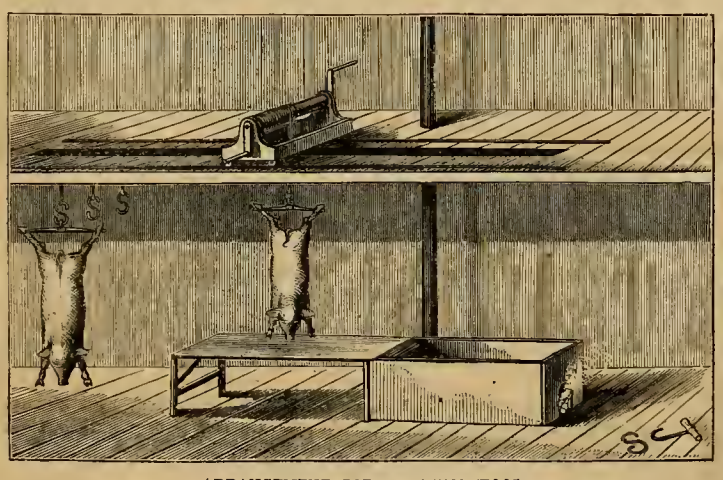


SHED, PEN, AND RACK FOR SHEEP.

and slopes forward so that the sheep can consume the last mouthful of hay contained in it. It is made so high that the sheep can not reach over the front of it and pull the hay out over each other's wool. Three feet and a half is the right hight for large sheep. The slats are placed three inches apart, which prevents the sheep from pushing their heads through and wearing the wool from their necks. Everything about a sheep-pen should be smooth, leaving no rough splinters to catch and tear the wool. The pen and yard should be kept well littered. This shed is arranged especially to keep the wool clean and free from hay seed, clover heads, and dust, and that the sheep may be outdoors or indoors as they wish, and according to the weather, without needing very much attention.

Slaughtering Hogs.

A necessary work, but generally a most disagreeable one, is that of slaughtering hogs. It is made more unpleasant by the reason that it comes in the cold and stormy season, and from the absence of a sheltered place in which to do the work. Any out-house or shed may be fitted up with little trouble, so as to render this duty, if not pleasant, at any rate not so sloppy, cold, and uncomfortable as it usually is. A tight,



ARRANGEMENT FOR DRESSING HOGS.

wooden scalding-trough may be made, with a sheet-iron bottom, under which may be set a simple arch of stone or brick, to hold a few brands, which will keep the water hot enough to do the scalding, and obviate the necessity of keeping the kitchen stove occupied.

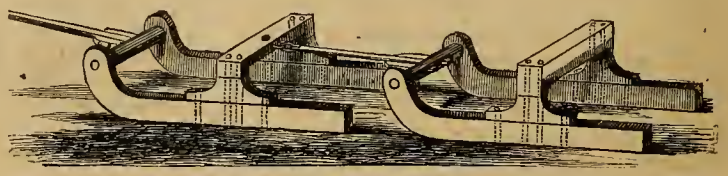
A sloping end to this trough enables the hog to be easily drawn out on to a bench at the end of it, where the hair may be scraped off. When the scraping is done a hoisting apparatus on the floor above elevates the carcass while it undergoes the operations of dressing and cleaning. This hoist consists of an axle with cranks by which one man may raise a hog of four hundred pounds. The frame is set on common casters, by means of which it is pushed backward—the rope passing along a slit in the floor—to where some S hooks are suspended, to one of which the carcass is transferred, and the apparatus is ready for another hog. With a sufficient number of hands to help, the job of slaughtering is soon finished.

Home-Made Sleds.

A pair of bob-sleds ordinarily cost fifty dollars, and are generally much heavier than necessary. Besides they are very often made on a wrong principle. The joints are made very tight and the frame rigid. When, therefore, they are taken off a smooth road and brought into the woods with perhaps a heavy log or other load on them, there is no play or "give" to the joints, and they either break or become badly racked. We figure here a pair of sleds which have neither mortises, tenons, nor iron about them, necessarily, except the shoes, kingbolt, and the coupling clevises. They can be made without any other tools than an ax and an auger. They sit low to the ground and are easily loaded and difficult to upset, and the cost to a man who can use an ax is about four days' work. The runners are hewed from small oaks, or sugar maples, which have a natural crook at the root. They should be two and a half or three inches thick, and as deep as desired. Blocks are pinned on to each runner to receive the beams. The hind beam should be eight inches thick, the front beam about half that thickness, the bolster being the same, or an inch or so heavier. The beams and blocks are bolted to the runners with inch-and-a-quarter oak or hickory pins, well wedged at both ends. The tongues are fitted in with wooden wedges, which come well up from the roller, and two half-inch pins should be put through both the wedges and tongue to keep them from working loose. This will make the tongue sufficiently rigid without braces, unless some careless teamster drives around too short sometimes, when the tongue is just as apt to break as to be wrenched from its place if well wedged. In case the sleds are wanted shod we would recommend cast-steel shoes, one eighth of an inch thick, to be put on with three-inch wood screws, the holes being countersunk so that the screw-heads may be quite flush with the shoe. A steel shoe is light and will not "stick" in frosty weather, as a cast shoe will. The writer has built such sleds and shod them with common band iron, one eighth thick, which comes cheaper than the steel, and for ordinary use is nearly as good. But for heavy work, such as drawing logs, timber, or lumber steadily every day, the steel shoes are the cheapest in the end. These sleds are very durable if taken care of during the summer, and a coat of crude petroleum put on will increase their durability. If made of well-selected stuff a pair of these sleds are good for five years, when probably they will need new pins or some repairs. There is no necessity to use seasoned lumber for making the sleds, as green timber just out of the woods will answer, as there are no joints to work loose.

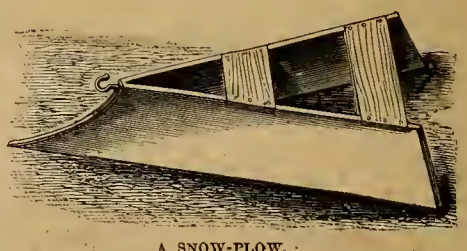
A Snow-Plow.

A properly constructed snow-plow is worth several times its cost. After every storm which covers up the roads, if a good snow-plow is drawn around and the roads and paths opened, the snow is packed down and becomes consolidated. It does not then melt away rapidly, and sleds will not cut down to the ground. To make such a plow as is figured here, take two



HOME-MADE WOOD OR LUMBER SLEDS.

planks eight or ten feet long, bevel the end of each plank, and bring it to a point so that when put together they will form something like a double-mold-board plow. Let the planks slope outwards from the upper part, so that the sled shall be wider by a few inches at the bottom than at the top. It will not then ride on the snow, but will push it sideways and throw it off. A floor may be laid on the plow on which the boys, who will always be on hand to assist, may ride, and this necessary job of clearing away snow will become one of the regular winter sports. The hook by which the plow is drawn, must be fixed at the top of the nose, or it will be lifted up when in motion.

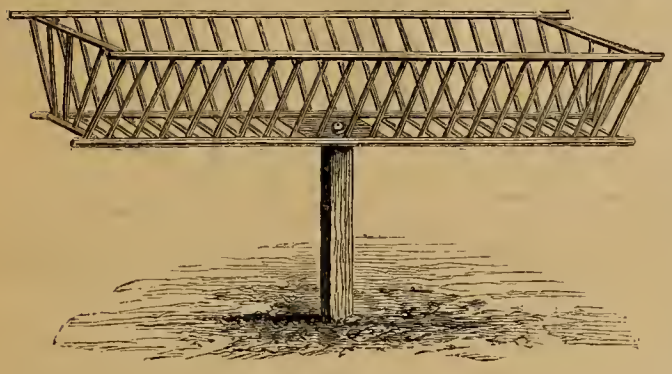


A SNOW-PLOW.

A Movable Feed-Rack.

A very simple rack for cows, calves, or sheep is shown in the engraving. It is intended for the yard, and the illustration sufficiently explains the construction of the rack itself. It is mounted on a post, and a strong iron pin set in the top of the post passes through a piece of

plank in the floor of the rack and enables it to be turned around when desired. In the barn-yard this is a convenience, as the manure will not be then left in piles in the front of the feed-racks, but, as it is turned round, the manure will be more equally spread. If several posts are placed in different parts of the yard, the rack may be moved from one to another.



A REVOLVING FEED-RACK.

Ox-Yokes.

There is nothing which a farmer uses that is more dependent for ease and convenience in use upon true scientific principles of construction than an ox-yoke. We very seldom come across a yoke and bows to which some objection may not be made. They either choke the oxen or gall their necks, or the yoke will break under a sudden jerk. These difficulties are all owing to faulty construction. In the first place more timber is generally used than necessary, and the consequence is that more cutting is needed to shape it. This makes the yoke weak where it ought to be strongest. Sometimes the stick is sawed 7×10 inches; but really 4×6 is amply sufficient. This is little more than one third the other size, and a saving is consequently made. The principle on which the yoke should be shaped is this: the point to which the draft-chain is fastened should be on a line with the center of the force applied, or that part of the yoke surrounding the neck of

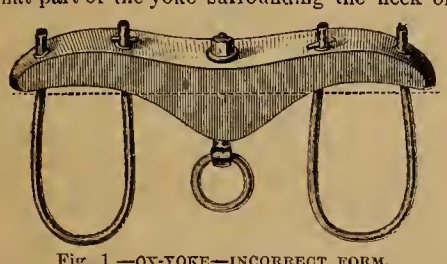


Fig. 1.—OX-YOKE—INCORRECT FORM.

the ox. Then there is no effort made to twist the yoke and crowd the lower part of the bows against the animal's throat and so interfere with its breathing. This pressure is the reason why

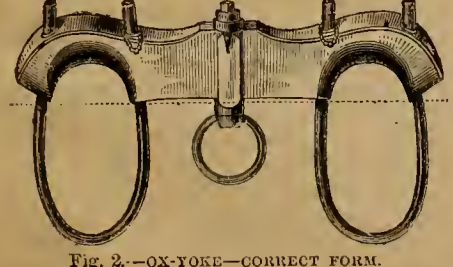


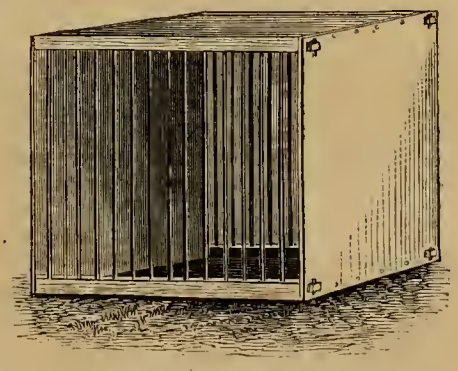
Fig. 2.—OX-YOKE—CORRECT FORM.

oxen will sometimes go on their knees under a heavy pull, sagaciously discovering the trouble which their drivers could not see. A comparison of the two yokes figured on this page will show this difference at a glance.

The hollows of the yoke, where they rest on the oxen's necks, should also be well and smoothly beveled or rounded off, so as to enlarge the bearing surface. This prevents galled and swollen or bruised necks. With a badly made yoke an ox can not draw, if willing; with a well-fitting and easy one, an ox will draw until his power is exhausted. If an ox ever refuses to pull, it is, as a rule, the yoke that is to blame. Oxen will not balk without good reason; in fact, we doubt if a really balky ox has ever existed. When the yoke is properly shaped it should be made smooth; after all irregularities are removed by rasping, it should be sandpapered until quite smooth. The best timber for yokes is bass-wood or soft maple, and for bows hickory or second-growth white-oak is to be preferred.

A Folding Chicken-Coop.

At the Ohio State Fair we saw a collection of poultry, consisting of fifty varieties, owned by

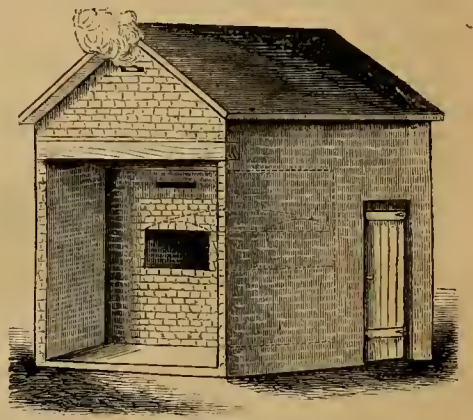


FOLDING EXHIBITION-COOP.

one exhibitor, all contained in handsome coops made to one pattern. These coops were the simplest and most easily constructed we have anywhere seen, and there is not a nail in them. They can be taken apart and piled up when not needed, taking up very small space. The front and back are alike, and consist of two strips (an upper and lower one) held together by wooden rods, placed a proper distance apart. At each end of these strips is a tenon which passes through a mortise in the side boards and is secured by a key which holds the sides in their places. The floor and top are kept in their places by small, round pins, similar to dowel-pins, which pass through holes made to correspond in the side boards. The coops are held together by the keys in the tenons of the front and back pieces. When these keys are knocked out the coops fall apart and may be packed away. There is no patent on these coops, which is not the least of their merits. They are easily transported, and allow the fowls to be seen to the best advantage.

Smoke-House and Oven.

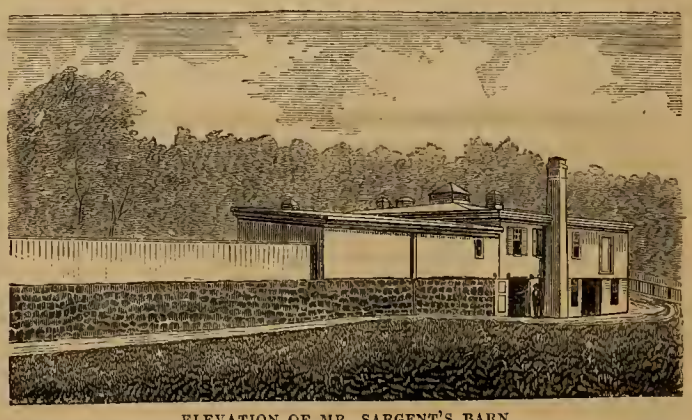
We are requested to give a plan for a bake-oven and smoke-house in one building. These



COMBINED SMOKE-HOUSE AND OVEN.

are common adjuncts to the farm-house in Eastern Pennsylvania, and are generally built of stone or brick. The oven occupies the front and that part of the interior which is represented by the dotted lines. The smoke-house occupies the rear and extends over the oven. The advantage of this mode of building is the perfect dryness secured, which is of great importance in preserving the meat, as also the economy of expense gained in building the two together, and the smoke that escapes from the oven may be turned into the smoke-house.

GREASE FOR GALLS ON HORSES.—"I. G. Irwin" asks whether grease (*i. e.*, meat fryings, bacon grease, and lard) is considered the *wrong* thing to apply to galled places and bruises. We do not know that there is any objection to the use of such refuse grease. We often use lard and gunpowder, as a mixture, to prevent white hair from growing on a saddle gall; and we use salt water for bathing scratches and bruises. As grease and salt used separately are not injurious, we see no reason why they should be when used in conjunction. At the same time we are fast gaining faith in the use of simple hot or cold water and dry and finely sifted earth for all minor treatment, and we are gradually dropping all our old remedies.



ELEVATION OF MR. SARGENT'S BARN.

Mr. Charles S. Sargent's Barn.

We have had occasion heretofore to refer to the barn recently built by Mr. Chas. S. Sargent, of Brookline, Mass. We give above an elevation showing its general appearance, and plans of its arrangement on the next page.

Fig. 1 shows the east side of the barn (the down-hill side), with the cart entrances to the manure cellar and wagon shed. The hight of this story is about eight feet in the clear. Fig. 2 shows the arrangement of the cellar, which, aside from the usual appliances of a farm barn, has a steam-boiler for cooking hay, etc. Fig. 3 is the main floor, containing six box-stalls, and stabling for ten cows. The cow-room, which is ceiled on the walls and overhead with varnished pine, and has its windows protected by green blinds, is—without being extravagant or "fancy"—very neatly and perfectly adapted to its uses. The mangers are of "Cottam's Patent," much used in England, consisting of two iron feed-tubs, with an iron water-trough between them for each pair of cows. A low partition separates each double stall from its neighbor. The box-stalls are fitted with rocking mangers, which move back and forth through the partition, so that feed can be supplied from the passage way. This barn is a capital model for any amateur, small, or "fancy" farmer to follow, as it has all the conveniences needed, and none of the ornament that we too often see on barns of its class. It is good, cheap, and useful.

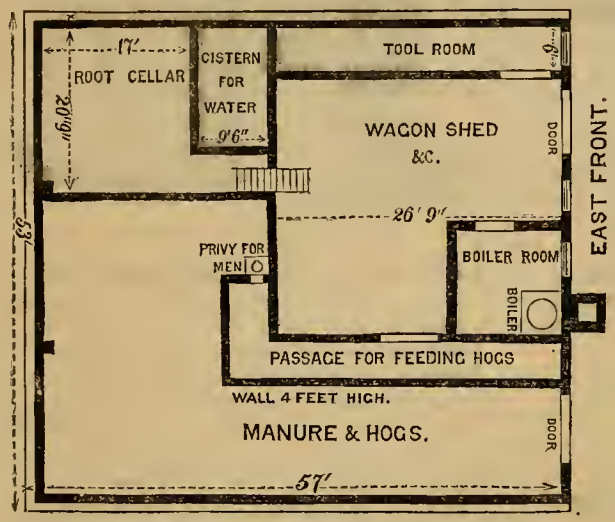


Fig. 2.—BASEMENT OF MR. SARGENT'S BARN.

How to Strip a Hide.

Almost every farmer has occasion, at least once a year, to take the hide off either a beef or a mutton, and some farmers take hides off animals that are neither beef nor mutton, now and then. In any case there is a right way to do this which is worth knowing. A hide properly stripped off is nearly square, but otherwise is far from that shape. To proceed properly, lay the carcass on the back, run a sharp knife from the chin down along the belly in a straight line to the root of the tail. The knife should have a sharp point and be inserted edge upwards beneath the skin, when it should be run steadily along. Then commence at the split of the hoof on the fore foot and run the knife down over the knee in a straight line to the brisket where it meets the main cut. When the other fore leg has been completed, commence at the heel of the hind leg, go down over the cap of the hock joint, and down the back of the buttock to the first split. When the hide is loose and spread out, it will be seen that there are no such irregularities in its contour as if the cuts had been made down the inside of the legs, as is often done.

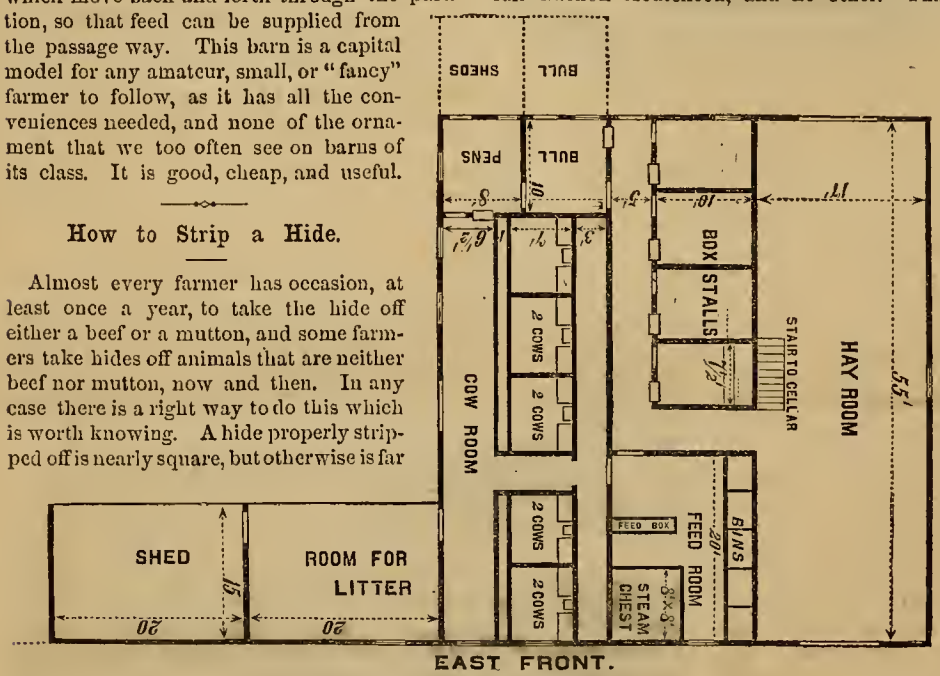


Fig. 3.—PLAN OF FLOOR OF MR. SARGENT'S BARN.

The Milk-Mirror in Jersey Cows.

A correspondent at Hannibal, Mo., writes that he has been studying some Jersey herds near that place, and finds the milk-mirror or escutcheon very poorly developed, and often entirely lacking. He asks whether the absence of the milk-mirror is characteristic of the breed, and whether the lack is, in their case, an objection. The writer of this has paid a good deal of attention to the question of the milk-mirror, and has especially observed its formation in Jersey cows. The result is a conviction that in at least nine cases out of ten—as uniformly as in any other breed—their quality as milkers is clearly indicated by this sign, and he would not think of buying a Jersey heifer or cow in which the escutcheon was not at least fairly developed. If any modification of Guenon's system were to be made in applying it to the Jersey breed, it would be, perhaps, in attaching less importance to the upper part of the escutcheon, and more to that which runs out over the thighs—but even this we are not sure of. As a rule to live by, we believe in buying a Jersey with a good, full Guenon escutcheon, and no other. That there should exist anywhere a whole herd of Jerseys with defective escutcheons is an indication of the injurious effect of "breeding for color." Essential qualities, like large milk-veins, well-shaped udders, and full escutcheons, are overlooked, and breeding animals are selected which have nothing to recommend them but "solid color and full black points." Of course, the men who are accomplishing this unfortunate result are innocent of any intention to do harm, but unless something is done to check their folly the Jerseys, as a breed, will lose their reputation as large butter-makers.

We could show our correspondent more than one herd of Jerseys, and large herds too, in which a defective escutcheon is a rare exception, and we will pit them against any breeds in the country for the *quantity* of butter made.

Drying Up Cows.

The common idea that it is necessary to dry off a cow two or three months before calving, is really not only an erroneous but a very unprofitable one. A cow in the dairy is not an animal in a state of nature. She is as artificial a production as the improved carrot or turnip which she eats, or the oil-cake which is fed to her. And if this is so, and her milking capacity has been artificially built up far beyond that originally consistent with her natural condition, why should we stop in our work at a certain point and not continue it as far as possible? We have known more than one occasion when a cow was milked up to the period of calving, and no injury occurred either to her or the calf. It is true that the changed condition of the cow needs some change of treatment. There is a greatly enhanced demand on her physical resources, but this change comes on so gradually that we can not tell the exact moment her milking powers should be suspended. Certainly not necessarily two months any more than three or four months previous to her coming in again. The gradually changing condition of the cow must be gradually met and all will be well. We lately saw a fine Ayrshire cow which had just dropped a calf when at the Illinois State Fair, and she was in very high condition, so much so that an ordinary farmer, having a cow in similar condition, would fear for her safety. We also saw a fine Jersey cow, on another occasion, which the owner assured us was milked the evening previous to her calving, and the calf seemed to have suffered nothing in consequence. In fact it is doubtful if a cow is not in a much safer position when thus constantly milked. It is within our experience that garget has occurred before calving, and that cows often need to have the milk drawn from them, sometimes for some days previous to this event.

Then, if all this is true (and we think most experienced men will coincide with us), why should not the cow be utilized as much as possible; why should she not be permitted to produce milk as long as she will, and why should we be at so much pains to dry up our cows? It is certain that injury is sometimes done to cows by improperly drying them off, and when we sometimes read of farmers being advised to take such and such precautions in this matter, we are led to think that they are not only making gratuitous trouble for themselves, but are throwing away a source of profit. That there is a change occurring in the common idea in this respect, is proved abundantly by the fact that a cow which will milk continuously, is looked on as something above the common. And why, while we are improving our stock in this direction, should farmers be advised to adhere to a practice which produces a contrary effect?

HOW MUCH DOES A QUART OF MILK WEIGH?—It has now become almost universal with dairy men who handle large quantities of milk, to estimate it by weight rather than by measure. The reduction to quarts is made by divid-

ing the pounds by 2. This is not exactly correct, for a quart of milk weighs somewhat over 2 lbs. The standard gallon in the United States is the old English wine gallon, which contains 231 cubic inches. This quantity of distilled water, at its maximum density (barometer at 30″) weighs $8^{3329}/_{10000}$ lbs. Cream has a specific gravity (or a weight as compared with water) of $1^{15}/_{1000}$; skimmed milk, of $1^{37}/_{1000}$; and "good" milk of $1^{31}/_{1000}$. Even cream is a trifle heavier than water, but the difference between cream and skimmed milk is enough to make the weight of whole milk vary considerably in proportion to the amount of cream it contains. If no water has been added to the milk, then the lighter it is, the better its quality as to cream. Taking the normal weight of new milk at $1^{31}/_{1000}$, as compared with water, and the weight of a gallon of water at $8^{3329}/_{10000}$ lbs., we have $8^{5974}/_{10000}$ lbs. as the weight of a gallon of milk, and $2^{1493}/_{10000}$ lbs. as the weight of a quart—say $2^{15}/_{100}$ lbs.

Winter Care of Sheep.

Sheep are looking up. The tide has turned. But unless sheep are to be taken up as a permanent part of the farm stock and proper care and attention given to them, it would be better for the farmer to let them alone. Sheep properly cared for, are the most profitable and least troublesome farm stock; but if neglected and improperly managed, none so soon become out of condition and become diseased and die. Winter is the most trying time for them. "Coddling" is the most hurtful thing. With good feed a flock of sheep would do better to lie out of doors in the snow the whole winter, than to be kept in a close, warm stable. Running at the nose and lung disease will surely follow too close penning up. Unless the weather is stormy, or the ewes with lamb are near their time, they should be turned into a field every day. They should have fresh water (access to a spring is best) at least once every day. It is a mistake to suppose that sheep will thrive with snow for drink, and yet many flocks are permitted thus to quench their thirst every day through the winter. Clover hay is the best standard feed, with half a pint of oats, rye, or buckwheat daily. Sheep do better with a little change in their feed occasionally. Salt, in which a fourth part of sulphur is mingled, should be placed where they can always have access to it. Corn-stalks may do as a coarse feed to pick amongst, but as a standard feed it does not seem palatable enough for them. They will live on it but do not thrive. Separate the flock into at least two portions. The lambs, and in-lamb ewes which may be weakly, should, at all events, be taken from the strong, hearty ewes, wethers, and bucks, and extra care given to them. It is still better to keep the wethers and bucks by themselves, and thus make three divisions. Guard against dogs, which, at this season, are more than ever mischievous. If a dog is kept on the farm, let him be well acquainted with the flock and they with him. Above all things, be patient, quiet, attentive, and exactly regular in feeding and watering, not overfeeding nor stinting the flesh, but, having found the right way, persevere therein, and do not swerve one way or the other from it. One can not neglect his sheep one day and make up by extra care the next.

Oiling Axles.—Much is lost for want of attention to wagon axles. They should be examined at least once a week, if in constant use, and properly oiled. Lard is not suitable, for it penetrates through the hub and loosens the spokes. We know of nothing better than castor oil, and a rancid article, which can be had at cheap rates at the apothecary's, is just as good for this purpose as the best. A small quantity, applied upon the bearings of the axle, is just as good as to oil the whole surface. If the oiling is neglected, there is much friction, which has to be overcome by the increased exertion of the team. The boxes and axles both wear away more rapidly, and there is soon need of a new wheel and axle. A good wheel-jack will greatly facilitate the oiling process. With this implement one man can oil the wheels of an ox-wagon as rapidly as two without it.

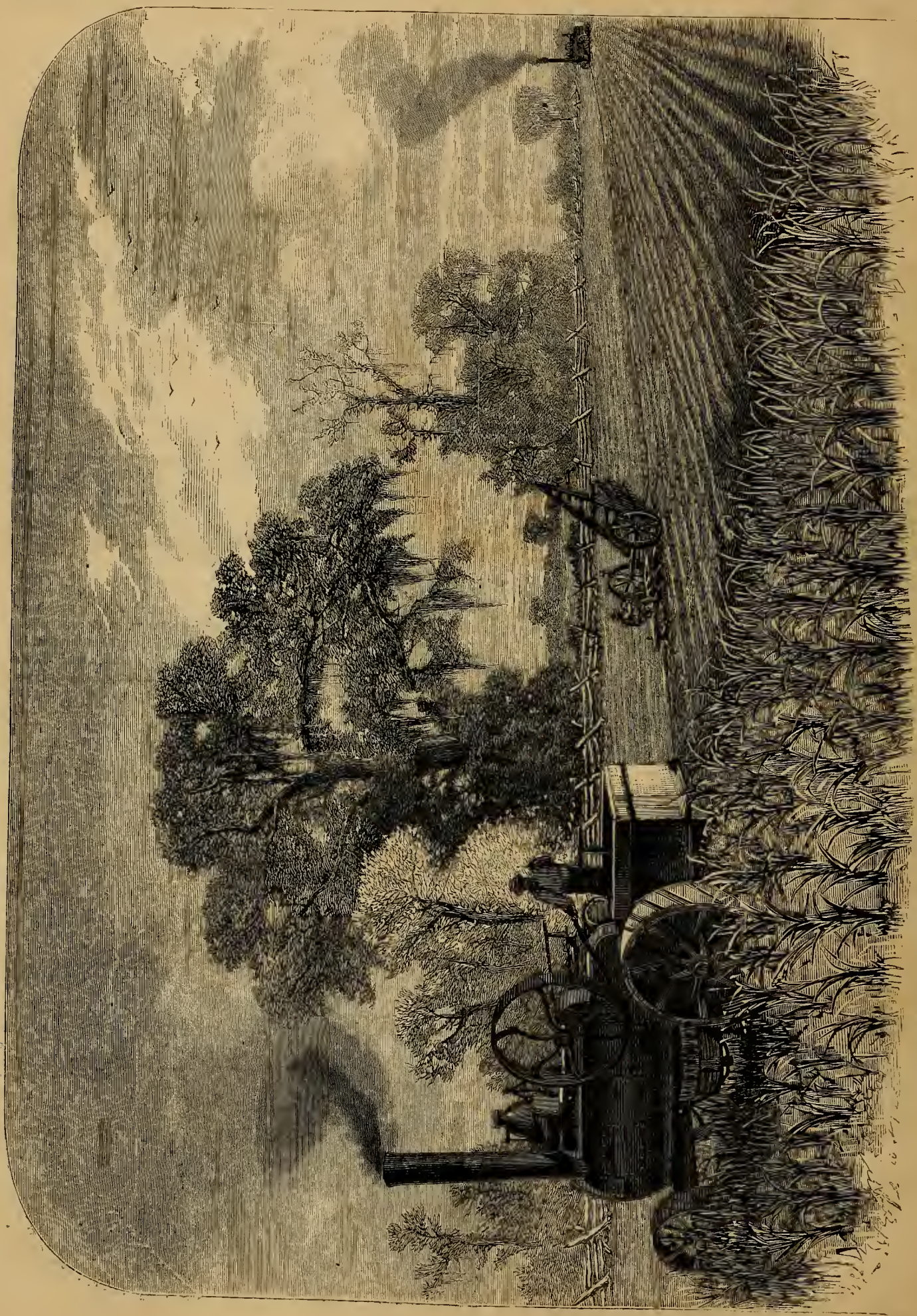
Method of Utilizing Bones.

The utility of raw bones is much circumscribed by the difficulty of bringing them into a fit state for use. A rough method of cracking them, or reducing them to large fragments by means of a heavy pounder or sledge, may be employed where they are intended for use in an orchard or vineyard, where they may be buried at the roots of a permanently established fruit-tree. But to become useful to annual crops they must be brought to a more practicable shape. When coarsely broken they may be reduced by caustic lye more slowly but with much less inconvenience than by sulphuric acid. To accomplish this, a rough but tight box, not over eighteen inches deep, is needed. Procure sound, unleached wood-ashes, mix a peck of slaked lime and a peck of sal-soda to every barrel of dry ashes. Pack the ashes, etc., with the bones in layers (ashes first) until the box is filled. Saturate the mass with water, and add from time to time more water to preserve a constant state of moisture. In four or six weeks the bones will have become so much softened that they will crumble to powder with a slight blow. The mass may then be mixed up and beaten fine with a shovel, and an equal quantity of fine soil added and thoroughly intermingled. This compost is too strong for direct application to the seed, and in using it for corn some earth needs to be mixed with it previously. If the quantity of ashes is increased the process is proportionately hastened.

Care of Implements.—There is probably no text on which more preaching is done by the agricultural press than that which heads this article. And yet farmers are either forgetful of the lesson, or are too careless of their own interests to act upon it. We were especially reminded of this by seeing, in the course of a ride of ninety miles through an average agricultural district, the following tools lying out exposed to the weather—viz.: Forty-four plows, twenty-three harrows, seven mowers, one reaper with beater and platform as last used, wagons too numerous to count, and, in one instance, a set of harness hanging on a fence. The plows were mostly sticking in the furrow where they had been last used. Now, it is natural to suppose that the owners of all these tools and implements never see an agricultural paper, or they could not resist the reiterated advice to take better care of their property of such a perishable nature. It is safe to say that these tools, kept under cover when not in use, will last more than twice as long as they will when exposed to rain and sun. The loss is thus a serious one, and we regret when we think that we can not reach such farmers by a word of advice.

Plowing and Cultivating by Steam.

The day will probably come, when a large share of the cultivation of the land will be done by steam-power. The steam-plow has for some years been in successful use in England, but in this country, where we have so much land especially favorable for its operation, the attempts at steam cultivation have been so few as to amount to little in demonstrating its value as compared with ordinary methods. The English machines are ponderous, cumbersome, and expensive, and it is this, coupled with the fact that the steam-plow implies a more thorough system of agriculture than we have yet adopted, that has retarded their introduction. In the most successful English implements the plows are drawn backwards and forwards across the field by means of two engines, one stationed at each end of the furrows. There have been several inventions made in this country, in which the engine is a locomotive which traverses the field and drags the plows after it. Some of these machines have made more or less successful trials, but there are still many obstacles to overcome before such a locomotive engine for plowing can be made a complete success. To illustrate the appearance of the English plows and their manner of working, we give on the next page an engraving, taken by our artist while upon a trip through the Gulf States. There are several of these plows at work upon sugar plantations in Louisiana. The cane crop is a very exhausting one, and deep plowing is necessary. One of the most enterprising planters, finding it impracticable to obtain the required depth of soil by ordinary plowing, imported a set of steam machinery. The results attained by this were so satisfactory, that the first importation was followed by others, and in Louisiana at least, steam-plowing may be considered an established fact. Aside from the thorough working of the soil, one great point in favor of the steam-plow upon plantations is that the most favorable season for plowing is autumn, and this is just the time when the teams and hands are busy in cutting cane and carrying it to the mill. The steam-plows usually require only two or three hands to work them, though in cane fields, where there is much "trash," more help is required, to keep the plows from being clogged. The plows are carried upon a frame, and are from two to five in number. The frame carries two sets of plows, and is so arranged that it can be tilted when it reaches the end of the field, and the direction is to be reversed, thus lifting one set of plows out of the soil and bringing the other set into proper position for work. The plows are moved by means of a wire rope, which is wound upon a drum below the engine, as shown in the engraving. When the plows have reached one side of the field and are placed in proper position, the man at the opposite engine is signaled and the plows drawn back, and they thus go back and forth as fast as a man can walk, plowing from two to five furrows, two feet deep, at the rate of six to twelve acres a day, according to the nature of the land. The cultivation between the rows of cane is also done by these engines, cultivators being substituted for plows. Mr. Lawrence, who imported the first plows, estimates that, by reason of the deep tillage he can give, two feet instead of six inches, the production of sugar per acre has been considerably more than doubled. Upon the bottom lands of the Connecticut and other rivers, and upon the Western prairies, the steam-plow will yet be found the cheapest means of tilling the soil.



THE STEAM-PLOW IN OPERATION.—*Drawn and Engraved for the American Agriculturist.*—*(See preceding page.)*

The Chinese Quince.

We do not know how so many Chinese Quince-trees became distributed about the country without the owners of them having their names. For several autumns, including the one just past, we have received a number of fruits from different points in the vicinity of New York to be named. This year one of them remained on exhibition at our office for several days, where it attracted much attention from its novel shape. We have had the fruit and leaves engraved at about half the average natural size. The tree grows in a spreading form, and reaches the hight of about 20 feet. The leaves are quite unlike in appearance to those of the common quince, being of a dark green, with a shining surface. The flowers are rose-colored, with a violet odor, becoming darker with age, and make the tree quite ornamental in spring. The fruit is irregularly egg-shaped, green, and very hard and dry. We do not know that any use can be made of the fruit, but it is quite conspicuous and ornamental when upon the tree. The botanical name is *Cydonia Sinensis*. We do not find the plant in any of the catalogues of our leading nurserymen, and can not say where it may be procured.

CHINESE QUINCE.

The Great White Leopard-Moth.

(*Ecpantheria scribonia*, Stoll.)

There is a large family of moths, known as Arctians (*Arctiadæ*) or Tiger-moths, which is rendered conspicuous by the beauty of design and boldness of contrast in color which its members generally present. The largest and perhaps the most beautiful of them all in North America is the above-named species. The larva has recently been sent to us for determination, and through the courtesy of Mr. C. V. Riley, the State Entomologist of Missouri, we are able to give a brief account of its history. This larva (fig. 1) may be called the Large Black Bear, as the hairy worms of our different Arctians are popularly called bears, and the family name was derived from the Greek word for "bear. It is often observed in the fall of the year, though few persons have ever seen the moth which it produces. This larva is black, and so thickly covered with jet black spines as almost to hide a series of roughened warts on each joint, from which the spines spring. When disturbed, it curls itself up, and then the sutures of the joints are seen to be reddish brown, in strong contrast with the black of the rest of the body. If carefully observed, the spines will be seen to be barbed, as represented at *b*, fig. 1.

Fig. 1.—LARVA.

This worm feeds upon the wild Sun-flower (*Helianthus decapetalus*), the different species of Plantain (*Plantago*), and upon Willows. It comes to its growth in the fall, and, like many others of its family, curls up and passes the winter in any shelter that it can find, being especially fond of getting under the bark of old trees. In the spring, it feeds for a few days on almost any green thing that presents itself, and then forms a loose cocoon, interwoven with its own black spines, and becomes a chrysalis. Shortly afterwards the moth escapes.

The accompanying illustration (fig. 2) represents the female moth at *a*, and the male at *b*. The upper portion of the abdomen is steel-blue, or blue-black, marked longitudinally along the middle and sides with yellow or orange. With this exception, the whole insect is white marked and patterned with dark brown, as in the figures. The male differs from the female principally in his smaller size and more acuminate wings, and by the narrower abdomen, which is also generally duller in color, with the pale markings less distinct. The markings on the wings, which may be likened to scribblings, vary in a striking manner in different individuals, the oval or elliptical rings sometimes filling up so as to form black spots. This insect is considered rare in New England, but is much more common in the Mississippi Valley.

Fig. 2.—MALE AND FEMALE LEOPARD-MOTH.

DON'T COVER TOO EARLY.—Many mistake the use of a winter mulch. It is not to prevent the ground from freezing, but to protect the plants from the injury that results from frequent freezing and thawing. Hence we do not cover our strawberry beds and other things until cold weather has apparently set in and the ground has begun to freeze. So with covering half-hardy shrubs with straw or mats, we do it quite as much to protect them from the winter's sun as to ward off the frost.

The Crimson and White Mignonettes.

BY PETER HENDERSON.

In these days of gigantic frauds that have so astounded the people of the great metropolis, the lesser ones that crop out in the every-day things of life are apt to be overlooked or forgotten. Yet the fifty cents paid for a package of worthless flower-seeds is to many thousands of the lovers of nature in the humbler walks of life as much felt as are the thousands fraudulently extracted from the pockets of our wealthy taxpayers by dishonest rulers. The principle is the same in either case, and the crime is "theft" in both. If I *knowingly* advertise a mignonette that I am sure is green and brown as "crimson" or as "white," and thereby induce a person to pay me fifty cents for what to him is worthless, I am as guilty of stealing as the man was that received $500 apiece for the City Hall chairs. Dozens of seedsmen unwittingly did so last season, and retailed the English descriptions of "crimson" and "white" mignonettes with wonderful unanimity, and a confidence in the veracity of our English contemporaries which past experience hardly warranted. The "White" Mignonette was issued under the indorsement of the London Horticultural Society, and we naturally thought that such a body would not have lent themselves to fraud. Yet the fact is, that in no case that we have seen or heard of in this country has the "White" Mignonette proved much different from or whiter than that which our grandmothers grew. The same may be said of the "Crimson." The tinge on the tips of flowers may be a little darker brown, but no stretch of imagination could honestly call it crimson.

I trust this lesson will not be lost on us, and that for our own sakes we will not soon use a foreign description of a "novelty," either of flowers, fruits, or vegetables, without being careful to give the original describer credit for what

he says of it, so that the responsibility will rest where it belongs. It is perhaps not too much to say that probably $5,000 worth of these mignonettes were last season sold to ten or fifteen thousand persons, not one in a thousand of whom but believes himself to have been swindled. The effect of this is damaging in the extreme, not only to us as seedsmen, but to the spread of horticultural taste, and it is to the interest of every one engaged in the business to frown down every such fraud. Last July, a special circular received from one of the leading London florists' establishments described a new dwarf *White* Ageratum. Without much confidence in the white part of the story, I sent for a dozen plants, and received them in fine order by mail. They are now in full bloom, but the color is blue—no more white than the sky is at noon. Had I not had an opportunity of proving the fraud, and copied my correspondent's description without qualification, some of your readers next season would have had good cause to complain of being cheated. The great desire for something new, and the avidity with which "novelties" are bought at high prices, is a great incentive to this horticultural swindling. Every season we import an average of two dozen new varieties of flower and perhaps half as many of vegetable seeds, and if we get one good thing of each we think ourselves fortunate; so that our amateur friends will understand that they are not alone the sufferers, and should not complain of our seedsmen if they do not indorse the foreign descriptions.

Experience with the Egg-Plant.

BY HENRI W. YOUNG.

I was interested in an article by Peter Henderson, in the October *Agriculturist*, upon the Egg-plant, and as I have succeeded in raising an abundance of this delicious vegetable during the past season in a rather less expensive way than he deems essential, I will, for the information of your readers who have never raised it, narrate my experience. I grew the two varieties, Black Pekin and Improved New York Purple, of which I made my first sowing in boxes in the house late in March, but keeping them in a room in which there was no fire, it was over a month before they germinated. My second sowing was made in my hot-bed on April 1st, and they came up in eight days. This was 20 days too early, according to Mr. Henderson's view; and had I kept up a heat of 70° until it was safe to transplant them, they must certainly have outgrown the bed, which, by the way, had *muslin* covers instead of glass sashes; but the heating material being solely fresh horse-manure, the heat was soon exhausted, and their growth for a long time very slow. I also made a third sowing in a cold-frame, similarly covered, on April 10th, where they came up in 18 days.

May 17th, I transplanted several of the Purple plants from the hot-bed into the field, but their vitality was impaired by the cold, and they soon succumbed to the attacks of a small black flea, that first appeared about that date. I do not recall the name of this flea, but it was an old acquaintance, that had destroyed my plants on a former attempt to raise them. It attacks all the plants of the Solanum Family, so far as I know, except peppers. They destroyed all my tomatoes sown in the open ground, and made sad havoc in my beds, damaging tomatoes there, and threatening the entire destruction of petunias and egg-plants, even going so far as to riddle the leaves of the wild Bittersweet (*Solanum Dulcamara*), while I have seen potato-vines covered with them. To check them, I tried dusting with lime and sprinkling with solutions of tobacco, guano, etc., which were at best but partially successful, as every one of the egg-plants in the cold-frame perished, and a part in the hot-bed, the remainder suffering severely. As they did not attack my plants in the house, I am of the opinion that a box in a warm room would be the safest and perhaps the best place for us to start them.

June 12th, I transplanted about twenty of each variety from the hot-bed into the field, and although they seemed very impatient of removal they all survived. The Black Pekins commenced to bloom July 21st, several days before the others, and were far ahead in fruiting, but not as prolific. We have had an abundant supply of both through September and October thus far, and would have had a large stock on hand now had not I been so hasty as to cut them up and house my fruit on September 22d, in anticipation of the frost which occurred on the next succeeding night, but did not kill, only scotched the vines I left. There has not been a sign of frost since, and I might just as well have had the benefit of a whole month's growth, and double the quantity of sound fruit on the vines at this date, as to have a pile of them nearly all decayed in an out-house. Thus have I learned how "haste makes waste."

Those sown in boxes in the house and kept spindling in the shade in a cold room, I transplanted into the old hot-bed June 12th, and from thence into the open ground on July 25th, yet they had eggs as large as the largest apples by September 20th. Had these plants been kept in a warm room instead of a cold one, it would have made nearly a month's difference in their growth, and they might have been as early as any; their exemption from the attacks of the flea giving them one great advantage over even those grown in the hot-bed.

From these facts, I conclude that a uniform temperature of 70°, although desirable, is not absolutely required, or even the most important requisite for the egg-plant.

ROANOKE, L. I., October 17th, 1871.

The "Early Shipping" Tomato.

BY PETER HENDERSON.

This is a new and valuable variety, raised by Mr. Turner, of Norwich, Ct., and is a hybrid between "Keyes' Prolific" and "Crimson Cluster." It has qualities that will render it extremely valuable for Bermuda or our own Southern latitudes, as it is as early as the earliest, and enormously productive—having from twenty to thirty medium-sized fruits in a cluster. Above all, its solid, seedless character enables it to carry in shipping much better than the larger sorts. All who have had experience in shipping tomatoes from points where they require to be over a week in transit, know the loss often experienced in fruit if too ripe when picked, and if not sufficiently ripe there is a corresponding loss in price. But this comparatively small variety, with its thick skin, may be picked nearly ripe in New Orleans, Charleston, or Savannah in June, and if carefully packed be in as good condition on arrival in New York or Philadelphia as if grown near those cities.

THE EUROPEAN LARCH.—Some of our Western friends are very enthusiastic about the European Larch, and claim that it is preferable to all other trees for profitable planting. Of the excellence of the timber there is no doubt. It is unequaled for durability. The tree seems to be a sufficiently rapid grower. Last year the writer put out a small one in rather poor soil, poorer probably than any one would ever select for a plantation. Noticing that it had made a remarkable growth, it was measured, and we found that during the past season the leader had grown four feet, and the branches had a new growth of one to two feet. A tree like this will make timber rapidly.

Notes from the Pines.

TELLING ONE'S EXPERIENCE.—The only way in which we can arrive at a proper estimate of the value of new things is for each one to say how they have done with him. If one reports favorably upon a variety he is at once a very good fellow; but if his report is adverse, those having an interest in the plant, seed, or whatever it may be in question, don't find him to be such a very good fellow after all. It takes several years to ascertain the precise value of a new thing, whether it be fruit, flower, or vegetable. For instance, the

SHELDON PEAR was for some years thought to be one of the very best, but it has begun to crack in widely separated localities, and in many places is quite as worthless as the old Virgalieu. When I gave my experience with

MOORE'S CONCORD CORN I was aware that I should displease some persons. The seed was from the best source, the corn had good culture, but it was a thorough failure. I recorded that experience with the view of calling out that which had been favorable, but while those interested in the corn growl at me, they do not take the trouble to tell how it succeeded with them. I am quite sure that mine is an exceptional case. Such things will sometimes occur, as we have an instance in Mr. Quinn's experience with the

PEERLESS POTATO. Mr. Quinn, whose accuracy of observation and disinterestedness of judgment no one will question, in an article in the Weekly Tribune, puts the Peerless down as of poor quality. Now, with me, it is of as good a quality as any potato can be. It yields wonderfully, and has fewer small tubers than any potato I ever grew.

THE "LATE ROSES."—I do not refer to "the last rose of summer" kind, but to the potatoes of this name. It seems that in more than one instance exceptional specimens of the Early Rose have shown a tendency to be late, and these have been propagated and are offered as new varieties. Thorburn & Co. sent us specimens of their "Late Rose," fine large potatoes, having the general appearance of the Early Rose, and it is stated that they are more productive and better keepers. A few days later I received specimens, from B. K. Bliss & Son, of another "Late Rose," similar in appearance. Soon after this I obtained through a friend a specimen of a seedling raised by Mr. Geo. W. Campbell, of Delaware, Ohio, which he also calls the Late Rose. So here we have three lots, all claiming to be of different origin, and bearing the same name. In appearance they are as alike as three peas, and all excellent potatoes. Whatever differences there may be in growth and productiveness can of course only be told upon trial. But what a misfortune in nomenclature, and what a confused "war of the roses" it will lead to if some distinguishing prefix is not given to them! "That which we

call a *rose* by any other name"—may or may not bring a dollar a pound.

Lightning as a Landscape Gardener.—I told you about the great pine-tree that was struck by lightning a year ago last summer. It died at last, and was cut down. It was my pet pine, and no reasonable sum of money would have bought it. I indulged in a great deal of unnecessary mourning at its loss, as now no moderate sum would induce me to have it back again. Such a magnificent view as is opened by its fall! From my "den," I can now see a distant bend of the river, the steeples of the village peering above the trees, and in the far distance the mountains, which present a different hue with every atmospheric change. It is not often that such a calamity as the loss of the grand old pine appeared to be brings with it such ample compensation. I of course knew that the view was there, but it could only be enjoyed from the house by sacrificing the noblest pine. I feel much like the colored citizen who, after an unsuccessful search for his dog, said: "Now I can't find 'um, I'se mighty glad I loss 'um."

The Christmas Rose.—The other day (Nov. 1st) I was quite astonished to find the Christmas Rose (*Helleborus niger*) in flower. In this country it does not usually appear until spring. It is a charming, old-fashioned herbaceous plant, and were it not such a slow grower it would be much more popular than it is. I have had my plant for eight years, and it is now so small that it can be readily covered with one's hat.

The Winter State of Plants.—Did you ever notice how plants prepare themselves for winter? The last growth of the season becomes dwarf and stunted, and the whole aspect of the plant is so different from what it is when flourishing, that the commonest ones are with difficulty recognized. I find much interest in examining our commonest weeds after they have gone into winter quarters, and often find myself puzzled to identify them.

Winter Pears.—How seldom do we see a good late pear! They are generally poor, shriveled things, and altogether unsatisfactory. The reason is, people take too much pains with them, and ripen them up before their time. Have just been picking my Vicars. It is the fashion to turn up the pomological nose at the Vicar, and say patronizingly, "Excellent for cooking!" So it is, there is no pear equal to it for cooking; but, properly managed, it is excellent without cooking. I assort the pears, put them in boxes, and place them in the cellar among the potatoes. They will need looking at now and then, and when they show signs of ripening up, which is usually in December, they are taken up-stairs and allowed to finish off in a warm room. If the Vicar has been well grown and properly ripened, it is most acceptable to those who like very brisk and vinous fruit, but will not suit those who are fond of sweet fruits only.

Keeping Geraniums.—I never have any trouble in keeping such Geraniums as are worth keeping. They are taken up and cut back pretty severely, removing all the succulent and unripe wood. They are then stacked in a box with some dryish earth about the roots, and put in the cellar for the winter. The trouble is in putting them away too moist. The earth should be almost dust-dry. I have a fine old Gloire de Nancy, which goes into the cellar for the fifth time. I have never tried the method of hanging them up by the heels. The plants are cut back, tied together by the roots, and hung up in the cellar, heads downwards. Those who have tried this, report that it is successful.

Parsnips.—Such a yield of large fine parsnips as we dug a few days ago! The success was due to deep plowing, heavy manuring, and early sowing, including, of course, clean working. I believe that farmers can get more nutriment, at the same expense, from parsnips than from any other root. They are less trouble in cultivation than carrots, and pound for pound worth considerably more.

Judson's Branching Corn.—"Branching" pop, field, and sweet corn were offered a year ago. We grew the "branching" pop last year and the other two this year, a long row of each. In neither case was there the least sign of branching, and it was seldom that either the sweet or "Golden Drop" had two ears to the stalk. This "branching" corn must be set down as a failure, if not a humbug.

How I Made a Hedge.

Osage-hedge makers differ pretty widely as to the best distance to put the plants in the row, and a novice in hedge-making is perfectly bewildered when he reads the advice of divers men. He does not know what is really best to do, and so he makes a leap in the dark and hopes for the best.

I intended two years ago to make a hedge around my orchard, aiming to erect a barrier against thieves and a wind-break at the same time. I had no experience whatever, had never seen a hedge, and desiring to proceed aright, I ordered "Warder on Hedges," which I carefully studied, but for the life of me I could not tell from that work whether it was best to put the plants in a single row, four inches apart, or in a double row, two feet apart, or in a single row, six, eight, ten, fifteen, or twenty inches apart. Each plan was highly recommended, and each said to be the best. I finally settled on a single row, eight inches apart. I believe Mr. Warder himself prefers two feet apart, but a hedge made on this plan would not in twenty years turn a two-hundred-pound hog. The distance now recommended by the experienced hedge-growers of the West—chief among whom is Prof. J. B. Turner, of Jacksonville, Ill.—is six inches, and even four inches is better than eight inches or any greater distance. In spite of all that the most careful and vigilant can do, many of the plants will die out or become so feeble that they do not keep up with their adjoining neighbors, and a "break" or "gap" in the hedge is the consequence, as not one replant in a dozen will grow and thrive sufficiently to fill up the missing place, no matter how carefully it may have been replanted and tended. For this reason it may be safe to infer (and act accordingly) that close setting—say four to six inches—is the best of all plans; and then, the following fall after planting, if the plants are found to be too thick, it is far easier, and more satisfactory, to remove every other one than to depend upon replanting the following spring.

Now for my new plan. Being tired with the labor of setting every plant just eight inches from the next, and holding it there perfectly straight while setting, I commenced on a back line to put them in a trench which had been made perfectly straight, regardless of exact distances, putting them in carelessly all the way from two to four inches, and not minding whether the tops were straight or crooked. They grew just as well as any, and in the fall I thinned them to about four inches. Now this back line is the best of all my entire hedge, and I firmly believe it the best plan after all.

Stanford, Ky. Woodman.

Selling Fruit and Vegetables by Weight.

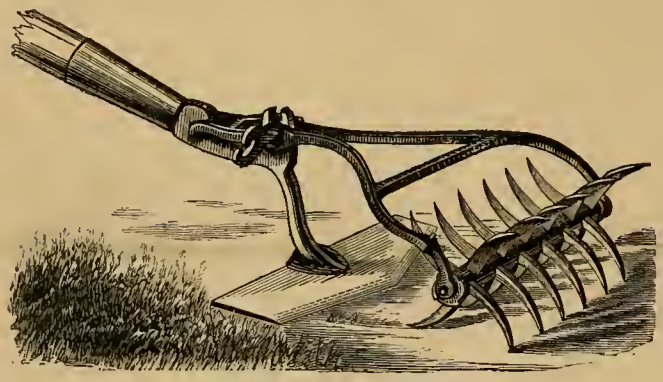
While in Denver last summer we found almost all farm produce except eggs sold by weight. Even the delicate fruits brought from California—pears, grapes, and plums—had their value tested by the scales. The fruit peddlers that circulate in the Rocky Mountains carry the balances with them, and the purchaser knows how much he gets in avoirdupois. This is the prevailing usage upon the Pacific coast, and is worthy of universal adoption. With us, almost all fruits and garden truck are sold by no definite measurement. The basket, barrel, or box has no standard of measurement. Some barrels contain 104 quarts, the standard of the Cape Cod Cranberry Association, and others will not hold 80. The old-style peach-basket held nearly a bushel. They grow smaller every year, and now contain a scant half-bushel. The berry baskets and boxes are of all sizes, and the grape boxes run from three to ten pounds. While this mode of sale continues, there is a constant temptation to depreciate the measure and cheat the consumer. The producer gets the same price for his box or basket of fruit this year that he received last, although it contains but nine tenths as much. This is virtually a fraud, although no express compact has been made or violated. The loss to the individual purchaser is very small. The gain to the producer is ten per cent, for which he gives no equivalent. Purchasers have it in their power to correct this abuse, and now that the spirit of reform is abroad and the accounts of rulers are overhauled, these small robberies should be looked after. Bring every kind of produce to the test of the scales, and we have a remedy against cheating. Purchasers then see five pounds of grapes for the five-pound box that they buy, and are satisfied.

Cactuses in Winter.—The reason why so many fail to bloom their cactuses satisfactorily is, because they do not treat them properly during winter. By their structure the cactuses are especially adapted to a long season of drouth, and in a dry time they take their rest, the same as our plants do during the winter. In our treatment of them we must imitate their natural conditions, and during winter keep them dry, not so dry that they will shrivel, but they will rarely need any water. Of course, they must be kept in a warm place, and where they will not get near the freezing point. In spring, when they start to grow and bloom, they should be freely watered. The exceptions to this treatment are the *Epiphyllums*, Crab's Claw Cactuses, and the Rat-tail Cactus, *Cereus flagelliformis*.

A Useful Hand-Cultivator.

In August last we received by express an implement which at first sight did not promise to be of any great value. At any rate, it was taken home for trial, with the thought that we were to add another to our collection of curiosities in the way of horticultural implements. It was received too late to be tried upon anything but turnips and late spinach, and the way it walked through them was altogether gratifying. Our gardener took to it at once, as it gives

the weeds no chance. We give an engraving, which shows its construction sufficiently well. It will be seen to consist of a wide blade, which



HAND CULTIVATOR AND WEEDER.

serves as a hoe, and a revolving rake or cultivator. We do not know who makes the machine, but the parties will doubtless make themselves known. The one we have was forwarded by Louis Perrot, Outagamie Co., Wisconsin, who states that he is one of the inventors.

A Japan Pear.

This spring Mr. Quinn, of Pear celebrity, sent us some cions of what he called a Japan Pear, with the recommendation that it was valuable as an ornamental tree. Having an old, worthless pear-tree upon the edge of the lawn, we grafted it with these cions. The growth they made was something wonderful, and the leaves! some of them were nearly as large as one's hand, and in autumn they held on long after most other pears had cast their leaves, and became as finely colored as those of the maple. As the tree possessed such interesting characters, we were desirous to see the fruit, and at our request Mr. Quinn brought us specimens, but evidently of two distinct varieties —one bright green, with a few russet splashes, and the other of a fine golden russet with conspicuous white dots, the one we have figured. It will be seen that the fruit is in shape so like an apple, that we do not wonder that several pomologists who saw it upon our table each took it for an apple. The history of this remarkable fruit is a little obscure, and can not be traced beyond the person from whom Mr. Quinn obtained it. We suppose it to be a seedling of the Chinese Sand Pear, *Pyrus Sinensis*, which has been for a long time in cultivation as an ornamental tree, and that the name of "Japan Pear," under which Mr. Quinn received it, is a misnomer. At all events, the thing is a puzzle. The tree has the wood, leaves, and habit of growth of a pear; the fruit has the shape of an apple and the odor of a quince, while the seeds have a little of the mucilaginous character of those of the quince. Bentham and Hooker, in their recent great work upon genera, unite the quince (*Cydonia*) with the apple and pear (*Pyrus*), and this fruit would show that the characters which botanically separate the apple and the pear are not well defined. The tree is altogether a most interesting one, and while it is highly ornamental, we learn from Mr. Quinn that it bears most abundantly of fruit, which makes the most delicious preserves, with a positive quince flavor.—Since the above was in type, we learn from Mr. Thomas Hogg that both forms of this fruit above referred to are common in Japan. He considers it specifically the same with the Sand Pear, which has long been cultivated.

JAPAN PEAR.

SORREL.—This vegetable is but little known in American gardens, but in France it is as common as spinach. It is not the weed known by this name, but a much larger plant with a general resemblance to a dock. It is a perennial easily raised from seed, and will furnish leaves for use the first season. It is cooked the same as spinach, and boils up into a very tender mucilaginous mass. It has a brisk, pleasing acid taste, and forms alone or cooked with spinach a very acceptable accompaniment to meat. We cultivated it this year for the first time, and are much pleased with the result of the experiment.

Balsam Apples and Pears.

One need not be a centenarian in order to have noticed that many plants that were common enough in his youth have so nearly disappeared from culture, that they only turn up now and then as curiosities. It was the custom of our good grandmothers to look after the gardens, and especially that portion containing those herbs so useful "in case of sickness." Among the plants thought in those days to be valuable were the Balsam Apple and the Balsam Pear. These are both species of *Momordica*, and belong to the same family with the cucumber, melon, etc. Though formerly so common, they are now but rarely met with; even the name seems to have been forgotten, as almost every season we have a specimen or two brought to us to be named. The vines are rather pretty climbers, with their lobed leaves and yellowish flowers, which if not showy are pleasing. The fruit is, however, the most ornamental portion, and it is for this that the plant is cultivated. That of the Balsam Apple (*Momordica Balsamina*) is egg-shaped, and pointed at each end; that of the Balsam Pear (*M. Charantia*) is larger and oblong. The fruit of both species is covered with warts, as shown in the engraving. When ripe, the fruits break open with some force and scatter the seeds, which are covered with a brilliant scarlet envelop. Both the seeds and the fleshy wall of the fruit are quite mucilaginous, and in olden times were supposed to possess valuable healing properties. The fruit and seeds were formerly put into spirits, and the liquid used upon fresh wounds. As these generally healed in spite of the application, the Balsam received much credit. The engraving shows the general appearance of these fruits, and is taken from a specimen sent for a name. We suppose it to be *Momordica Charantia*, though it is more regular than we recollect to have seen the fruit of that species. One species, *M. mixta*, is said to bear a fruit as large as a child's head. Both the Balsam Apple and Balsam Pear are natives of the East Indies, and perfect their fruit wherever the melon will. They are interesting plants for a low trellis, and in Europe are sometimes used for the decoration of greenhouses. The name *Momordica* comes from the Latin *mordeo*, to bite.

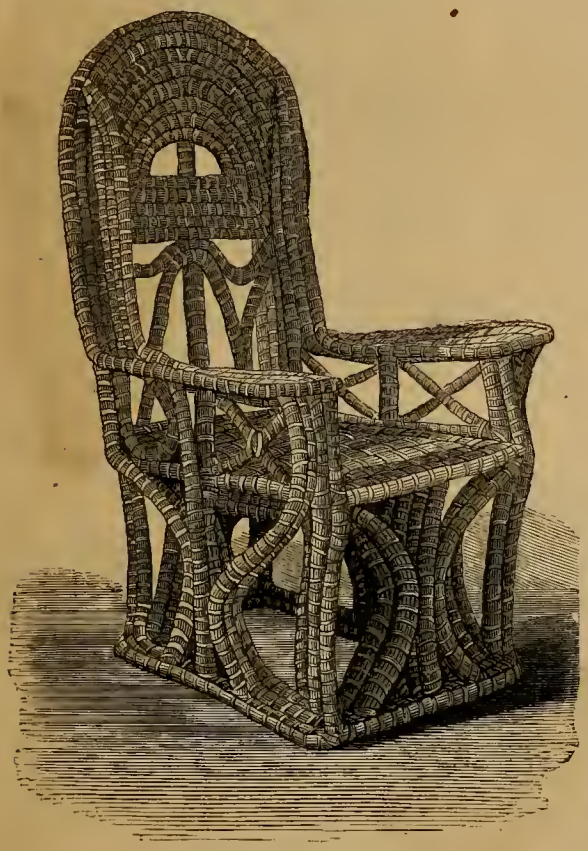
BALSAM PEAR.

THE HOUSEHOLD.

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

Some Novel Chairs.

The straw chair (fig. 1) we do not introduce so much as a thing to be copied as a household curiosity. Being in Richmond some months ago, we came across and purchased the chair here figured.



VIRGINIA STRAW-CHAIR.

It is made entirely of straw, bound together by hickory withes. The skill displayed in the arrangement of stays and braces is remarkable. This chair is a very easy one to sit in, and is said to be very durable. Our purchase excited the admiration of our associates, and orders were sent to Richmond for others. The gentleman who procured the chairs writes: "The chairs are made by an old negro who belonged to John Randolph of Roanoke (the man who fought the duel with Henry Clay). He is one hundred years of age, and it takes him and two boys, his sons, a week to make one chair." The "boys" are one sixty-five and the other seventy years of age.

The other chair is one we saw at the St. Louis Fair. It is made entirely of hoop-poles. The arrangement of the frame is sufficiently shown in the engraving. It forms an excellent garden chair, much more comfortable than the ordinary rustic one, and can be easily made by any one who can command a supply of smooth hickory saplings. The saplings where they cross one another are fastened by nails. The seat is made of small sticks of the same material, the larger portions of the saplings being used for the legs. Winter is the best time for making work of this kind, and a chair made in this style costs nothing for materials, and will prove an acceptable present for a friend.

Home Topics.

BY FAITH ROCHESTER.

HIGH-CHAIRS AND THEIR PERILS.—Our first child had a present of a pretty willow high-chair. The lady who gave it afterwards expressed a fear that it would tip over easily, the legs were so perpendicular, or made so small a base. I meant to be very watchful, but one day, a few months afterward, I set the baby in a very dangerous position without realizing it. He was tied into the chair, and I placed this before a window, from which he could see three girls pulling turnips in a field. I was very busy with household labor; in fact, I was mopping the kitchen floor. [This fact I take pleasure in stating. It would have been *such* criminal neglect had I been engaged in literary labor, or had I left the little one in another's care while I stepped out to vote! No; the worst accidents that have happened to my children have taken place while their mother has been in the approved "womanly sphere" of household labor.] Well, there was a crash and a scream, and there lay the baby on the wet floor, with the high-chair upon him, and with a bleeding gash in his lower lip. This was cut by his own sharp little teeth as his lip struck against the window-sill in falling.

The child was dreadfully frightened, but scarcely more so than his mamma. He cried very hard for some time, while I soothed him in my arms, and bathed the wound with cool water, using a soft linen cloth. I sent for our physician, who came in about an hour and found the baby sleeping. All that the doctor did was to stick a bit of court-plaster over the wound. Even that was not necessary, the doctor told me, but it might serve as a protection from dust. So I might have saved myself a doctor's bill had I known as much as any mother may who reads this page. I thought the baby would suffer greatly in taking food for several days, for I had not then learned that nature generally takes away a child's appetite while carrying on her active healing operations. The wound was made at about three o'clock in the afternoon, and baby went to sleep about half an hour afterward, and slept until six o'clock. When he awoke he cried some, but refused food, and soon went to sleep in my arms; slept well all night, ate comfortably next morning, and never had any further apparent discomfort from the wound, which was quite healed within a week from the fall.

I was washing dishes and planning the day's dinner, one morning a few years later, when another baby gave her occiput a terrible blow, by pushing herself away from the table where she sat and falling over backwards. These blows upon the head always cause me anxiety, lest the brain may have received injury. I bathed it well with tepid water, and the little one soon went to sleep in my arms. Once this would have alarmed me, for I used to hear it said that a child must not be allowed to go to sleep after a blow upon the head; if it did, some degree of idiocy would be likely to follow. Medical men say this is absurd, and it is quite reasonable to suppose that rest is the very best thing for a brain that has received such a shock. So I was glad to have this baby take a long, quiet nap, and glad to see her appear as well as ever when she awoke. But look out for the high-chairs. They are very useful, but should be safely constructed. The legs should spread well apart.

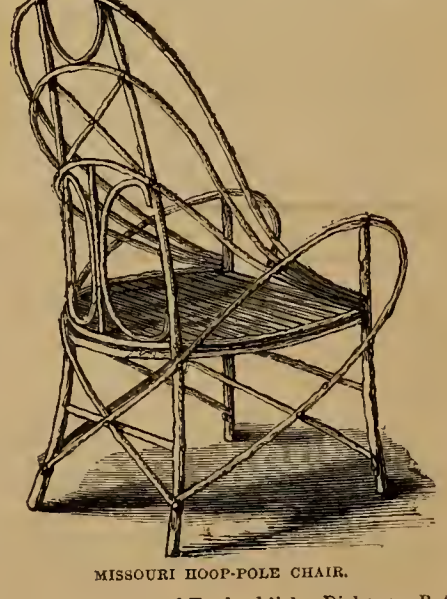
HINTS FOR SANTA CLAUS.—Do you know what a capital plaything for a child is a small box of water-colors? Very small ones, with six or eight cheap colors, may be bought for ten or fifteen cents. Small hair-brushes are a penny a piece. These will do for the wee ones who are not old and steady enough to color pictures. I knew one little boy, aged three and a half years, who had the best of water-colors to use, but only a few cakes. He had a mother who was able to make her child's care and culture her daily *business*. She taught him to mix the few colors he had so as to make all the other colors with their shades and tints—green from blue and yellow, purple from blue and red, orange from red and yellow, etc. He was away from home with his mother for a few weeks, and employed many happy half-hours in coloring the pictures of a new Primary Reader to carry home as a present to his papa.

Another child of my acquaintance finds great delight in coloring the pictures of her Sunday-school papers. The little boy mentioned above had a fine toy, which was a source of ever new and fascinating interest to him. It was a mosaic of diamond-shaped blocks, of several different colors, which could be arranged in countless beautiful forms. The tablets of the seventh gift of Froebel's Kindergarten series make a beautiful present for a child. So of several other gifts of the series, especially the one that consists of strips of fancy-colored paper for weaving. The paper for perforating and embroidering is another gift that will give much delightful employment to little children.

I know a little boy who wishes to measure things so much of late, that I mean to give him a pocket foot-rule for his next plaything.

The poorest Christmas presents, I think, are those that are soon eaten up. How cruel it is for us to make our children sick with sweetmeats on this holiday! A *little* something in that line, as an addition to their other presents, is admissible generally. Garments that will soon be worn out are poor Christmas presents, though if they are needed it is well enough to give them, *along with other presents*, on this occasion. A genuine Christmas present should seem to come of no necessity for supplying deficiencies in our children's comfort, but should show that the parent "so loved" the child that it delighted to make it happy with something over and above its actual necessities. It is the time for toys and picture-books and wholesome feasts and sleigh-rides and games—a time for "peace on earth and good-will toward men."

CHILDREN'S BOOKS.—Can not we teach publishers that we do not want for our children those silly books with coarse daubs for pictures, which are so abundant in the market? Or, *do* we want them? I, at least, do not. They pervert the taste of children, while they really give them little gratification. I confess I do not want many of the fairy stories either. The bound volumes of "The Nursery" contain a pleasing variety of wholesome reading, and the pictures are usually very good. For children beyond the *nursery* range, some of Abbott's books are excellent, especially "Rollo's Tour in Europe;" "The Heroes," by Charles Kingsley; "Tanglewood Tales," by Hawthorne; "Tales of a Grandfather," by Walter Scott;



MISSOURI HOOP-POLE CHAIR.

"Child's History of England," by Dickens. But this will not do; I did not mean to make out a list. Yet there are many books written by the best authors for children, which are at the same time interesting and instructive. I don't object to the stories that are not historical or scientific, but are

simple, wholesome pictures of life. But there are so many of them! Unless a child has a taste for something else—something positively instructive—it is in danger of keeping its mental digestion weak by too easy intellectual diet.

FEMININE UNDERWEAR FOR WINTER.—Judging by what I have myself observed, I should suppose that it is very common for women to dress during winter weather almost the same as in summer. They "dress up" in merino and warm-looking clothes, but the appearance is deceptive. Many young women wear the same thin cotton stockings and drawers all the year round, and a single calico covering on their arms while about their work. Over their shoulders they have not more than two thicknesses of thin material, three over the lungs, and around the lower part of the waist considerable more warmth in the thick corset. The covering of the body is very unequally distributed. There should be warm undergarments of flannel, merino, or cotton-flannel, covering the whole body. The merino vests and drawers furnished for ladies used to be quite senseless a few years ago—short-sleeved and short-legged, only reaching just below the elbows and knees. Some women purchase the smaller sizes of men's ribbed drawers and shirts for their own use. Some prefer a long-sleeved, high-necked waist of cotton-flannel, with a full (gathered) piece set in across the bust, leaving the front with a yoke and broad belt. The drawers, of the same material, are sewed to this across the front, and button to it across the back. In that case the waist opens behind. When it opens before, the drawers button on all around. The drawers are made at the bottom like men's drawers—reaching to the heel under the stockings. The usual muslin drawers are generally worn over these. Some grown-up women choose flannel drawers, like the red ones worn by children, instead of a flannel underskirt.

I think the day is fast approaching when women will be *clothed*, instead of *draped* as hitherto; when comfort and convenience will insure to woman's attire a reasonable and permanent beauty. While we wait for that day to come, we can be more reasonable about our undergarments than has been our habit, if we consider the matter and are wise.

The girls who are only half-dressed say they are warm enough, but they do not know what a price they pay for such degree of comfort as they are able to maintain. It uses up the vital force which is needed to carry on the various functions of the body; and though the girls may not seem to "take cold" by such habitual exposure, they are undermining their constitutional vigor, and are preparing themselves to be added to the list of nervous, broken-down women.

Letter from a Housekeeper.

SAUCES AND GARNISHES.—We had broiled chickens a few days ago for an eight-o'clock supper, at which our friend Mrs. S. was a guest. We all said "How delicious!" but I was almost tempted to feel annoyed at Mrs. S. because she helped herself to tomato catsup, and I knew she did not enjoy the delicate flavor of the chicken as we did. When will people learn that delicacies like broiled chicken do not require the aid of strong sauces and pickles to make them palatable? Casters are now generally banished from the upper table. When mustard, pepper, oil, and catsup are required, they are placed upon the table in convenient places, and in jars and bottles adapted for the purpose. When a joint of cold meat is put upon the table, pickles, catsups, and sauces should accompany it. Years ago, pickle, cheese, spiced meats, and even pie, were introduced at tea or supper, but now we do not do so. A plate of biscuit, one kind of cake, a dish of delicate preserves, and perhaps a few slices of meat, are all that is required. But of course judgment must be exercised in this as in everything. If a friend or friends from a distance are of the party, the gracious hostess will provide something substantial and appetizing for their refreshment. Nothing more displays the good-breeding of a lady than consideration for the actual wants of her guests. We used to laugh at a cousin of mine because he insisted upon eating mustard with mutton and vinegar with sardines, and I know a gentleman who eats mint-sauce with beef. Many persons eat sardines with vinegar, but in my opinion it destroys the delicate flavor of the fish. Handsome jellies are an acceptable addition to a table. Of course you would not use jelly on fish, but it is good with beef, mutton, or lamb, and especially appropriate for turkey, poultry, and game.

Fish of most kinds are rather insipid without sauce or catsup. A few years since a friend (who was constitutionally deficient in all matters pertaining to the appetite) invited me to dinner. She had carrots brought to table with the fish. It seemed very odd to me, though the other guests probably thought nothing of it.

A few hints in regard to garnishes for meat: Horseradish scraped into shavings for roast beef. Put a pinch as large as an egg lightly on the joint, and an equal quantity in even spaces around the dish. Leaves or tender sprigs of spear-mint around mutton or lamb. Parsley for chicken, veal, and fish; to the latter two, slices of lemon may be added. Red beet-root, boiled and sliced, and boiled carrot sliced, make a very pretty garnish for boiled beef. Fried sausages or balls of forcemeat around turkey and roast chickens. Parsley around boiled chickens. Game may be garnished with jelly.

A CHRISTMAS GOOSE.—We always have a goose for dinner on Christmas, and do not attempt so elaborate an affair as on Thanksgiving. We used to think a goose must be boiled before it is roasted or it would not be good, but have since learned better. It should of course be tender. Take the body of the goose with one hand, and with the other grasp the leg. Bend the knee-joint from the body. If it cracks and snaps you may know it is young. If the skin will break under the wing close to the body it is also young. Unless a goose is very fat it will not be good. Not that any of the fat is required for the table, but it indicates good feeding and condition. Every part of the leaf fat should be removed from the inside before preparing it for the oven. The neck and apron incisions should be securely sewed up after the forcemeat has been put in, and then the fat from the surface of the body will roll off as it melts without affecting the lean meat. Every particle of this fat should be removed from the pan before the gravy is made. Many persons do not think of this, and they make sad work of the gravy. A neighbor of mine once came into possession of four young ducks. She kept them until they became very fat, when she gave one away, and as she had a large family the other three were killed for her table. A few days after one of the sons called, and having nothing else to say, I asked how they enjoyed the eating of the ducks. "Well, not much," he said. "They were so rich we could hardly eat them, and mother has two tureenfuls of gravy left. She don't know what to do with it." "Did you see your mother make the gravy?" I said, suspecting where the trouble was. "Yes." "And did she pour off the fat?" "No, not any of it, and she thickened it with flour. It is a horrid mess. I never want any more duck to eat." I should fancy not. Just think of the quantity of grease that would flow from three fat ducks, and then thicken this with flour, and expect her family to eat and enjoy such a dish! I suspect that if we could go into the kitchens of some families and see the stupid way in which the cooking is done we should be astonished. We shall have with our roast goose apple-sauce nicely made in a covered jar in the oven, to which sugar is added, making it rather sweet; then onion sauce, the onions so thoroughly boiled that their intact relations would not know them.

MAKING SHIRTS.—It is very essential that the cloth from which shirts are to be made should be well shrunk before the garments are cut out. I once made a dozen shirts for my brother, which fitted him perfectly before they were washed, but afterwards each one shrank nearly two inches around the neck, and the wristbands one inch. Of course, new bands had to be put on, but the shoulder pieces had also shrunk, and it was impossible to make them fit well. I was mortified about it at the time, as they were made just before he was married, and the mistake not being discovered until afterwards, his new wife had to alter them, and I fancied she thought I did not know much about shirts. It is a great deal better to shrink the cloth first than to *allow* for shrinkage, as many do, because there is a difference in cloth in this respect.

BUTTONS.—Of course, button rings or slides would be better, but I happen to be without any, and I can't go out after them, so you see I do the next best thing. A piece of string or a narrow strip from the selvedge of cambric, which I prefer to string, run in through the eye of each button, on the wrong side of the garment, serves to hold them very firmly, if the needle and thread are also passed through a few times. In making button-holes, the end passing around the eye of the button should be made oval in shape. Where this is not done, the garment is apt to look drawn between the buttons after it is fastened together.

How to Cook Sturgeon.—"Max" writes: In the May number you give your readers a very interesting and instructive article upon the sturgeon, wherein the writer states that he "tried it several years ago (upon the table) and has since had no desire to repeat the experiment. Now, I had the good fortune to be born in the staid old city of Albany, which our friend represents as head-quarters for the consumption of the North River Sturgeon crop, and many a savory dish of the aforesaid "Albany beef" has my good mother served up for us in years gone by. Others who never tasted it elsewhere have partaken of it on these occasions, and I believe their testimony has always been in its favor, unless when an unfounded prejudice has stood in the way. I call it delicious, and for the fair fame of the calumniated *Acipenser*, and the information of whom it may concern, I append the recipe for its preparation: Take off all the fat and the brown meat. Cut in slices about 1 by 2 inches. Rinse off, and put over the fire in cold water, for half an hour or more, until tender, but not enough to break apart. Add flour and butter, salt and pepper, and bring again to the boil. Remove from the fire, and stir in one or more eggs, according to quantity. Serve on toast, with plenty of dressing. It is in fact prepared the same as chicken fricassee, except the toast and eggs.

Dried Apple-Parings.—Wherever apples are scarce, it is good economy to dry the nice parings, especially of fine fall apples, as thus dried they will make good apple-jelly in winter. I have tried it myself, and I can fancy that the richly elaborated juices so close to the sunshine under the crimson and golden surface are more suitable for jellies than other parts of the apple, as we know it to be so in the quince. The parings dry nicely laid in plates under the cooking stove for the first day, then in the sunshine. Keep in paper bags. The parings of russets are generally bitter.

Scalloped Oysters.—This makes an excellent dish to accompany the turkey or goose at a Christmas dinner, to serve at a supper party, or to help out an otherwise meager dinner. Small oysters, which cost less than large ones, and are just as well flavored, will answer as well as large. Butter a pudding-dish and put on a thin layer of bread crumbs or rolled cracker; put on a layer of oysters, another layer of crumbs, and so on until the dish is filled or all the oysters have been used. The top layer should be of crumbs. In filling the dish, put bits of butter and a little pepper with each layer of oysters. A very little mace makes an excellent seasoning for this dish; a few small bits with each layer—avoid using too much. The oysters in cooking usually give up enough liquor to moisten the crumbs. Bake for an hour. The dish should be handsomely browned upon top, and should be moist all through, without any running liquor

BOYS & GIRLS' COLUMNS.

The Doctor makes a Proposition.

How many boys and girls, if they wished to give a stranger a map of the road from their house to the schoolhouse, or to the house of a distant neighbor, could do it correctly? Such a map should show all the turns of the

Fig. 1.—MONEY-BOX COMPLETE.

road, and point out all the prominent landmarks, so that one who took it for a guide should feel sure that he was right. Being able to draw objects correctly is a pleasing and often a very useful accomplishment, but it is of more importance to know how to draw a map or a plan cor-

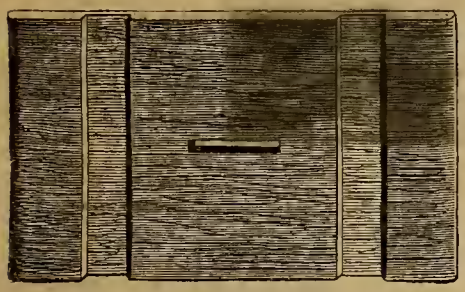


Fig. 2.—ONE PIECE OF MONEY-BOX.

rectly. How many of you can draw a plan of your own place properly, giving the relative size of the lots, the building, and all that is upon the farm? Now, let us

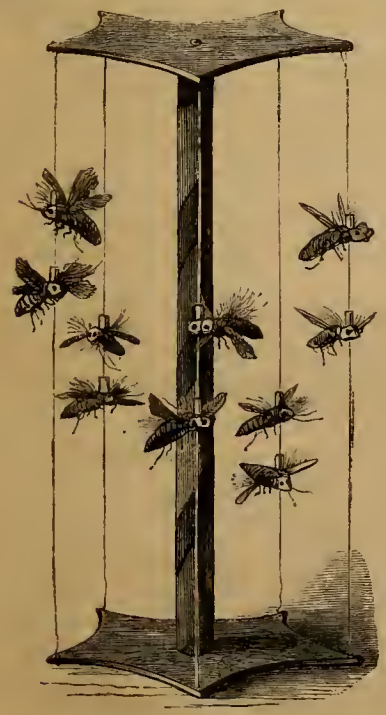


Fig. 3.—SINGING CRICKETS.

have a little trial of this, and see how much we know about it, and I propose to have a little competition, into which girls as well as boys can enter. The steam-engine that I offered for a premium last winter was for boys only. The girls did not like that arrangement, and I do not blame them that they found fault at being shut out from competition.

Now, what I propose is to offer premiums, which will be named below, for the best map or plan of the farm or place that the boy or girl lives upon. Not a picture, you understand, but a map. It must show the fields and other inclosures in their proper proportions, the positions of house, barns, and other buildings, the roads and paths, and if there is a pond, brook, hill, or unusually big tree or rock, the places of these should be marked down. A piece of strong twine, with a white thread sewed through it for every foot, will answer for most of the measurements, and the relative sizes of the fields can be found by counting the fence sections. Of course proper reference should be had to the points of the compass. The *scale* upon which the map is made must be determined on, but about this your father or some older person will give you advice. It is well to draw the plan first in pencil, and after all the necessary corrections are made, carefully ink over the lines.

I have spoken about a map of the farm, but this should not exclude those who live on smaller places. Those who have only village lots, can make maps of those, only they should be more minute than those of larger places, and show all the paths, flower-beds, principal trees, shrubs, and the like. What I wish, is to encourage a habit of accurate observation and the ability to represent things upon paper in their proper position. The neatness in the drawing and apparent accuracy will be considered in awarding the prize, and each boy or girl will sign the map or plan as an assurance that it is his or her own work. These must reach me by February 1st, 1872, and be directed "The Doctor," 245 Broadway. The best plan will be published, if I see proper, but this I do not promise.

For the best map or plan, Five Dollars $5.00
For the 2d best, *Hearth and Home* one year, equal to $3.00
For the third best, *American Agriculturist* for one year, equal to.....$1.50

About Christmas Presents.

December 25th will soon be here, and every boy and girl knows that to be the date of Christmas. And probably almost all of them have their minds fixed upon Christmas presents. Some are thinking what they shall get, but we hope that more are considering what they will give. It is very easy for those who have a plenty of money to purchase gifts, but we think that those presents which are made by the giver's own hands are most acceptable. It is not the thing given that is valued so much as the love and kindness that prompted the giving at all. While you are contriving some little gifts for your young friends, don't forget the older ones. Parents, grandparents, and good old uncles and aunts like to feel that they are remembered in these holiday times: no matter how small the gift, it shows that their happiness has been thought of. Girls at these times have a great advantage over boys, as there are so many pretty and useful things that they can make with the needle, or crochet, or knit, while boys, with every desire to make holiday gifts, are much puzzled what to do. In former volumes we have given patterns for brackets and little picture-frames, which may be readily cut from thin wood, by the skillful use of the jackknife. A neat bracket or small frame for a photograph is an acceptable present for almost any one, especially to an older person. Boys that are handy with tools, can make small boxes of black walnut, red cedar, or any other pretty wood. Here (fig. 1) is a drawing of a money-box, which would be a clever present for a boy or girl. It is made of six pieces, all of the same size, and like that shown in figure 2. At a short distance from the end of each piece a groove is cut, as wide as the thickness of the material, and half-way through the wood. This can be cut by the aid of a knife and a small chisel. The box, when put together, is like figure 1. There are no nails or other fastenings to hold the sides of the box in place—they bind one another. Should there be a difficulty in getting the last piece into its place, widen the grooves a trifle. It should go together with some difficulty. Figure 3 shows "singing crickets," a toy that is very amusing to small children. A central, upright stick has a piece at each end cut to form five points. Between the lower and upper points are stretched pieces of very fine wire, such as is known as "binding wire." The insects' bodies are made of clay, mixed up with gum-water, rolled into a cylinder about an inch long; a small hole to receive the wire is made by means of a pin near one end, and a bit of feather is stuck in each side, to serve for wings. When these are dry they may be painted some gay colors and strung upon the wires, two or three upon each wire; a little section of a small quill is put upon the wire between each two crickets, to keep them apart. When the stand is turned over, the things slide down the wire, but the hole through which the wire passes, being near one end of the body, they do not fall readily, but drop down with a series of jerks, which give them a curious

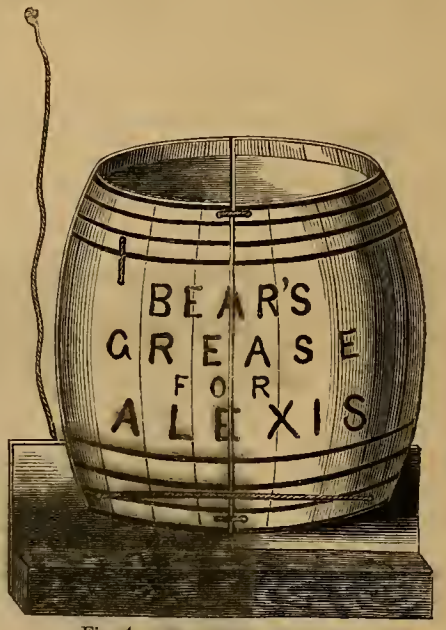


Fig. 4.—THE CURIOUS BARREL.

fluttering motion, and at the same time the vibration of the wires makes a sort of musical sound.

An ingenious friend of ours got up an amusing toy for a fair, which we figure here, as it may please some. The toy (fig. 4) appears like a barrel, which should have some marks upon it to attract attention. While a person

Fig. 5.—WHAT WAS IN THE BARREL.

is looking at it, it suddenly changes into a bear (fig. 5). How this is done will be seen by consulting the lines in fig. 5. One half of the barrel folds over upon the other half and discloses the body of the bear. This is, of course, done by one in the secret, who pulls a thread that moves the parts. The head is upon a separate piece and hinged

421. *Geographical Puzzle.*—A celebrated Southern locality.

upon the back of the toy, and turned down so as to be out of sight. It is raised in place by means of the same thread that moves the half of the barrel. To make this requires some skill in drawing, though for a small toy

the parts may be traced from our engravings. The parts should be appropriately painted with water-colors. The toy should be made of moderately stiff card-board, and at the bottom be attached to a small block of wood, to serve as a stand.

The Doctor Talks about Indians.

My nephews, like most other nephews, have a great fondness for reading about Indians. There is much in their wild life to interest a wide-awake youth, and the books about them, which would seem to be mainly written by people who never saw much of Indians, possess a great attraction for all young people. As I have been much among the savages, the boys frequently ask me to tell them a story about Indians, but being a very matter-of-fact uncle, and never having seen an Indian that was not a miserable, lazy, lying, thieving specimen, my stories are altogether unlike those found in the books. I know that there are some very excellent, civilized Indians, but those are not the ones that are met with on "the Plains." The last story that I told the boys was one that illustrated the ingenuity an Indian will display in horse-stealing. The Apaches will steal anything, but their chief delight is to rob horses and mules. These animals are not only a necessity of their wild, roving life, to carry them about, but also to serve as food. "What, eat horses and mules?"—Yes, and very good eating they are said to be. In many parts of Europe horse-meat is regularly sold, and in Paris, during the siege, it was considered a great luxury. A military post was established at Doña Ana, in New Mexico. I don't know that you will find the miserable little place upon your maps, but it is upon the Rio Grande, some fifty miles above El Paso. At a military post there are usually many horses and mules, and here there was quite a large herd to be taken care of. After much trouble and labor the quartermaster had built a large *corral*, which is a Mexican name for an inclosure where animals are kept. This was a large yard, surrounded by a thick wall of *adobe*, some ten feet high. Adobes are bricks made of clay mixed with cut straw, formed in a mold about a foot square, and dried in the sun. These are laid up with mud instead of mortar, and are used to build houses, walls, etc.; they answer a good purpose in a country where there is very little rain. Well, the corral was built of these adobes, and an enormous, heavy gate put at the entrance. The animals were driven into the inclosure every night, the gate bolted and barred, and, that no one might enter, a sentinel was kept pacing in front of the gate all night long. One bright morning, when the herders came to take the animals out to graze, the gate was opened, but, instead of the usual noisy rush of the animals towards water and grass, there was perfect silence. Not a horse nor a mule was to be found! The gate was all right and the sentinel had heard nothing. An examination showed that Indians had been at work, and very cleverly they did it. One Indian had climbed over the wall, and the end of a hair *lariat* (a rope made of twisted horse-hair) was passed to him. The Indian within the inclosure and one without pulled the lariat back and forth, and thus quietly sawed through the soft adobe. The bricks, as they were loosened, were silently removed, and thus in a short time a passage was made in the walls, sufficiently large for the animals to pass through. By the time the loss was discovered the animals were far away. Most of the people at the post were much amused at the ingenuity of the Apaches, but I know that there was one very cross man at Doña Ana that morning, and that was the quartermaster.

A Trick of the Gulls.

Who opened the first oyster? We do not know, but suppose that it was done by some one who took a lesson from a bird. The gulls are well known for their ingenuity in obtaining food from mussels, clams, and other shell-fish. We suppose that all the boys and girls know the gulls. They are more abundant upon the sea-coast than elsewhere, but they are also found plentifully around the larger lakes and rivers, and they are noticeable for their very long wings, which give them great powers of flight. They are great gluttons, feeding upon whatever floating offal they can find, and catching fish with dexterity. When the tide is low, they are ready for anything eatable that may be picked up along shore. Even those creatures that are protected by shells, such as sea-urchins, clams, mussels, and the like, fall a prey to the gulls. This kind of food, however, can not be got at without first breaking the shells, and the bird, being unable to do this by means of its beak, resorts to a trick which, were it not related by very reliable witnesses, would be difficult to believe.

GULLS DROPPING CLAMS UPON THE ROCKS.

The gull takes the shell-fish in its beak, rises high in the air, and then lets it fall so that it will strike upon a rock and the shell be shattered. As soon as the bird lets the shell-fish fall, it at once darts down to secure its prey, for it well knows that there are a number of its fellows on the watch to avail themselves of the labors of their industrious companion. It seems astonishing that an animal so stupid as a sea-fowl should know that a cause will follow an effect; that dropping from a hight will break the shell, and allow the food to be reached. Audubon tells of an instance in which he saw a gull let a mussel fall for three successive times before it succeeded in breaking it. There are some people who maintain that animals do not reason, but the conduct of these birds looks very much as if they were able to reason. The engraving shows the White-winged Silvery Gull in the act of dropping a clam.

Aunt Sue's Puzzle-Box.

ANAGRAMS.

1. Toys I'm sure.
2. O tag Eva and us.
3. Ned tar duns.
4. Sin wed cash.
5. Bud or cap.
6. Stop my M. S.
7. Sip gin, lady.
8. Our father's hog.
9. Ma, then bless it.
10. Nine rugs? Joy!

SQUARE WORD.

11. 1. Incorrect. 2. A swift mover. 3. An earthy mixture used for paint. 4. A brain telegraph. 5. A color.

H. H. CLARK.

TRANSPOSITIONS.

12. Transpose a tool into a command.
13. Transpose a decoy into a portion.
14. An animal into a vegetable.
15. An insect into a nickname.
16. A household utensil into a conjunction.
17. A domestic animal into a performance.

HARRIS.

GEOGRAPHICAL PUZZLE.

(Fill the blanks with names of countries, rivers, towns, etc., so as to make sense of the story.)

18. Once upon a time, while traveling in England, I stopped at an [1]—— (one of the tributaries of the Danube), and calling the landlord asked him what he could give me for supper. He said I could have some cold [2]—— (a country in Europe), and leaving me alone for a few moments, soon returned with that, and two bottles, one of [3]—— (a bay on the coast of Af[illegible], and the other [4]—— (an island in the Indian Ocean). As I sat down to the [5]—— (a bay on the coast of Africa), he prepared to draw the [6]—— (a city in Ireland), but I told him that I was a disciple of temperance and would take only water.

The [7]—— (a country in Africa) being quite [8]—— (a country in South America), I called a [9]—— (a cape on the coast of Guinea) waiter, told him to prepare me a [10]—— (a city in England), and I would retire. Early in the morning I was awakened by the loud crowing of a large [11]—— (a sea in Europe) [12]—— (a city in Asia) rooster. With a boot-jack, a footstool, and several other *missile-a-neous* articles of domestic furniture dexterously directed, I persuaded him to leave the immediate neighborhood, and returning to my couch was just tumbling into a delicious dose, when a [13]—— (a group of islands in the Atlantic Ocean) in the next room set up a most melodious racket, and effectually banished slumber from my eyelids. I arose, dressed myself, and going down to the breakfast-room, I found the landlord sitting on his porch, [14]—— (a city of England). I asked him if he could let me have a conveyance to take me to the next town. He assured me that he could, and calling to a [15]—— (an island in the Irish Sea), ordered him to go and harness the [16]—— (mountains in Africa) horse to the [17]—— (a sea in Asia) wagon and bring him around to the door. After paying my bill, which was just one [18]—— (a country in Africa), I bade my kind host [19]—— (a cape on the coast of New Zealand), and pursued my journey. W. McC.

ANSWERS TO PUZZLES IN THE OCTOBER NUMBER.

1. King William.
2.
WRITE
RENEW
INANE
TENOR
EWERS

3. Pare, pear. 4. Heir, air. 5. All, awl. 6. Sam, psalm. 7. Him, hymn. 8. Hugh, hew. 9. Mien, mean. 10. Harrisburgh. 11. (Begin at the N, in the sixth line, and trace up and around.) Never put off till to-morrow what you can do to-day.

12. Revenge is the only debt which it is wrong to pay.
He that goes a borrowing, goes a sorrowing.
A man at sixteen will prove a child at sixty.
It is easier to blame than to do better.
Good health is above wealth.

13. Mixture. 14. Separated. 15. Furnished. 16. Improvements. 17. Performers. 18. Predominance. 19. Instrumentalists. 20. Nuisances. 21. Scavengers. 22. Directors. 23. Conciliatory manners command esteem.

REBUSES—417. One should try to improve one's time.
418. Still achieving, still pursuing,
Learn to labor and to wait.
419. Keep what you've got and get what you can.

AUNT SUE'S NOTICES TO CORRESPONDENTS.

VIRGINIA Y. says "i think you are quite a smart old lady or you could not make so many hard puzzles." Why, Virginia, it is my nieces and nephews who are "smart;" not I.

MINNIE E. S. Why didn't you tell me more about the picture your teacher gave you?

W. McC. Thanks for your geographical puzzle, which is very "acceptable," but I shall have to take the liberty of condensing it somewhat.

If I have failed here to notice any of my correspondents who expected a little word from me, the reason is, doubtless, because they gave me no clue as to whether they were writing for the PUZZLE-BOX or the SPHINX. So, my darlings, if I have neglected any of you, I forgive you.

Glad to hear from Lillie S., G. R. W., M. E. L., Minnie M., Hessa M. W., and Emmett S. K.

Those sending puzzles to AUNT SUE, Box 111 P. O., Brooklyn, N. Y., will please specify whether their contributions are for the *Agriculturist*, or for *Hearth and Home*.

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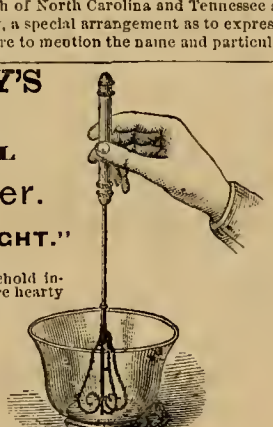

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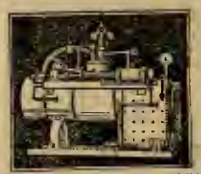

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37	*Set of Field Croquet*	$8 00	16	52	8	26	9
38	*Sewing Machine (Grover & Baker)*	$55 00	60	240	30	120	33
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40	*Sewing Machine (Wilcox & Gibbs)*	$55 00	60	240	30	120	33
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Full 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. 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 guarantee, 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 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 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.—Multum in Parvo Pocket Knife.—This is a most attractive as well as useful Premium. It comprises, in one knife-handle, a large and a small blade, a screw-driver, a saw, a strong hook, a nut-cracker, a brad-awl, a gimlet, a corkscrew, a pointer, a slim punch, and, in addition to this, it can be used for various other purposes which will at once suggest themselves to any smart boy or man. The knives will be sent anywhere in our country, post-paid.

No. 13.—Cake Basket.—A new pattern, oval-shaped, nicely chased—a very taking, useful, and *beautiful* table ornament. This, with other articles that follow, is made by the **Lucius Hart Manufacturing Co., of Nos. 4 and 6 Barling Slip, New York City,** and is warranted by them to be of the best triple plate. Mr. Hart, "the veteran Sunday-school man," was engaged in the same place and business for nearly a quarter of a century. We have known him and his work for many years, and have taken pleasure in commending and guaranteeing its value to be as represented. We believe the Company which bears his name is fully sustaining his reputation. 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. 14.—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 and of equally good quality as the preceding.

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. 13.

No. 16.—Card Receiver.—This is a beautiful ornament, as well as a useful article. It is finely chased and gilt-lined, and, like the three preceding, is from the **Lucius Hart Manufacturing Co.**

No. 17.—Nut Picks and Crackers.—Here are twelve nut-picks, elegantly chased, of medallion pattern, with two handsome nut-crackers, in a morocco-covered case. From the same house as No. 13.

No. 18.—Half-Dozen Napkin Rings.—These rings are beautifully chased, and in a morocco-covered case. From the same house as No. 13.

No. 19.—One Dozen Teaspoons.—No. 20.—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. 13. They are far *cheaper* than anything we have found at half the price, and well worth working for.

No. 21.—One Dozen Table-Forks.—The same description and remarks apply to these as to No. 20. 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. 22.—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 keepsake.

Nos. 23, 24, 25.—Gold Pens: *with ever-pointed Pencils, in extension, coin-silver cases.*—Premium No. 23 contains the best No. 4 Gold Pen; and No. 24 the best No. 6 Gold Pen, which is the same style, but larger. No. 25 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 an excellent reputation. We have known the maker and his goods for many years, and can recommend them.

No. 26.—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.

Nos. 27, 28.—Ludden's Patent Magic Revolving Pencil.—This is a beautiful Pocket Pencil, which is extended or closed by pulling or pressing the bead. They are made with great care, and every Pencil warranted to work perfectly. They are gold-plated, and will last for years. We offer two patterns, one for ladies, with ring for chain, at $1.50 each, and one of heavier and firmer plate, at $3.50. They are made by **Ludden's Gold P. and P. C. Co., Wm. A. Ludden, Agent, 195 Broadway,** who has been in the business thirty years.

No. 29.—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. This premium, 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.

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