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VOLUME THIRTY-ONE—FOR THE YEAR 1872.

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AMERICAN AGRICULTURIST

FOR THE

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NEW SERIES—No. 300.



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IMPORTED NEGRETTI SHEEP.—Drawn and Engraved for the American Agriculturist.

The various kinds of fine-wooled or Merino sheep are descended from the Spanish Merinos. For centuries the flocks of Spain were celebrated for the quality of their wool, and several families or sub-breeds were well known and had distinct characteristics. Among the noted of these families were the Infantado, Paular, Estramadura, and Negretti. Before the invasion of the French these flocks were kept up with great care, and bred with a view to develop their peculiar excellencies. War, in Spain, as elsewhere, made havoc with agricultural pursuits,

and these celebrated flocks either went to furnish the commissariat of one or the other army, or were so broken up that their high character was lost. Fortunately examples of the leading families had previously been sent to England, Saxony, Silesia, and other European countries, as well as to America, and now the once celebrated Spanish sheep are found in greater perfection elsewhere than in Spain. It is claimed that the Negretti sheep, while they are lost in Spain, have been continued in their purity in Germany; but it is highly probable that these

as well as other families have been essentially modified and improved. The experience in this country with Merinos shows how careful breeding will change the characteristics of sheep. Besides this, climate has an effect upon wool to such an extent that even in the limited area of England certain breeds will only retain their characteristics when kept in particular localities. These sheep shear from four to six pounds of the finest wool. Their faces are covered with wool to a remarkable extent, and the legs are clothed quite down to the toes,

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Table with columns for MOON, BOSTON, N. YORK, WASH'N., PHA'STON, CHICAGO, and sub-columns for D., H., M., E., M., E., M., E., M., E.

AMERICAN AGRICULTURIST.

NEW YORK, JANUARY, 1872.

We can not tell whether it was in the spring, summer, autumn, or winter that the "evening and the morning was the first day;" and, consequently, we do not know when the old year ends and a new year commences. There are, however, as good reasons for commencing the year in the dead of winter as for commencing the day in the dead of night. Both are purely arbitrary. Some would have the day commence in the morning, and the year in the spring. We think it far better as it is. The best preparation for a day's work is a good night's sleep; and much of a farmer's success the coming year will depend on how he spends his winter. It is the period for preparation. It is the time to think and plan; the time to close up the work of the old year, and get ready for the new.

Hints about Work.

The great work of life is to discipline and educate ourselves. The end of each year finds us better or worse. No matter how prosperous the year may have been, if we are less patient, more inconsiderate, conceited, proud, and selfish, our time has been ill-spent; but if we are growing men—growing in love, joy, peace, long-suffering, gentleness, goodness, faith, meekness, and temperance—we are prospering. We may have seen hard times, but we have not lived in vain. We are better men. A farmer's best field is himself. This field can be plowed and cultivated just as well in the winter as in the summer. The commencement of a new year is a good time to top-dress it, or, if need be, to break it up and commence a new rotation. Kill the weeds, and be careful to sow good seed, and plenty of it. Energy, industry, forethought, patience, and temperance are always profitable crops; temperance in eating, drinking, sleeping, and working. Many farmers work too hard; they are intemperate in this respect. Many more are too anxious. They have not faith enough. Some are too hopeful. They hope for good crops without using the means to obtain them.

Pay your Debts.—Or, at any rate, ascertain exactly what you owe. A running account not unfrequently runs away with a farm. If you are in debt, and

have anything to sell, dispose of it at once, and pay your debts. Nothing deadens a man's energy and destroys all manly feeling like little debts. You will feel like a new man when they are paid.

De Prompt.—Credit is very desirable to any energetic man, and nothing tends so much to secure credit as promptness in meeting all obligations. The way to get credit is to use it, and not abuse it.

Prices are Low, Wages High, and Profits Small.—The two former are beyond our control; and we can not hope to obtain good profits unless we raise large crops. Ten bushels of wheat per acre does not pay, and never ought to pay. Thirty bushels per acre, even now, affords a living profit, and forty bushels affords profit enough to satisfy any man.

Farmers are Manufacturers, and compete with each other. The farmer that can manufacture the best articles at the least cost is the one that makes the most money. His skill and knowledge must be directed to this object.

Thorough Cultivation is always profitable on all land that is cultivated at all. This is true whether we adopt high farming or slow farming; whether we live east or west, on high-priced or low-priced land. If we work it at all, we must cultivate it thoroughly.

Think of these things, and get ready for the work.

Write down all that you intend to do the coming year. Writing is a great help to thought as well as to memory. Write down exactly how you propose to do the work, and what with, and when.

If you have never kept a Diary, now is the time to commence. Nothing is more interesting and useful than a well-kept record of everything done on the farm, state of the weather, condition of the stock, and what you are feeding, etc.

Make an Inventory of everything on the farm and in the house, with an estimate of its value. Do it carefully and thoroughly. In case of fire, it will be a great help in settling insurance claims.

Attend to your Insurance.—See that it is not run out, and that the companies are sound.

What do you do with your Ashes?—Many fires originate from carelessness in placing ashes in barrels, or throwing them in a loose heap where they come in contact with wood. Provide a suitable place for them, either of brick or iron.

Animals must receive constant and regular attention. They can not be neglected for a single day. Be careful to give them abundance of fresh water, and avoid as much as possible compelling them to drink water that is full of melting snow or ice. Provide some kind of shelter for all animals.

Horses that are doing nothing can be wintered on good, bright straw, with four or five pounds of corn per day, cheaper than on hay. If they are worked regularly, they require higher feeding; say ten pounds grain, ten pounds hay, and ten pounds straw per day. On a grain-farm, where straw or corn-stalks are abundant and hay is scarce, one third hay, and one third straw and stalks, cut up together with one third the weight of corn-meal mixed with it, makes a cheaper and more nutritious food than more hay and less grain.

Cows do far better on stalks than on straw. They do not like the latter. Our stalks were so well cured last fall that, after the cows were taken from the pasture and fed in the stables on stalks, they increased in their milk and the quality of the butter improved. Cows that are giving milk will pay for a little corn-meal, say two quarts per day, in addition to the stalks or hay. Keep the stables clean and well ventilated. In stormy weather it is best to keep them in the stable all the time, except to turn them out twice a day to water. Many farmers only water once, and this will do when they run in the yard for two or three hours, but otherwise it is far better to water twice. Give them time enough to drink. Cows are not like horses in this respect. A horse will drink at once all he wants, but a herd of cows needs longer time and more or less humoring.

Sheep will eat straw better than any other stock. With good, bright straw and half a pound of corn

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per day, Merino sheep can be kept in good, thriving condition, and with a pound of corn per day the right kind of sheep will get fat. Towards spring the sheep should have a little hay—say one foddering a day. Merino ewes in lamb to a large long-wooled or South Down ram, should have good keep, in order that they may have nourishment enough for the large lamb. Nothing is better for them than bran and clover hay. Corn is a cheaper food, and half a pound per day will not hurt them, unless the ewes are unusually fat. Where roots are scarce it is better to reserve them until March and April than to feed them now. Bran is the best substitute for them. Cattle, horses, and pigs should be fed in the morning, the first thing before breakfast, but sheep need not be fed until after breakfast. It is better to let them lie undisturbed until sunrise.

Littering the Sheep-yards is a point of great importance, and requires good judgment and experience. They will lie down and rest as soon as they have a little fresh straw spread in the yard or under the shed, and this should be attended to every day; but it is exceedingly important not to get so much straw and manure under the sheep as to cause fermentation. Avoid the mud and dirty straw on the one hand, and fermenting manure on the other. Both are injurious. A little straw and often is the rule. Be careful to throw the straw pulled out from the racks, about the yards every day and not let it accumulate. A little attention to this matter will be amply rewarded.

Pigs.—Young growing pigs should have abundance of nutritious food, and warm, dry, comfortable quarters. Feed three times a day, and as much as, and no more than, they will eat up clean. Our own plan is to cook the food, half corn-meal and half bran, and feed warm. Our breeding sows, at this season, get nothing but bran, soaked in water, and we do not give them quite all they will eat, fed twice a day. We soak the bran in warm water about twelve hours, and get some of the milky water out of the bran to mix with the cooked food for the little pigs. The bran is still nutritious enough for old sows that have nothing to do but live, while the young, growing pigs need as much easily digested, nutritious food as they can assimilate.

Pigs well littered make a great quantity of manure. We clean out the wet and soiled part of the bed every day, and put in a little fresh straw. The butts of corn-stalks, left by the sheep and cattle, we put into the pig-pens at the bottom of the pen and cover them with straw. They serve to keep the pen dry and save much straw. When pigs are shut up it is exceedingly important to have the pens well ventilated.

Manure.—Either draw manure out to the field as it is made and spread it, or make it into a large heap in the barn-yard. On the whole, we prefer the latter course. If properly attended to, and the heap is turned in February, the manure will be in good condition for spring crops. It is not uncommon to see a heap of smoking horse manure by the stable-door, another heap near the cow-house, while that from the pigs lies frozen by itself, half mud and half corn-cobs. The whole should be wheeled or drawn in a cart to a central heap and mixed together. They will improve each other. The warm horse manure will induce fermentation in the cold cow-dung and the still colder and more sluggish pig manure. Let the whole be carefully shaken to pieces and thrown into a loose heap. During our cold winters there is no danger of the heap fermenting too rapidly. In fact, where there is an abundance of straw it would be desirable to sprinkle a little dried blood, bone-dust, hen manure, etc., over the heap occasionally, to induce a more active fermentation. A heap so managed, and turned once or twice, will be in admirable condition for root crops in the spring. Any that is too raw for this purpose can be used for corn, or kept over for wheat, or top-dressing grass, next fall.

Swamp-Muck.—Our swamps never were so dry as at the present time, and we can not have a more favorable opportunity for getting out muck. It may be drawn directly to the field and spread on grass land; or draw it to the barn-yard and use it

for absorbing the liquid, or for mixing with the manure in the heap. There are thousands of farms where men and teams could not be more profitably employed this month than in getting out muck.

Do not Waste the Straw.—Farmers often throw large quantities of straw about the yards during winter, for no other purpose except to get rid of it. Better let it be in the stack, and use it next summer for littering the yards where the cows are milked and the pigs run. A much larger amount of manure will be made in this way. Where straw is abundant, use it freely to litter the stable, cow-house, and pig-pens. Clean out all that is soiled or wet and put in fresh litter every day.

Cellars should be ventilated at every opportunity. The vegetables will keep far better and it would prevent much sickness in the family. We can not too often call attention to this matter. Never allow any decaying vegetables or fruit to remain in the cellar. Hang a thermometer in the cellar and keep the temperature down to 40°. If it gets above this open the door or window until the temperature gets down to near the freezing point. White-wash the cellar at least once during the winter.

Shoeing Horses.—Many a good horse is spoiled by not being rough-shod in winter. It is a painful sight to see a horse traveling on an icy road with slippery shoes on—and dangerous withal.

Ice.—Fill the ice-house as soon as the ice is thick enough. The colder the weather at the time the better. Last year when we had ice we had no sleighing—and many farmers who waited for sleighing had empty ice-houses the next summer. Better draw on wagons than go without ice. Where ice is near, if a large heap is drawn together and covered with five or six feet of straw, or stalks, and thatched so as to shed rain, the ice will keep.

Work in the Horticultural Departments.

The beginning of a new year is the proper time to lay work-plans for the coming season, as without a plan of operations the gardener will never accomplish much. It is only by careful forethought and working with a definite end in view, that men engaged in other branches of industry become successful, and our best horticulturists are those who plan for the future, in a thorough, business-like way. No other business requires a knowledge of a greater number of different subjects, and to master these a good library of standard works is essential. A gardener should keep a journal in which the principal operations of each day are recorded, and he can afterwards examine the journal and learn where to avoid mistakes and where to do better. The directions given in these departments each month, contain much that will be useful to the commercial as well as to the amateur gardener.

Orchard and Nursery.

The most that can be done in this department is to put everything in order for early spring use. In Southern latitudes trees and nursery stock should be secured in the fall, if they are ordered from Northern dealers, as the ground will be ready for early planting in a few weeks. If a nursery is near it is well to give an extra price for the privilege of digging your own trees, as they will be in better condition than when dug by the nursery hands.

Rabbits.—Directions were given last month for preventing rabbits from injuring fruit-trees.

Mice.—See that all rubbish is removed from around the trunks of trees, for where there is any chance for mice to harbor they are sure to injure the trees by gnawing away the bark. Tramp down the light snows around the trees.

Scrapping.—During the milder days in thawing weather, the trunks and larger limbs may be scraped.

Tent Caterpillar.—The eggs of the Tent caterpillar are easily seen at this season of the year, and are much easier destroyed now than when they have hatched. A pair of long-handled pruning-shears are the best for large trees, as the higher branches can be easily reached with them, cut off, and then

burned. If there are wild cherry-trees in the vicinity of the orchards, they ought to be cut down, as they only serve to harbor the caterpillars.

Cions, if not already cut, should be attended to at once, as grafts cut early are better than those which have been left exposed to the severity of the winter; this is especially the case when the autumn has been unfavorable for ripening the wood.

Fences.—See that the fences and gates around the orchard and nursery are properly secured, so that stray cattle can not enter and break the trees.

Labels.—The present month is a good time to renew the labels of the different varieties. This is very easily performed if one has a correct plan drawn of his orchard, and the sorts marked or numbered. Prepare a stock of labels for use during the coming spring, so that no delay may occur during the busy season. See that the labels upon trees set out in the fall are not fastened so tight that they will girdle the trees when growth commences.

Manure.—Use plenty of stable-manure upon the orchard; cart during mild weather and lay in heaps.

Fruit Garden.

A person who is satisfied with only one variety of grapes, strawberries, or currants, receives only a small share of the enjoyment he would if he had several sorts of each kind of fruit. In selecting varieties for the fruit garden, due regard should be had to early and late sorts, so that a succession can be had from earliest to latest. A plenty of fruit will afford a family a good part of their living.

Grape Vines that were not pruned in the fall should be attended to during the mild weather, and not left until the sap has commenced to flow, for then the vine is injured by excessive bleeding.

Dwarf Trees.—See that no snow is allowed to accumulate on the branches so as to break them down, as when broken it is very difficult to restore the form of the tree.

Kitchen Garden.

The work here now is mainly that of preparation, especially in the North. Farther south, planting in the open ground can be done now.

Manure.—In the former directions a great deal has been said about this subject, but as success is in a great measure dependent upon manure, the matter can not be referred to too often. See that nothing that can be converted into manure is wasted. Plenty of absorbents for use in the stable and compost heap should have been prepared last fall. Dried earth is as good as anything that can be used in the stable and in the cesspool.

Hot-Bed Sashes and Frames.—Put these in readiness to use when wanted. They ought to be painted with lead-paint or given a coat of crude petroleum, and the broken glass re-set.

Straw Mats.—A good supply of these will be needed if one has many frames to cover; make them during the stormy weather, when it is impossible to work out of doors.

Cold Frames.—These need more attention to keep them cold than to prevent injury from freezing. Open whenever the weather is mild; and during warm days the sashes may be entirely removed, only taking care to close in time.

Tools.—See that everything in the way of tools that will be wanted during the next season is repaired, or else new tools purchased. In selecting those having handles or other parts of wood, take care that the grain of the wood is straight, and that there are no knots in it, as they are then very likely to break. Oil the wood parts of the plow, cultivators, harrows, etc., with petroleum, and see that they are stored where they will be free from moisture. Every tool should have a roller, marker, and line and reel. Directions for making these have been given in the former numbers.

Seed.—Procure a supply early, for if the ordering is left until the seeds are wanted, delays may occur. Use only the best seeds, as much depends upon the quality of these. Do not depend too largely upon

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 as 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 claptrap about this. At least *Thirteen 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 *Heath and Home* for their own pleasure and profit, is 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 37 and 38.

The Hoosier School-Master.—This intensely interesting story, which has appeared as a serial in the columns of *HEARTH AND HOME*, is now issued in elegant book form, printed on fine paper, with twelve full-page engravings on tinted paper, and seventeen other illustrations, and bound in extra cloth. It is a truly AMERICAN STORY, and will be read with delight by all. Price, post-paid, \$1.25.

Cundurango.—We have no doubt that a drug bearing this name is brought from South America. As to its being a cure for cancer, we must quote the Scotch verdict, "Not proven." One of the best medical journals in the country does not hesitate to denounce it as a humbug. The thing has been known too short a time, to allow a proper opinion to be formed. We shall look for our information in regard to its alleged virtues to the medical journals, and not to advertisements by interested parties, in the daily papers. Those who wish to pay \$100 (one hundred dollars) a pound for this South American bitter wood, will illustrate an old proverb which we need not quote.

Peerless Potatoes.—We receive so many reports of the yield of the Peerless, that we can not publish all. Geo. Gilliford, Delphi, Ind., bought four pounds of B. K. Bliss & Son, and harvested 14½ bushels.

Pigs of the First Litter.—"J. V." asks "if the first pigs from a sow are as good as those from one older?" As a rule, no. But it depends a great deal on the breed and age of the young sow. If the sow is not allowed to breed until she has attained her full growth, her first litter will be as good as her second, and probably better than her third or fourth. We have now as good pigs from a year-old Essex sow (which mature early) as we ever raised. At the New York State Fair we showed two pens of five pigs each, one pen from a three-year-old sow, and one from a sow only a year old, and the judges awarded the first prize to the latter and the second to the former. And we think they decided justly. This breed of pigs at eight months old are as mature as some of the large breeds would be at sixteen months. If the latter were bred at eight months old, we should expect the first litter to be far inferior to the second litter. If not bred until 16 or 18 months old, the first litter would probably be as good as the second. As a rule farmers breed their sows too young, and consequently the first litters are often weak and inferior.

"Best and Largest of any Other Variety."—Fiddalge Whatcom, W. T.—When a fair list offers premiums for designated varieties, and in addition offers a prize for "the best and largest of any other variety," we understand it to refer to only one other sample, the best and largest of its kind.

Sowing Plaster and Salt on Oats and Clover.—"W." Covington, Ky., asks if plaster or salt sown on oats would not help the clover seeded with them. Plaster is of great benefit to young clover, as is also salt. It has been a practice with us to sow a bushel of each per acre in spring on winter grain or oats, when seeded to clover, and we have found it beneficial.

Bell's History of Shorthorns.—Messrs. L. Tucker & Son, Albany, New York, inform us that they have received a few copies of this work, which is held in esteem by English breeders. They will send it, post-paid, on receipt of \$2.75.

School-Houses.—By James Johannot. Architectural designs by S. E. Hewes. Published by J. W. Scherhorn & Co., New York, who append an extended catalogue of their school furniture. This handsome work seems to be very complete and must prove a great aid to all concerned in schools and school-houses.

Brief History of the United States.—A. S. Barnes & Co., New York. The name of the author is not given. The work presents an attractive appearance, and is illustrated by well-executed engravings and neat maps. \$1.50.

Latin Grammar for Beginners.—By Wm. Henry Waddell, New York. Harper & Brothers.

The Seymours.—A temperance story, published by the National Temperance Society and Publication House, New York.

"The U. S. Banking Association."—What is this concern which publishes the "U. S. Credit Record of Business Men"? The highly respectable London publishing house of Trübner & Co. write us that their name is attached to this Record, and they wish it to be distinctly understood that they know nothing of the concern, and never heard of the "Association" nor its "Record" until their attention was called to the unauthorized use of their name. Is this some hogus thing?

Perkins & House's Lamp.—The favorable opinion we expressed of this lamp when it was first introduced has been confirmed by long use. Our advertising columns set forth its merits, which some of our associates say are not overstated.

The American Entomologist.—A note from Mr. C. V. Riley, the editor, informs us that the publication of this journal will not be resumed this month, as was announced a year ago. Mr. Riley has purchased the illustrations and all interest in the magazine, and hopes to recommence it at no very distant day.

A Good Ten Cents' Worth.—The publishers would be very glad to have everybody see a single copy of *Heath and Home* AS IT IS NOW. Probably a better ten cents' worth was never furnished anywhere, or in anything, than in the number of *Heath and Home* now before us. It is full of good things that will please everybody. Get it for yourselves, and for the children for the holidays. It can be bought of most newsdealers for 8 cents a copy, or the publishers will send it, postpaid, to any address, for 10 cents. Send a dime and get a single copy to look at, to read, and to enjoy.

A Mystery.—When some thousands of people every year collect and send on clubs of subscribers and receive valuable premiums from this office without outlay of money, and when the offer is equally open to all others, it is a mystery to us that tens of thousands of others do not rush into it and do the same thing. Human nature and human wants are the same everywhere; and it is just as easy for 20,000 or 30,000 other people—one or more at every post-office—to get these good articles, as it is for the few thousands who do obtain them. Please turn to pages 37 and 38, and see what is offered.

About "Crabs."—Geo. Pittman, Fulton Co., Pa., has discovered that springs which generally dry up in summer, may be made to run all the time by turning in some crabs. We suppose he means crawfish, or freshwater crabs. He says these animals follow up the streams beneath the ground and make an outlet for the water. Thus even crabs or crawfish have their uses.

Cure for Mange.—"Belleville" sends his cure for mange, which we think well of, as follows: Equal parts of sulphur and cream of tartar, made into a ball with syrup or honey, and administer daily for three or four days. Wash the parts affected with carbolic soap, and anoint with a paste of lard, sulphur, and powdered charcoal ground together.

To Prevent an Iron Kettle from Rusting.—Miss Mattie B., Alleghany, N. Y., is troubled to find a remedy for the rusting of her cauldron. We know of no remedy but to apply the practice by which housekeepers preserve their stove-pots from rusting, viz., to wipe them while still hot, after being used, with a greasy cloth. Iron, when heated, will absorb considerable grease, and perseverance in the above will soon completely fill the pores of the iron and prevent rust.

Guessing.—B. A. Howell, Dutchess Co., N. Y., lives among farmers who "guess," and can never tell exactly what they raise nor what they expect to. He asks information about large crops of corn. Is 100 bushels to the acre ever raised, and does it mean shelled corn, or ears? Guess farmers are as "plenty as blackberries" everywhere. When the number of bushels in a crop of corn is mentioned, *shelled corn* is understood. One hundred bushels are often attained, but only by the best farmers. "Guess" farmers raise about 10 bushels to the acre. Seventy to eighty bushels are common in New Jersey and parts of Pennsylvania.

To Weld Iron.—"A." is a farmer, and wants to do his own welding, and has difficulty in getting a good weld. There is some little sleight of hand, or quickness of eye and precision of motion, needed, which will come with practice. We learned to make a weld by practicing with waste pieces at odd intervals until we were not afraid of it, and then succeeded when the nervousness akin to the "buck fever" wore off. Iron can be welded at a low heat by using borax melted with one tenth part of sal ammoniac, cooled on an iron plate, pulverized, and mixed with an equal weight of quick-lime, powdered. The powder is sprinkled on the iron when red-hot, the iron returned to the fire, and need not be brought to the usual heat to get a good weld.

Precocious Heifer.—S. H. Mattson, of Delaware Co., Pa., says he has a Jersey heifer which produced six and a half pounds of butter in seven days, when but sixteen months old. Jersey stock is precocious, but this is getting to a point which can hardly be beaten.

Sexes at Will.—"An Inquirer," Ghersey Co., O., asks if there is any known means of producing either sex at will, and if a white color in Jersey cattle bred in and in for three generations is a sign of impure blood. To each question we answer No. The writer has seen cattle on the Island of Jersey altogether white, but they are not common.

The Lupin.—"G. D. S." Troy, Ind., asks what is the value of this plant for soiling. The white Lupin is largely grown in France and Belgium for soiling purposes. A light, dry soil is needed for it, and the light soils of some parts of Indiana would be excellently adapted to it. The seeds are very nutritious and the plant makes excellent hay.

The Best Field-Pea for Stock.—"S." Perry Co., Ind., wants the best field-pea for stock. The black-eyed marrow-fat makes a heavy crop of stalks, and the gray pea, called in our markets the "Canada pea," is also a hardy and useful pea, and will thrive on poorer soil than the marrow-fat. It does not yield so heavy a crop, the stalks being shorter. Peas for fodder should be cut while the upper part is in blossom.

Remedy for Hoove.—"W. W. B.," Clark Co., Ind., finds a remedy for hoove in the administration of alum. This may have had an accidental effect in some isolated case, but can not be relied on. Powdered charcoal, which absorbs large quantities of carbonic acid gas, has been given with good results.

Ashes of Hemlock Bark, etc.—"I. G. Q.," Tioga Center, N. Y., has the ashes of 2,500 cords of hemlock bark, 300 bushels of leached hen-dung, and 800 bushels of lime from the vats of a tannery. How shall he use them on sandy land, and a meadow? As the hen manure is spent, no harm can occur from mixing the materials together and sowing them on the grass or the land after plowing and harrowing them in. Do not plow them under. Apply stable manure by itself.

Profitable Farming.—Darius Rice & Son, of Worcester, Mass., send a statement of the value of produce sold from 20 acres of mowing land and five acres of market garden. The items are too numerous to mention in detail, but the total foots up to \$6,829.53. Labor cost \$1,045.93, grain purchased and fed to hogs (which made the manure used and gave a profit besides) \$1,314.67, butchers' offal \$160. There is evidently good management here.

Inflammation of the Brain.—D. Ward, Waterville, Kansas, wants a remedy for what he calls "grub in the head" in his cattle, but which is certainly inflammation of the brain. A wild stare, frothing at the nose (suppuration of the membranes), and death in twelve hours, are the symptoms and effect. For this disease copious bleeding—until fainting—from the jugular vein is necessary, followed by a blister at the back of the horns, and turpentine rubbed on the back of the neck, to induce surface inflammation.

Refuse of Glue Factories.—"Subscriber," Lancaster Co., Pa., should compost this valuable material in his manure pile, or with swamp-muck, or earth. It is too stimulating for grape-vines.

Warts on Cattle.—"S. H.," Washington, D. C. The cause is unknown. The cure is to remove them by excision and cauterize the wound to stop the bleeding. Generally they are better left alone. Ulcers often result from interference with them.

Swinney.—"Dr. W. S.," Austin, Texas, has a mare which was strained and she recovered. A neighbor tells him his mare has had swiney, or sweeny, and will die unless taken care of. What shall he do for her? Swinney is altogether an imaginary disease. If the mare eats and works well, and shows no sign of lameness or any other ailment, she is all right.

Cracked Heel.—Amzi Jones, Smyrna, Tenn., wants a cure for cracked heel. Cause, low condition. Cure: Rest; wash with a lotion of two drams of chloride of zinc in a pint of water; give laxative food, and one ounce of tincture of chloride of iron daily, in some water. If the suppuration continues wash with one ounce carbolic acid in twenty ounces of water.

Power to Drive Sewing-Machines.—Jas. K. Jones, Washington, Ark., wants a good, cheap power to drive sewing-machines. This is a want not yet supplied. For information about patents write to some patent agency.

Wants to be a Tanner.—"G. L. P.," Cedar Mountain, N. C., wants a book to teach him to tan hides. The only one we know of is "Dussance on Tanning," price \$10, but the business can not be learned by means of a book—practical experience is necessary.

Blowed in the Hind Knees.—"Subscriber," Latrobe, Pa., has a valuable horse which is "blowed" in the hind knees. We suppose he refers to wind-galls, which are puffy enlargements along the course of the tendon of the hind leg, and are generally the result of over-work. Remedy: place on the lumps a folded rag wetted, over this place a piece of cork and cover with an india-rubber bandage, which must be constantly worn, except when at work. Rest is absolutely needful. Unless obstinately fixed this will remove them; if not, recourse must be had to iodine ointment, to cause the matter to be absorbed. To puncture these swellings would be to destroy the horse. Beg-spavin, blood-spavin, and thoroughpin are all varieties of this disease, and similar treatment is needed.

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 \$3; making a club of 20 at \$1 each; and so of the other club rates.

How to Make a Saddle-Cloth.—"R. D. S. P.," Kansas City. Take a piece of fine horse blanket of the size required, lay it on the horse's back, slit it where it lies on the withers so that it fits the horse snugly, cut a triangular piece to fit the opening thus made; cut two pieces in the shape of a saddle, which sew or quilt, one on each side of the blanket, to form the pad. Fine corn-husks may be shred to furnish the filling. Bind with colored braid, and make a hole on each side, just beneath the pad, to pass the surcingle or girth through, and bind the edges with the braid.

Trees and Rabbits.—J. W. Allen, Kansas. Tanned paper will answer to prevent rabbits from gnawing trees. It is sold in all large cities for building purposes. Sprinkling the trees with blood, or rabbing them with bloody meat, will keep off the rabbits.

Is it the Canada Thistle?—J. Berry, Cooper Co., Mo. The specimen is not Canada Thistle, but the Wild Teazle. It is a troublesome weed if allowed to spread, but is easily subdued.

Uneven Pulling.—Chas. Shrader, Cassville, Wis., asks if one horse of a team draws ahead of the other, is it any disadvantage to either in working? Unless the double-tree catches on the frame of the wagon or sled, the changing angle makes no difference in the draft. But it is a slovenly mode of working.

Dent Corn at the North.—As a rule, the large Dent corn, under ordinary treatment, does not mature sufficiently early to render its cultivation profitable in New York or in New England. The late Joseph Wright, of Seneca Co., N. Y., has raised this kind of corn with success for many years; but he sent to Illinois every year for his seed, and was careful to plant it on very rich land. His friend and neighbor, S. W., writes us: "The Illinois Dent corn this year was a short crop, from lack of more soaking showers. It was planted in rows 3 feet apart, and 8 inches apart in the rows. Had I planted it 15 inches apart in the rows, it would not have curled its leaves, and every stalk would have perfected an ear. I have proved that the Dent corn will yield one third more than any flint variety; but its large stalks exhaust more water and require more space." This is undoubtedly the case. And for the same reason it also requires richer land.

Fattening Poultry.—Corn is in this country the obviously proper feed for fattening fowls. It makes flesh of fair quality. Oatmeal gives a better flavor but less fat. Corn should predominate, and be fed for the most part ground, because more can be digested than when it must all be reduced by a slow process in the gizzard. The latter is a perfect mill, but if employed too much the muscular exertion of working it takes something from the rate of fattening. The corn-meal should, for a few days, be thoroughly cooked, but the mess will soon pall upon the appetite, and then the meal may be merely scalded and finally fed raw, since fowls like this best, and they should be induced to eat as much as possible. To tempt with variety, give an occasional feed of buckwheat corn, and wheat whole, and oats, which last should be ground and screened, so as to remove all the larger fragments of the hulls. Boiled potatoes and fresh cooked meat should be allowed sparingly, and every other day a little cayenne and salt must be added to the dough. Feed adult poultry, for fattening, three times a day, and chickens four. It is especially necessary, when the days are short, to give the first food at the appearance of light, and the last as late as possible. After they have eaten to satiety, always remove what is left. Feed at stated hours, and keep the feeding-trough clean and sweet. It is best to confine grown fowls in rather small coops, as exercise prevents fattening. If, however, individuals unacquainted with each other are put together, there is no gain in close quarters, for they become uneasy; and also half-grown chickens ought not to be shut up, but rather induced to eat so much that they will roam as little as possible, for if taken from their accustomed run they are apt to worry constantly. Shut out light from the coop, excepting at feeding time, to promote quietness. There should be no perches. Cover the floor with dried earth, often renewed.

A Favorable Introduction to more than 150,000 persons throughout the United States, with a statement to each one of the desirable qualities of the articles you wish to sell, would be worth how much? It can be partially secured by sending to each (if you have the addresses) a circular through the mail, costing somewhat as follows:

150,000 circulars of cheapest kind.....	\$150
150,000 envelopes " "	150
Folding and addressing.....	225
Postage, @ 2c. each.....	3,000
Total cost.....	\$3,525

Many parties have found even this large outlay a paying one, by the resulting increase in business. Apart from its cost, however, this method is unsatisfactory, because few persons will carefully read a common circular, and not one in a hundred will keep such a document—it is glanced at and thrown into the waste-basket. Now, a whole page of the *American Agriculturist*, in which a dealer can fully set forth his business, will at the regular published rates cost \$666. This is less than one fifth the expense by the circular method. It has also the advantage of being placed before not merely 150,000 subscribers, but the many others who regularly read the paper, which is preserved at least a month, and in most cases is kept year by year. But, what is of greater value, the readers of this journal have confidence in the parties thus introduced; they know the care taken to exclude all who can not be indorsed as reliable parties selling good articles.

Is Lime a Manure Directly or Indirectly?—"A Subscriber." If by manure is meant a

substance which contributes anything directly to the soil which plants can appropriate, then lime is a manure in the ordinary sense; for most plants contain lime in larger or smaller quantities. But lime does more—it renders soluble or decomposes vegetable matter, such as swamp-muck, and the roots and refuse of former crops. It also neutralizes the acids existing in a free state in the soil, and renders hurtful matters innocuous, or liberates fertilizing matter. It also acts mechanically on the soil.

Drain Tiles or Round Stones.—D. C. Faris, Walker Co., Ga., needs to drain his land, and can not procure tiles, as there is no manufactory in his locality. Can he use stones?—In "Waring's Draining for Profit," a home-made tile-machine is figured which would be found useful. Round stones will make a substitute. We have prepared an article on their use, with drawings, but it will not be in time for this number.

Bacon without Skippers.—John Miller, Slackwater, Pa., sends his method of curing bacon and hams as follows: For 1000 pounds of meat, take 10 quarts of salt, 3 pounds of sugar, 1 pound saltpeter, 1 pound black-pepper (ground). Dissolve the saltpeter in a pint of water, and mix it with the other ingredients; rub the mixture over the meat on both sides, and keep it in a cool place for ten days. Smoke as usual. Then place the meat in a box, and keep covered with dry salt.

Tile Machine Wanted.—J. B. G., Sandusky, O., wants a tile-machine, and finds none advertised. I. W. Penfield, Willoughby, O., and F. M. Msttee, Cleveland, O., lately advertised their machines in the *American Agriculturist*. Write them.

Analysis of Soils.—"E. W.," Zaleski, O. It would be money wasted for farmers to have their soils analyzed. It is an exploded notion. Put on a plenty of stable manure and you need not go to a chemist to find out what your soil needs.

Medicinal Plants.—E. Wagner asks why farmers do not engage in the cultivation of medicinal plants. They will not take requisite care in cultivation. Labor is too high, and the market too uncertain.

Honey-Locust Seeds.—O. Moffet. The seeds, if not too dry, will usually grow readily, but it is safest to scald them before sowing in spring; or, if mixed with earth and allowed to freeze and thaw, they will grow without difficulty.

The Art of Advertising so as to make it pay is usually acquired only by long experience and costly experiment—even by those who have a natural tact in this direction. For this reason, those intending to do much advertising, generally find it profitable to employ an experienced adept—one who has the "know how" of making advertisements tell. There are several good advertising agencies, and many very poor ones. Among the former we commend to attention Messrs. Fitch & Thain, located in the *American Agriculturist* Building. Mr. Fitch has had charge of our own advertising department for a dozen years past, and still continues that relation. His associate, Mr. Thain, was formerly in charge of the advertising department of the *Western Rural*, and recently one of the advertising firm of Messrs. Sharp & Thain, of Chicago, until they were burned out. While Mr. Fitch will continue as hitherto to take charge of our own advertising columns, the business of the above firm will be wholly independent of any relation to this office. They offer their services to reliable advertisers, and propose to help them prepare their announcements, and to insert them on favorable terms in the newspapers of the country generally, with no charge for their services to the advertisers themselves. From what we know of their skill in this line and their reliability, we commend them to the confidence of the press and of business men who may need their services.

Marengo Crabs.—We have before had a good word to say for these hardy and excellent crab apples. If our friends who live up near the North-pole, can raise such apples as these, they need not complain. The introducer of these apples, C. Andrews, is now associated with Herendeen & Jones at Geneva, N. Y. The specimens recently sent us were fine to look at and excellent to eat, especially when cooked.

Almond upon Peach.—A. F. Smith, Sierra Co., Cal.—The almond would doubtless grow upon the peach stock, but we can not tell how it would last. In Europe it is generally budded upon the almond and plum, the last named being preferred in a cold, wet soil.

A Hundred per Cent Interest.—"Book-farming" is a great bugbear with the majority of cultivators. Why, we could never quite discern. Mr. A. settles on a farm, goes to work hard, and never talks with any neighbor. Mr. B, living alongside Mr. A., with equal advantages in soil, capital, etc., drops in on an evening on Messrs. C, D, E, F., and G.—talks with them about their crops, modes of culture, animals, and marketing crops. He goes to the clubs and fairs for the same purpose. In this way he not only has his own skill and experience, just as Mr. A. has, but he also has the benefit of the experience and the thinking and planning of many others. If he gets no new hints from them, the conversation stimulates his own thoughts to activity, and he plans his work and his crops better. Mr. A., in effect, says: "I know it all; I know so much that nobody can tell me anything." Mr. B. says: "I think I know a good deal, but the rest of the people know some things I do not, and I will try and get these." A good book is only a collection of the thoughts and practices of many men on some subject. Agricultural papers are similar, but they discuss a wider range of subjects, and embody the thought and describe the practices of a larger number. No man or boy can read such papers or books without, sensibly or insensibly to himself, having his mind developed and enlarged, his thinking and his reasoning improved; and his hard labor will be more profitable, whether he suspects it or not. We firmly believe—we know—that every dollar invested in good books and papers to be read, will pay back a dollar every year—a hundred per cent—yes, much more. Farmers, every cultivator of a plot of ground, take our advice, and now, at the beginning of this year, squeeze out a few dollars, even if you have to borrow on 10 per cent interest, and buy a few good books and papers and read them this year. Let your sons and workmen read them. After you have done so, you will not part with the knowledge and the mind-power gained for many times the cost of the books and papers. Try it. Take a step forward and upward in knowledge and mind-power this year. It will pay in many ways—it will pay in dollars. Sell, if it need be, an acre of land, put it into good reading matter for your sons; they will grow up with developed minds, and be far happier and more successful in the world than if you kept them ignorant of their business, and left them that extra acre at your death. They will be happier while at work if you give them something to read and think about, especially if it relates to the work they are doing—the soil, the crops, the animals they daily handle. You will find in the premium list and in the advertising columns some books worth getting.

Worms in Hogs.—Allen Cope sends a description of a worm, a foot in length, which infests his hogs. He administered the common remedies: salt, ashes, sulphur, copperas, and finally calomel, which brought away the worms. Had some simple remedy been given as a preventive, probably no trouble would have occurred. The treatment was judicious otherwise.

Cure for Crib-Biting and Wind-Sucking.—J. Teakle, Baltimore, has discovered a method of curing this unpleasant vice, but without a drawing we can not fully understand it. Send a sketch.

To Stain Leather.—"A Reader." A solution of sulphate of iron (copperas), applied to sole-leather, will color it black. When leather has from exposure become whitish, the black may be restored by wetting it with a solution of gallic acid, before using the sulphate.

Cure for Curb.—"A Reader" may cure curb, if not of long standing, by using fomentations of hot water for twenty minutes, followed by a blistering ointment of biniodide of mercury and lard. Continue daily until a good blister is formed. As this is a very poisonous substance, the greatest caution in using it is necessary.

No Fences in Ottawa Co., Kansas.—Frank Philbrick thinks a golden opportunity is offered to men of small means in Ottawa, and six adjoining counties of Kansas, where they can open a farm on the broad prairie at no cost for fences, as cattle, by law, must be herded by their owners. Ottawa is on the Solomon River, north of the Pacific Railroad.

Shall the Boy be Allowed to Climb?—A farmer whose father was a sailor, has a six-year-old boy who delights in climbing on to the roof of the house and other high places. Shall he endeavor to curb this propensity? Why should he? There must be sailors, and this boy is evidently destined to "a life on the ocean wave." A sailor's life is hard, and so is a farmer's, and a good sailor may be an indifferent farmer. Let him follow his bent, and educate him so that he may have every facility for success.

Flower Seeds Gratis.—Last spring we published an offer from Charles D. Copeland, of Lima, Livingston County, N. Y., offering free parcels of flower seeds to any subscriber to the *American Agriculturist*. We learn that some six thousand of our readers responded, and that much satisfaction has been expressed by them in numerous letters. Mr. Copeland informs us that he renews the offer this year, having enough extra seeds fresh grown the past year to supply over fifty thousand such parcels, if called for. Each paper contains mixed seed of fancy Pinks and Sweet Williams, embracing an almost endless variety of the best German, Indian, Chinese, and Japanese varieties. We believe Mr. Copeland to be reliable, and that he will promptly respond to any calls from our readers. All that is required is the post-office address, a statement that the seeds will be acceptable, and the inclosure of a post-office stamp to prepay postage. Send to Lima, N. Y., as above.

How his Scales paid the Interest on their Cost.—"D. R.," of Worcester, Mass., has put up a pair of large hay scales. One item of saving was 24 bushels of corn, the difference between the figures on the bill and actual weight of a car-load.

Shall he Sell the Milk or Butter?—J. H. Y. asks which is best, to sell milk at 5 cents per quart at his door, or make butter at 30 cents, and pay freight, etc., out of that. There is double the money in milk at 5 cents, and less labor.

Cotton-Seed Meal.—"C. W. C.," of Bricksburg, N. J., writes: "Won't you please tell us about feeding oil or cotton-seed cake? I am feeding five quarts of wheat bran a day to my cows, and think of using cotton-seed cake during the winter. Had I better use that alone, or alternate with bran?"—If you are feeding for milk or for fat, use cotton-seed meal (or cake) with bran. If for butter, leave it alone. It will make your butter flaky and tallowy.

Which is the Best Churn?—We do not know. Twenty dairymen, each using a churn of different pattern, will each testify that his own is "superior to all others." So it is, for his use, so long as he is better satisfied with it than with any other. Next to good butter, perhaps, a satisfaction with one's self and possessions (including churns) is one of the most enjoyable blessings. Without disparagement to other makers, however, we can freely say the Blanchard Churn is very popular, eminently satisfactory, and deservedly so. The claim of the manufacturers that they make the churn of the best materials and workmanship we know to be well founded, and this fact has given it wide celebrity and immense success.

Mr. Sheldon Stephens, a farmer and a breeder of Jerseys near Montreal, writes: "While I was away I did not see the Country Gentleman, and I now find, in an October number, a paragraph announcing the sale of all my Jerseys, and that I have 'changed my business.' This would imply a want of confidence on my part in Jerseys as a breed, and dissatisfaction with farming as a pursuit. I wish you would correct this erroneous impression in the *Agriculturist*, and say that I have no intention of giving up the breeding of Jerseys or of changing my business in the least. I hope I shall be able to finish tile-draining, and working up my farm to the best condition; and I have not the slightest desire to open a shop of any sort."

Blue Gum—Eucalyptus.—"T. A. W.," Elgin, Ill. This quick-growing Australian tree has proved a great success in California. We have not heard of its being tried in Colorado, but doubt if the climate would be suited to it. French writers, speaking of its growth in Algiers, say that it will flourish wherever the orange will grow. Its northern limit is not well ascertained.

Judson's Branching Corn.—In December last we published the statement of one of our associates that he had tried three varieties of Judson's Branching Corn, and failed to get over two ears to the stalk. We have now evidence which shows different results in other hands. "T. D.," Sharon, Pa., planted the sweet variety and found it most prolific. One stalk produced eight good ears, some stalks five, others four, and never less than three. O. F. Treadwell, of New Haven, Ct., planted the Branching Sweet; "nearly every stalk had two ears and a good share of branching." Another lot planted in another place had among its stalks with five and six ears, but they were not well formed. There is much complaint in other quarters in regard to this corn, and we infer that there has been unfair dealing somewhere in relation to it.

Best Floor for a House without a Cellar.—Wm. Webb, Huntington, Ind. After the joists are placed, fill in with coarse gravel and ram down hard; on this put a coat of cement and fine gravel and beat down level with the joists; lay the floor close on this as soon as it is dry. No rats or mice will work under it.

To Measure Hay in the Mow.—"A Reader" wants a rule for measuring hay in the mow. 500 cubic feet of close-packed timothy hay will make a ton, or 800 feet of loosely packed clover hay. Between these limits the difference is relative to the condition of the hay.

How to use a Siphon.—"A Subscriber," Raleigh, N. C., has on a hill a well twelve feet deep; a ravine, 200 feet distant, is four feet lower than the water in the well; will a siphon cause the water to flow into the ravine? Yes. To start the water, solder a short piece of pipe into the siphon, just below the bend, over the edge of the well; close with a plug the lower end; fill the long leg of the siphon with water through the pipe soldered on; when full, plug up the orifice and cement air-tight; withdraw the plug at the lower end, and the water will flow, and continue until it is all drawn off. If the supply remains constant, the stream will be constant too.

Pennsylvania Fruit-Growers' Association.—This, one of the most thoroughly active and useful bodies in the country, will hold its next annual meeting at Horticultural Hall, in Philadelphia, on January 17th. Addresses will be given by several prominent fruit-growers and others, and the discussions which will follow will be well worth hearing. Josiah Hoopes is President, and a number of other live men are upon the list of officers.

Cabbage-Louse.—"A Subscriber," Succasunna, N. Y., has had nearly all his turnips destroyed by lice, which consumed the leaves. How shall he destroy them? The best remedy is lime, slaked dry with water in which carbolic acid has been dissolved, one part, and dry air-slaked lime three parts; mix together and sprinkle on the leaves, while wet with dew. Where they are very numerous on a leaf, it is better to remove it and destroy them by burning.

A Freak in Corn.—A gentleman sends from Pittsburgh, Pa., a specimen of corn having well-developed grains upon the tassel. This is not rare.

Tobacco.—"Z. G. H.," Salem, N. C. It would take several long articles to answer your queries. You had better procure our pamphlet upon Tobacco Culture. See book list. The quality is greatly influenced by soil and climate, and you should endeavor to find out what kind does best in your vicinity. Connecticut seed-leaf grown in your State would be quite unlike that raised in the Connecticut Valley from the same lot of seed. New York is usually the best market for all products.

How to Raise a Calf.—F. Prade, Rockville, Ct., takes a bladder and fills it with warm milk and allows the calf to suck. Better teach it to drink from the pail at once, which may be readily done.

Marl from Iowa.—N. J. Bart & Co., Burlington, Iowa, send a sample of marl and asks its value. The specimen is carbonate of lime, and has evidently resulted from the decomposition of a limestone rock. It will be of value as a top-dressing to grass land, especially so to clover, and also to soils which contain much vegetable matter. It may be spread in quantities of 50 to 100 bushels per acre.

Queer Eggs.—A subscriber in Charleston, S. C., writes an interesting letter graphically describing the effect produced upon the colored people of his neighborhood by black eggs which have been laid for two seasons by a duck which he keeps. Such an occurrence as a black egg may, naturally enough, be construed into an omen by the superstitious, and is quite as anomalous as a white blackbird. He says: "The duck is of an ordinary English breed, with a white neck-ring and breast. She lays about fifteen eggs, then stops a while and resumes. The first egg of each laying is as black as the ink with which your journal is printed, and each successive one is a shade lighter, until a dark slate color is reached. The color can not be washed or rubbed off, but can be removed by scraping with a knife." Our correspondent asks us to explain the occurrence. We can only say that in many cases of discoloration of various animal secretions, carbon is the pigment deposited, and very likely it is in this instance. The eggs must be considered abnormal, yet they may produce ducklings that are perfectly healthy. It is worth while to raise some in order to find whether the trait will prove hereditary, as it may.

IF.—If you persuade a neighbor to take and read a wide-awake, instructive, reliable journal, treating specially of his business, you set him to thinking, you elevate him and his family. He will experiment, and you will have the benefit of his experiments. His family will read and be more intelligent neighbors. The tone of society will improve; and your own property even will be improved in value. Every additional reader in the place will have a like tendency. Scatter annually in any neighborhood \$50 worth of good periodicals and books, on agriculture, horticulture, and domestic economy, and it will change the character of the neighborhood, and increase the intelligence and the desirableness of the place, and raise its product many hundreds of dollars in the aggregate, every year. One easy, cheap way of accomplishing this is, for the people to unite, raise a club, and each receive this journal, or *Hearth and Home*, or *both*, and get one of the book premiums as a library for common use by all. It only needs some wide-awake, enterprising, public-spirited man or woman—young or old—to start the enterprise in each neighborhood. See premiums 94 to 106, pages 37 and 38. By a little effort any man or boy may secure quite a lot of good books for himself as a premium without money.

Pacific Railroad Lands.—The Directors of the Northern Pacific Railroad have established the rule "That land exploration tickets over the Northern Pacific Railroad be sold at full fare, and that persons who take such tickets and within sixty days thereafter purchase lands of the Company to the amount of 40 acres or more, shall be credited the fare on their purchase and be entitled to free tickets for themselves and families when going to settle upon the lands purchased."

Our Staff.—The *Agriculturist* commences the new year with an unusually full corps of editors, special contributors, correspondents, etc. In looking over the list we are gratified to notice that there is not a man among them who is, ever has been, nor, so far as we know, expects to be a Member of Congress or of a State Legislature, a City Alderman, or even a Mayor. We therefore feel assured that all engaged upon the paper will be able to devote their time to the interests of our readers.

Fowls Sneezing.—"G. H.," Cleveland, O. Poultry sometimes sneeze when swallowing soft food, for the same reason that children do, *i. e.*, they eat too fast. But if your fowls frequently sneeze at other times, you had better look closely for a discharge at the beak, and other signs of roup. Sneezing in the poultry-yard is a thing not to be sneezed at, for it is often the first intimation of this troublesome disease. A careful poultry-keeper will go the rounds of the roosts by lantern-light, listening for such warnings.

The Best Clover to Sow on Poor Land.—A. D. Cloyd, Nashville, Tenn., wants to sow clover, on poor land worn out with corn, as a fertilizer, and asks if the small Red or the Mammoth clover is the best. The large clover makes the largest amount of matter to plow under, but it is often difficult to get it properly covered. We tried it once, but abandoned it for the common Red.

How to Dye a Permanent Red.—A lady asks for a permanent red dye for cotton. There is no permanent red except the old-fashioned "Turkey" or Madder red. This is obtained by means of a bath of boiling solution of alum in water. When the cloth is saturated with alum, it is to be placed in a decoction of Madder-root for an hour, rinsed in clear water, and plunged into a lye of common soda, and again washed in clear water.

A Ditching Machine.—A person asks us to notice favorably a ditching machine in which he is interested. It is altogether contrary to our practice to recommend or even advertise anything, unless we are satisfied it is really what it is represented to be. Our advertising columns would be the proper means of introducing it to our readers.

To Tan Sheep-Skins for Whip-Lashes.—R. S. H., Middletown, Ct., can tan sheep-skins for this purpose by soaking them in weak lime-water, to remove the wool, and then rubbing them with oil or grease with pressure of a roller thicker in the centre than at the ends. They will absorb a large quantity of grease. Finish with chalk or whiting.

Asparagus Beetle.—"A. C. K.," Elizabeth, N. J. The insect undergoes its transformation below the surface of the earth or under rubbish. It requires over a month from the egg to the perfect insect. Three broods are produced in a year. The perfect insects of the last brood, which hatches in September, pass the winter hidden under loose bark or in some similar shelter.

Walks and Talks.—J. S. Bowles, Hamilton Co., O.—These papers have never been collected in a book form. You can only obtain them by purchasing the back volumes of the *Agriculturist*.

SUNDRY HUMBUGS.—We are thoroughly tired of the constant labor, watching, and care involved in keeping up, month after month, and year after year, the chapter under this head. But the thousands of letters commendatory of its great usefulness, and the reports of hundreds of thousands, if not millions, of dollars in the aggregate saved to the people of the country, compel us to keep up an unceasing warfare upon swindlers who grow rich by taking advantage of ignorant people, and those easily imposed upon, because, honest in themselves, they are unsuspecting of fraud in others. So we shall in future cheerfully continue the work as in the past. The chapter this month is crowded out from its usual place, but we have made room for it by leaving out a page of advertisements—see page 39.

School Geographies.—Messrs. Wilson, Hinkle & Co., Cincinnati, publish a series of school geographies by Gen. Von Steiuwehr, called the Eclectic Series. It includes a primary work and two of a higher grade. It is difficult to conceive of anything finer in the way of school-books. The maps and engravings are exquisite, and when we consider how firmly fixed are the first impressions too much importance can not be attached to excellence and accuracy in the pictorial and topographical illustrations. The works are brought up to the present time, and we have derived much pleasure in studying the beautiful maps, which, though made for children, will be found useful to all. Map-drawing occupies a considerable space in the course, and physical geography receives proper attention.

Dry Murrain.—W. H. Catlin, Burton Co., Mo., asks the cause and remedy for dry murrain. The only symptom given to us is one not generally belonging to this disease, and it is therefore doubtful if the cows were suffering from it. Murrain is consequent in a low, debilitated condition, and tonics or astringents are administered with sulphur. In the absence of a more exact description it is impossible to advise.

The Best Churn.—"J. P. C.," Dayton, O., asks which is the best churn? He wants one "that has no dash and is innocent of inside works." Such churns are rare in this country. We believe the Kalmanck Tartars use something of that sort, made of a goat's skin, but their butter would not fetch much in our markets. We use a churn which turns by means of a crank and cog-wheels, and has a double dash, but no other inside works. When the butter comes the dash will gather it by turning back and forth.

Paint for Farm Implements.—"G. R. W.," wants to know how to mix paints for painting farm implements or wagons. A coat of crude petroleum will make a good ground to commence with. To cover this, boiled linseed oil should be used, mixed with a portion of litharge, or patent dryer—about a pound to the pint of oil. For colors, use red-lead, lamp-black, Paris green, Prussian blue, or red or brown oxides of iron (commonly called fire-proof mineral paint). The green and blue are costly colors.

How to Ascertain when it is Noon.—"W. H. C.," wants to know how to ascertain the correct time at noon any day in the year, so that he may be able to keep a clock regulated by it. To do this correctly requires the use of delicate instruments by which the highest altitude of the sun is taken. When the sun is in this position it is on the meridian, and it is noon at that particular place. An approximation may be made by getting up two plumb lines in such a position that they are in a direct line with the north star; a post is then set perpendicularly beneath each plumb bob. When the shadow of the south post falls exactly on a straight line, drawn from the foot of one post to that of the other, it is noon, for the sun is then exactly in the south. This can be reduced to mean time by comparing it with the time on which the sun is on the meridian for that day as given in the almanacs, and set the clock accordingly.

Cattle Licks.—"A Subscriber," Greenwood, Del., has some spots on his farm, which the cattle keep bare by continually licking them, and on which the corn is affected injuriously. What is the cause and remedy? The above description, and the fact that lime injures the crop, would seem to point to salt as the trouble. If so, no surface application will avail. Deep drains through the spots would possibly intercept the supply of salt and permit the rains in time to wash the surface free from it.

White Daisy.—Henry Zehner, Butler Co., Pa., has purchased foul timothy seed and has filled his land with white daisy. How shall he get rid of it? If it is inconvenient to plow the land in May, pasture it with sheep, which are very fond of this weed. But if plowed early in summer and any daisies that come up afterwards are pulled or destroyed before they seed, the land may be cleared of them.

Value of Liquid Manure.—"S.," Long Island, asks if it will pay to cart liquid manure half a mile; if so, how shall he apply it. It will pay, unless much diluted, and even then, if it can easily be hauled, it is worth the expense. Throw on to dry absorbents, or, what is preferable, spread directly.

Is Stable Manure at Two Dollars per Load better than Artificial Manures?—"W.," asks advice on this point. We would rather take the stable manure, if of average quality, at this price, than depend wholly on artificial manures. But we favor the use of bone-dust, superphosphate, and guano occasionally, as a help to barn-yard or stable manure. Plaster and lime, occasionally, are also indispensable.

The Cost of Draining.—"G. W.," wants information about the cost of underdraining. Draining by means of tiles, put four feet beneath the surface and forty feet apart, will cost from \$35 to \$50 per acre. The ditches will cost 50 cents per rod or less, according to the nature of the ground, the tiles 20 cents per rod, including the laying, and filling the ditches 10 cents, in all 80 cents.

Exhibition in Bermuda.—A fair will be held at Hamilton, Bermuda, commencing on January 23d. A glance at the premium list at once impresses one with the wonderful difference in climate between Bermuda and our Northern States. Prizes are offered for such fruits and vegetables as would be shown with us in August and September, as well as for many quite unknown in this country.

Subsoil from Utah.—S. J. Andersen, St. Peter's Co., Utah, sends a sample of the subsoil from his farm which kills young trees as soon as the roots penetrate it. What is it? The soil, which appears like a grayish clay finely pulverized, is evidently the remains of a rock containing a feldspar rich in soda. This in a rainless country would make a soil injurious to vegetation. Irrigation will, in time, remove the excess of soda.

"...Exceedingly Valuable to me are your pages of advertisements," writes an old subscriber, "for I have learned to turn to them with confidence, since knowing that the publishers give careful attention to editing this department of the *American Agriculturist* and *Hearth and Home*. It is such a relief to see business announcements that are not sandwiched with 'patent medicines,' 'gift enterprises,' humbugs, and the like. And then the feeling that unreliable parties are excluded from these columns, and that I can order from any advertiser who is admitted, without fear of being unfairly dealt with, is surely a comfort. I value this feature of the paper so highly that I should continue a subscriber for it even if you sent me nothing but the advertising pages. I doubt not you could make ten times as much present money, if you let in the excluded class, who, giving little for the much money they get, can afford to pay big prices for advertisements, but I am sure your course will pay best in the long run...." The above is an epitome of a multitude of letters received—and we value such testimony. We hope our readers who think thus will make their feelings known to our advertisers, when writing to them with orders, or for circulars, etc., or at least tell them where their advertisements were seen.

Chinese Yam.—"Subscriber," Taunton, Mass. There is no difficulty in growing the yam, but the trouble is to get the crop out of the ground. The tubers are often three feet long, largest at the lower end, and as brittle as glass. In view of the difficulty of digging them, some one proposed to go to China and pull them through.

A German Edition of this Journal has been issued for 14 years past, and is still continued. It contains the engravings and principal articles of the English edition, with a special German department, edited by Hon. Fred. Münch, a distinguished culturist of Missouri. This edition ought to be in the hands of every German cultivator in the country, and is of special value to the multitudes constantly coming hither from the old world. Many subscribers to the English edition also take the German edition for their German gardeners and laborers. Our friends will oblige us, and their German neighbors also, by informing them of the above facts. The German edition is supplied at the same price as the English, and may form a part of clubs for the latter.

"Ten Dollars a Day."

Advertisements like the above are very common, with the addition of "expenses paid." An investigation will generally (not always) show that, to get a chance at such a prize, one must first advance more or less money, which is gone in any case, and then he must trust to luck in selling some "glimcrack" to get his salary and expenses out of a commission.—We think a much better opportunity is presented in the premiums offered on page 37. No advance money is required, and no expenses needed. One has only to show specimen copies of the papers (presented free) to his friends and neighbors, explain their character, and solicit their subscriptions. It will be seen that a very few names will secure a \$10 article free, that is worth this amount of cash, either for use or for sale. This can usually be done evenings, and when not engaged in one's regular occupation. We make no promises of any sure amount per day or hour, but we do know that a multitude of persons have realized as much as ten dollars a day—often much more—in canvassing for our premium articles, and that there are thousands of others who may do the same thing, with profit to themselves, to the publishers, and to those they secure as subscribers. See pages 37 and 38.

Prolific Ewes.—Mr. Wm. Woodsell, Bath County, Va., writes that he has two ewes which are each two years old this spring, and the two together have given birth to fourteen lambs. A year ago this spring they were yearlings and had three lambs each, but as these came in cold weather they froze to death. This year the ewes had each four lambs, seven of which are living, of good size and lively. This is a remarkable case.

Manuring a Garden.—"A. McM." If the manure is at hand haul it on whenever you can. We manure and plow in the fall and plow again in spring.

"Missionary" Grape-Vine.—Geo. W. Baldock, Clark County, Ind. We know of no vine of this name. The Mission grape, so common in California, is an European variety, and if you have bought this you are, as you suspect, "humbugged," in so far as it will not succeed with you in out-door culture.

The Advantage of a Pair of Platform Scales.—Geo. H. Russell, Oakville, Pa., writes us setting forth the trouble farmers labor under in selling their grain, both in being cheated in weight and being compelled, for want of storage, to sell at unfavorable periods. We have impressed on farmers the advantage of weighing the whole of their produce accurately before taking it to market, and insisting on receiving the true proceeds. This can only be done by procuring and using correct platform scales—steel yards are not reliable. Safe bins for storing grain have been already figured and described in the *American Agriculturist*.

How to Kill Old Horses.—"Mass." Taunton, Mass., asks how to kill an old horse most speedily. This is a humane proceeding, and a far more "Christian work" than selling them to draw canal-boats. A bullet from a rifle or Colt's navy revolver at the base of the ear is the most speedy and painless mode of destroying an animal. But let some person apply it that is free from nervousness and can do it with certainty.

Ayrshires or Jerseys for Butter.—A Massachusetts farmer asks which are better, Ayrshires or Jerseys, for butter? There is no doubt but the Jersey cow is preferable for yielding butter in quantity and quality. We think the Ayrshires come next. Some prefer Devons to Ayrshires. In their native county—Ayr, in Scotland—they are considered as "butter cows" as well as cheese cows. We have had excellent cows of the Ayrshire and Jersey breeds, and could hardly say which we prefer for the ordinary uses of the farm. It is the mode of preparation which makes it necessary for "Jersey" (not New Jersey) butter to be eaten fresh. Properly salted it will keep a year or longer.

Age to Market Poultry.—"J. W. A." Kansas City, Mo. No precise age can be given at which hens cease to be profitable as layers. This depends on breed, degree of thrift, and amount of previous laying. Hens forced by high feeding to lay profusely during the early part of their lives will lay correspondingly less afterwards.

➔ See Page 37.

Food for Thorough-bred Pigs.—II.

K. Smith, of Illinois, writes that he has just bought a pair of thorough-bred Essex pigs. "I am," he says, "pleased with them. They are as quiet as cats. I would like to ask your opinion as to how they should be fed to produce the best results. I am now giving a mush made of unboiled wheat and oatmeal mixed with good milk. I thought it best not to give too much corn while young." We can suggest no improvement to the above diet. It is very nutritious food, but as long as the pigs are growing rapidly it will not hurt them. The point is to feed them as much as they can digest and turn into flesh. If they eat more than they can digest, it will produce scours. In this case reduce the quality of the food by mixing bran with it. A few potatoes, parsnips, beets, or mangolds may be given with advantage. Let them have as much exercise as possible.

Onions.—"Mrs. J. S." As we can not make out your locality we must answer on general principles. If you intend to raise onions to sell green, you must buy the sets, which will cost this year about \$7 or \$8 per bushel. Much depends on the size of the sets, but the ordinary size will require 15 to 20 bushels to plant an acre. However, as the labor on onions so planted is great, though the profits are large, you had better not attempt more than an eighth part of an acre at most. If you intend to sell onions dry, then you must sow the seed. The red is most generally grown. Price of seed about \$2 per pound; quantity sown with seed sower, in drills, per acre, two or three pounds. We can not estimate the crop, as all depends on the condition of the land and the care with which it is cultivated. The seed can be purchased of any of the seedsmen advertising in our columns. It is best to buy at once, before the rush of orders begins, as if you delay it late in the season you may not be able to get your order filled in time. The rush on our seedsmen is so great as the season is opening in spring that many orders are necessarily delayed until it is too late.

Growing Timothy Seed.—"W. J. J." asks "if timothy seed draws heavily on the land." Probably not. The main difference between raising a crop of timothy hay and a crop of timothy seed is that the nutriment in the one case is distributed through the hay, while in the other a portion of it is taken from the hay and concentrated in the seed. The formation of seed draws heavily on the hay, but not necessarily on the land.

Best Variety of Winter Wheat for Illinois.—An Illinois farmer says he raises Mediterranean wheat, and that "the yield is not satisfactory—only twenty bushels per acre," and he wants a better variety. We shall be glad to hear from our readers on this point. Our varieties of wheat are better than our culture.

Red Ink and Pencil.—Some people will write with red ink and others will use pencil. An editor who has much to do will usually drop communications written with either of these mediums into the waste basket. Black ink if you please, and leave these reds, mauves, and all other colored abominations to school-girls.

Thorns for Hedges.—"Young Farmer," Ont. We do not know what you mean by "Common Thorn," without specimens. There are three or four that are common. Thorns are used for hedges, but they come out too late, and are too liable to attacks of insects, to be popular. The seed generally remains a year in the ground before germinating.

Florida Oranges.—Mr. Day, Jr., Daytona, Fla., left with us a twig bearing a cluster of 28 oranges.

Strawberry Queries.—W. M. Allen, O. The Wilson does not need any other variety to fertilize it. Comstock's Pony Cultivator has a runner-cutter attachment, but we have never seen it in use.

Smoking Out Hen-Lice.—S. Underwood, Harwich, Mass., writes us that after whitewashing his hen-roosts and trying change of location, both of which afforded only temporary relief from vermin, he smoked the roost very thoroughly so that the poles and walls were impregnated with the odor of the smoke for a long while, and though eight years have elapsed, no hen-lice have been seen in the apartment since.

Potato-Seeds.—"G. W. B." Charlestown, Ind. Let the seeds remain in the balls until time to sow them, then treat them as you would tomato-seeds. Start in a hot-bed or in a warm room, and when the weather is suitable transplant them.

Patent Beodorizer.—"G. W. G." Washington, D. C. We do not see that this patent matter is any better for the public than dry earth, which is not patented (as yet), but if the patentee thinks differently he will find our advertising terms on page 29.

Evergreen Seeds and Plants.—"J. M. P., N. H." Keep the seeds of evergreens in the cones until spring. They are sown like any other seeds. It will be of little use to try to raise evergreens from the seed unless shade is provided. Hemlock and white pine are transplanted in spring. The precise time is not of so much consequence as is keeping the roots moist whenever the work is done.

A Good Barley Crop and What to do with it.—A correspondent in Iowa says he raised this year 290 bushels of barley from 6 acres. He can only get 35 cents per bushel for it, and asks whether he had better sell it at that price or feed it to his sheep. He can buy corn at 20 cents a bushel in the ear. Corn is as nutritious as barley, weight for weight. Barley weighs 48 pounds per bushel, corn 56 pounds. If corn is worth 20 cents per bushel, barley is worth 17 1/7 cents. Our correspondent had better sell his barley and buy corn.

Grinding Grain for Sheep.—A Western farmer says he is ten miles from mill, and asks us if it will pay to take his grain that distance, and pay one seventh toll to have it ground for sheep. Certainly not; grain does not need grinding for sheep.

Lime for Wheat.—An Iowa farmer asks when it is best to apply lime to winter wheat. Spread it broadcast on the land any time during the previous spring or summer, or just before sowing the wheat, and harrow and cultivate it in.

"The Cancer Plant."—That man or association of men, who calls himself or themselves the "New York Medical University," is or are not to be outdone by the Cundurango folks. Before these people were fairly ready with their South American cancer cure, the "University" folks were out with "their Cancer Plant," and a pamphlet, entitled a "History of the Cancer Plant," is spread broadcast. This pamphlet says: "The Cancer Plant (*Plantago Cancerorum*) evidently belongs to the natural order *Plantaginaceae*, and sexual system *Tetrandria Monogynia*." It is a little remarkable that a *Plantago* should belong to the order *Plantaginaceae*, isn't it? "It is a small plant, having several sea-green, purple-veined leaves, with a central, upright stalk bearing diminutive yellow flowers, found in the vicinity of swamps and in moist earth, on the borders of pine forests in the Southern and Middle States. We may err in claiming it as a recent discovery, but we have shown specimens to several physicians and botanists, who say they have never seen anything like it before. It is certainly not laid down in any medical or botanical work with which we are acquainted." We do not know with what kind of botanists and botanical works these "University" chaps are acquainted, but we do not know of any botanist, even the merest student, so utterly ignorant and stupid as not to know that the figure given of this precious plant is not that of a *Plantago*, and that it "evidently" does not belong to the *Plantaginaceae*, but is an undoubted *Composita*, being a tolerably fair picture of the very common and well-known *Hieracium venosum*, the Rattlesnake-weed, so called because it has in common with many other native plants a popular reputation in some localities as an antidote for the bites of snakes. With the medical properties of this plant, if it has any, we have nothing to do. The story of the "University" chaps in relation to them is sufficiently set forth and illustrated by the most repulsive engravings in the pamphlet before us. The point we wish to make is this: Here are persons calling themselves "doctors," and blowing their own trumpets under the false pretense that they are a "University," who know nothing about the plant they profess to use. They are fools enough to suppose that a *Hieracium* is a *Plantago*. To be sure they are both plants, and so are a robin and a turkey-buzzard both birds.

Bee Notes for January.—By M. Quindy.

This is the trying month for bees in the open air. Such as have too much honey can not pack close enough together to keep warm. The very heavy hives should be protected with an outside covering during the severest weather. The bees in those hives that have only a moderate quantity of honey have empty cells to creep into, and can pack close for mutual protection, but are in danger of starving, even with stores in the hive. If the weather does not change from extremely cold to moderate at least once in two weeks, so as to melt the frost in

the hive, and allow the bees to leave the cluster and go among the stores for a supply, they will starve. Take such hives into a dark, warm room for a short time. It is seldom that severe weather is sufficiently protracted to make it necessary to take this trouble with strong, good stocks. Keep air-passages unobstructed, particularly those at the bottom. If mice have found their way into the hive, the fact may be known by crumbs of comb scattered on the bottom-board. Exclude them by wire-cloth over the entrance, allowing room for only one bee to pass at a time, and set traps for the mice. Now is the time to prepare the hives for next summer. Of course my preference for movable-comb hives, such as I use, is well understood, and I would impress on all intelligent beekeepers the advantage of frames of some sort. We are just getting acquainted with bees, and without movable combs we shall progress no more rapidly than we did hundreds of years before they appeared. We can not afford to do without movable combs.

SNOW.—Snow, philosophically or poetically considered, is very beautiful; practically, while it is often very useful, it is generally a nuisance. Especially on a December morning is it so, when, on turning out to do the chores, one finds it more than a foot deep, and the ax with which the day's wood must be cut covered up and not to be found without much digging and rooting. Then roads and paths must be shoveled out, and the pig-troughs, which are also covered up, be found and dug out. Then the breast-chains and neck-yoke, which were thrown down as usual last night, can not be found, and much trouble is caused thereby. Then the shovel is under the snow, and the hoes were left in the field where some potatoes are yet undug, and the log-chain was left in a fence corner somewhere, but as it is under the snow it takes a day to search for it, without success, and a new one must be purchased. And this is all the consequence of not having "a place for everything and keeping everything in its place." There is nothing like a good, deep fall of snow for teaching the value of this old saw.

Ice-Houses that will Keep Ice.

J. W. M. Creary, Cave, Ill., has trouble with his ice-house; the ice does not keep in it, and in his description of it he says it is raised off the ground one to two feet. Here is sufficient cause, without looking any further, for the loss of the ice. In accordance with the request of our correspondent, we give a plan for building an ice-house that will keep ice the year round. Choose a sloping piece of ground for the site, and dig out a space one foot deep, lowest at one corner, to provide for drainage. Bed the sills in the soil (a sandy or gravelly piece should be chosen, on account of its being sufficiently dry), and lay a plank floor immediately on the bottom, leaving no space for air to penetrate. Build up from the foundation a building not less than ten feet square, with double walls one foot or eighteen inches apart. Batten the inner walls with rough boards, and fill in between these walls with sawdust, tan-bark, charcoal dust, or cut straw, well tramped down. The roof is not of great importance, so that it is made to shed the rain perfectly. Close in the gable ends, and make a door in one of them large enough to allow of putting the ice in, and of getting it out when wanted. A ventilator should be made in the roof in such a manner as to prevent rain from entering. A drain should be dug all around the building deeper than the foundation, so as to keep that perfectly dry. If water penetrates the bottom, the ice will waste. Fill the house during cold weather. Spread a layer of sawdust, tan-bark, or cut straw, a foot thick, on the bottom. On this place the blocks of ice, cut all of equal size, so as to fit compactly together;

build up the blocks, and keep a space of one foot at least between the ice and inside wall, which must be packed well with whatever material you are using. Thus go on until the house is filled, when two feet of the packing may be placed on the top. As ice is taken out, no part should be disturbed but the top, and the loose packing should always be replaced before the ice is left. If there is a knoll convenient to the house, and the ice-house can be located there, the foundation may be dug six feet or more beneath the surface (always being careful to have perfect drainage). It will be more convenient to fill, and also to take out ice. A shade of climbing plants, such as beans, morning-glory, hops, etc., planted around the house, would help to keep it cool, and ornament the otherwise bare walls.

The Causes of Disease in Sheep.

The report of the Agricultural Department for 1870 states that "there was during that year no loss amongst flocks that had been well fed and properly treated; and that nearly all the losses reported were traceable to cruel neglect and reckless disregard of the health and comfort of the sheep affected." We can not but indorse the truth of all this. Not that we would be understood to say that either the "cruel neglect or reckless disregard" was intentional, but it was not the less to be deprecated that it was the result of a want of knowledge of the proper mode of treatment. It is widely believed that sheep do not need water in winter. This is a great mistake, and leads to cruel neglect. If sheep are permitted access to water it will be seen that not only do they drink often but that they are very choice about the quality of what they drink. In a pasture there may be a spring brook and a pure, bubbling spring. The sheep will pass twenty rods down the bank of the brook to drink from the spring. And yet we have seen sheep shut up in a filthy yard, and compelled to drink the liquid manure that filled the holes trodden in the snow and dung. Is not the severity of the above-quoted remark justified in such cases? Then, again, sheep suffer from irregularity in feeding; from close, damp atmosphere; from sudden changes in temperature; and of all stock kept on a farm, the sheep generally fare the worst, are subject to most neglect in feeding, have the poorest lodging, and are not seldom left to lie out in the storm, supposing that they can stand all this on account of the warm coat nature has provided for them; forgetting all the while that this coat depends for its quality and warmth on the care and treatment they receive. The fact is, many farmers pick up a few sheep for the reason that they can "browse around," and cost nothing for their keep. The result generally is discovered to be that what costs nothing is worth just what it costs and no more. Now all this leads to disease, loss, and unfavorable ideas of the value of sheep as stock, when with proper care and well-judged treatment they may be made to pay as well, or better, than any investment a farmer can make.

Ogden Farm Papers.—No. 24.

I have just been making a calculation of my sales of Jersey cattle, and the result is not discouraging. The first sale was made in September, 1869 (a yearling heifer for \$300). In the twenty-six months since that time there have been sold from the herd of thorough-bred ani-

mals, fourteen females of all ages, at prices varying from \$100 to \$750, and averaging \$344.64, and males (mostly calves), at prices varying from \$25 to \$200, and averaging \$84.50. The average for all animals sold, all ages and both sexes, is \$236.25. Eight of these were full-grown cows, whose average price was \$453.12. Six were heifers averaging eleven months old, whose average price was \$200. Four of the bulls were between one and two years old, and their average price was \$137.50. Six were calves averaging less than six months old, and their average price was \$49.16. I have made these computations to show that in every class the animals have been sold at prices that pay a handsome profit on the cost of production. I am glad, too, to feel sure that every animal sold will be a source of satisfactory profit to its purchaser, if only he will attend to the purity and quality of the blood with which he crosses. Especially so as the belief is daily extending that the Jersey is the great butter-blood of the country. The late D. B. Fearing, of Newport, who owned some very fine specimens of the breed, was for many years in the habit of giving away his bull-calves to the farmers in the neighborhood. The result is that even with the most careless neglect in the matter of breeding, high-grade Jerseys are quite common all about us, and the superiority of the blood for butter-making is as fully demonstrated in the minds of our farmers as is the superiority of the Ayrshire blood for milk. Mr. C. S. Sargent, of Brookline, Mass., to whom I have before referred, writes me that the cows from which he has made butter during the past year have averaged him nearly \$300, in butter alone. His animals are nearly all of the choicest, and have been fed better than most farmers would be able to feed the whole year around. He gets, too, the enormous price of \$1.15 per pound for his butter, at wholesale, which is nearly twice as much as most farmers could hope to get for an equally good article. I have recently had evidence in my own herd of the persistency with which this breed gives a large yield of butter under even the most unfavorable circumstances. My cows, during the month of October, had the kin-pox, nearly the whole herd having it at the same time. This reduced their flow of milk fully fifty per cent, yet the greatest reduction of butter was less than twenty per cent.

They have now (end of November) nearly all recovered, and the flow of milk has increased, in the case of the cows that are not too near their calving time, without any material increase of butter. This seems to indicate that the tendency of a Jersey cow to convert her food into butter may continue independently of a disturbance of the milk-producing faculty. It helps, too, to confirm an opinion that is quite common among the older breeders of the race, that it is not the largest milking Jerseys that are the most desirable, for the reason that these are not the ones that produce the most butter from one end of the year to the other. They prefer rather an animal that gives say twelve quarts (at her flush) of very rich milk, and holds out well, giving almost as much cream when she has run down to seven or eight quarts as she did with her full flow. My personal observation has not been sufficient for me to give an opinion on this point. But I am convinced that, in my own herd, it is not the largest milkers that give the most butter, twelve months together. But this may be due to some other quality in the cow than merely her milking capacity.

I am glad to see evidences of a weakening of the passion for "solid color and full black points,"

and of an increasing conviction that the real point of excellence is the *butter point*. It is rare to find a thorough-bred Jersey that has not the characteristic beauty of the race, and your first-class butter-maker is very likely to be an extra-fine looking cow. The public taste is fast turning in the direction of this class, and it would be well for the breeders to turn their attention to their production. It will not be long that we can make even a greenhorn from the city satisfied with a black switch in the place of a good udder.

Early in November I was away from home for ten days, and the weather became very cold; so much so that the cream which had, since the hot weather ceased, been kept in the old milk-room, got so chilled that it took several hours to churn. The dairy woman at once suspected the cold water in which the milk cans are kept, and she not only moved them into the old room, but built a fire there to keep them warm. The result was that when I came home I found bitter butter, and less of it, than there should have been. It would, of course, have done very well to set the milk in shallow pans in the heated room, but in such masses as the large cans hold (say 15 quarts) the heat was fatal. We at once put the cans back into the water, but left the cream-kettles in the warm room, at a temperature of from 60° to 65°. The result is as fine a lot of rich, sweet butter, made on the 24th of November, as we have ever had, although the weather has been cold and wintry. The only remaining test that is now needed to determine the advisability of setting the milk in deep cans immersed in cold spring-water (which is, relatively, warm water in winter), must be determined by the severely cold weather that is almost at hand. If we can make as much and as good butter when the thermometer outside is at zero, as we can when it stands at 30°, then there is no more question whether the plan is a good one, than there is whether it is a good plan to use a mowing machine. Indeed, I am convinced already that those who do not adopt this system for their summer dairies are decided losers in quality of butter and in the labor of making it, and slightly in the quantity they make.

I suppose that after having had three years of cheap hay, I have no right now to complain, but I am not a bit the better satisfied to pay \$30 a ton because I have hitherto bought for from \$16 to \$20. Fortunately I have less stock this year than I had last, and I have a good lot of corn-fodder and roots to help me out, but I must still be a considerable buyer, and, fix it the best way I can, I shall have to pay out more money for feed than I had counted on. The temptation has been strong to come down to short rations, but a little exercise of the faculty of common sense saved me from that, for if I am sure of anything in farming, it is that it costs a good deal more to make flesh than it does to keep it, and that starvation will never bring good calves; so I shall face the music, and try to bring my stock out in good order in the spring, even though hay goes to \$50. I shall, however, use only so much hay or other coarse fodder as is necessary to health—necessary for what they call in the South-west “roughness.” The *nutriment* I can get more cheaply in other ways. In my calculations I take as a basis Boussingault's tables of nutritive values—being the mean of experiment and theory—the present market prices of feed in Newport, and Lawes's estimates of the value of the manurial

residuum of each article, and allow sufficient margin for safety.

In the table below, the first column of figures shows the quantity of the article named that equals 100 pounds of good hay; the second, the cost of that quantity in our markets; the third, the amount to be deducted for the manure produced by the consumption of the quantity named; and the fourth, the actual cost of the nutritive effect produced.

MATERIAL.	1	2	3	4
Hay.....	100 lbs.	\$1.50	-.33	= \$1.17
Wheat (2d quality).....	46 lbs.	1.20	-.18	= 1.02
Wheat bran.....	105 lbs.	1.81	-.84	= .97
Oats.....	59 lbs.	1.18	-.25	= .93
Indian corn.....	57 lbs.	.90	-.20	= .70

If this computation is not *absolutely* correct it is *relatively* so; at least it constitutes as good a guide as any calculation we can make with our present very slight knowledge of the processes of animal life. Indian corn is too heavy a food to be given largely to cows, but I shall mix a little of it with ground oats and add them to my cut fodder and bran before steaming, increasing the quantity gradually until the animals will be satisfied with a minimum amount of “roughness.”

If the effect of such feeding is what Mr. Hors-

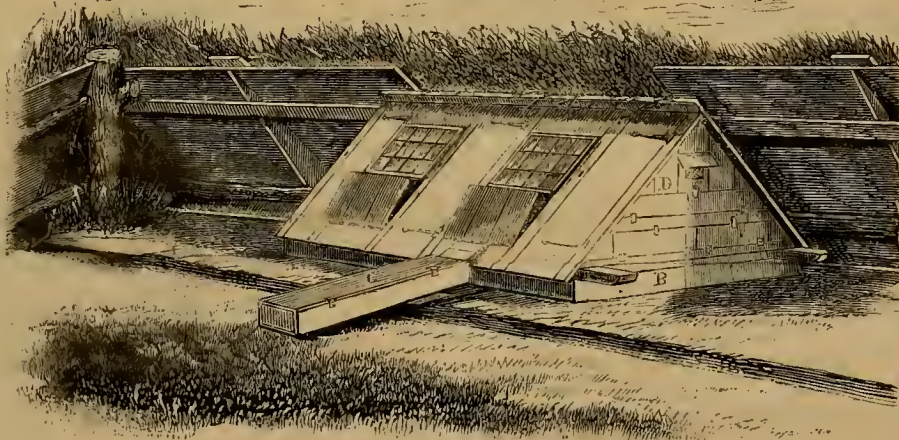


Fig. 1.—WINTER QUARTERS FOR LAYING STOCK.

fall's experiments would indicate, it is not impossible that we may learn a lesson that will be worth all that the high hay market will cost us. We shall see.

A correspondent in Maryland asks me to define the quality of the bran of which I recommend that ten quarts per day be fed to a cow. I refer to what is known in the New York market as “50-lb. feed,” *i. e.*—a 3-bushel bag full weighs 50 pounds. Say 16 pounds to the bushel; or, about a half-pound per quart.

An Egg Farm.

BY H. H. STODDARD.—*Ninth Article.*

Quarters for the laying stock during cold weather are shown in fig. 1. When the house is located for winter, the doors in the north roof are covered with building-paper in overlapping sheets tacked on slightly so that it may be removed in spring. Straw is laid over the paper to the depth of a foot. A temporary shed is made for a rod east, and the same distance west of the building, connecting with the roof of the latter, the platforms for drying earth (figured in the third article, p. 258) being used for this purpose and supported by stout rails. By turning a corner, as at the post A, east and also west of

the building, this shed is made to inclose three sides of a court which is open to the south. The gaps in the roof of the shed at the corners, and the cracks between the platforms, are covered with straw and boards. There is nothing that fowls love better than convenient nooks where they can retreat from the crowd of their fellows, and select their own company. Confinement brings not only loss of health but the vices of feather-eating and egg-eating. No system of diet will remove the liability of fowls that are habitually kept in-doors learning to pluck each other. If the room is large and the flock small there may be no risk of this, but the expense of such quarters would be fatal to success. When fowls are allowed freedom they never learn to eat feathers. If anybody wants to keep poultry under some highly artificial plan, and prevent out-door range in winter in order to promote laying, he is welcome to do so. But nature if thwarted is sure to have her revenge, if not in one way then in another. Whether in-doors or out, the birds must be busily employed every day, and then they will be happy and contented, and not learn egg-eating or other abnormal practices. Without a chance to scratch in earth or straw, they will be as badly off as a rich man with nothing to do.

Straw is scattered under the sheds, and on pleasant days a few handfuls of feed are buried under it, using a fork. When the weather admits, a larger pile is used for a scratching-place, situated south of the feed-room, where it can be moved by the aid of a team, as stated in a previous article. The arrangements for burying grain in-doors have also been already described. The ground is raised a few inches by plowing in the fall, where the sheds are to be placed.

When the house is placed upon the dust-bin, B, waste strips of cloth, called “headings,” obtained at the woolen factories, are used to make the joints air-tight between the two. The passage leading to the feed-room is represented at C. The feed-room itself is not shown in the illustration, because figured in a former number. A small opening (D) at each end of the house is for ventilation, and must never be closed. A projecting cap over it keeps out rain, and wire-cloth of 3-inch mesh breaks the force of entering air in case of high winds, though ordinarily the current will be outward. Fresh air is admitted through the passage C, and as it must enter the feed-room through an outside door in the latter, and pass several angles before gaining admission to the roosting room, strong draughts will be avoided. Care must be taken during cold spells to partially close this door at night, so as to raise the temperature at the

roost about 10 degrees higher than it is outside, but further than this no effort should be made

is put under the foundations of the walls. The floor of an underground fowl-house

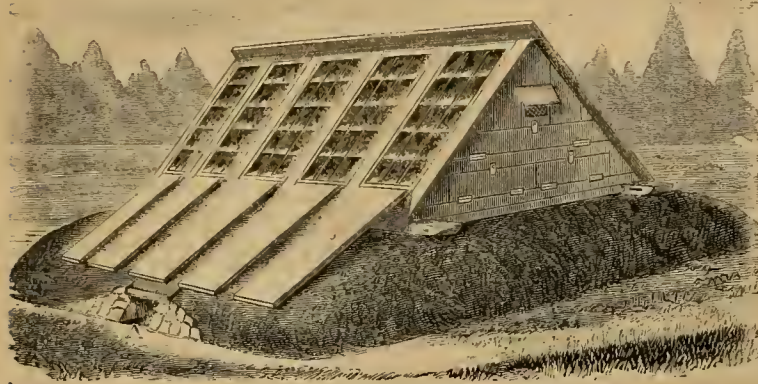


Fig. 2.—HOUSE FOR EARLY-HATCHED PULLETS.

to retain heat at the risk of impure air. Fowls that have free range in the daytime the year round, and roost in buildings open on all sides in summer and partially open in spring and fall, will not be injured by an attempt to strike a balance between warmth and ventilation during a few brief periods of extreme cold.

Figure 2 represents a house for the earliest hatched pullets that are expected to lay more in winter than the others, and are, therefore, sheltered at greater expense. Winter laying depends more on breed, age, feeding, and health, than upon warm rooms. Heat is necessary to productiveness, but a fowl kept in full vigor and good appetite by exercise, will be warm where a dull, mopeish one would shiver. It will not pay to build expensive fowl-houses, and the arrangement we are about to describe involves as much outlay as is advisable, in order to secure warmth, excepting for some special purposes. A mound of earth, nearly circular, and 25 feet broad at the narrowest point, is raised by scraping with the team. It should be 3½ feet high at the center, and slope gradually to a level with the surface of the field. Upon this mound a cellar is dug 7½ feet by 14½, and 3 feet deep, the bottom being 6 inches higher than the average of the surface beyond the mound. The cellar is walled substantially with stone, laid in cement, and floored with the latter material. Stations furnished with such cellars are upon

must always be a little higher than the adjoining field, not on account of drainage alone, but for ventilation. No room is fit to be occupied by stock, that can not be ventilated at bottom. In this cellar the walled passage at A admits air within 8 inches of the floor, which is covered with dry earth to that depth. The walls are

topped with plank-sills, upon the outer edges of which the runners of the itinerant building rest, caulking being resorted to as in the previous case. It will not answer to house fowls in such a place unless there is plenty of glass above, and the south roof, therefore, contains five long windows, instead of two short ones, as in the other cases, each door being furnished with one. There is a shutter (B) to correspond with each window. Otherwise the house is of the usual pattern, and the winter sheds and feed-room are attached to it, though omitted in the figure so as to show the embankment plainer. The house and mound have a bleak look in the illustration, but the sheds will make the whole sheltered and cosy. The usual boarded passage (not shown in the cut) connects the feed-room with the tunnel at A. There are sunny days enough in winter to keep the earth-bed inside perfectly dry, and the air will be no damper than in an unglazed apartment entirely above ground. Straw mats of the greenhouse pattern are used at night upon the north roofs of all the buildings for about two months in winter. The amount of solar heat accumulated during a clear winter's day in a pit roofed with glass is surprising, and this is to be retained as long as possible, always remembering, however, to give ventilation its due. Summer and winter the admission of air must be gauged by every change of wind and

it would not pay to attend to with one flock, may be afforded where there are many.

The buildings are kept over the cellars only in winter, and are drawn on and off the sills above the walls by the use of small rollers, and a horse attached to tackle. The cellars must not lie idle after the houses are moved, but be roofed with the platforms for drying earth, and a few movable greenhouse sashes, and used as shelter for chickens.

The stations when arranged for winter should preserve the dissimilar appearance mentioned in the first article, so that the fowls may be able to distinguish their own houses. Each building being colored in summer unlike those immediately adjoining it, the plan is carried out in winter by coloring the sheds attached to each house like itself. By using a very wide brush, the lime-wash, or coal-tar, is applied in a short time.

In addition to the sheds above described, other protection against the weather in winter is provided by adjusting some of the earth plat-

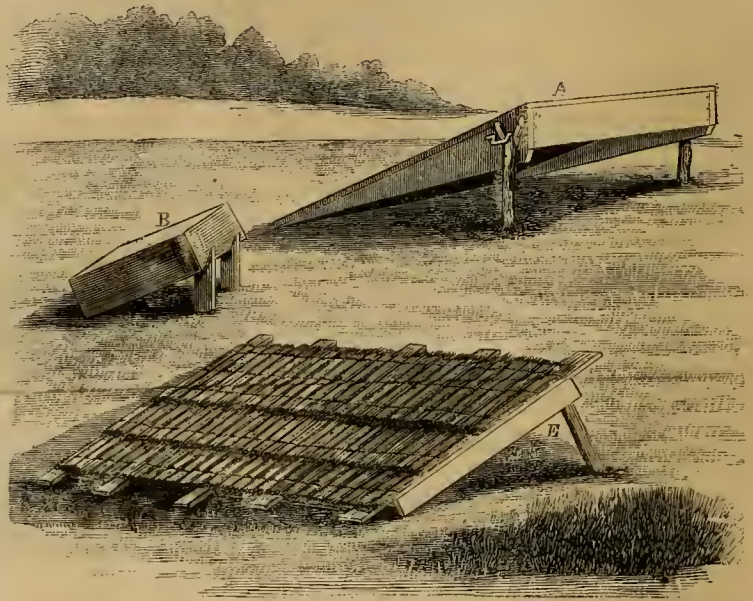


Fig. 3.—SHELTERS FOR CHICKENS.

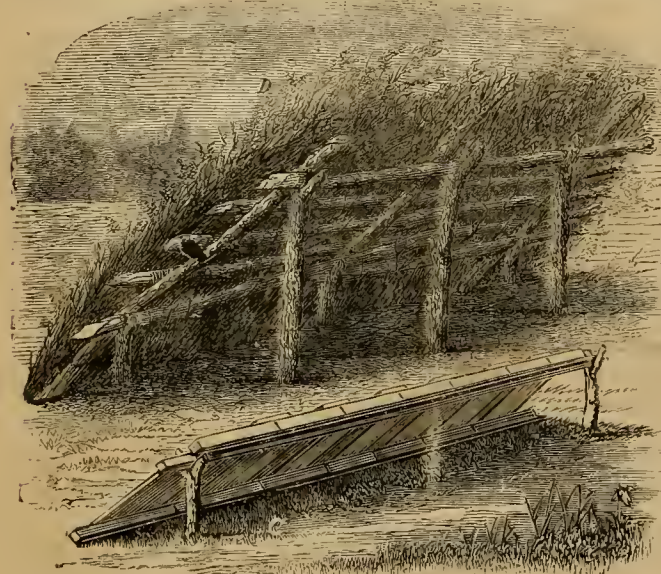


Fig. 4.—TEMPORARY SHELTERS.

a part of the farm where there is a gentle slope, and, wherever necessary, a tile drain

weather. It is one of the advantages of business upon a large scale, that operations which

forms as seen at A (fig. 3), and the basement part of the chicken-coops are propped up (B) and covered with boards, and the floors to the same are arranged as at C (fig. 4). In the same cut D represents a shade for chickens in summer, made of the rails used in winter for the sheds, covered by straw from the north roof of the layers' houses, with brush or corn-stalks added to keep the wind from blowing it away. Shade for the laying stock is provided by taking the winter dust-bins and propping them in a slanting position (E, fig. 3), and nailing slightly a few boards across, and thatching with the mats used in winter upon the houses. This contrivance is drawn upon the ground, by the team, occasionally, so as to never be very far from the building when the latter is shifted, and some of the platforms are moved about for the same purpose when not employed in the dry-earth harvest. By using earth platforms at one station, straw-mat screens at another, and movable booths of ever-green boughs at a third, neighboring premises are made to look unlike. In this way all the various fixtures in the whole establishment are kept in use summer and winter, and chickens and grown fowls are sheltered from sun, wind, and rain under structures that afford a great deal of ground room, which is what counts, yet they are low like the houses, and, therefore, made with but little lumber.

The Golden-Winged Woodpecker.

BY ERNEST INGERSOLL, OBERLIN, O.

It is almost impossible and entirely useless to discover the various names the Golden-winged Woodpecker has received from the persons whose orchards, and occasionally whose corn-fields, he visits. In the West he is commonly called "High-holder," in Ohio and Pennsylvania "Flicker," "Yellow-hammer," and "Pint," while New Yorkers simplify the thing, and dub him "Clape." His ornithological name is *Colaptes auratus*. Like the most of his class he is migratory in his habits, arriving upon Lake Erie from the South the second week in April, and leaving again in October. Their migrations are performed by night, as we are informed by the whistling of their wings overhead. Less shy and retiring in his disposition than many of his congeners, you may seek him in the edge of the woods and in old orchards, where, perched upon some tall stub or fence stake, he calls out so joyously his clear, ringing, sonorous chant, that we are certain even "High-hole" appreciates the glad revival of sunny days, and contributes, to the best of his ability, music to the awakening melody. It is, indeed, the best he can do, and though we may not perhaps name it a song, it is always welcomed as the announcement of returning warmth and life.

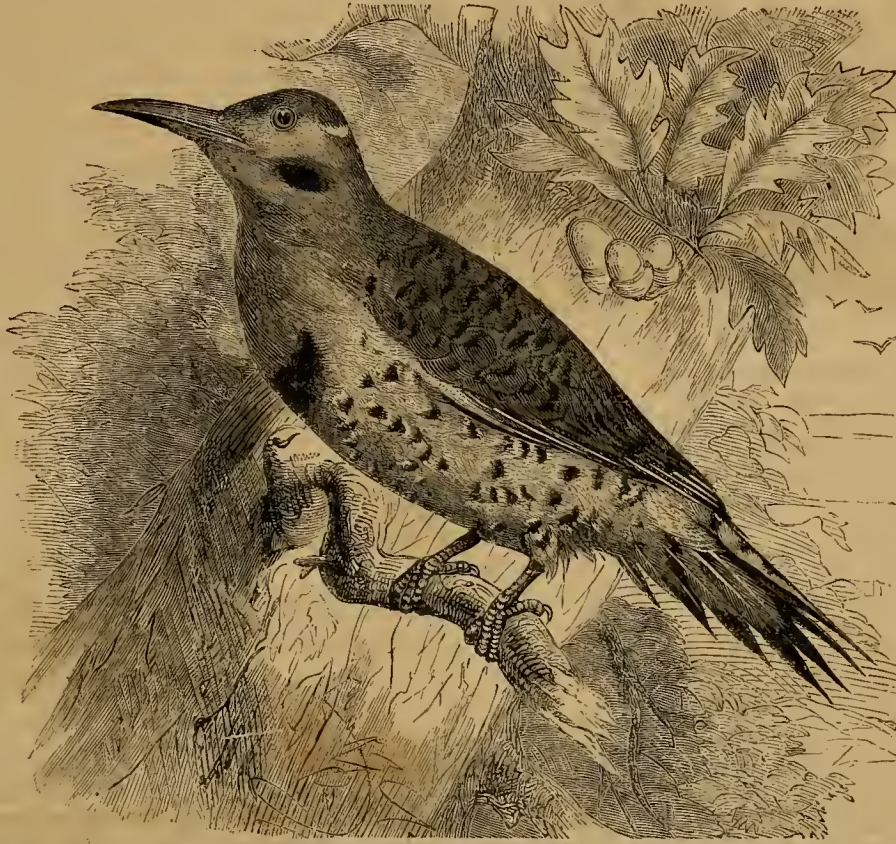
The Golden-wing is a type of one form among the woodpeckers. It is distinguished from the true woodpeckers by its curved and compressed beak, and by the broad, strong shafts, dyed bright, golden yellow, which are so conspicuous during flight, and furnish the bird its name. The upper plumage is amber brown, barred with black; beneath, buff yellow, with numerous spots of black, prevails; a lunated mark of vivid red glows amid the iron-gray of the hind-head, while a collar of jet black, meeting upon the breast, separates the buff of the lower parts from the cinnamon of the throat. The tail is beautifully marked with brown, yellow, black, and white, and the shaft of each feather pro-

trudes beyond the vane in a hard spine. The use of this conformation is evident, when we consider that the tail, pressed against the trunk, is used by the bird as a support in climbing.

We have said that the Golden-wing differed,

Of course by the destruction of myriads of ants our friend is of great benefit to the farmer. He no doubt understands this, and feeling that one good turn deserves another, when the farmer's corn is nicely ripening, makes frequent

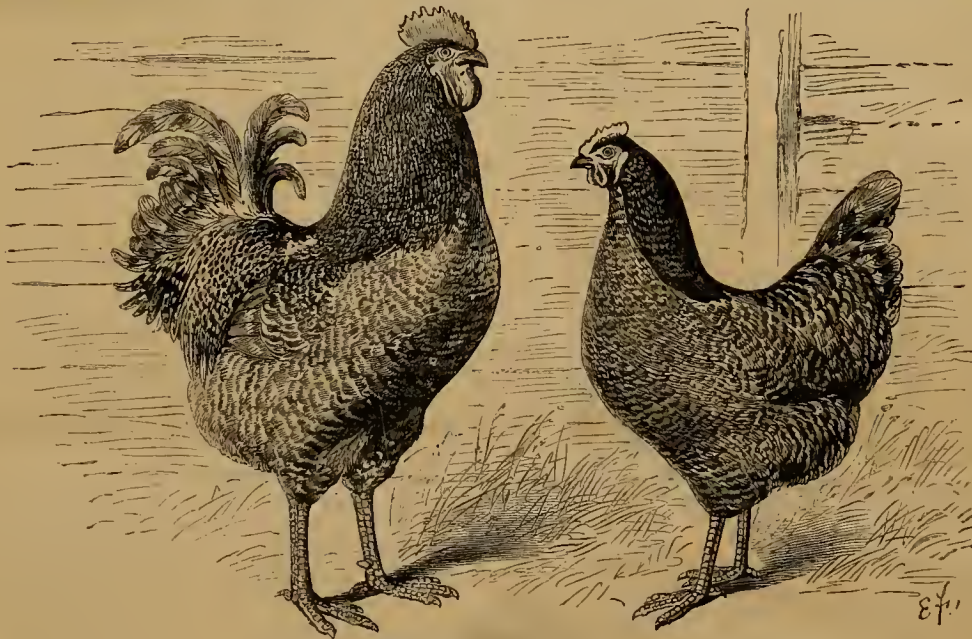
visits to his field, tearing open the husks with his powerful beak, and devouring with the greatest avidity the succulent kernels. Not seldom, however, the farmer himself, stealing through the waving corn, espies him at his delicious feast, and ere poor Yellow-hammer can escape, brings him fluttering down with his cruel shot. Undoubtedly, farmer John, he stole an ear or two of your growing corn, but undoubtedly he has killed a thousand or two industrious ants in yonder stump in the fence-corner, which repays you a hundred-fold. About the middle of May in this latitude the Golden-wing, having wooed and won a mate, seeks a nesting-place. The pair fly from tree to tree, run up and down the trunk and along the branches, chase each other in queer, twisted spirals all over the tree, peering



THE GOLDEN-WINGED WOODPECKER.—(*Colaptes auratus*.)

into crevices, prying off loose scales of bark, digging a little way into the yielding trunk of a dead cotton-wood, or rapping vigorously upon the sound surface of a hard maple, until a proper site is discovered. This is generally in the tall, dead stub of some ancient tree, a monument of the seathing fires which felled its companions long ago; often in the dead, top limb of an old apple-tree; sometimes, in remote orchards, within five or six feet of the ground. After the location is fixed upon, all their time is occupied in the preparation of the nest, and so intent are they upon their work that you may approach quite near without exciting alarm, and often they continue their labor, affectionately relieving each other, long after other birds are asleep. A hole is first dug

straight forward a few inches, and then perpendicularly downward, eight, twelve, even eighteen inches, according to season and circumstances. It is exactly circular, smooth, and gourd-shaped within, and chiseled out of the firm wood by the unassisted beaks of the two birds, of whose



PLYMOUTH ROCK FOWLS.—(See page 13.)

upon them. Young ants, however, of which he is passionately fond, form his regular diet. These inhabit old, decaying stumps and prostrate logs in prodigious numbers, and his stout bill, seemingly shaped for this very purpose, unearths them as readily as with a pickax.

power in cutting wonderful stories are narrated. This dry, snug cranny is soon the receptacle of six eggs of the most beautiful pearly white, without a blemish, which a few days of maternal care replace with as many callow young, in all their naked helplessness.

Then there is care, and enough of it, too, delightful though it be, in the woodpecker family. The young must be fed and protected from enemies—snakes, for instance; they must soon be taught to fly, and by slow degrees to shift for themselves, for ere the summer is ended a second brood will take their places in the care of the parent birds. All this time, too, the nest must be kept clean, and the birds must provide themselves as well as their clamorous young with ants and young beetles, extracted from their hiding-places under the bark, and Sour-gum berries, and what not, so that they are at no loss for something to do in that lively home up in the cotton-wood. When the autumn is dyeing the leaves, the Golden-wings fly South.

Audubon says that the Golden-wing lives well in confinement, never allowing his spirits to droop, "and, by way of amusement, will continue to destroy as much furniture in a day as can well be mended by a different kind of workman in a week." Wilson's success in keeping one was, however, indifferent, and there is nothing about the bird which will ever cause its introduction generally into our houses.

Walks and Talks on the Farm—No. 97.

I have just had a visit from one of the most enterprising and successful farmers in Western New York. It was a stormy day—just such a day when, it being impossible to do anything out of doors, a farmer feels no compunction in spending a few hours in conversation with a friend. We had a long and interesting talk, and as the storm continued unabated he spent the night with me. At home, he said, he went to bed every night between nine and ten, and was up, winter and summer, at five. He boards his men in the house. Breakfast is ready at six. Horses are fed, watered, cleaned, and harnessed before breakfast, and are expected to be *in the field* by seven o'clock at the latest. He uses three-horse teams, and insists on having two acres a day plowed by each team. He is very particular to have his land carefully plowed, and uses a "jointer." He thinks highly of the latter, as it completely buries the sod, stubble, weeds, etc.

The Deacon enjoyed these remarks in regard to plowing. He has always contended that I make a mistake in not using a jointer or double plow. The mass of testimony is certainly against me. My aim has been to get the weed seeds to grow and then kill the young plants, rather than to bury them for a year or two, and then have them start in the barley or wheat crop, where I could not get at them with a hoe or cultivator. If I was going to plant corn two years in succession, or potatoes the first year followed by corn, then I would use a jointer in breaking up the sod. The weed seeds which lie dormant under the sod the first year would spring up after the next plowing, and then I should have a chance at them.

"I am surprised," remarked our visitor, "that you do not raise more beans. Your land is better suited to the crop than ours, and yet we raise ten acres where you raise one. We find it one of our most profitable crops—though an

exhaustive one. I once made over \$100 an acre from my bean crop."

"Exactly," I replied, "and the next year we outsiders rushed into the business, and got our fingers burned. We paid a high price for seed, and planted ten, twenty, or thirty acres. It was a wet season, and the weeds got the start of us. When we came to harvest the crop we could hardly discover the rows, and found it difficult to get any one willing to pull the beans without extra pay. Our expenses were extra heavy, the yield extra light, the quality very inferior, and the price, even after hand-picking, anything but satisfactory. I bought some of those beans, to feed sheep, at 35 cents a bushel. And I imagine the yield was not over ten bushels per acre. If your land is clean, and in good condition, and you live where you can get plenty of boys to harvest the crop, beans can be raised to advantage, but not otherwise."

"What I particularly want to learn," he said, "is how to make manure enough to keep my land in good condition. I sell nothing but beans, potatoes, wheat, and apples. I feed out all my corn, oats, stalks, straw, and hay on the farm, and draw into the barn-yard the potato vines and everything else that will rot into manure. I make a big pile of it. But the point with me is to find out what is the best stock to feed this straw, stalks, hay, oats, and corn to, so as to make the best manure and return the largest profit. Last year I bought a lot of steers to feed in winter, and lost money. This fall I bought 38 head of cows to winter, intending to sell them in the spring."

"What did they cost you?"

"I went into Wyoming and Cattaraugus Counties, and picked them up among the dairy farmers, and selected a very fair lot of cows at an average of \$22 per head. I expect to sell them as new milk cows in the spring. Such cows last spring would have been worth \$60 to \$70 each."

"That will pay. But it is not often that the grain-grower gets such a chance to feed out his straw, stalks, and other fodder to advantage. It can not be adopted as a permanent system. It is bad for the dairyman, and no real help to the grain-grower. The manure is not rich enough. Straw and stalks alone can not be fed to advantage. And when you winter cows to sell again in the spring it will not pay to feed grain. If you were going to keep the cows it would pay well. The fat and flesh you put on in the winter would be returned in the form of butter and cheese next summer."

"Why is not the manure good? I am careful to save everything, and expect seven or eight hundred loads in the spring."

"You had 60 acres of wheat that yielded 25 bushels per acre, and have probably about 50 tons of wheat straw. You had also 30 acres of oats, that yielded 50 bushels per acre, say 35 tons of straw. Your 20 acres of corn produced 40 bushels of shelled corn per acre; say the stalks weigh 30 tons. And you have 60 tons of hay, half clover and half timothy. Let us see what your manure from this amount of grain and fodder is worth (see 'Harris on the Pig,' p. 139):

Manure from		
50 tons wheat straw, @ \$2.68.....		\$134.00
35 tons oat straw, @ \$2.90.....		101.50
30 tons corn-stalks, @ \$3.58.....		107.40
30 tons timothy hay, @ \$6.43.....		192.90
30 tons clover hay, @ \$9.64.....		289.20
14 tons oats (1,500 bush) @ \$7.70.....		107.80
24 tons corn (800 bush.) @ \$6.65.....		159.60
Total, 213 tons.....		\$1,092.40

"This is the value of the manure on the land.

Assuming that there are 600 loads, and that the labor of cleaning out the stables, piling, carting, and spreading the manure is worth 30 cents per load, or \$180, we have \$912.40 as the net value of the manure.

"Now, your 250-acre farm *might* be so managed that this amount of manure annually applied would soon greatly increase its fertility. But you do not think you can afford to summer-fallow, and you want to raise thirty or forty acres of potatoes every year."

"I propose to do so," he replied, "until the potato-bug arrives in this section. Situated as I am, close to a good shipping station, no crop pays me better. My potatoes this year have averaged me over \$100 per acre."

"Very good. But it is perfectly clear to my mind that, sooner or later, you must either farm slower or feed higher. And in your case, situated close to a village where you can get plenty of help, and with a good shipping station near by, you had better adopt the latter plan. You must feed higher, and make richer manure. You now feed out 213 tons of stuff, and make 600 loads of manure, worth \$912.40. By feeding out *one third*, or 71 tons more, you can *more than double* the value of the manure.

50 tons of bran or mill-feed would give manure worth.....	\$729.50
21 tons decorticated cotton-seed cake.....	585.06
	\$1,314.56

"Buy and feed out this amount of bran and cake, and you would have 800 loads of manure, worth *on the land* \$2,226.96, or, estimating as before that it cost 30 cents a load to handle it, its net value would be \$1,986.96."

I am well aware that comparatively few farmers in this section can afford to adopt this plan of enriching their land. We want better stock. I do not know where I could buy a lot of steers that it would pay to fatten in winter. Those farmers who raise good grade Short-horn or Devon cattle are not the men to sell them half-fat at low rates. They can fatten them as well as I can. For some time to come the farmer who proposes to feed liberally will have to raise his own stock. He can rarely buy well-bred animals to fatten. A good farmer must be a good farmer throughout. He can not be good in spots. His land must be drained, well worked, and free from weeds. If he crops heavily he must manure heavily, and to do this he must feed liberally—and he can not afford to feed liberally unless he has good stock.

It is a poor time to talk about the profits of raising and feeding good stock. Meat of all kinds is very low. I do not know that the consumers find it so, but at any rate farmers are getting unusually low prices. But I do not feel discouraged. It is almost certain that the next few years will give us good if not high prices for good meat. And he is the wise farmer who prepares for it now.

One of my neighbors bought a corn-husking machine, and a cheap sweep-power to drive it. The latter was made to sell and not to use, and soon broke. The husker did good work. And we may take it for settled that corn-husking by machinery is an accomplished fact. But it is equally certain that, at present, it costs more to husk with one of these machines than by hand. There were two horses, a man to drive, one to feed, one to give him the corn, and another to take away the stalks, and their best day's work, when everything went right, was less than 100 bushels of ears.

I would like to raise 40 acres of corn on my

farm (of 285 acres) every year; and I would do so if it were not for the labor of harvesting. It is slow, tedious work. But one of my day-dreams is to have my farm (exclusive of garden, orchard, permanent meadow, grass and wood land, and a few small lots near the barns) divided into ten fields of 20 acres each, with a neat stone wall round every field, the land well drained, clean, and rich. Then, I think, I could keep it rich and make it richer by some such a rotation as this:

FIRST YEAR—*Field No. 1.*—Clover sod the previous year, plowed early in the fall, and planted or drilled to corn in the spring.

Field No. 2.—Clover sod, heavily top-dressed the previous fall with well-rotted manure, plowed late in the spring, and corn drilled in as fast as plowed and harrowed.

SECOND YEAR—*No. 1.*—Sown with rye the previous August among the corn. Rye fed off on the land the next spring with sheep. Then plowed, thoroughly cultivated, harrowed, and made mellow, and then sown at different times with white mustard. This crop to be eaten off on the land with sheep, and the land to be plowed, and sown to winter wheat.

No. 2.—Oats and peas sown together. The land having been heavily manured for corn, and thoroughly cultivated while the corn was growing, and then plowed in the fall after the corn was harvested, might be sown early without plowing in the spring—it would be rich and clean, and a great crop might be expected, and after harvest one or two plowings would make the field in splendid order for winter wheat.

THIRD YEAR—*No. 1* and *No. 2.*—Both in winter wheat, seeded in the spring with clover and timothy.

FOURTH YEAR—*No. 1.*—Clover pastured close with sheep until the first of June, then left to grow up for seed.

No. 2.—Clover, mown for hay, and then pastured the rest of the season.

FIFTH YEAR—*No. 1.*—Clover seed stubble, pastured, and heavily manured in the fall.

No. 2.—Clover and timothy mown for hay, and afterward pastured until time to break up in the fall for corn.

SIXTH YEAR.—Corn again.

This would give me every year 40 acres of corn, 20 acres of oats and peas, 40 acres of hay, 20 acres clover seed, 20 acres of rye, 20 acres of mustard, 40 acres of pasture, and 40 acres of winter wheat. I should sell nothing but wheat and clover seed; but I should expect, at any rate after a few years, to get from 35 to 40 bushels of wheat per acre, and in a favorable season 5 bushels of clover seed. I think I could keep 15 grade Shorthorn cows, 12 calves, 12 yearlings, 12 two-year-olds, and sell a dozen fat steers and cows every year.

Then I should hope to be able to keep a flock of 100 long-wool ewes, 150 lambs, and sell 150 fat sheep at from twelve to twenty months old every year.

"You have left out the black pigs," remarks the Deacon, "and I thought you considered them your most profitable stock."

I have not forgotten them at all. But I will leave the profits from them to pay my oil-cake and bran bills, and they will much more than do it. The receipts from such a farm we may estimate as follows:

40 acres wheat @ 35 bush. per acre, @ \$1.50.....	\$2,100.00
20 acres clover seed @ 5 bush. per acre, @ \$6....	600.00
12 head of fat cattle.....	1,000.00
Butter from 15 cows.....	500.00
150 fat sheep, @ \$10.....	1,500.00
Wool from 250 sheep, 8 lbs. each, @ 60c.....	1,200.00
5 acres of apple orchard.....	1,000.00
	\$7,900.00

Feeding out such a large amount of stock would soon give me more than manure enough for 20 acres of corn every year; and, as soon as this was the case, I should take a few acres of the fall-plowed clover sod, manure it well, and sow mangold wurzel instead of corn.

Manure is like money. The more you have, the easier it is to make more. You can not grow a big crop of mangolds without thorough cultivation and a heavy dressing of manure. But when you have got the mangolds the land is not only left in splendid condition for future crops, but the consumption of the mangolds, besides being of great benefit to stock, leaves a splendid lot of rich manure. We can raise just as good mangolds here as they can in England—in fact, I think better, as our hotter climate matures them more perfectly, and renders them more nutritious. We can easily grow twenty-five tons per acre, and as the manure from a ton of mangolds is worth \$1.07, we have left from each acre of mangolds, besides the leaves, manure worth \$26.75.

If we could grow 100 bushels of shelled corn per acre—and the climate is capable of doing it—the manure from the corn and stalks would be about equal to that from 25 tons of mangolds. And, as I have said before, if it was not for the labor of harvesting I should aim to grow much more corn than I now do. It is the grand crop of this continent—the sheet-anchor of American agriculture. But what we want are larger crops per acre, and a cheaper and more expeditious method of harvesting them. We have made little or no progress in this respect. We harvest our corn crop just as we did thirty years ago. Great improvements have been made in drills, planters, and cultivators. We can raise corn much easier, but nothing has been done to lessen the labor of cutting and husking it.

I believe corn will yet be harvested as we harvest wheat—cut with a reaper, bound into bundles of a convenient size for pitching, and then thrashed or husked by a big machine, driven by ten horses or a steam-engine. It must be powerful enough to take in a bundle at a time, strip off the ears and husk them, and the stalks as they pass through can be cut up and elevated by a straw carrier. I believe in less than ten years we shall see hundreds of such machines traveling from farm to farm as thrashing-machines now do, and we shall wonder how we ever got along without them.

The late Robert Russell, of Scotland, the eminent meteorologist, farmer, editor, and author, whose recent death is a great loss to agricultural science, visited me shortly after his arrival in this country. He was not very favorably impressed with our soil or our manner of working it; but one charming afternoon in the early part of September, while standing in a recently sown field of wheat, with a note-book in hand, jotting down some facts for the book he afterwards published, he suddenly stopped, looked at a new made straw-stack, and then at the growing crops of corn, and at a large peach orchard that happened to be loaded with fine fruit. He was silent for some minutes, and then, thinking aloud, rather than talking, he remarked: "Harvest all gathered and thrashed; the next wheat crop now in the ground, and ten or twelve weeks of fine, growing weather before winter. We would like such a chance in Scotland." And it is undoubtedly true that after harvest is finished and the wheat all sown, we have a splendid op-

portunity for plowing and cleaning our land. If we could only expedite the corn harvest, and get the crop off the land, every acre of corn ground might be plowed and got ready for spring sowing before winter sets in.

Autumn is the time to work land, and spring the time to drain it. Winter is the time to draw the tiles to make manure, and to do everything that will facilitate the work of the spring and summer. In the spring, while the ground is wet and loose from the effect of the frost, an under-drain can be dug with one third less labor than in the fall. When the plans are all laid and the tiles on hand, a good deal of draining may be done in the five or six weeks in spring before we need to plow for corn. Some one writes to the *Agriculturist* that he thinks "Walks and Talks has underdraining on the brain." If I have, and the disease is contagious, I should like to communicate it to half a dozen of the most intelligent farmers in every town and post-office where the *American Agriculturist* is taken. Underdraining will be the great farm work of the next quarter of a century. Wherever draining is needed—and I have never yet happened to see a farm where some portions of it did not need draining—no real and permanent improvement can be effected until this work is done. I recommend no extravagant expenditure of money. Those who have the capital to drain their land completely at once, would find it to their interest to devote a year or two principally to this work. But there are few such men. Most of us must drain a few acres each year, as we can afford the time and money. Only commence and do the work thoroughly as far as you go, and there is scarcely a man who will stop until his whole farm is drained wherever needed. If I could induce every reader of the *Agriculturist* to make up his mind never to let a year go past without making a few rods of ditch, I should feel that I had accomplished something worth living for.

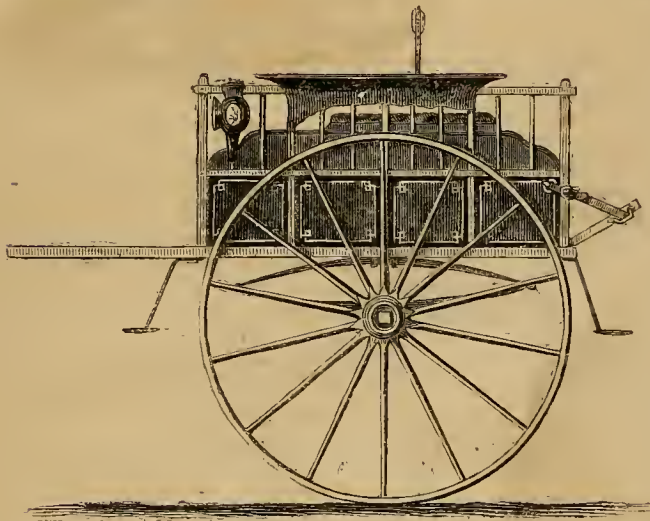
Put in stone drains if you can not get tile; but the latter, where they can be obtained at any reasonable price, are far cheaper and better. I have some stone drains that work well, and two or three brush drains that do more or less good, but I have one stone drain that is stopped up, and several brush drains that are useless, while I have not a single tile drain that does not do good service. I have some that are not deep enough, but I was bothered to get a good outlet. Some of my neighbors have not "underdraining on the brain," and it is not always easy to persuade them to join in cutting ditches deep enough to carry off the water. The only cure for this is, more light, more agricultural papers, and more neighborhood Farmers' Clubs.

A Farmer's Dog-Cart.

The two-wheeled vehicle known as the "Dog-Cart" (from having a space under the seats in which dogs may be carried for hunting expeditions), is very useful for ordinary knocking-about, in a country that is not too hilly. It is capable of stowing away baskets, and bundles, and bags, to an almost unlimited extent—all out of sight. One reason why it has not been more generally adopted in this country is, probably, that the only specimens we have had have been imported or made here for fancy driving, and have been too heavy and far too costly for common use. The cheap imitations that some of our country makers have produced have been but very miserable imitations, with all the faults and few of the advantages of the foreign article. In Montreal, they have a cart that we might

with great advantage adopt for our own use. It is not an aristocratic "trap" developed by the circumstances of an extravagant sporting life,

hand. What is needed is a couple of white-oak poles for the runners, about four or five inches thick. Shave off with a draw-knife about half the thickness where the bend or crook is wanted. With an inch-and-a-half auger bore holes for the posts, and one to receive the end of the rave at the nose of the jumper. The rave may be made of a piece of timber similar to the runner, flattened or not, as may be wished. When the sides are finished connect them together by three or four beams, the ends of which are let into holes bored into the inside of the raves. These holes should be bored so that the runners spread a little; this makes the jumper firmer, also less liable to upset with a load. Thills similar to those of a cutter are required, as this is a "one-horse machine."

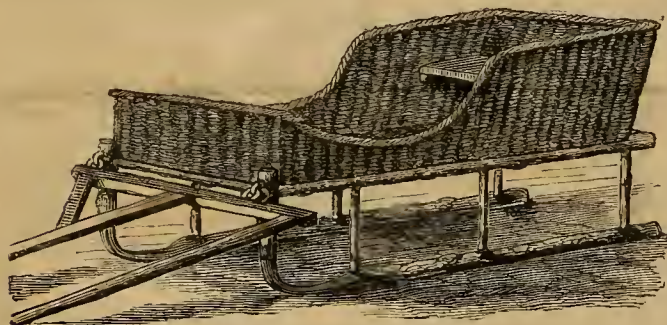


MONTREAL DOG-CART.

but a sort of "self-made" affair that has grown from the ordinary horse-cart, and has been made, by one addition after another, a most useful and by no means inelegant vehicle for all who have much running about to do, and who are liable to have friends or bundles to carry at any time. The cart-body, as shown in the engraving, rests upon a pair of elliptic springs. Each side has a top-rail supported by rungs, and inside of the rungs there is a thin boarding which extends about one half the height of the open space. The tail-board is arranged to be held at any desired angle by means of straps. The seats rest upon the boarding, and are held in place by means of notches which fit the rungs, and hold four persons, two of whom face to the rear and rest their feet upon the tail-board. Strong iron uprights support a heavy strap which answers as a back to the seats. Mud-guards are placed over the wheels, and steps at each side, front and rear. In the engraving a part of the mud-guard is removed to show the seats. It is a vehicle combining strength, convenience, comfort, lightness, and cheapness—the lamps and mud-guards, and the back to the seat, giving it a certain *air* that it is pleasant to have when more essential things do not have to be sacrificed to it.

To Make a Jumper.

A "jumper" which will answer many of the ordinary purposes of the farm, such as drawing light loads of wood, feed, or fodder from one



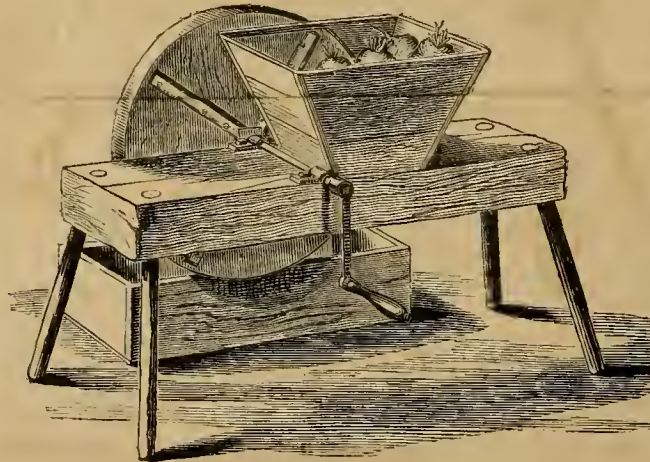
A JUMPER.

part of the farm to another, running to mill, or to the post-office, or the village, can be made at home with a little ingenuity, a few tools, and such materials as are almost everywhere at

The top represented in the engraving is of wicker-work, but it may be a box, a rude hamper, or whatever the owner chooses.

Cutting Roots.

As the practice of feeding roots is becoming



HOME-MADE ROOT-CUTTER.

more general, it is well to consider the best mode of doing it. As it is often done, it is far from being safe. We often hear of choking cattle, and are asked for modes of relief. Now, prevention is much easier than a remedy in this case. If the roots are cut there is no danger of choking. The cattle, more especially fattening cattle, are able to consume them with so much greater ease that they thrive better. Sheep can hardly eat turnips without being cut, and hogs also find difficulty in dealing with them. The simplest mode is chopping them in a box with a sharply ground shovel. Where but a few bushels a day are used, this may answer the purpose very well, but it is not a neat practice. A turnip slicer, which is a machine armed with knives, which slices up all sorts of roots, is probably the best apparatus that can be used.

Of these there are various kinds that may be purchased from \$15 upwards. We give an engraving of one that may be made at home, that will probably be found as useful, in a small way, as any. It is made of a circular piece of plank, 30 inches in diameter, hung with a crank like a grindstone. Sloping mortises are cut through in four places sufficiently large to admit of broad steel blades being fixed in, which slice up the roots, as they come in contact with them, as they pass the open side of a hopper in which

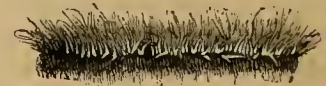


Fig. 1.—A LIGHT SOD.

the roots are fed. With the exception of the blades this machine may be built at home. For the sketch of this machine we are indebted to a correspondent in Western New York.

What a Heavy Sod will Do.

The sod makes the corn. This may be taken as an axiom, as undoubted as that a straight line is the shortest distance between two points. If the sod is right the corn can take care of itself. What is wanted is a mass of roots, filling the soil to the depth of three, four, or five inches or more, and such a mat of vegetation on the surface as will inevitably belong to such a mass of roots. Now, what such an amount of veg-

etable matter, easily decomposed, and such as corn loves to feed upon, would measure, can very easily be estimated. It would certainly be within bounds to say that there would be on every square rod of ground 90 cubic feet of matter equal in fertilizing power to average barn-yard manure. This is over three quarters of a cord per square rod; and 160 rods going to make up an acre, there would be over 120 cords of manure to the acre. This amount of barn-yard manure would seem perfectly bewildering to a farmer, and would be beyond the power of many

to haul out and spread. And here it is, on the spot, in the most perfect shape possible to be utilized. Does it then need any further argument to show clearly that a heavy sod is the best, cheapest, and most easily handled manure a farmer can procure or invent? The vexed question of whether one should plow deep



Fig. 2.—A HEAVY SOD.

or shallow for corn, here gets a satisfactory and simple reply. With such a sod, or any sod, we may say, one must plow sufficiently deep to get enough loose soil on the top to allow the harrow to work and make a seed-bed. No more,

no less. If our sod is such a one as we lately saw cut from a pasture on a farm in Eastern Pennsylvania, the plow must necessarily go seven or eight inches beneath the surface before enough soil can be obtained wherewith to make a seed-bed. The average crop on this farm is over 100 bushels of shelled corn per acre. And the secret, if there is any, is in this sod. Why should it be doubted? Compare the sods represented in figures 1 and 2, and compare 100 bushels against the average corn crop. It is a simple example in proportion: as sod is to sod, so is corn to corn. And by this we may learn what a heavy sod will do.

Blasting and Breaking Rocks.

There are many localities in the East where stone is too valuable to waste, and yet where the land is too valuable to remain occupied or encumbered with it. At the West stone is less abundant, but what there is is valuable for many uses. Making foundations for buildings, walls for barn-yards, fences for fields, and protecting walls for banks of streams liable to be washed away, are all uses for which stone is valuable. We give some directions for breaking up the largest rocks which a farmer is likely to meet on his farm. This is most easily done by blasting. A few ounces of powder is sufficient to reduce to "sizable" fragments a rock of several tons' weight. To do this, let a hole be



Fig. 1.—TOOLS FOR BLASTING AND BREAKING ROCKS.

drilled in such a part of the stone that the resistance to the powder will be as near as possible equal on all sides. A little examination and judgment will show where the hole should be placed, and in which direction it should be bored. Then take the drill (a, fig. 1), which is of octagonal steel, one inch in diameter (American steel made at Pittsburg is to be chosen in preference to the more brittle and costly English steel), on which the blacksmith has fashioned a "bit," shaped as in the cut (fig. 1), and, holding it with the left hand, strike with smart, light strokes on the head of the drill with the mallet (b) held in the right hand. After each stroke the drill must be turned one eighth round. The eight sides of the drill furnish a guide for this. When the hole has been worked dry two or three inches deep, water may be used to soften the rock, taking care to use only just so much as to keep the powdered rock in a state of soft mud; a little and often is the rule. To keep the water from splashing, a round piece of leather is used, large enough to lay over the hole in the stone, with a hole in the center of it to admit the drill. A cloth is laid on this, and wound loosely round the drill, and prevents all slopping over. The mud is taken out of the hole when necessary with a "swab-stick,"

which is a piece of sapling, the end of which is battered up so as to make a sort of mop. This is dipped in the hole, and the mud which adheres to it as it is withdrawn is jarred off. When the hole is sufficiently deep it is cleaned out with the swab, dried with some perfectly dry sand thrown in, and swabbed out dry. It is now ready for the blast. The powder used is coarse blasting powder. The quantity to be used greatly depends on circumstances, learned only by experience. It is better to use too little, and do it over again, than use too much and blow out the top of the stone only, and spoil all the work. The object is to break the rock into a few large fragments, and not all to "flin-

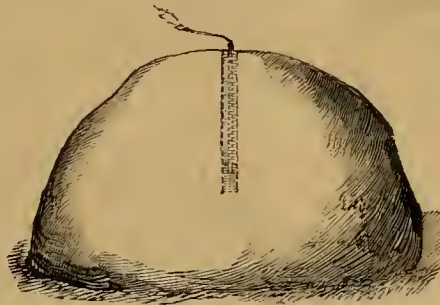


Fig. 2.—BLAST READY TO FIRE.

ders." Then about two inches of powder will be sufficient for a rock that requires a hole two feet deep. The powder being poured out of the can into the cup which covers the top of the neck of the can, and which should be about three inches deep, is poured into the hole, a piece of fuse long enough to reach from the powder about a foot out of the hole is cut off the roll (which is seen in its proper place on the powder-can), and one end put to the bottom of the powder. The powder is gently pressed down with the small end of the swab-stick, and dry sand is poured on to it until the hole is filled. The point of the swab-stick is thrust into the sand to "tamp" it, so that the powder may be confined. The loose end of the fuse is split with a knife for half an inch to expose the powder, and when the tools are removed into a place of safety a match may be applied. It will be advisable to retire to a safe distance, where the effect of the explosion may be viewed.

Smaller stones may be broken with the hammer and the wedge and feathers. With the

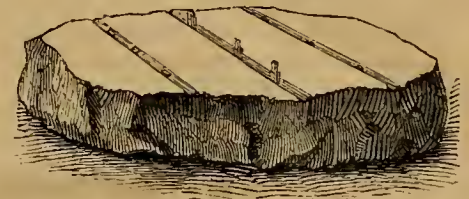


Fig. 3.—BREAKING A ROCK.

chisel end of the hammer (d) a shallow groove is made across the stone where the fracture is wanted, with a small drill three or four holes six inches deep are drilled, wedges (e) are placed in the holes with the feathers on each side of them between the stone and wedge, and they are driven gradually, with light, steady blows, on one wedge after the other, in regular order, until the stone breaks, when the split will be found straight and smooth enough for any sort of rough farm-work.

Tools for Cutting Ice.

Cutting ice is a very simple operation, and requires only such tools as any farmer can command. All that are necessary are a common cross-cut saw, properly arranged, an ax, and a board on which to draw the blocks out of the water and into the sled or wagon. Ice-tongs may be used with advantage, but they may easily be dispensed with. An ordinary cross-cut

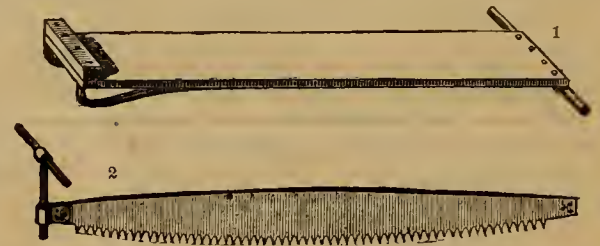


Fig. 1.—BOARD FOR HAULING OUT ICE. Fig. 2.—SAW.

saw of small size may be used by taking off the socket for the handle at one end. In the other socket a handle may be fitted which will be handier to use if it is set in at right angles to the blade of the saw, as in fig. 2. To start cutting, first make a hole with the ax large enough

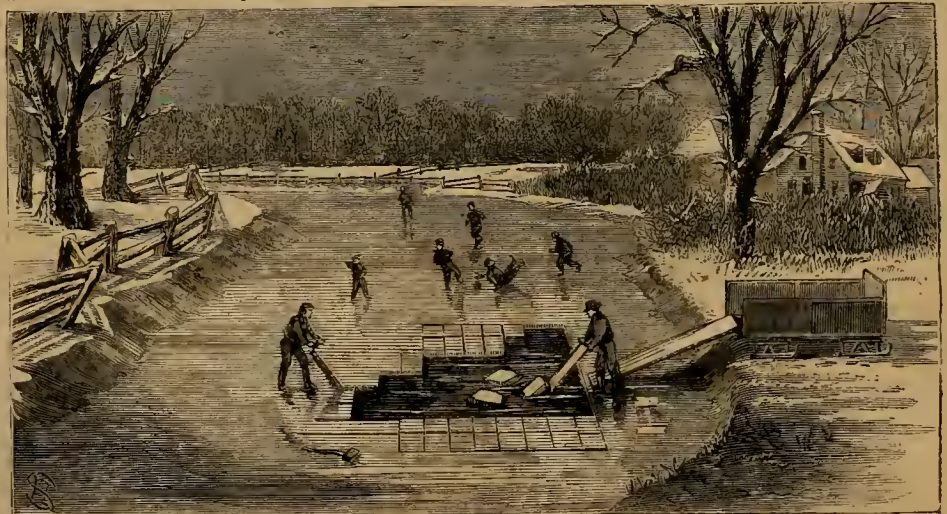


Fig. 3.—GETTING OUT ICE ON THE FARM.

If everything is just right the stone will fall apart with a dull, dead sound, and no fragments will fly. If too much powder is used, a great noise will be made, but little good done.

to start the saw, and cut strips eighteen inches wide. These may be cut across into squares with the ax, first cutting a slight channel in the direction in which the ice should break,

then with a smart blow the square piece will be loosened. To get it out of the water, take the board, fig. 1, which is about five feet long, with handles on one end and a cleat fastened on the other. This is slipped under the block of ice, the cleat takes hold of it, and it is drawn out. A pair of light runners of strong hoop may be fixed underneath, and the board will make a sort of hand-sled, on which the piece of ice may be drawn up to and into the sled. Nothing else is necessary to perform this job as well as it can be done with the most costly tools. Directions for packing away the ice will be found in the *Agriculturist* for November, 1871.

California Forage Plants.

BY "GREENWOOD," LOS ANGELES, CAL.

In the November *Agriculturist* is an article upon Lucern, and a desire is expressed to hear from California readers about it and kindred plants. Three kinds of clover (as commonly called) grow here, samples of each being inclosed—viz.: Alfalfa, or Chilian-Clover, Burr-Clover, and a third variety, name unknown.

Alfalfa, or Lucern (*Medicago sativa*, fig. 1), is largely grown as a grazing and soiling crop, and for hay. When it is well established, its roots, which penetrate twenty or thirty feet deep in the earth, will keep it alive and green through drouths that would kill almost any other plant. With water it will yield increased crops, which may be cut every few weeks all the



Fig. 1.—LUCERN.

year round; in all, aggregating an astonishing amount of forage or hay, per acre, in a year. It is sometimes planted in orchards, as it succeeds well in partial shade, but it draws so largely upon the soil for food and water that it must greatly injure the trees, both in growth and in the quantity and quality of their fruit. At this season it is brought into the city and sold, fresh, to stablemen and to those who keep cows. I don't know what Southern California would do without it.

The second kind, Burr-Clover (*Medicago denticulata*, fig. 2), as commonly called, is a most valued forage plant, growing wild all over the plains and foot-hills, and affording the most nutritious and acceptable pasturage to all kinds of stock. It grows in such profusion that the burrs containing the seeds remain upon the ground after the leaves and stalks of the plant have entirely disappeared, and afford a supply of dry, yet, as it were, concentrated fodder, for the dry months, when no green pasturage is to be had. These burrs lie in vast quantities in the hollows of the ground where the winds have blown them. Even now, after two dry summers, the crop of burrs of three years ago is plentiful in places.

In habit Burr-Clover is low, almost or quite creeping; the stems running two or three feet upon the ground, forming with the leaves a dense, thick mat of verdure, that, while it gives

the best of pasturage, would be difficult to gather for hay. It is tenacious of life, and will grow notwithstanding the crowding of weeds,



Fig. 2.—BURR-CLOVER.

trampling under foot, etc., as will White-Clover. It roots very strongly in the ground, like Red-Clover, and will bear over-close feeding better than Alfalfa. In some places its tenacity of life and disregard of ill-usage may entitle it to the name of "weed," but if so, its value and usefulness will give it grace to endure the epithet.

The third plant (fig. 3) is not so plentiful as



Fig. 3.—SMALL-FLOWERED MELILOT.

Burr-Clover; has a more upright habit, like Alfalfa or Red-Clover; is not tap-rooted, and is not so hardy against weeds, or drouth, or neglect; does not afford quite so much or so succulent fodder as Alfalfa, yet is more nutritious, and is eagerly eaten by all kinds of stock, either green or cured into hay. Alfalfa seed is sold at

15 cents per pound. Burr-Clover seed is not in market, as, growing wild all over the country, it is never cultivated, but the seed could be had for the cost of gathering the burrs and thrashing. The third variety could only be had in small quantities and by special effort. I see no reason why Burr-Clover could not be raised at the East for soiling or for hay as readily as Red-Clover; the only difficulty would be in gathering it, on account of its creeping habit. It would make a most valuable fall pasturage.

To sum up: for hay or green fodder, Alfalfa; for dry pasturage, where rainless months must be withstood, Alfalfa; for moist pasturage, for grazing only, Burr-Clover; for trial, the third variety. Value of crop: for weight, or succulence, Alfalfa; for nutriment in a given weight, either of the others.

[The third plant spoken of by our correspondent, and of which he sent a specimen, is *Melilotus parviflorus*, the Small-flowered Melilot. Figure 3 gives the upper part of a stem of the natural size; the flowers are yellow, and the plant in drying, like other Melilots, exhales a powerful vanillalike odor. We have seen it growing abundantly along the banks of streams in Northern Mexico, where our animals, having an abundance of grass, did not seem to be very fond of the Melilot.—Ed.]

Plymouth Rock Fowls.

This is one of the few cases of crosses which when bred pure have given rise to a valuable breed. The cases are so rare where *crossing* is successful in forming a *breed*, that the doubt has been often expressed that the Plymouth Rocks are a cross. Still the evidence of breeders and the appearance of the fowls indicate that this is the case. They are said to have a mingling of the blood of Cochins, Dorkings, and Malays, in proportion of one half of the first to one fourth of each of the others.

The plumage of the Plymouth Rocks is very similar to that of the well-known Dominiques, and by a little care in selection it may be bred identical with it. In the most beautiful specimens, the feathers have a dark blue ground color, shaded with cross-bands of dark slaty blue, this coloring prevailing all over the bodies of both cocks and hens.

Single combs are preferred, and the only ones admitted according to the "standard of excellence." They should be of only medium size in cocks, and small in hens. Double or rose-combs often occur, but birds having them are "disqualified" at exhibitions.

The cock has a noble carriage, with a tail large and full, carried well up. The legs should be clear yellow, and free from feathers, which are also a disqualification. The hens are very hardy, good winter layers, good sitters and mothers. The eggs are of a pale buff color, and of good size.

The chicks are hardy, mature early, and attain a good weight in the autumn. Adult fowls should weigh ten pounds for cocks and seven for hens—though this is above the average. The flesh is decidedly superior to that of any of the Asiatic breeds, which quality is supposed to come from the Dorking blood.

The breed originated in Eastern Massachusetts, and is hardly known outside of New England. It can not be regarded as fixed in all its characteristics, but in good hands is bred to a high degree of symmetry, size, beauty, and usefulness. The pair shown on page 13 belong to C. C. Corbett, Norwich, Ct.

The Effect of Steaming Food on the Productiveness of Cows.

So much attention is now being given to the question of steaming food for cattle, that any facts concerning it are especially interesting. It is often asked: "Do the farmers of England, the best cattle feeders and the best farmers in the world, steam their food to any considerable extent?" So far as we know, no very encouraging affirmative reply can be made to this question. But then circumstances alter cases, and we are very differently situated from English farmers, in that our winters are very much colder, and that—owing chiefly to the scarcity of labor—we can not compete with them in the production of root crops; roots being less improved by steaming than any other winter food. Yet while, from their less necessity for cooking, the English give less attention to it than we do, it is to an English farmer that we must go for the most conclusive evidence in favor of cooking that we have yet seen—evidence so conclusive that we give it more space than we like to devote to a single subject.

Mr. Thomas Horsfall, of Yorkshire, England, is very high authority in dairy matters. In one of his elaborate reports to the Royal Society, he describes an experiment undertaken to show the comparative effect of feeding cooked and uncooked food. The experiment commenced January 1st. He selected one of his own cows, one of Mr. Smith's, and one of Mr. Pawson's (neighbors), thinking that if he changed some of his own stock from his steamed food to dry hay, they would not do so well on it as would cows that had been kept in the ordinary way.

Mr. Smith's cow was small, but a noted milker. She had been in good condition at calving (her third calf), but fell away sensibly during three weeks thereafter. She was fed on hay only—eating 28 lbs. per day. Mr. Pawson's was a heifer three years old, with her first calf. She, too, fell away very much in her condition. Until late in November she was grazed during the day and housed (with turnips) at night. From that time until Feb. her food was (per day): inferior meadow hay, 18 lbs.; Swede turnips, 45 lbs.; ground oats, 9 lbs. After the first week in Feb. the oats were discontinued, and hay given *ad libitum*. Mr. Horsfall's cow was of small size, but a large milker. She was in good condition at calving, and gained flesh on her diet. She was fed on "steamed mixture," and 1½ lbs. bean-meal, fed raw—the mixture consisting, for each day's rations, of 5 lbs. rape-cake, 1½ lbs. bran, and 1½ lbs. malt combs, mixed with enough bean-straw, oat-straw, and shells of oats, in equal proportions, to give three times a day as much as she would eat. After each feed she received 3 lbs. of dry hay.

The following table shows the condition and performance of each animal:

When calved	Yield at Calving	January 1st.		March 5th.	
		Weight.	Yield.	Weight.	Yield.
Smith's, Nov. 12th.	17 qts.	980 lbs.	15½ qts.	896 lbs.	9½ qts.
Pawson's, Oct. 6th.	16 "	840 "	12 "	812 "	6¼ "
Horsfall's, Oct. 8th.	18 "	1092 "	15½ "	1148 "	12½ "

Mr. Smith's cow lost 84 lbs. in nine weeks, with an average yield of 12½ quarts per day. Mr. Pawson's lost 28 lbs., but nearly her whole loss of both flesh and milk occurred after Feb. 6th, when her oats were stopped. At that time she still weighed 840 lbs., and gave 11 quarts of milk per day. Mr. Horsfall's cow, on the

other hand, gained an average of 6¼ lbs. per week, with an average yield of 14 quarts. She gave, Jan. 1st, 15½ qts., Feb. 4th, 14 qts., and March 4th, 12½ qts.

Computed at the local prices, the average profit and loss in each case per week was:

Mr. Smith's cow.—		
Milk.....	\$3.64	
Deduct for loss in flesh.....	\$1.16	
" " hay.....	1.75	
	2.91	
	Weekly profit.....	.73
Mr. Pawson's cow (average of weeks before oats were stopped).—		
Milk.....	\$3.35	
Deduct for hay.....	\$0.75	
" " oats.....	1.16	
" " turnips.....	.37	
	2.28	
	Weekly profit.....	\$1.07
Mr. Horsfall's cow.—		
Milk.....	\$4.08	
Add for gain in flesh.....	.78	
	\$4.86	
Deduct for hay, straw, and oats.....	\$1.13	
" " rape-cake, bran, etc.....	1.00	
	2.13	
	Weekly profit.....	\$2.73

The richer quality of the manure compensated Mr. H. for the extra cost of attendance.

So much for the experiment to March 5th. On March 12th, Mr. Horsfall bought Mr. Smith's cow for the purpose of trying her on steamed food. At that time her yield had fallen to 8 quarts per day. March 31st—four weeks from the former weighing, and after 19 days of steamed food—her milk had increased to 9½ qts., and she had gained 28 lbs. in weight. Mr. Pawson's cow, with no change of food, had fallen off to 5 qts. per day, without change of weight. Mr. Horsfall's cow at this date gave 12 qts., and had gained 28 lbs.

Mr. Horsfall mentions another cow that had given at her flush 13 qts. of milk. Fed on 22 lbs. hay and 35 lbs. mangels, she fell off in eight weeks to 9 qts. She was then, April 20th, put on the steamed mixture. Soon after this her yield increased to 11 qts., at which point it remained until May 16th, when she had gained 14 lbs. in weight. He says, in concluding one section of his report:

"These results are important, and completely establish the conclusions I had previously formed, that the quantity and quality of butter depend essentially on the food and treatment; and that by suitable means you can produce *as much and as rich butter in winter as in summer.*"

The point of greatest value in the experiments described above is the improved condition of Mr. Smith's cow when she was put upon steamed food. But for this there would have remained the possibility that Mr. Horsfall's cow was intrinsically much the best of the three. Another point to consider is that both Mr. Smith and Mr. Pawson had their cows in their own keeping, and that each probably did his best to prove the superiority of his own system.

What are Artificial Manures?

There does not seem to be a clear understanding as to what are natural and what are artificial manures. Many farmers have a prejudice against what are called chemical manures, probably for the reason that they can not see the connection which exists between a product of a chemical manufactory and the needs of the vegetable products of their soil. Such manures, therefore, as nitrate of potash, nitrate of soda, chloride of sodium (salt), sulphate of lime (plaster), etc., are looked upon as either useless or of doubtful advantage. But there are

many so-called artificial manures which are really as much the natural product of the farm as the manure from the stables or hog-pen. For instance, bone-dust and superphosphate of lime return to the soil precisely the same elements which they derived from it. So with many articles manufactured from blood, refuse flesh, waste of tanneries and soap-works. If these are not adulterated with useless foreign articles they but bring back to the soil what was originally taken from it. For this reason, if these manures can be procured at their actual value, their use should become as regular a part of the farm economy as that of barn-yard manure. Every calf, hog, or sheep sold off the farm creates a demand for the return of a portion of one or another of these incorrectly called artificial manures, as much so as the feeding of an animal calls for the return of its waste.

How to Catch an Owl.

One of our associates who had lost some of his poultry by the depredations of owls, gave in March last an article with the above heading. This has called out letters from several correspondents, some of whom protest against catching owls at all, as they do much good in destroying mice, and say that owls do not trouble poultry, especially if they are shut up. There are altogether in North America some forty species of owls, and while some of these confine their attention to small game, like mice, others are destructive to the farmer's poultry—young turkeys, which seldom will roost under cover, being especially apt to fall a prey to the owls. Among the advice given as to catching owls, one is founded on the belief that if the owl has killed a bird without carrying it off it will soon return for it, and the writer advises to put a part-ridge trap over the dead fowl, which should be fastened to the trigger, and await the return of the bird of prey, which may be after an interval of several days. The plan of several others is founded upon the fact that an owl or hawk will perch upon any elevated point to take an observation before darting upon its prey, and proposes the use of steel traps attached to a small platform elevated upon a pole, which may stand by itself or be thrust up through the tree-tops, and project above them. The trap needs no bait, as it is intended to serve only as an alighting place or observatory for the owl or hawk. The trap should of course be fastened in such a manner that the bird can not fly off with it. Sometimes the owl, when caught, will remain quiet and pretend that nothing is the matter, and it is only when disturbed that its capture is ascertained.

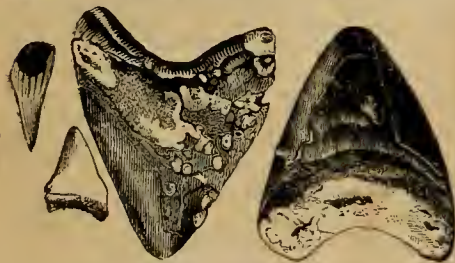
How to Improve our Stock.

It is a matter of certainty, and we never yet met a farmer who did not admit it, that stock-raising is the most important branch of a farmer's business. It is the life blood of the farm. Then it is a great point to have stock that will bring in the most money at least cost. This can only be done by improving the common native stock by the means of pure-blood male animals. These cost money, and few farmers have sufficient stock to need for their own use the entire services of such an animal. But five, eight, or ten farmers, jointly, may purchase an animal, or a set of them, as bull, boar, and ram, for say \$1,000, whose services will repay the cost in a single year, and raise in a few years the character of the stock in a whole township. We know



QUARRYING PHOSPHATES IN SOUTH CAROLINA.—Drawn and Engraved for the American Agriculturist.

of an instance where the introduction of a herd of Jersey cattle into a county in five years led to the dissemination of the stock all through it, and the increase, of course, now is in a much greater ratio than in the first five years. We know that already the butter in that particular district has shown a marked improvement, and that the storekeepers in the different villages are in consequence beginning to grade the butter. Now, this is an important thing, as a farmer who produces a superior article likes to know that he gets a higher price than is brought



FOSSIL SHARKS' TEETH.

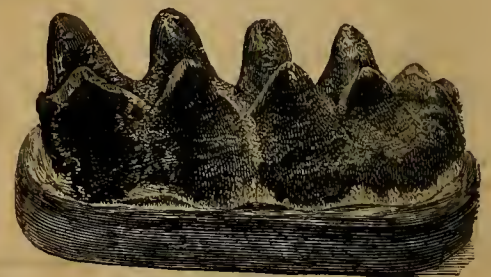
by a lardy, greasy one, and that all the butter from various dairies is not dumped together. Again, in hogs an improvement is much needed, more particularly east of the Alleghenies. We want an early maturing pig that does not need to be wintered over, and that can be made into pork any time after three or four months. An Essex or Berkshire boar would bring such stock, and five farmers might jointly secure a very choice one, that each one singly would not be warranted in purchasing. It is unnecessary to carry this subject further. This is the time to think and act upon it, and the season is approaching when it might be carried into operation.

The South Carolina Phosphates.

Without discussing the question whether the various treasures hidden beneath the earth's surface were deposited there in former ages expressly for man's use, it is not the less interesting to notice that when these deposits are really needed they come to light. It was only when wood became scarce and the population large that coal was discovered. When whales became much reduced in numbers, and their capture costly, then petroleum came to supply the place of oil. And, later still, when impoverished fields are nearly valueless, an almost inexhaustible supply of phosphates is opened and utilized. The South Carolina phosphates are the remains of fishes and other animals, and though the deposit has long been known to geologists, it is only within a few years that it has assumed an economical importance. The principal beds are seven miles above Charleston, upon the Ashley River, along the banks of which they extend for ten or fifteen miles.

Mr. Woodward, one of our artists, while at the South visited these beds and made some sketches. To get out the phosphate, a trench is opened by digging first through the shallow but rich top-soil, then through sandy subsoil, when, about two feet below the surface, is found a stratum of phosphates in the form of nodules, packed closely together. This bed is from four to eighteen inches in thickness, sometimes increasing to two or three feet. The nodules are irregular in form, and appear as if water-worn, the majority presenting no organic forms to the ordinary observer, but a microscopic examination reveals the structure of bone. Well-preserved animal remains are however found with

the nodules, among these the teeth of huge sharks in excellent condition, the teeth of mastodons, and enormous vertebrae, which geologists say belonged to some monsters which lived ages ago. Not only do these organic forms indicate the animal origin of these deposits, but their chemical composition affords further evidence. The nodules, being loosened by a pick, are thrown out of the trench and taken to a washing apparatus, where a stream of water clears them of adhering clay and sand, and they are ready for sale in their crude state or to go to the factory to be manipulated. So



TOOTH OF MASTODON (set in plaster).

abundant is this deposit, that an acre is estimated to contain about thirteen hundred tons. These natural phosphates contain sixty per cent, more or less, of phosphate of lime, which by the action of sulphuric acid is easily converted into superphosphate, the form in which it is most available as a fertilizer. There are a number of factories engaged in the manufacture of fertilizers upon the spot where the deposits are found. So great is the consumption of sulphuric acid for this purpose that establishments have been erected at hand for making it.

The Sensitive Briar.

Last spring some very unpromising-looking roots were sent from Louisiana, with the assur-

less sensitive. The genus was named in honor of Schrank, a German botanist. The specific name, *uncinata*, means hooked, and has reference to the short recurved prickles on the stem.

although rarely to be found in the collections of our fashionable florists. It was formerly called *Achania*, but botanists now place it in the genus *Malvaviscus*, a name which means Sticky or



SENSITIVE BRIAR.—(*Schrankia uncinata*.)



VISCID MALLOW.—(*Malvaviscus arboreus*.)

ance that they produced a most beautiful flower. The roots were set out, and the only one that lived showed itself to be an old friend, the Sensitive Briar, *Schrankia uncinata*. It is found as far north as Virginia, and further south it is very common. The prostrate stems are three or four feet long and abundantly supplied with sharp-hooked prickles. The leaves are twice-pinnate, with very small leaflets. At the axil of each leaf is a globular cluster of very small, rose-colored flowers, which are very closely crowded together; they are followed by short pods. The most noticeable thing about the plant is the sensitiveness of its leaves. It bears some resemblance in appearance to the true Sensitive-plant, and though not as sensitive as that, the leaves close with sufficient rapidity to make it interesting. In Texas we have seen it cover the prairie by the acre, and it was amusing to observe the change produced as a horseman passed over it, and to see how shortly after the disturbance the "wake" would be obliterated by the opening of the leaves. There is another species of *Schrankia* and a *Mimosa* in our Southern States, which are also more or

Viscid-Mallow — Malvaviscus — Achania.

Among the old greenhouse plants that have been in a good measure crowded aside by newer accessions is the one which we here figure.

Viscid Mallow, on account of the gluey pulp of the fruit. There are three or four species, the best known one being *M. arboreus*. The plant is a rather straggling shrub, which will grow to the height of ten or fifteen feet, though usually kept much smaller. It has the soft foliage so common in the Mallow Family, and bears almost all the year round flowers of the most brilliant scarlet color. The flowers do not open any more than the one shown in the engraving, the petals remaining twisted together, with one edge of each turned out to form a kind of ridge. The column of stamens and the pistil are protruded for some distance beyond the corolla. The fruit differs from that of most of the Mallow Family, in being pulpy and berry-like. In the present species the fruit is yellowish, changing to red. This shrub is an admirable one for parlor culture, as it is not liable to be attacked by insects, and if it has a plenty of light remains almost constantly in bloom. By a little care in pruning, it may be grown in the form of a round-headed tree. In greenhouses and conservatories it is sometimes trained against a wall. We have in Texas a native species of



ARUM-LEAVED PEPEROMIA.—(*Peperomia arifolia*. See next page.)

Every now and then a specimen has come from some far-off reader for a name, showing that it is still cherished as a house plant in many places,

Malvaviscus—*M. Drummondii*—worthy of cultivation. It is not hardy at the North, where it must be housed during the winter months.

The Peperomias as Basket Plants.

It often strangely happens that a plant suddenly springs into popularity that has before been known only in rare stove and hot-house collections. Of this kind is the Peperomia, figured on page 21, which within a few years has come into common use with our florists as one of the many plants suitable for flower-baskets. We have received it from more than one florist under the name of *Peperomia maculosa*, but upon referring to the original figure of that plant we found that the name could not be correct. Mr. Taplin, of South Amboy, N. J., has it as *P. arifolia*, which we think is the right name. At all events, the plant is a very neat and pleasing one, and last winter did very well with us in a warm living room. The foliage is of a dark green, beautifully marked with lighter silvery stripes. The genus Peperomia is a large one, and belongs in South America and other tropical climates. Their foliage is generally pleasing, but their flowers are not at all showy. It is closely related to the plant *Piper nigrum*, which furnishes the black pepper of commerce.

Market-Gardening in Maryland.

BY PETER HENDERSON.

A most intelligent cultivator, W. F. Massey, of Chestertown, Md., writing under date of Nov. 21, asks me the following questions, requesting a reply through your columns. He says: "Our climate here is rather a local one. I find that the thermometer has reached zero but once in the last seven years, and then only for a few hours. On March 1st of this year I planted Early Rose potatoes, and am now digging the second crop, on the same ground, from potatoes planted from the first crop. On May 13th, Early Wakefield was first marketed, and on June 24th Trophy tomatoes were fully ripe. I can buy stable manure at \$1 per ton, having only a quarter of a mile to haul it. Night-soil delivered at 40c. per barrel. The land is first-rate, and lying within a hundred yards of railroad depot, five hours from Philadelphia. Now, having no experience of shipping vegetables to Northern markets, I ask your advice in the matter. Can they be made to pay under such conditions?"

Most unquestionably they can, and that too, under proper management, at a profit of from \$500 to \$1,000 per acre, according to the article grown. The most profitable articles to cultivate I will name in the order of their value: Asparagus, the "Colossal"—plant no other. From the fact that it requires two years from time of planting before a crop can be obtained, it will pay now, and likely continue to pay, a greater profit per acre than any other vegetable that can be grown; besides, as it is ready for market at a cool season, it can be shipped without loss, even if it be three or four days in transit.

The next best article for a Northern market would be Linneus or Victoria rhubarb, as it, too, like asparagus, must be waited on a year or two before a full crop can be gathered.

As to annual vegetables, much would depend on the demand in the particular locality, and as this could only be got at by a year or two of experience, I could not give advice with any certainty, but would name them thus: Beets

(Egyptian), peas (Daniel O'Rourke or Extra Early), cucumber (Improved White Spine), tomatoes (Trophy or New York Market), radish (Turnip and Long short-top), spinach (Round-leaved), melon (Skillman's Netted or Nutmeg), watermelon (Mountain Sprout or Black Spanish). Early cabbages and potatoes, being of less value per pound than most of the articles named, would not be so profitable if freights were high. Lettuce is a vegetable used more by Germans than other nationalities, and its supply should be determined by the amount of that element in a city. Cabbages, on the other hand, are used more by the Irish, and the very poorest of them buy the first crops sent in.

A word about shipping. Take care that the packages in which vegetables are shipped are not too large nor too close. Thousands of cases have been shipped to New York during the past few years, of both fruits and vegetables, that from bad packing never sold for enough to pay freights. Let it be understood that masses of green vegetables, such as peas, radishes, etc., when packed in such packages as a flour-barrel or close box of that size, are certain to "heat" if kept so for two or three days in a temperature of 70° or 80°. The object then should be to govern the size of the package according to the temperature and the distance to be transported. Fruit-growers know the importance of this, and have their baskets and boxes so made that the air passes freely through them. Vegetable shipping is fast becoming as important as fruit shipping, and with a little more experience those engaged in it will soon devise means to insure the safe transit of their crops.

Orchards in Cold Climates.

An intelligent correspondent in the Province of Quebec presents several questions as follows:

"I am intending to plant out an orchard, and want to know whether by planting a double row of Norway spruce on the north and west sides of the orchard I can grow any more tender varieties than without doing so (1). Also, whether there is any truth in what they say here—viz., that trees brought from New York State will not live here, about ten miles from Sherbrooke, lat. 45½°, but must be grown near by. If so, is it the same with the Norway spruce (2)? Also, I am going to plant out about four acres of orchard. The soil is from one and a half to four feet deep before coming to the subsoil, which is hard-pan. The land is very dry, and a loam not more clayey than sandy. The situation is an elevated slope, and I want to know whether it would do to plant one acre in dwarfs, instead of standards, for market, and if not, why (3)? What pears, plums, etc., would be adapted to such a northerly locality as ours (4)?"

(1.) It is a well-established fact that protection in the direction of the prevailing winds is of great advantage to orchards, even in those localities that are usually regarded as mild. The Norway spruce screen will doubtless allow him to grow varieties that he could not succeed with without, but just which varieties fall into this category we are unable to say.

(2.) We do not believe that it makes any difference—at least in that range of country where the thermometer ever reaches anywhere near zero—where a tree is grown, provided it is well ripened, and we think that a tree grown in New York or Pennsylvania will do as well

in Canada as one raised in Canada. We know that this is in opposition to the views of some nurserymen, but if those who hold differently will present us with any facts to prove that we are wrong we shall be glad to see them.

(3.) Dwarfs are generally abandoned in orchard culture except for Duchess. We can not go into the various reasons. It is a well-settled fact that they don't pay.

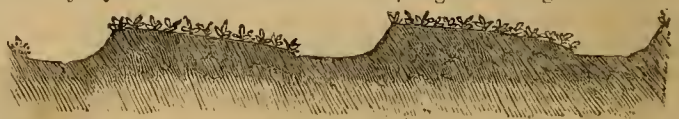
(4.) It is very difficult to give a selection of varieties for any particular locality, as latitude is no guide. Some parts of Canada are especially favorable to fruit culture, while others are most forbidding. It is a question of locality. Among the pears that have succeeded best in northern localities are Buffum, Beurre d'Anjou, Onondaga, Lawrence, Tyson, and Oshand's Summer, all excellent varieties. As to plums, we should try some of the improved natives, such as the Miner, Wild Goose, etc.

Wintering Cabbage Plants in Mild Climates.

BY PETER HENDERSON.

Mr. Massey, the gentleman mentioned in an article on Market-Gardening in Maryland, gives the following valuable information about his manner of wintering early cabbage plants without the use of sashes. He says: "The seed is sown here (Chestertown, Md.) about Sept. 20th, and the plants are ready to plant by Nov. 1st, which we do in ridges, of which the figure is a cross-section. These ridges run north-west and south-east. The plants are set on the face of the ridge sloping south-west. These slopes are about four feet wide, with alleys two feet between. The plants we set about as thickly as in the frames, and in the same manner—that is, putting the stems up to the lower leaves to save them from the frost."

Mr. Massey's plan is entirely new to me, and will be a very valuable one in all such latitudes as his, for it not only saves all the expense of sashes and frames, but the plants will be in better condition in spring than if grown under



SECTION OF BEDS FOR WINTERING CABBAGE PLANTS.

glass. The plan will be a safe one to adopt in sheltered situations in any section of the country where the thermometer does not fall below zero. Mr. Massey prefers it—and I think he is right—to putting out the plants in fall where they are to remain for next spring's crop, preferring to manure and plow up the land fresh in March, and set out from the plants in his ridges. Lettuce, and in warmer sections cauliflower, could be wintered in the same way.

Window Garden for Cold Country Houses.

BY "W.," HAVERHILL, MASS.

Many directions have been given for window gardening and window ornaments, and I wish to describe one which, for its possibilities of novelty and variety, will suit those who fear frost will kill their plants if they cultivate those usually recommended for window culture.

Provide a wooden box, the length of the window-sill, and of a depth sufficient to allow a wooden bowl of moderate depth to be placed

in the middle. The box can be made of black walnut, and finished in a style to suit any taste, or it can be rough, and covered with bark or lichens, and if so, the legs should be finished in a rustic manner to correspond. A hole should be bored in the bottom of the bowl, also one in the box under the orifice in the bowl, and it would be well to have a short tin or lead pipe, to connect the two openings, which should be closed by a long wooden stopper, which could be raised and taken out at one's pleasure by striking the stopper (under the box) with a hammer. Inside, a flat stone should be placed over the head of the stopper, and the bowl should be lined with pebbles, placed closely together until the upper edge is reached. This bowl is intended to be filled with water, but before adding the water the sides and ends of the box should be filled with good soil, brought from the woods if possible. The edges around the bowl should be covered with mats of mosses, *Mitchella* with its red berries, or any other hardy plants which flourish in moist places. A few rock ferns of a small size can be introduced with good effect. The Partridge-berry, or Checker-berry, and the Prince's-Pine are of a beautiful habit of growth, especially the Partridge-berry, which is more of a shrub than the *Mitchella*, and in winter, having red leaves and berries intermingled with the green leaves, is very beautiful. When the small plants are arranged, room must be left for branches of hemlock boughs with the small cones upon them, or, if these are not readily obtainable, white-pine branches may be used with excellent effect. With care in the arrangement, thus

you have a miniature forest with a pond, and if placed before a window the light will be charmingly reflected through the branches. It can be used as a small aquarium, if the bowl is large, and care is taken to change the water daily by opening the orifice through the bowl and box. One can vary this window garden, and in its possibility of variety consists its greatest charm. It is invaluable where there is an invalid child in the family who can not seek amusement out of doors. Children can place for their amusement toy houses and animals among the trees, and even the pebbles, in their changing colors, as the light or the shadow passes over them, are attractive.

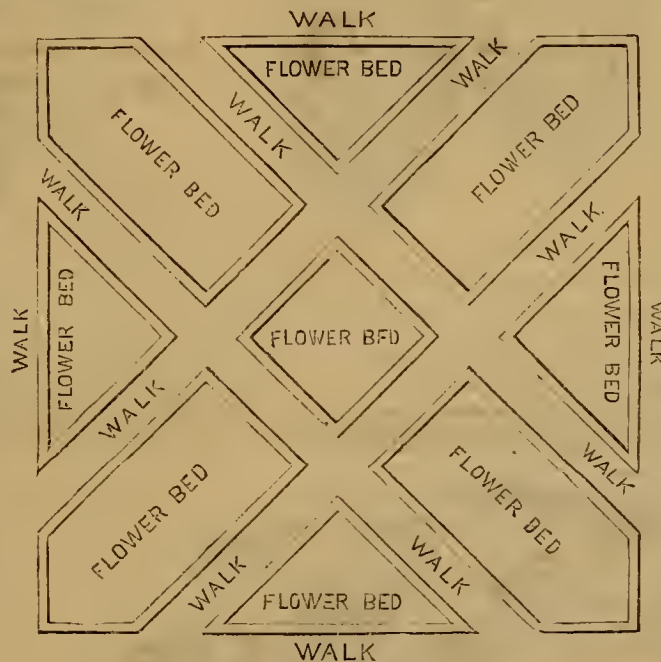
If it is necessary to protect this garden from dust, place four sticks in the corners of the box, of a height to come above the trees, and keep a light curtain to throw over while sweeping.

As one has opportunity, it is well to collect a few roots of *Hepatica*, or Liver-leaf, and some Violet roots; place them in the cellar, and in February add them to the garden, and they will blossom more than a month in advance of those in the woods. Those who have English violets can always take them up when budded, and they will blossom in the house, and they can then be returned to the ground to grow through the summer. They are not injured at all thereby, as they multiply by underground runners. To

this kind of hardy window garden one can at any time make additions and alterations. If one set of trees begin to drop their leaves, another and different set is easily added at pleasure.

Laying Out Flower-Beds.

Winter is the proper season for planning garden improvements, and it is well to put one's ideas upon paper in order that they may be properly considered and discussed. For masses of flowers, beds cut in the lawn are most effective, but if one wishes to grow a large collection of flowers there must be borders or beds of some kind. If circumstances restrict to a simple straight border, very well, accept the situation and let the beauty and variety of its contents so engross the attention of the spectator that he



LAYING OUT FLOWER-BEDS.

will not consider the kind of bed in which they are grown. It is a puzzling problem to lay out a flower-garden for a miscellaneous collection. The elaborate patterns given in the journals and works upon horticulture are only effective when carried out in masses of color. A flower-garden for a lover of flowers—one who regards his plants as individuals, and not as parts of a mass of red, yellow, or blue—should be so planned that the beds can be accessible from all sides, and not inconveniently wide.

We give an illustration of a garden plan sent by Miss Kate Hitchcock, of Jefferson Co., Ill., in which the forms are all angular, and we hope at another time to present other designs. In all designs of this kind there are two troublesome elements, the paths and the edgings. It is about as much trouble to keep the walks in order as it is the beds, and unless they are well kept the whole design will have a slipshod look. Where good gravel can be obtained—gravel that will pack—the walks can be kept in order with comparatively little labor, but this is not generally to be had, and perhaps the next best thing is some of the different asphalts. Grass edgings look well, but they require great care to keep them in order. Box is not available in northern localities, but where it will stand the winters, it answers well, if kept properly clipped, and is re-set when it becomes too

old. Bricks set on end are often used, but we hold them, at least in our light soil, an abomination. Having a lot of spare bricks, we last spring used them to edge some beds, and have been quite dissatisfied with them ever since. Some tiles are made expressly for edging, but never having tried them we can not say how they will answer. Boards are sometimes used upon the margins of beds, but these are too perishable. The cheap, handsome, easily put down and easily cared for edging, live or otherwise, is among the things hoped for by garden workers.

Defense against the Elements.

BY PETER HENDERSON.

The hurricane on the night of the 14th of November last, forcibly reminded me of the disaster and destruction that similar gales had many years ago inflicted on our sashes and greenhouse structures, and the simple means at that time discovered to render hot-bed or cold-frame sashes, in particular, secure from blowing off. The method of constructing frames in use for many years has been to simply rest the ends of a six-foot sash on the edges of two boards running parallel, dispensing entirely with the rafter-bar. Sashes so placed will stand any ordinary wind in safety, but in case of extraordinary gales they are in great danger of being blown off. After trying various expedients, we found that the simplest and quickest was to have wedges made, about six inches long, tapering from an inch square at one end, to a point at the other. These, when driven in between every 15 or 20 sashes, tightens them so that they are entirely secure from any gale.

The weather predications made at Washington, are now so generally correct that it is well to heed their warning. On the day preceding the night of the gale of the 14th, a red flag hung from the signal station, in Broadway, New York, warning all who knew the signal of the coming danger. Had your correspondent seen that flag flying and known its import, it would have saved him and a dozen men the unpleasant and even dangerous duty of securing hundreds of sashes in the darkness and drenching rain. We are now at the season when we have to fight another and often treacherous foe, "Jack Frost," in our greenhouses. When the thermometer indicates but a few degrees above the freezing point, while the flues or hot-water pipes are strained to their utmost and yet fail to defend the tender plants from his ravages, an excellent expedient is to dash water on the flue or pipes. Do not put the water upon the hottest part of the flue, as it may crack it, but at points where it is hot enough to rapidly convert the water into steam. The steam flies to the glass, and condenses in the form of ice on its under surface, so as to cover up many a crevice through which the cold penetrates, besides rendering the glass itself a worse conductor by the hoar-frost lining. We have often resorted to this expedient with most satisfactory results, in cases where our heating apparatus was insufficient.

LOOK TO THE LABELS.—However familiar one may be with his own collection of fruit-trees and flowering shrubs, we hold it to be his duty to have all properly labeled. We should endeavor to spare our successors the annoyances that attend the possession of trees and shrubs without names. On mild winter days labels may be looked after, and such as are not sufficiently fresh to last another year renewed.

A Bit of the Sub-Tropical.

For some years the English horticultural journals have had much to say about sub-tropical gardening, and last spring Mr. Robinson brought out a book exclusively devoted to the subject. We have had several inquiries as to what is meant by sub-tropical gardening, and we do not wonder, as the name is not a happily chosen one. Like the absurd term "foliage-plants," sub-tropical gardening has been adopted into our horticultural literature, and however inappropriate, it is likely to remain there. Mr. Robinson very concisely and accurately defines it as "beauty of form in the flower-garden." It is producing pleasing effects by the use of plants of striking habit or peculiar character of foliage, in either a single specimen or in groups. Flowers and color are secondary considerations—beauty of form is the chief thing sought after. Almost every one has admired a fine specimen of the Castor-oil plant. There is a luxuriance of growth, a breadth of foliage of an attractive form, and an altogether unusual air and port about the plant, that arrest the attention of the most indifferent observer. There are a great many other plants, large and small, hardy and tender, that please the lover of the beautiful in form equally with the Castor-oil plant. It is the use of plants of this kind that the term sub-tropical gardening is intended to express. Those who have greenhouses and conservatories can employ a large number of tender things to decorate their grounds during summer, but the great majority must confine their attempts at ornamentation of this kind to those annual plants that can be raised from seed each year, or to those the roots of which can be kept in the cellar with the potatoes and carrots. Our efforts in the past summer in the sub-tropical line were confined to two beds, of the simplest kind, yet so effective as to be a constant source of enjoyment. One was a bed of cannas, about ten feet across, and filled with a number of varieties, presenting foliage of various shades of green, and running into blackish purple. A splendid effect was produced, not only in form but in color. The roots of the cannas can be easily kept through the winter, and they are plants that one never tires of. The other bed was an oval, which was planted without much forethought, but which proved to be the pride of our grounds. Late last spring we saw at a florist's a lot of neglected tubers of *Caladium esculentum*, which he was very glad to have taken off his hands; these were planted along the outer line of the oval. A friend in Africa had sent us some seeds, and, among others, those of the Castor-oil plant. Thinking that these might possibly prove different from our ordinary forms of *Ricinus* (which they did not), they were started with others in a hot-bed,

and when the weather became warm enough, two of the strongest plants were set in the oval. At first, the *Caladiums* had it all their own way, but at length the *Ricinus* got ahead, and how the two together did grow! The bed was a



POD OF "SEA-BEAN."—(*Mucuna urens*.)

daily wonder. There were the great elephant's-ear-like leaves of the *Caladium*, and the beautiful crimped and rayed leaves of the Castor-oil plant, each striving to look more "sub-tropical" than the other. Our artist has given a view of this bed, which we merely present as an example of what may be done with very little outlay.



SUB-TROPICAL GROUP.

The glory of this bed departed with the frosts. The *Caladium* roots were put in a warm room to dry off, and the Castor-oils went to the muck heap, and the bed was made ready for bulbs. It is well to begin even thus early to think over our successes and our failures, and make plans for another year. We can heartily advise our friends to try a bit of the sub-tropical.

"Sea-Beans"—"Asses'-Eyes."

Several of our friends who have passed the winter in Florida have brought home interesting seeds, which they procured under the name of "Sea-Beans," they having been told by the Floridians that they were the product of some marine plant. Mr. B. F. Stevens, of San Augustine, sent us some months ago specimens by mail, with the following account of them: "They are found all along the coast of Florida after the north-east storms in September, October, and November. Thousands of them were collected last fall, and quite a little trade was carried on by the sale of them to Northern visitors. They will take a good polish, and good specimens are used as ornaments. We have had several debates as to what they are and where they come from. Some are of the opinion that they grow on trees, others claim that they grow in the water, either in the Atlantic or Amazon."

These seeds are the product of a vine, *Mucuna urens*, that grows in the various West Indian islands and tropical America. The vine has somewhat the appearance of the Hyacinth Bean (*Dolichos Lablab*), frequently cultivated as an ornamental climber. The flowers are yellow, and are succeeded by short, broad pods, which are roughened by transverse ridges, as shown in the engraving. These pods are externally clothed with brownish barbed hairs, which penetrate the skin with the greatest ease, and



"SEA-BEANS."

produce an intolerable itching. These hairs are the Cowhage (vulgarly Cow-itch) of the drug-stores, which is produced by this species and a closely related one. The seeds, which are shown in the engraving of the average size, are double convex. These convex surfaces are slightly roughened, and of a dark, chestnut-brown color, which towards the edges suddenly becomes very light, and presents the appearance of a distinct yellowish-brown margin. The two convex surfaces are joined by a black band, which extends nearly around the seed. The seed is susceptible of a handsome polish. The specimens that we have seen have been polished by the use of a file and glass, followed by fine emery-paper and flour of emery

and oil. The French inhabitants of the West Indies call the seed *Oeil de bourrique*, the Eye of the Jackass. These beans are carried by the ocean currents from some other shore and thrown upon that of Florida, where their appearance naturally gives rise to the conjecture that they grow upon some plant in the sea. None of the proper marine plants bear seeds.

THE HOUSEHOLD.

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

Sewing-Machine Accessories.

A sewing-machine, of whatever make, is a wonder of mechanical skill. These ingenious machines have called out a number of accessories, some of which display almost as much ingenuity as the



Fig. 1.—BASKET FOR SEWING-MACHINE.

sewing-machine itself. Several of these inventions have been purchased by the makers of the different machines, and there are still others, some of which are very convenient attachments to a machine that must be purchased separately and of outside parties. We figure some of these devices that have been used in the families of our associates, and found useful. There are several besides these.

Basket for Holding Work.—This is a handsome wicker-basket, made with hooks, which allow it to be hung to the cast-iron frame that supports the machine, as is shown in fig. 1, where it is attached to the frame of a Wheeler & Gibbs machine.

Thread-Cutter.—A small blade in a plated guard is attached to the machine, as shown at A, figure 2, where it is shown upon a Singer machine. It is always at hand ready to cut a thread whenever required, and is so completely guarded that there is no danger of accidentally cutting the fingers.

Casters.—A sewing-machine should stand firm while in use, and yet it is often a great convenience to be able to move it from place to place. We give in figures 3 and 5 illustrations of Sargent & Co.'s

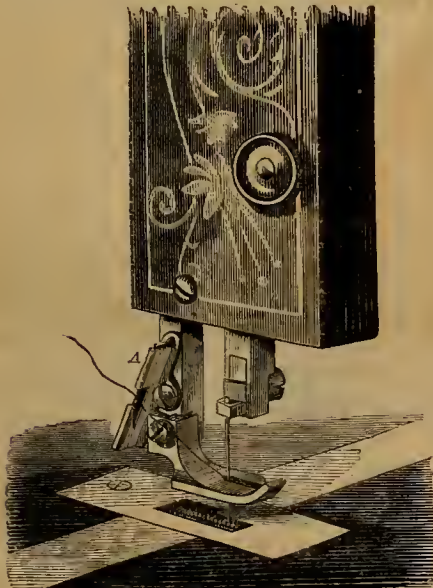


Fig. 2.—THREAD-CUTTER.

casters, attached to a Wheeler & Wilson machine. These casters may be quickly thrown in and out of gear at will. Upon two of the legs are casters which only receive the weight of the machine when it is tipped, and at other times do not interfere

with its steadiness. Attached to the iron frame, and at the opposite end of the machine, is a caster of such construction that when that end of the table is lifted the jointed caster falls into position, and the joint is caught and made solid. This tipping also brings the weight of the machine upon the other two casters, and being supported thus upon three rollers is readily moved about. The long caster is readily unshipped, and the machine placed on a firm foundation by a very simple movement.

The Tuck-Marker.—This is an ingenious appendage to a machine, invented by H. C. Goodrich, and is used in sewing tucks. While sewing one tuck it marks the material in such a manner as to serve as a guide in sewing the next. The marker is laid upon the plate of the machine, and the wire A is attached by a slide in such a manner that it is moved by the needle. At each motion of the needle the end of this wire is brought in contact with the part B. The curved end of B has a notch in it, which strikes upon a sharp ridge immediately below it. The cloth passes between this ridge and B, which has a slight motion, and as the needle moves is struck with a blow from A, which indents the cloth sufficiently to make a mark which serves as a guide

got—such help from outside to see my particular faults and failings—I dare say the process would have hurt me "awfully." In the criticism she received there was truth of a kind most wholesome for her to take to heart, if she would only believe it true, and if it had been given with more of a

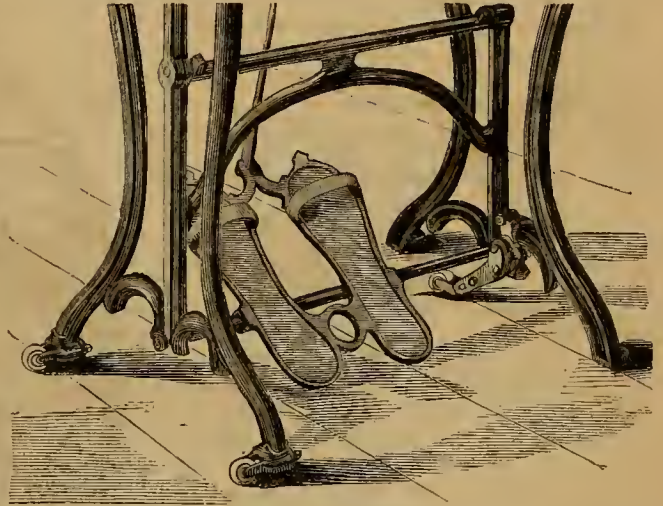


Fig. 3.—CASTERS ON MACHINE AT REST.

fellow-feeling for human weakness. One great drawback to its efficacy was the fact that it was given in the presence of others.

Is it not a pity that any of us should grow up with such immoderate love of approbation that we

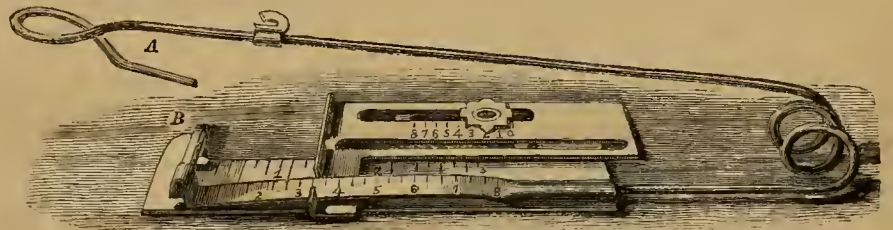


Fig. 4.—TUCK-MARKER.

in sewing the next tuck. An adjustable scale allows the marks to be made at any desired distance.

Home Topics.

BY FAITH ROCHESTER.

FAMILY CRITICISM.—What a good thing it would be if we each had the "giftie" "to see ourselves as others see us"! What an excellent thing if we were only willing to see ourselves as others see us! "We don't know ourselves." This used to be the frequent remark of a person who considered it abuse never to be forgiven if any one frankly undertook to set a fault of his in clear light before him. A young woman once came to claim my sympathy on account of the abusive criticism a mutual acquaintance had given her. Her wounded feelings distressed me at first, but as she gave me the report, and I saw how clearly her inveterate mental vices had been bared before her, I forgot her present pain and exclaimed: "I wish some one would give me such a talking to!" She looked at me in utter astonishment, and said: "Then you think the criticism a just one?" What could I say? The suffering girl had been wounded again, in the house of her friends, and nothing I could ever say would heal the smart.

Though I was honest at the time in wishing I could have such a good lashing as that girl had

can not endure a word of disapproval—so tender in our self-esteem that we can not live happily with those who do not feed us upon some sort of flattery? In my opinion, over-praise and over-blame both tend to produce these unlovely characters.

A child is to be pitied for its faults, and should be helped to overcome them. To reproach it for its inherited defects of temperament is unreasonable. It is cruel. Just so in our treatment of the moral failings of the members of society. The

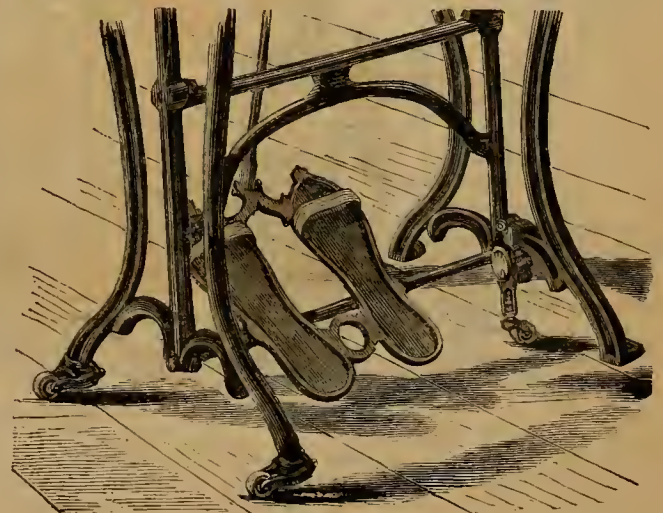


Fig. 5.—CASTERS ON MACHINE READY TO MOVE.

same "old Adam" is in us all to some extent, so we may as well

"Let a mournful fellow-feeling Temper all with love."

It would be well to deal with the faults of those

who are under our care with good-natured frankness. Children will hear our corrections better, and get more benefit from them, if given privately. They will understand—will dimly feel, if they can not clearly see—that we wish to spare pain; that we have no wish to disgrace them in the esteem of others, but aim to assist them in overcoming a bad habit, or in preventing the forming of one.

I was going to speak of another kind of criticism



Fig. 1.—CUT-PAPER TOY.

—fault-finding. It is quite too common in families, especially with regard to food. No doubt every kind of food is capable of being prepared in perfection. No one but the cook—no one, indeed, but a cook who has the care of young children—can realize how many are the drawbacks to the attainment of one's ideal in the preparation of a meal. It should be expected that *sometimes* the meat will be scorched or the bread slack-baked, even where there are no small children to break up one's plans for good dinners. The housekeeper need not be reminded of each unpleasant fact in respect to her short-comings; but she ought not to be hurt by a sympathetic remark on the subject. She ought not to expect that the members of her family will be absolutely blind to her failures, and fly into hysterics at any mention of them. In this matter the children of a family will usually follow the example of the "paternal head." Persons who have been trained to be as polite at home as they are abroad are comparatively free from fault-finding in the family. A meddling, dictatorial spirit is to be avoided always; but the heart upon which the law of love is written can not help looking upon "the things of others" with neighborly interest. "Bear ye one another's burdens, and so fulfill the law of Christ."

CUTTING PAPER TOYS.—Children find wonderful pleasure in the use of scissors. Give them some-

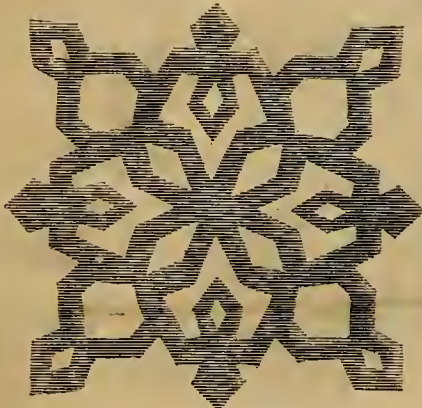


Fig. 2.—CUT-PAPER TOY.

thing that it is lawful to cut, or they will probably cut off their eye-lashes or front locks of hair, or scallop their own little frocks. At first they cut for the pure pleasure of cutting, but soon they want to "make something." Paper-cutting is one of the occupations of the Kindergarten. Good Froebel! No observant mother needs to be assured that he was acquainted with live children. Before

we knew what the occupations of the Kindergarten were, paper-cutting had become a favorite employment at our house.

"I am going to cut something pretty for you," said a young auntie in our household to a three-year-old boy who was whining over some disappointment. She folded a square piece of paper, and after cutting it for a few minutes, unfolded a form of beauty that seemed quite marvelous to the child. "There, sir! That is a toy for you," said she, giving it to him. Now the boy cuts prettier "toys" than she ever showed him. Until very lately he expected some one to mark them for him, but now he does the whole alone. I am delighted to see the little fingers learning care and precision in following the marks exactly with the scissors. Habits of industry will come from such employment, as well as from any other, better than from work that is hated. Are not children sometimes made indolent by parents who think that "good children" are those that "keep still" most of the time, and scold children for getting into mischief, but provide no pleasant occupation for the natural activities of childhood?

In the Kindergarten, paper-cutting is scientifically taught, step by step, until the results are very beautiful. The children are helped to mount their cuttings on Bristol-board, and give them as presents to others. If I could be a *whole mother* to each of my children, I would try to carry out the Kindergarten course exactly; but I would try still more to put each child into a genuine "garten" as soon as it was three years old. As it is (I am not repining) I can be only a fraction of a mother to each child, and, like most mothers, I have to devise ways and means to keep my children out of my way!

Half a dozen "toys," doubled and marked, will

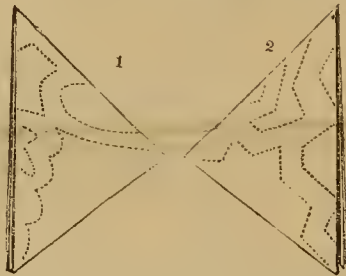


Fig. 3.—FIGS. 1 AND 2 FOLDED AND MARKED.

Keep a child busy and happy a good while. For the benefit of those who have had no experience in this line, and who do not get my meaning clearly, I give a few examples. Better ones can be found in Weiber's "Paradise of Childhood." The first ones should be very simple. The fortunate "kinder" who cut paper in their "garten" have soft, colored paper to work with. My children use most the wrappers that come around newspapers.

CORN BREAD.—Let me tell you how grandma made some corn bread that was pronounced "perfect" not long ago. She had no kind of milk for mixing. She just scalded the sifted meal thoroughly, mixing it quite soft with nothing but water and a little salt. She steamed it two hours, and then baked it one hour. A little wheat flour was stirred in. Graham would have been better.

Children's Dresses.

Mrs. J. W. T. writes: I have often seen the children of parents in moderate circumstances more neatly, prettily, and more comfortably dressed than the children of the rich. This is due in some measure to the fact that those who have just enough means get materials that are warm and durable both in fabric and color; while those who have a plenty of money will load their children with finery. I don't like to see a child dressed up so much, and so conscious of it, that all the simplicity and innocence of childhood is lost. Though, again, there are children whom no amount of dress can spoil—they wear it as naturally as a rose its bloom.

I have just been making a pretty dress for my

little girl out of two which she had outgrown. One dress was a striped brown and drab mohair; the other a handsome red and black all-wool plaid, which latter I took for trimming. I put bias shoulder-pieces and strips down the sleeves, around the wrists, and under the arms, and a band around the waist—apparently for ornament, but actually for the purpose of making the brown dress large



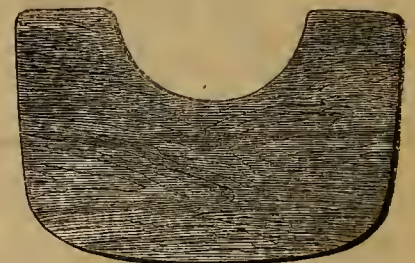
A CHILD'S DRESS MADE OUT OF TWO.

enough. I cut out the linings by a pattern that fitted the child nicely, taking the precaution to leave the buttons and button-holes in the back intact, and make the enlargement on the opposite side, under the arm and around the shoulder. As three inches had been turned in at the time of making the skirt in the first place, I had merely to trim it with two bias folds of the plaid, one somewhat wider than the other.

Nothing adds more to the neat appearance of a child than well-fitting shoes, and stockings smooth on the leg. It is impossible to keep stockings smooth with the old-fashioned garter without hindering the proper circulation of the blood. I make a garter for my children which is used very generally by parents in cities, but may not have been thought of by mothers in some parts of the country. It is made as follows: Take two strips of broad elastic, each four inches in length. Insert two of the ends together in a calico end large enough to allow a button-hole to be made. Keep the other two ends separate, and finish them off in the same way with a button-hole in each. There must be a button on the corset or waist under the arm, and two buttons on each stocking. Any one would know how to put them on, and there is no danger of the stocking being wrinkled, while the blood has free course.

A Convenient Cutting-Board.

The board here figured is nothing new, but it is not in near as general use as it would be were it



LAP-CUTTING BOARD.

better known. A lady of our acquaintance who recently had one made, now wonders how she ever did without one. It is made to hold in the lap, and with a semicircular place cut out to accommodate it to the body. This board will be found very convenient in cutting and fitting work for the sewing machine, as it can be used without the fatigue that attends standing over an ordinary table.

BOYS & GIRLS' COLUMNS.

The Doctor's New Year's Word.

Hurrah! boys; and hurrah! girls, too, for girls below a certain age—I don't know exactly what it is—hurrah as well as boys. There is my niece Alice, who a few years ago was half a Fourth-of-July celebration, she made so much noise; but since her mother was ill she has been a demure little house body. But that is not what I started to say. Did all of you, boys and girls both, see my proposition last month? There are probably so many new youngsters that I shall have to briefly repeat it. I offered for the best map made by any boy or girl of the place on which he or she lives, \$5 in money; for the next best, *Hearth and Home* for 1872, equal to \$3; and for the third best, the *Agriculturist* for 1872, equal to \$1.50. More particulars are given in December, 1871. It will do you all a great deal of good to try, and it will be very pleasant to have a great many of our boys and girls all working together on the same thing. I have some other premiums in view, but let us get through with this first. The time for this premium will be on February 1st; that is, all competing maps must reach me on or before that date. Let us have all hands wide awake, and go in for a happy new year, not only now while the year is young, but every month, and all through to the end.

The Snow-Birds.

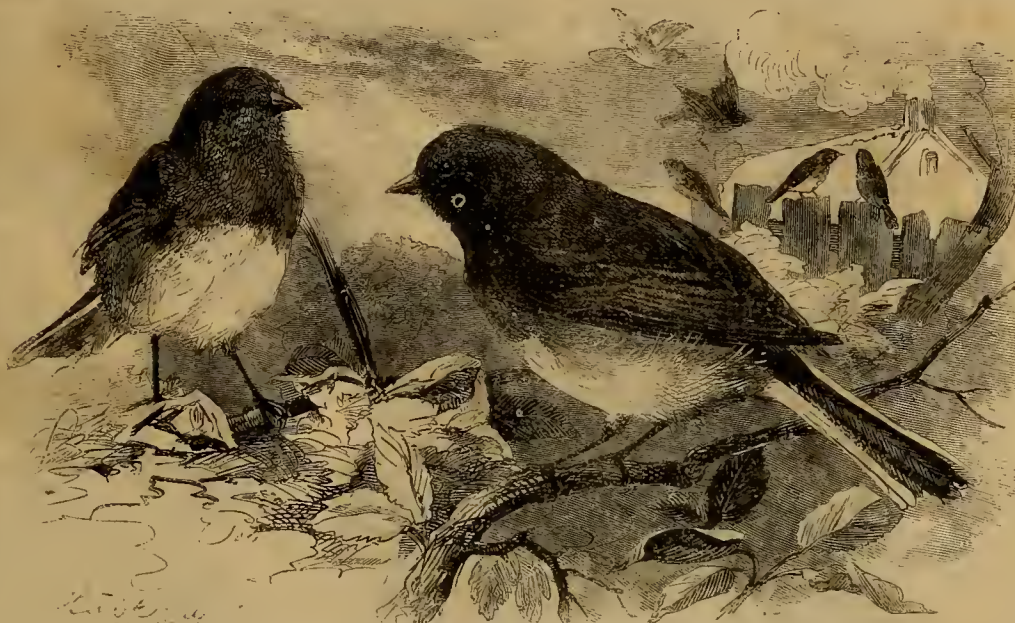
Hurrah for winter! Is there not ice for skating, and snow for sleighing and sledding, and no end of fun for boys and girls generally? Then, isn't it fine to look from the window and see the snow come sitting down so



422.—*Illustrated Rebus.*—This, when made out, will be found to be a maxim which is none the worse for being a rhymed one.

silently? As we look out there is not a living thing to be seen. Ah! yes there is; there come the snow-birds—the merry little fellows. They have been hiding long enough in the edge of the woods, and now that snow has come they fit about, and give their little chirp to announce that they, too, have come. There is something very pleasant about these birds—they like to be neigh-

borly, and come about the house, but they usually put off making their calls until the snow has come. It may be that, like some other visitors, they come for what they can get—and we will not disappoint them. Let us open the window and throw out a few crumbs or seeds. It is a pleasure to see the cunning airs of the little fellows as they pick up the food. These birds have good memories, and will be likely to come again to-morrow, and if we throw out food every day we can daily enjoy looking at them. "Where do they go in summer?"—We thought you would ask that question. They go off for a little



SNOW-BIRDS.

quiet housekeeping, some to the mountains, and others, the majority, go very far north, where they find suitable retreats where they can build their nests and raise their young. In autumn the snow-birds make their way southward. What a journey it must be for these bits of birds to flap their tiny wings for hundreds of miles! There is scarcely any other bird found in so many parts of the country as this. Our boys and girls in the Gulf States, as well as those away up in Canada, can make its acquaintance. When they first arrive from the north they stay in the woods, as they there find sufficient food; later they may be seen around the barn-yard, where they follow the fowls, and pick up the little bits that the larger birds have overlooked; and when cold weather fairly sets in, they then come about the house, apparently knowing that there must be some kind-hearted boy or girl there, ready to give them a little food.

The Game of "Succotash."

Our young folks at home have been kept wide-awake many evenings by the new game of Succotash. As every boy and girl ought to know, Succotash has two parts—viz., beans and corn. It is best in learning the game to commence with the first part, *beans*—in this way: All the players being seated, one begins by counting "one," his next right-hand neighbor says "two," the next "three," and so on, until "seven" is reached, but instead of saying "seven" the player says "beans." Then keep right on counting, each naming his proper number in turn, "eight," "nine," "ten," etc., until "fourteen;" but say "beans" instead of fourteen. Go on again, saying "beans" instead of "seventeen," or "twenty-one," or "twenty-seven." In other words, the rule of the game is: "Beans" is to be said instead of seven or any multiple or compound of seven. Of course, when seventy is reached it will be "beans" all the way through, with "beans, beans" for seventy-seven. Whoever fails to say "beans" in the right place, or says it at a wrong number, is "out," and the others play on, until all are out. The counting is continued up to "eighty-four," then begins at one again.

When "beans" are mastered, begin with "corn," using it wherever "nine" occurs, or any multiple or compound of nine, and continue the counting up to one hundred and eight.

Next try and mix them, for "Succotash;" naming "beans" and "corn" in all the right places at the sevens, nines, etc. Be sure and call out "succotash" at twenty-seven, because it is a multiple of nine and also a compound of seven; at forty-nine, which is a multiple of seven and a compound of nine, and at any other number where these parts both occur as multiples or compounds. To play the game lively, without mistakes, will require

quick thinking and careful speaking. The game can be varied by using any other numbers, and those who have had hard work to remember the multiplication table will find it a capital exercise to fix the figures in mind so that they will stay in their places.

Something about Games.

Who invents games, and where do they come from? How do boys and girls all over the country seem to know the same games? And, as far as out-door games are concerned, the boys all know exactly when the proper time comes for them. That boy who would play marbles in top time, or fly a kite in the season of hop-scotch, would be looked upon by his fellows as a ninny. We wonder who fixed the times and seasons for games, and how do boys know when they come around? Perhaps it is because it is so long since we were a boy. Well, never mind that. We wanted to say a word about social indoor games, which are much more timely just now. We believe in innocent games, and take as much enjoyment in playing them as the veriest boy or girl of you all. We nearly laughed the buttons off of our venerable vest over the mistakes that we made at the game of Succotash,

described elsewhere. These games have a good influence in sharpening one's wits and strengthening the memory. But that is only incidental. We do not play them for that, but for the fun that there is in them—for the genial, jolly laughter they bring. We notice, by the way, that in games we follow the way of the world, and see the mistakes of others much quicker than we do our own. Now, there are games all over the country that seem to be unknown outside of a particular locality. Let us try and bring the good ones out, so that all the boys and girls can enjoy them. If a game is played at your home that you think is not generally known, just write it out



423.—*Word Puzzle.*—Here are several cats. There is the cat sepulchral, and the one found in the Sunday-school; and there is the cat to be avoided, and the one that you like to have with you in the library. Indeed, we may say there is a concatenation of cats.

for us, and if it seems to us desirable we shall be glad to tell all the rest about it. There are books of games, but we never saw one that contained them all, and there must be many unpublished ones known to our young readers.

Teaching Zip to Read.

Master Phil is much like other boys we have seen—he is not contented with any one thing for a very long while. He had a short time ago a military turn, and beat his toy drum until all in the house hoped it might burst. The martial fever gave way to an educational one, and the drum and wooden soldiers are put aside for the book with large letters. Phil has recently mastered his A, B, C's, and being already in a-b, ab's, he thinks that he knows so much that he is qualified to teach. The only available pupil is the dog Zip, who is made to come to school. Master Phil does not seem to be making much progress as a teacher, and Zip does not promise well as a scholar. Probably Phil thinks his pupil frightened by the great A B in the book, but we can see that the dog has his attention taken from his studies in a manner for which we can pardon him. We have seen boys at school quite as inattentive to their books as Zip appears to be, and without anything like as good an excuse. Very likely if the school-mistress would give her evidence, she has found it almost as difficult to fix Master Phil's attention upon his book as he now finds it difficult to engage his pupil studying in the simplest elements of learning.



TEACHING ZIP TO READ.—Drawn and Engraved for the American Agriculturist.

How Minnie Washes Dishes.

Minnie Wiley, a little girl of eleven, writes us a letter to tell how she washes dishes. That is right. We like to have our boys and girls tell us how they do things, and we hope that there are a great many of our girls who, like Minnie, take enough interest in washing dishes to try and do it right. Remember that dishes have to be washed in most families three times a day, and somebody has to do it. What a pleasure it will be to be able to do this so nicely that mother is willing to allow you to relieve her of this portion of her labors! Minnie says: "First I scrape the dishes and stack them up very neatly; then I remove them to the pantry table, close to the sink and to the cupboard, into which I can easily place them as I wash and wipe them. First I wash my glass, then the spoons, then the cups, and so on. Then I place the spoons in the spoon-stand, for mother says it is not right to put spoons with knives. Then I put the knives and forks into the knife-box, and also the cooking spoons and ladle. Then I wash out my dish-pan and cloth, and hang them up to dry."

Aunt Sue's Puzzle-Box.

CHARADE.

My first, when connected with good, is a treasure,
You love it, and gratitude glows in the mind.
My second's restricted to limit and measure,
Ingenuously fitted to loose or to bind.

My whole, as a station, you can not admire;
My second's his care, whilst too many, distressed
Beneath his coercion, would gladly retire,
Seek other retreats, and feel inwardly blest.

F. H. C.

OMISSIONS.

Omit my 3, 4, and I am a gift.
Omit my 3, 5, 6, and I am a reptile.
Omit my 1, 2, 3, 6, and I am either adverb or preposition.
Omit my 1, 2, 4, 6, and I am either adverb, conjunction, or interjection.
My whole is a city in the United States.

I. K. P.

SQUARE WORD.

1. An insect. 2. Variety. 3. A box. 4. Part of a ship.
A. M. NAGEL.

GRAMMATICAL ENIGMA.

I am composed of 45 letters.
My 1, 5, 20, 27, 10, is a preposition.
My 18, 12, 28, 10, 25, is an adjective.
My 14, 15, 24, 25, is a conjunction.
My 7, 20, 35, 39, is an adjective.
My 35, 2, 32, 8, is a preposition.
My 6, 19, 39, is a conjunction.
My 29, 36, is a preposition.
My 5, 9, 17, 25, 3, 43, is an adjective.
My 14, 44, 23, 11, 28, is an accident of the verb.
My 40, 35, 41, 30, is a part of speech.
My 28, 41, 42, 43, 44, 33, is an accident of the noun.
My 16, 17, is a pronoun.
My 4, 37, 25, is a noun.
My 25, 26, 21, 32, is a noun.
My 31, 22, 7, is a noun.
My 13, 34, is a verb.
My whole is one of the rules of Syntax.

CLARENCE CLIFFORD.

CROSS-WORD.

My first is in *window* but 'tis not in house.
My next is in *rat* but it is not in mouse.
My third is in *cow* but it is not in calf.
My fourth's in the *middle* but 'tisn't in half.
My fifth is in *water* but 'tis not in milk.
My sixth is in *damask* but it is not in silk.
My seventh is in *Albert* but 'tis not in Joe.
My eighth is in *rain* but 'tis not in snow.
My ninth is in *many* but 'tis not in one.
My whole is an animal very well known.

C. L. S.

ANAGRAMS.

- 1. Ben, clip a pail.
- 2. Cauc nut cones.
- 3. Canny trial.
- 4. Ruin poet tunes.
- 5. Idiots run us.
- 6. Guides this sin.
- 7. O! I print a paper.
- 8. Grim Lane.
- 9. C., send once.
- 10. Clamps on Chemist.

PL.

Drugslags sauce hetir now nutformises.

ANSWERS TO PUZZLES IN THE NOVEMBER NUMBER.

DECAPITATIONS.—1. Chair, hair. 2. Pear, car. 3. Rill, ill.

CROSS-WORD.—4. Geranium.

GEOGRAPHICAL ANAGRAMS.—5. Westchester. 6. Beloochistan. 7. Minneapolis. 8. Paterson. 9. Sparta. 10. Dresden.

PUZZLE.—11. Sling, ling, gin, in.

NUMERICAL ENIGMA.—12. Massachusetts.

CHARADE.—13. History.

TRANSPPOSITIONS.—14. Taper, tapir. 15. Base, bass. 16. Principal, principle. 17. Liar, lyre. 18. Beech, beach. 19. Hail, hale. 20. Wheat, heat, eat, at, t (tea).

PL.—21. A blithe heart makes a blooming visage.

PUZZLE PICTURE.—Turn the picture upside down and see how cosily the cats are sitting on the little mat.

AUNT SUE'S NOTICES TO CORRESPONDENTS.

A. H. I do not "write for the New York Observer." I do "write every week for the *Hearth and Home*."

DOLLY. It is sufficient to write the answer without writing out the whole enigma as published.

MORRIS P. S. Yes, you were quite right.

HARRY S. There is so little change made in the old "M T grate" puzzle you send, that we can scarcely call it original.

HESSA M. W. If you will compare your answers, dear, with those published in this number, you can see for yourself whether you were right or not. See remarks to Dolly.

Of several communications I take no notice, because I can not tell whether they are intended for the *Agriculturist* or for *Hearth and Home*.

Glad to hear from Mrs. H. J. N. and F. W. H., S. H. B., W. H., Jr., Blue-Bird, and Charlie D. S.

Thanks for puzzles, etc., to F. W. H., A. H., R. S. Isbester, Harry S., W. H. C., and Alpha.

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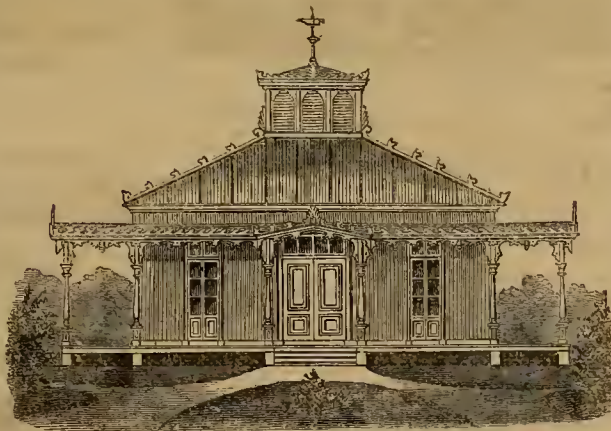
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"Middlenarch," a new serial story by GEORGE ELIOT, to commence in HARPER'S WEEKLY for December 16.

"Miss or Mrs.?" by WILKIE COLLINS, illustrated with striking full-page engravings from original drawings, to commence December 30.

"Blade-o'-Grass," by B. L. FARJEON, Author of "Joshua Marvel," with many beautiful illustrations, is just commenced in HARPER'S BAZAR.

"The Golden Lion of Granpere," by ANTHONY TROLLOPE, with illustrations, to commence in the February Number of HARPER'S MAGAZINE.

They have also secured the plates and advance sheets of "London: a Pilgrimage," by GUSTAVE DORE and BLANCHARD JERHOLD, a new and magnificent series of illustrations from the pencil of the great French artist.

A new Novel by Miss THACKERAY, whose writings have won deserved popularity by their purity of tone, genial imagination, and fascinating style, will be commenced early in the year.

The great Spanish statesman, EMILIO CASTELAR, will furnish an important and interesting paper for an early number of HARPER'S MAGAZINE on "Republicanism in Europe."

Mr. GEORGE WILLIAM CURTIS, under the now familiar sobriquet of "AN OLD BACHELOR," will continue his weekly contributions to the BAZAR, entitled "Manners upon the Road." This series of Social Lessons, commenced with the first issue of the BAZAR, has proved one of the most attractive features of that journal.

"PORTE CRAYON" will begin in an early number of the MAGAZINE a series of illustrated papers portraying life and character in the Southern States under existing conditions. Colonel T. B. THORPE will contribute to the March Number of the MAGAZINE an interesting illustrated paper on the United States Treasury Department. Mr. EUGENE LAWRENCE will continue his contributions on important historical subjects. Mr. MONCURE D. CONWAY will resume his "South-Coast Saunterings" in an early number, and will contribute other illustrated papers on interesting European topics.

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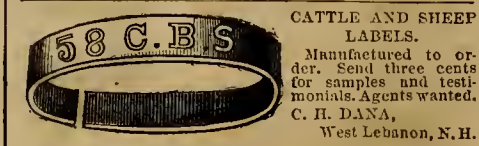
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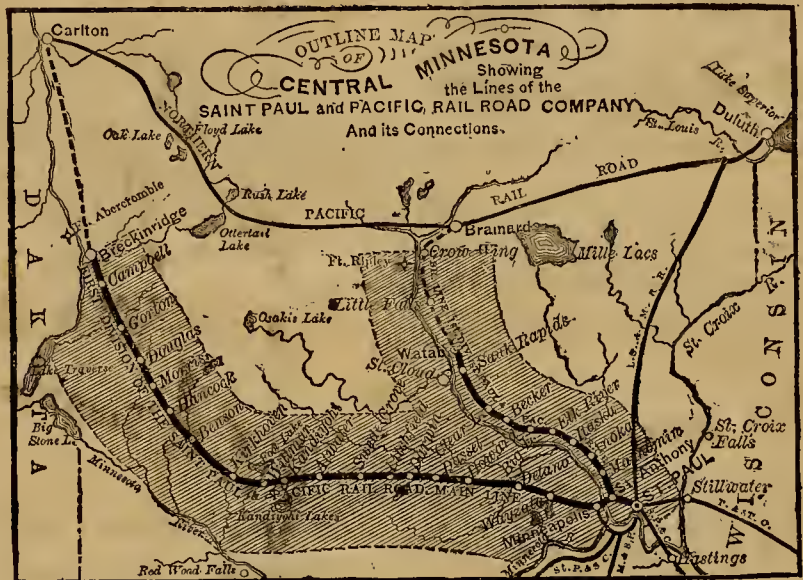
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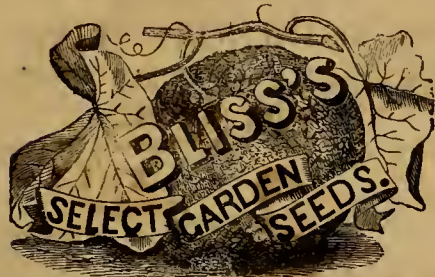
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EXECUTIVE MANSION, WASHINGTON, D. C., Oct. 15th, 1871.

DEAR SIR—My watch has kept excellent time since I have carried it. Yesterday, in some unaccountable way, the crystal was broken. Will you please replace it, and oil the works? They have never been oiled or examined since the watch left the factory. I expect to be in New York a day, about Thursday or Friday of next week, and I shall call at your place 13 Maiden Lane, for the watch.

Yours very truly,
(Signed) HORACE PORTER.

F. A. GILES, Esq.

The Watch referred to above is No. 27,335, Stem Winder, Trade Mark "John W. Lewis"—manufactured by the United States Watch Co. (Giles, Wales & Co.), Marion, N. J.—and has been carried by Gen. Porter for over a year. We are glad to see that our officials in high places appreciate fine American mechanism, and set the example of patronizing home productions, instead of sending our gold abroad for inferior articles.

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Watch No. 2,291, Stem Winder—bearing Trade Mark "Fayette Stratton, Marion, N. J."—manufactured by United States Watch Co. (Giles, Wales & Co.), has been carried by me eighteen months; its total variation from mean time, five seconds per month.—E. O. WHIFFLE, Con. U. & B. R. R.

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Gov. Merrill on the Marion Watches.

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Watch No. 1,079, Stem Winder—bearing Trade Mark "Frederic Atherton & Co., Marion, N. J."—manufactured by United States Watch Co. (Giles, Wales & Co.), has been carried by me two months; its total variation from mean time being half a second.—J. CALVIN SHAFER, 76 Cortland street, New York.

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Watch No. 2,266, Stem Winder—bearing Trade Mark "Fayette Stratton, Marion, N. J."—manufactured by United States Watch Co. (Giles, Wales & Co.), has been carried by me four months; its total variation from mean time being five seconds.—DAVID T. BROWN, Supt Lackawanna & Bloomsburg R.R., Kingston, Pa.

Watch No. 1,789—bearing Trade Mark "Frederic Atherton & Co., Marion, N. J."—manufactured by United States Watch Co. (Giles, Wales & Co.), has been carried by me five and a half months; its total variation from mean time being twenty seconds, being compared by me personally with Greenwich time, London, April 24th, 1871.—HENRY MORFORD, 129 Broadway, N. Y.

Watch No. 2,283, Stem Winder—bearing Trade Mark "Fayette Stratton, Marion, N. J."—manufactured by United States Watch Co. (Giles, Wales & Co.), has been carried by me twelve months; its total variation from mean time being fifteen seconds.—S. B. JOHNSTON, 83 Nassau st., N. Y. City.

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Watch No. 1,176, Stem Winder—bearing Trade Mark "Frederic Atherton & Co., Marion, N. J."—manufactured by United States Watch Co. (Giles, Wales & Co.), has been carried by me three months; its total variation from mean time being only five seconds during that time.—HENRY DR LANCY, Engineer Phila. & Erie R.R.

Report of Judges to the General Committee Cincinnati Industrial Exposition, on the United States Watch Co.'s (Giles, Wales & Co.) Watches, Marion:

GENTLEMEN—The Judges appointed to examine into the merits of the articles contained in Class 10, beg leave to make the following report: No. 1,650, United States Watch Company, Marion, New Jersey.—These Watch movements, the result of American capital, skill, and perseverance, as specimens of this branch of science and manufacture, rival those of European make. The watches exhibited by this Company are of all grades, from that of the most exact time-keeper, to the cheaper kind for the million. All are excellent of the kind, and are too well known and appreciated by the people to need further comment. First Premium is awarded to the United States Watch Company.

E. S. WAYNE,
JAMES POWELL,
WILLIAM M. DAVIS, } Judges.

Watch No. 12,012, Stem Winder—bearing Trade Mark "United States Watch Co., Marion, N. J."—manufactured by United States Watch Co. (Giles, Wales & Co.), has been carried by me five months; its total variation from mean time being only twelve seconds.—GEORGE LOUIS, General Eastern Passenger Agent Toledo, Wash & Western Railway.

Watch No. 1,259, Stem Winder—bearing Trade Mark "Frederic Atherton & Co., Marion, N. J."—manufactured by United States Watch Co. (Giles, Wales & Co.), has been carried by me six months; its total variation from mean time being only eight seconds per month. I have been traveling through different sections of the country, from New York to Galveston, Texas, and back, by steamer and railroad.—E. RIOZ, of Whitney & Hice, 179 Broadway, N. Y.

Marion United States Watch Co.'s Watches (Giles, Wales & Co.) were awarded the First Premiums at Fair of American Institute, New York, 1870; at Fair of "Ohio Mechanics' Institute," Cincinnati, 1870; at "Louisiana State Fair," New Orleans, La., 1870; at "Texas State Fair," Houston, Tex., 1871, and at every Fair where they have been exhibited, over all competitors.

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Watch No. 1,124, Stem Winder—bearing Trade Mark "Frederic Atherton & Co., Marion, N. J."—manufactured by the United States Watch Co. (Giles, Wales & Co.), has been carried by me seven months; its total variation from mean time being only six seconds.—A. L. DENNIS, President N. J. R. & T. Co.

Watch No. 1,037, Stem Winder—bearing Trade Mark "Frederic Atherton & Co., Marion, N. J."—manufactured by United States Watch Co. (Giles, Wales & Co.), has been carried by me since June, 1867; its total variation from mean time being only five seconds per month.—HENRY SMITH, Treas. Panama R.R. Co., 88 Wall st., N. Y.

BEWARE of worthless imitations of Marion United States Watch Co. (Giles, Wales & Co.) Watches, with which the country is flooded. To avoid imposition, see that the words MARION, N. J., are engraved on the plate over the Main-Spring Barrel. All others are spurious.

Watch No. 2,617—bearing Trade Mark "Fayette Stratton, Marion, N. J."—manufactured by United States Watch Co. (Giles, Wales & Co.), has been carried by me twelve months; its total variation from mean time being fifteen seconds.—I. VROOMAN, Engineer, N. Y. C. & H. R. R.

Watch No. 10,548, Stem Winder—bearing Trade Mark "Frederic Atherton & Co., Marion, N. J."—manufactured by United States Watch Co. (Giles, Wales & Co.), has been carried by me twenty months; its total variation from mean time being five seconds per month.—Z. C. PRIEST, Ass't Supt N. Y. C. & H. R. R.

Watch No. 1,143, Stem Winder—bearing Trade Mark "Frederic Atherton & Co., Marion, N. J."—manufactured by United States Watch Co. (Giles, Wales & Co.), has been carried by me eight months; its total variation from mean time being five seconds per month.—JAMES B. RYAN, of Kelly & Co., 417 Broadway, N. Y.

Watch No. 1,658—bearing Trade Mark "Frederic Atherton & Co., Marion, N. J."—manufactured by United States Watch Co. (Giles, Wales & Co.), has been carried by me three months; its total variation from mean time being three seconds.—JOHN LINDSTROOM, 314 Atlantic st., Brooklyn, N. Y.

Watch No. 4,026—bearing Trade Mark "Edwin Rollo, Marion, N. J."—manufactured by United States Watch Co. (Giles, Wales & Co.), has been carried by me two months; its total variation from mean time being three seconds.—JOSUUA I. BRAGO, Conductor N. J. R.R.

Watch No. 4,130—bearing Trade Mark "Edwin Rollo, Marion, N. J."—manufactured by United States Watch Co. (Giles, Wales & Co.), has been carried by me four months; its total variation from mean time being eighteen seconds.—THOMAS E. MINZER, Pier No. 5, Elizabethport, N. J.

Watch No. 4,284—bearing Trade Mark "Edwin Rollo, Marion, N. J."—manufactured by United States Watch Co. (Giles, Wales & Co.), has been carried by me six months; its total variation from mean time being only two thirds of a second per day.—DAVID H. PECK, Ferry Master Central R.R. of N. J., foot of Liberty st., North River, N. Y.

Watch No. 1,125, Stem Winder—bearing Trade Mark "Frederic Atherton & Co., Marion, N. J."—manufactured by United States Watch Co. (Giles, Wales & Co.), has been carried by me fourteen months—six months of that time at sea, and in all the various climates of Europe. During that time, and since my return, it has not varied one second a week.—H. LASSING, Manager Knickerbocker Life Ins. Co., 161 Broadway, N. Y. City.

Watch No. 2,656—bearing Trade Mark "Fayette Stratton, Marion, N. J."—manufactured by United States Watch Co. (Giles, Wales & Co.), has been carried by me three months; its total variation from mean time being only thirteen seconds.—JACOB WEART, Collector of Internal Revenue, 5th Dist. N. J., Jersey City.

Watch No. 1,706—bearing Trade Mark "Frederic Atherton & Co., Marion, N. J."—manufactured by United States Watch Co. (Giles, Wales & Co.), has been carried by me from Oct., 1869, to Feb. 22, 1870; its total variation during the entire time being only seven seconds.—JNO. W. SMITH, State Agent Amsterdam Ins. Co., Dubuque, Iowa.

Watch No. 1,064, Stem Winder—bearing Trade Mark "Frederic Atherton & Co., Marion, N. J."—manufactured by United States Watch Co. (Giles, Wales & Co.), has been carried by me fifteen months; its total variation from mean time being only fifteen seconds.—WILLARD DEBBY, of Derby, Snow & Prentiss, Jersey City, N. J.

Watch No. 1,031, Stem Winder—bearing Trade Mark "Frederic Atherton & Co., Marion, N. J."—manufactured by United States Watch Co. (Giles, Wales & Co.), has been carried by me six months; its total variation from mean time being only three seconds per month.—JOHN D. ROBERT, Plainfield, N. J., 5 College Place, Room 8, N. Y.

Watch No. 2,183—bearing Trade Mark "Fayette Stratton, Marion, N. J."—manufactured by United States Watch Co. (Giles, Wales & Co.), has been carried by me fifteen months; its total variation from mean time being thirty seconds.—WM. DUNN, Baggage Express, Utica, N. Y.

Watch No. 1,251, Stem Winder—bearing Trade Mark "Frederic Atherton & Co., Marion, N. J."—manufactured by United States Watch Co. (Giles, Wales & Co.), has been carried by me four months; its total variation from mean time being only five seconds per month.—F. A. HASKELL, Conductor Hudson River R.R.

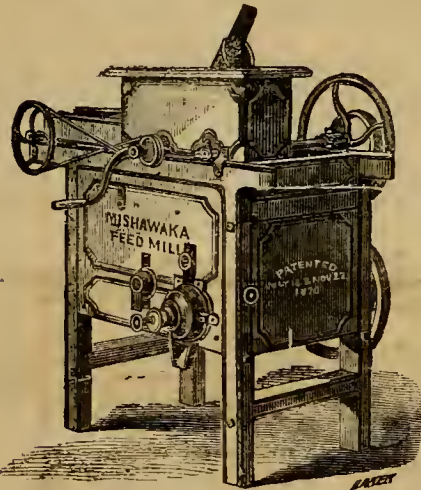
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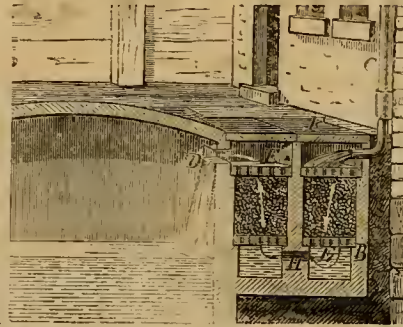
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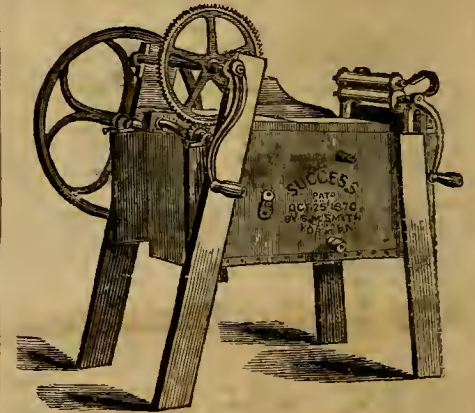


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Explanatory Notes.

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.		Number of Subscribers required		Number of Subscribers required		Number of Subscribers required	
		at \$1.50	at \$3.00	(1) Or (2) Or (3)	(4) Or (5)	(6)	Or (6) Papers together.		
1	Knives and Forks (Paterson Bros.)	\$14 00	21	70	11	85	13	13	13
2	Knives and Forks (do. do.)	\$13 50	27	90	14	45	16	16	16
3	Knives and Forks (do. do.)	\$22 00	110	17	55	19	19	19	19
4	Knives and Forks (do. do.)	\$25 50	89	11	20	62	22	22	22
5	Carver and Fork (do. do.)	\$25 00	13	37	7	19	8	8	8
6	Fluted Steel (do. do.)	\$25 00	6	25	3	13	4	4	4
7	French Cook's Knife, Fork, and Steel	\$3 00	8	30	4	15	5	5	5
8	Pocket Knife (Smith & Clark)	\$1 50	4	12	2	8	3	3	3
9	Child's Knife (L. G. Cotter)	\$2 00	5	22	3	11	4	4	4
10	Pocket Knife (do. do.)	\$2 00	5	22	3	11	4	4	4
11	Ladies' Pocket Knife (do. do.)	\$2 00	5	22	3	11	4	4	4
12	Mullum in Parvo Knife (do. do.)	\$3 50	8	30	4	15	5	5	5
13	Cake Basket (Lucius Hart Man'g Co.)	\$12 00	19	65	10	33	11	11	11
14	Casters and Fruit Basket (do. do.)	\$30 00	41	140	22	70	25	25	25
15	Revolving Butter Cooler (do. do.)	\$8 00	16	52	8	26	9	9	9
16	Cup and Kettle (do. do.)	\$7 00	15	49	8	26	9	9	9
17	Nut-picks and Crackers (do. do.)	\$12 00	15	45	8	26	9	9	9
18	Half Dozen Napkin Rings (do. do.)	\$6 00	15	45	8	26	9	9	9
19	One Dozen Teaspoons (do. do.)	\$6 00	15	45	8	26	9	9	9
20	One Dozen Tablespoons (do. do.)	\$12 00	19	65	10	33	11	11	11
21	One Dozen Table Forks (do. do.)	\$12 00	19	65	10	33	11	11	11
22	Child's Cup (do. do.)	\$2 75	7	27	4	14	5	5	5
23	Gold Pen, Sil. Case (George F. Hawkes)	\$3 00	8	30	4	15	5	5	5
24	Gold Pen and Silver Case (do. do.)	\$3 00	8	30	4	15	5	5	5
25	Gold Pen, Handle gold-tipped, (do. do.)	\$6 00	13	37	7	19	8	8	8
26	Ladies' Gold Pen and Rubber Case (do. do.)	\$6 00	13	37	7	19	8	8	8
27	Ludden's Patent Revolving Pencil	\$1 50	4	19	2	10	3	3	3
28	Ludden's Patent Revolving Pencil	\$3 50	8	30	4	15	5	5	5
29	Amusette	\$9 00	13	37	7	19	8	8	8
30	Baby's Chair (L. G. Cotter)	\$4 00	14	32	6	16	6	6	6
31	Parlor Kaleidoscope	\$4 00	16	33	6	16	6	6	6
32	Moore's Floral Set (Moore Man'g Co.)	\$1 00	3	24	2	6	2	2	2
33	Steam Engine	\$1 00	3	24	2	6	2	2	2
34	Garden Seeds for a Family (10 kinds)	\$5 00	12	33	6	17	7	7	7
35	Flower Seeds for a Family (100 kinds)	\$5 00	12	33	6	17	7	7	7
36	Garden Seeds & Flower Bulbs (Selection)	\$2 00	12	33	6	17	7	7	7
37	Set of Field Croquet	\$1 50	15	25	8	26	9	9	9
38	Sewing Machine (Grover & Baker)	\$5 00	60	240	30	120	33	33	33
39	Sewing Machine (Florence)	\$6 00	70	275	35	138	39	39	39
40	Sewing Machine (Willcox & Gibbs)	\$5 50	60	240	30	120	33	33	33
41	Smoother Harrow (J. J. Thomas & Co.)	\$25 00	38	120	19	60	21	21	21
42	Washing Machine (Doyle's)	\$15 00	21	70	11	35	13	13	13
43	Clothes Wringer (Best—Universal)	\$9 00	29	100	17	54	20	20	20
44	Barclay's Cheese	\$3 00	16	32	8	26	9	9	9
45	Melodeon, 4-octave (G. A. Prince & Co.)	\$67 00	78	295	39	148	43	43	43
46	Melodeon, 5-octave (do. do.)	\$112 00	138	400	69	200	76	76	76
47	Basso, Splendid 7-act (Steinway & Sons)	\$625 00	690	1550	800	175	330	330	330
48	Silver Watch (American Watch Co.)	\$40 00	50	150	25	75	28	28	28
49	Ladies' Fine Gold Watch (Am. Watch Co.)	\$100 00	110	350	50	175	61	61	61
50	Beech loading Pocket Rifle	\$16 00	24	80	12	40	14	14	14
51	Double Bbl. Gun (Cooper, Harris & H.)	\$50 00	46	150	23	75	26	26	26
52	Tool Chest (Paterson Bros.)	\$45 00	60	190	30	95	33	33	33
53	Charles Pratt's Astral Oil (1 can, 5 Gal.)	\$4 00	9	32	5	16	6	6	6
54	Barometer (Woodruff's Mercurial)	\$10 00	18	58	9	29	10	10	10
55	Barometer (Woodruff's Mercurial)	\$15 00	22	75	11	38	13	13	13
56	Buckeye Harvester Mower	\$125 00	150	450	225	83	28	28	28
57	Patent Cylinder Plow (R. H. Allen & Co.)	\$18 00	27	90	14	45	16	16	16
58	Collins & Co.'s Cast Cast-Steel Plow	\$25 00	38	120	19	60	21	21	21
59	Hand Cultivator and Weeder (Constock)	\$9 00	17	54	9	27	10	10	10
60	Cahoon's Broadcast Seed-Sower	\$10 00	18	58	9	29	10	10	10
61	American Submerged Pump	\$15 00	19	65	10	33	11	11	11
62	Water Sprinkler (Page's)	\$7 00	12	37	7	19	8	8	8
63	Family Scales (Fairbanks & Co.)	\$3 00	21	70	11	35	13	13	13
64	Building Blocks (Crandall)	\$2 00	6	20	3	10	4	4	4
65	Pocket Lanterns (One Dozen)	\$9 00	17	54	9	27	10	10	10
66	New American Cyclopaedia (Appleton's)	\$80 00	96	325	48	163	53	53	53
67	Worcester's Great Illustrated Dictionary	\$10 00	18	58	9	29	10	10	10
68	Any Back Volume Agriculturist	\$1 75	1	6	1	2	1	1	1
69	Any Two Back Volumes	\$3 50	2	12	2	4	2	2	2
70	Any Three do. do. do.	\$5 25	3	18	3	7	3	3	3
71	Any Four do. do. do.	\$7 00	4	24	4	9	4	4	4
72	Any Five do. do. do.	\$8 75	5	30	5	11	5	5	5
73	Any Six do. do. do.	\$10 50	6	36	6	13	6	6	6
74	Any Seven do. do. do.	\$12 25	7	42	7	15	7	7	7
75	Any Eight do. do. do.	\$14 00	8	48	8	17	8	8	8
76	Each add'l Volume at same rate	\$26 25	16	54	12	37	14	14	14
77	Fifteen Vols. XVI to XXX	\$26 25	16	54	12	37	14	14	14
78	Any Back Volume Agriculturist	\$2 50	2	8	2	3	2	2	2
79	Any Two Back Volumes	\$5 00	4	16	4	6	4	4	4
80	Any Three do. do. do.	\$7 50	6	24	6	9	6	6	6
81	Any Four do. do. do.	\$10 00	8	32	8	12	8	8	8
82	Any Five do. do. do.	\$12 50	10	40	10	15	10	10	10
83	Any Six do. do. do.	\$15 00	12	48	12	18	12	12	12
84	Any Seven do. do. do.	\$17 50	14	56	14	21	14	14	14
85	Any Eight do. do. do.	\$20 00	16	64	16	24	16	16	16
86	Any Nine do. do. do.	\$22 50	18	72	18	27	18	18	18
87	Each add'l Volume at same rate	\$37 50	24	84	24	33	24	24	24
88	Fifteen Vols. XVI to XXX	\$37 50	24	84	24	33	24	24	24
89	Farmer's Boy's Library	\$5 00	12	33	6	17	7	7	7
90	Farmer's Boy's Library	\$3 25	8	22	4	12	5	5	5
91	Farmer's Boy's Library	\$1 50	4	11	2	6	3	3	3
92	Farmer's Boy's Library	\$1 25	3	9	2	5	3	3	3
93	Farmer's Boy's Library	\$1 75	4	11	2	6	3	3	3
94	Farmer's Boy's Library	\$2 00	5	13	3	7	4	4	4
95	Any Back Vol. <i>Hearth & Home</i> (Bound)	\$4 00	9	30	5	16	6	6	6
96	Any Two Back Vols. do. do.	\$8 00	16	60	10	32	12	12	12
97	Each additional Volume at same rate	\$16 00	16	60	10	32	12	12	12
98	A \$10 Library (Your Choice)	\$10 00	18	68	9	29	10	10	10
99	A \$15 Library do.	\$15 00	24	85	12	43	14	14	14
100	A \$20 Library do.	\$20 00	30	106	16	53	18	18	18
101	A \$25 Library do.	\$25 00	38	125	19	63	21	21	21
102	A \$30 Library do.	\$30 00	45	144	22	72	25	25	25
103	A \$35 Library do.	\$35 00	50	162	25	81	28	28	28
104	A \$40 Library do.	\$40 00	56	177	28	89	31	31	31
105	A \$45 Library do.	\$45 00	62	192	31	96	34	34	34
106	A \$50 Library do.	\$50 00	68	207	34	104	37	37	37
107	A \$60 Library do.	\$60 00	80	257	40	119	44	44	44
108	A \$70 Library do.	\$70 00	94	311	47	141	52	52	52
109	A \$80 Library do.	\$80 00	110	363	55	161	59	59	59
110	A \$100 Library do.	\$100 00	125	390	63	180	67	67	67
111	A Choice of Good Books. (See Description.)								

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GOOD THING
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WITHOUT MONEY,
 AND WITH
Very Little Trouble
 DURING
THIS MONTH
 OF
January, 1872.

Full Descriptions

of all the Premiums are given in our last October number, which will be mailed free to 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 73 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 Alhata, 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.

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. 17.—Nut Picks and Crackers.—Here are twelve nut-picks, elegantly chased, of medal-line 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. 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. 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 hitherto 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. 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. 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 13-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. 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. 91.—Farmer's Boy's Library.—The ten books in No. 90, with the addition of Fuller's Grape Cultivist, Breck's New Book of Flowers, and Hunter and Trapper—in all 13 fine volumes.

Nos. 92, 93.—Bound Volumes of Health 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.

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 20 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.

SUNDRY HUMBUGS.

This column is not open for any individual to vent his spleen. Anonymous letters making charges of fraud against others receive no attention. No man should ask the editor to make accusations which he himself dare not back up. Some complain that we have failed to expose swindles which they have forwarded. Very likely. Sometimes we can not find room for all. In other cases there is not sufficient evidence to warrant us in putting some names and business enterprises in these columns. We try to be very careful, and when, after faithful examination, there remains a doubt as to the real character of any person or business, we give the benefit of that doubt. In these exposures of swindlers we have only the best interests of our readers and of the public in view, with no animosities to gratify; and if, through deception of others, or by error, any mistake is made, we will be most happy at any time to make prompt correction or retraction. Though often prosecuted by those who *hope* that we may not be fortified with legal proofs, and by those who *hope* to get notoriety and free advertising, or at least to scare us into silence by beginning libel suits, we are glad to be able to state that in a long course of years, and after having shown up more than *Fifteen Hundred* swindling schemes, no libel suit has yet been successful against us, and our exposures have never been successfully controverted in more than one or two instances, and these only when the work has been necessarily delegated to others for a brief time. Nine tenths of all our Humbug columns have been written by the senior editor, and he has never yet been shown to be in error in a single item. Our readers seldom hear through our columns of the libel suits commenced against us, for intimidation or advertisement. The intimidation is of course a failure; and we will not gratify by advertising those who hope to get notoriety or sympathy by assuming the innocence implied in bringing a libel suit, which can be done at slight expense. **Bank of England Notes.**—An expensive cable telegram from London recently appeared in the daily and other journals, respecting the operations of a swindler who offers to supply *fac-simile* Bank of England notes. Our readers, especially those residing in the Dominion, were fully informed of this fellow's schemes many months ago. **Queer—Sawdust.**—The "sawdust" class, is so called because in return for money privately sent for C.G.D. boxes of first-class counterfeit bills, the senders receive neatly put up parcels of sawdust or other trash. As already stated, we have no sympathy for the thousands of victims of this specific swindle. None but dishonest persons, who wish to defraud their neighbors or the Government by circulating what they are led to believe to be perfect *fac-similes* or imitations of real money, would ever send their money for this "queer" stuff. The money so lost is merely transferred from one swindler's pocket to that of another—and millions in the aggregate have been so transferred within three years past. No counterfeit money has gone out. The operators escape free because their victims can not appear against them without convicting themselves of an attempt to circulate counterfeit money. For the \$10 to \$100 remittances forwarded, nothing is ever returned, except the C.O.D. sawdust boxes to be paid for *before* delivery. Those who call at the dens of the operators are fleeced by bogus policemen, who nab them as counterfeiters, and let them off after taking all they have, even to watches, etc., as hush-money; or they pay for packages of good money, which are dexterously changed for the sawdust. One operator sends out large numbers of newspaper slips, ingeniously printed and cut to make them appear to be from the New York Herald, which state that certain plates have been stolen from the Government. In a lithograph letter he pretends to have these stolen plates, and offers genuine bills printed from them for 10 cents on the dollar. He signs no name, but puts in a loose card, "Benj. F. Grayson, No. 2 Whitehall street, N. Y. (late of Houston, Texas);" also "Robert M. Jameson (late of New Orleans, La.);" He adds on his card, "Collections made South and West," which he is doubtless doing—from greenhorns. Of course it would be difficult to prove that the man on the card wrote the unsigned lithograph letter, and so he escapes arrest. He asks for money by express, and for letters by mail. The letters are of course stopped by Mr. Gayler. Wm. & Jno. Wood, 192 Broadway, to be addressed by express at 33 Park Row, offer the "good" queer, and add a P.S., requesting letters for them to be addressed to one in their employ—viz., Wm. Potter, 190 Broadway. Mr. Gayler will please note this—a new dodge to get letters. Hudson, Wood & Co., 44 Liberty st., adopt I.G.G.F. symbols, and pretend to be forming an extensive secret society for sundry operations, and want you to take a \$10 share, in return for which they will send \$1,000 of good "queer." Among other assumed names in this line we have: Dr. Lorand, Williamsburgh, N. Y. (no street or number), Dr. J. Hermans, 310 Canal street, N. Y. ;

G. M. Washburn, 3 Beckman street, New York; B. H. Longstreet, 50 Maiden Lane, *alias*, G. W. Washburn, 3 Beckman street, who promises to send you the plan of his real "dex," if you promise to come on and get fleeced; John Hood, Jr., who dates some of his swindling circulars at Wilmington, Del., some at 198 Broadway, and some at 907 Broadway; H. Miller, 688 Broadway, *alias* S. Wing, 16 South Fifth avenue, who pretends to have a book-store, and who uses secret society symbols as a blind, etc. **"Spanish Policy."**—This is a dangerous humbug, because so many ignorant people are Micawbers, trusting to luck, and a "Spanish" lottery has to them always some charm. The persistence of the operator, who adopts one or two new names each month, shows that he finds paying dupes. Under each of two names, G. W. Jackson and Wm. T. Neal, both at 16 S. 5th Avenue, N. Y., he claims to be sole agent in the United States of a Spanish Policy. The printed schemes and tickets he scatters so widely at great expense are entirely of his own manufacture, and he pockets all the money he receives—which must be a large amount to meet his expenses only, besides *profits*, which are doubtless large also. **Gift Enterprises** abound—many of them so taking and plausible as to draw in large numbers of foolish people. We judge that not less than \$100,000 a month are thus extracted from the pockets of the people. The Louisville, Ky., Library scheme is just now the most active and glaring. The million dollars wanted not being quite made up, the "drawing," "owing to the Chicago fire," was necessarily "postponed" to December 15th. The "Library" will stand a poor chance, judging from the daily "expenses" of the Broadway office near us, and the extensive advertisements constantly appearing. Of a like character is the Kentucky lottery of certain schools; ditto the Omaha, Neb., Lotteries, dubbed Gift Concerts, and put under the patronage of Libraries, Hospitals, etc.; ditto the South Carolina Land and Immigration Association Lottery, *alias* "Gift Concerts." We have circulars, ostensibly from "the Sisters of Visitation, Mount de Chantal Academy, (near) Wheeling, W. Va.," which may be genuine, and the Academy may, for aught we know, be a very worthy one, but the Sisters are certainly degrading the livery of Heaven when they stimulate subscriptions by offering for each dollar a ticket in the lottery of a farm of 100 acres near Washington, D. C. Perhaps we may aid them by hinting the expediency of telling something about that farm, how much it is worth, and how many shares there are to be. The inducement to subscribe will be increased, if some taking particulars are given. Another strong inducement we did not note when writing the above, viz., every purchaser of 10 tickets (\$10) "will be entitled to the registry of his name for a weekly Mass to be offered for the next ten years (Jan. 1870 to Jan. 1880) for the benefit of Mount de Chantal Academy." We are further informed that subscribers can have dead relatives or friends entered on this registry! If such a lottery will not draw, we don't know what will. To have one's dead relatives remembered weekly at mass for ten years is worth (?) paying well for. Luther & Son, proprietors, and John De Armond, manager, Buchanan, Mich., have a small lottery, only \$34,000, in a brick store, gothic residence, etc. Tickets only \$1 each, giving you a choice from three weekly papers. We thought lotteries were prohibited by law in Michigan. This has another name, however. If people want the papers offered, the publishers will gladly receive their money direct. If they consent to this lottery stimulant, their papers better be unsubscribed for. Such schemes debauch public morals more than the best papers can do them good.—[P. S. A letter from a cotemporary says, "Luther & Son have been doing business in Berrien Co. for fifteen years, and are known to be men of honor and integrity. Under pressing pecuniary embarrassment they are attempting to dispose of their property at a fair value by means of a Gift Concert," and further says the affair will be conducted fair and honestly; that the property is most desirable, etc. All of which we will not call in question; but if Messrs. L. & Son are right in this mode of selling property, may not all other embarrassed parties—and there are tens of thousands of them—adopt the same plan of getting relief, and so inaugurate a general system of Lotteries all over the country? If it is right in one case, it is right in all, and the more respectable the parties in this case, the worse is the example.] **Vile Books and Pictures** are covertly advertised by sundry parties, and pretty openly by a "Book Company" in Minneapolis, Minn. We suggest to the proper authorities of that city to look into this affair and see that, for the credit of their fine place, there be no dissemination of vice. Lest any imprudent youth be tempted to try this (so-called) company's "Turkish lozenges," we advise all who have not done so to read the item on "Love Powders" in our Nov. paper, page 406. This so-called company also offers "EXACT COPIES" of U. S. Treasury notes and National Bank bills, but claims to only offer them as detectors of counterfeit money. Why better for this purpose than the good money, which is accessible to

everybody? Parents should have a care that the "our catalogue" of this so-called company does not get into the hands of their children, with its tempting bait of corrupting pictures. **Medical.**—About the meanest cheats we know of are the tribe of "Consumption cures" who impose upon the hopes and fears of a class of persons needing sympathy. One man has during a dozen years grown rich by his skill in giving and selling books and medicines to consumptives. He has the art of persuading his dupes that he has great experience and skill, and few that listen to him once get off without putting into his pockets from \$25 to \$1,000 each. He publishes records of many cures—all of them cases which had doubtless no vestige of consumption to start with, except in imagination. There is a large number of impostors who dub themselves "Rev.," and claim to have obtained a sure cure for consumption, while missionaries away down in Brazil, or among the Western Indians, or in the East Indies. Some of them offer a free recipe, which always contains some curiously named plant that you ultimately find can only be obtained of themselves. N. B.—Every one of these benevolent "Revs." is a downright swindler. We met one of them the other day that, from his circulars, you would suppose to be a very venerable old gentleman; he was a young scapegrace who under another name conducted a pretended counterfeit-money scheme. The "Sands of Life" man was one of this stamp. He is probably now a very reverend in sheep's clothing—a returned missionary anxious to send you a free consumption cure, and his "at cost" preparations, that is, a parcel or bottle of it, costing 10 cents, he will send for \$3 or so. The Chundrang cancer cure will be treated in a separate item by our M.D. Editor. The "University Medicines," and the Company Medicines inquired about, we rank among other quack medicines, and advise people to let them all alone severely. Other downright swindlers we have not room to describe, such as R. H. Foster, Williamsburgh, N. Y., \$50 Watches for \$2.75; Mrs. (?) Sarah B. Lambert, Greenpoint, N. Y., Love Perfumes (rank poison), and Matrimonial Agency; sundry offers of "Books of Secrets," paying (?) Recipes, etc.; the "Seeding Machine," patent paid for by notes to be divided (already noticed).—Wise people, young and old, will promptly burn the "Prophylactical Star" and the "Good Samaritan," sheets sent out from Albany, N. Y. A Tennessee subscriber writes us that he counted fifteen bad advertisements in a single number of the *Toledo Blade*, besides an uncounted host of quack-medicine advertisements. We hope he and all other readers will write to that and similar papers and remonstrate with them. If all subscribers to newspapers would take this course, and then drop the papers if the advertisements be not dropped, we should soon have a great reform in this matter throughout the entire press. Postmasters are *promised* a "good, useful present," not described, if they will distribute the vile sheet called "Journal of Health," sent out from Albany, N. Y.—an old thing, with a new name for the doctor. In this sheet you are offered medicines for vile diseases, secret of taming horses, honey recipes, etc.—a poor humbug. We hope no postmasters are so green as to want the presents, and are sorry there are ignorant people enough to support this extensively circulated trash. Another so-called "M.D." sends out the old story about his finding a cure-all down in Brazil, for Uncle Joe, and wants agents to sell his "Wine of Apocynum," which nobody else knows. We suppose there must be people so ignorant and gullible as to patronize such a pretender, or he would not operate in this way, but we pity his poor victims. Maine State has several ingenious persons located within her borders (so as to get out of reach of the mass of their customers, we suppose) who are very anxious to make all the rest of the world rich by the sale of sundry notions—sewing-machines, the best in the world, to be sold for a song; thousands of most valuable (?) recipes, etc., etc. Those who put faith in these wonderful pretensions (on paper) can prove their truthfulness by sending the money required, always in advance, or C. O. D., which amounts to the same thing, as the money must be paid to the Express Co. *before* the articles can be seen. Perhaps it will benefit the country at large if half a hundred or so of the victims of these Maine concerns will send us an account of their *experience* in past investment—giving full, reliable particulars. **Burning Oils.**—Michigan is afflicted with sundry sellers of recipes for manufacturing burning oils, with various luminous and scientific names, claimed to be non-explosive, etc. They are all humbugs. We have probably seen all these recipes from "Sun-light" to "French;" the naphtha found in most of them is a dangerous thing in any burning-oil for common use, and is one of the things to be *carefully* taken out of all safe illuminating oils. **Honey Recipes** are still largely advertised by sundry parties. They tell how to scent up simple syrup of sugar and water to resemble honey. Nobody should invest 25 cents in any such recipe for home use or sale.

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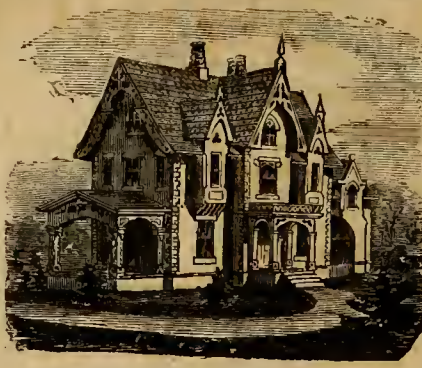
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It is a volume of nearly three hundred pages, amply illustrated, containing hints and suggestions as to the general principles of house-building, style, cost, location, symmetry, and modes of building. It is especially designed to encourage a taste for pleasant country houses.—*The Freeman* (Montpelier, Vt.)

This is a useful and valuable work, filled with suggestions as to the general principles of house-building, illustrated with about one hundred and fifty engravings.—*Watchman and Reflector* (Boston).

There is much in the book to recommend it to the attention of all; particularly the remarks on building material, appropriateness, the effects of different combinations of paints to produce harmonious colors, etc.—*State Republican* (Lansing, Mich.)

A splendid volume, illustrated with about 150 engravings. The directions and statements it gives are eminently plain and practical, and seem sufficient for the establishment of something more than houses merely, and that is homes.—*Rutland Herald* (Vt.)

An admirable work. It is just the book for any one contemplating the erection of a house or barn.—*Farmers' Cabinet* (Amherst, N. H.)

There are single chapters in it which are worth more than the price of the work (\$1.50), not only to those who are building anew or building greater, but to such as contemplate improvements, and, unfortunately—owing to bad jobs at the beginning, or decay's effacing fingers—there are few homes about which improvements are not needed.—*The World* (New York.)

A valuable work, gotten up in the best style. It must prove both interesting and useful to all who wish a home in which beauty, taste, convenience, and economy are combined.—*United Presbyterian* (Pittsburgh, Pa.)

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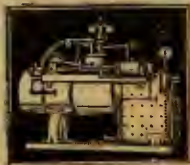


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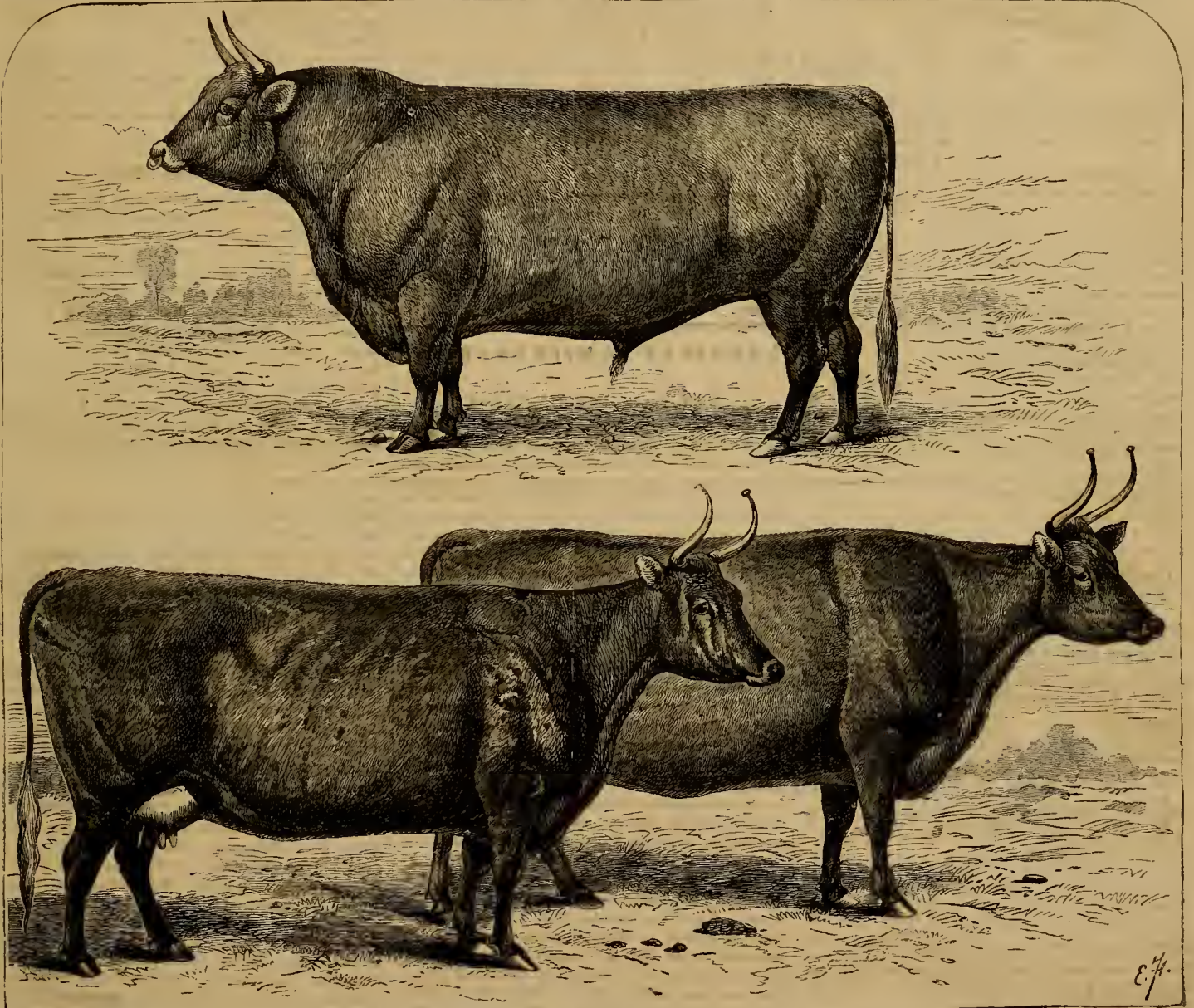
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PRIZE DEVON CATTLE.—PROPERTY OF MR. E. H. HYDE.—Drawn and Engraved for the American Agriculturist

Devon Cattle, or more properly North Devon (for there is also a distinct breed known as South Devon), are without doubt the oldest existing race of cattle which can claim the distinction of a breed. They have been known in the county of Devonshire, in the southern part of England, from time immemorial, and from the certainty and distinctness with which their peculiar marks are transmitted from generation to generation, the entire purity of the race is shown. Devonshire is a country of hills, interspersed with moors and a few rich valleys, and this peculiarity of the surface has given some qualities

to this stock, which make them well adapted to similar circumstances elsewhere. As a dairy stock they are not the most desirable; but where they are to be used as draft cattle, and graziers in pastures of ordinary character, they are without doubt the most desirable of any stock. Easily fed, remaining in fair order where a Shorthorn or Hereford would starve, fattening rapidly when put up, remarkably docile and active under the yoke, of fair size and rotund figure, giving the idea of greater weight than they really possess, and finally as furnishing to the butcher the choicest kind of meat, beautifully

marked with fat, not laid on the surface, but mixed with a marbled appearance amongst the lean, they are peculiarly the cattle for our hilly districts. Their color is a dark blood-red, with orange streaks around the nose and eyes. Not a spot of white is seen on them when pure, and no breed is so certain to retain the evenness of color, size, and form as the Devons. At the plow or in the wagon they are as active as ordinary farm-horses. A pair of four-year-old steers of this breed will plow an acre per day, and will follow a pair of horses in the furrow throughout a long summer's day with perfect ease.

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Calendar for February.

Table with columns for Day of Month, Day of Week, and Sun rises, Sun sets, Moon rises, Moon sets for Boston, N. England, N. York State, Mich., Wiscon., Ill., Ind., and Oregon; N. Y. City, Ct., Philadelphia, N. Jersey, Penn., Ohio, Indiana, and Illinois; and Washington, Maryland, Virginia, Kentucky, Missouri, and California.

PHASES OF THE MOON. Table with columns for MOON, DOSTON, N. YORK, WASH'N, CHA' STON, CHICAGO. Rows for 3d Quart., New Moon, 1st Quart., Full.

AMERICAN AGRICULTURIST.

NEW YORK, FEBRUARY, 1872.

"As the days begin to lengthen, the cold begins to strengthen." With us, February is usually one of the coldest months in the year. Some people think that they can stand cold better towards the conclusion of winter than at the beginning—that they get "hardened." The facts all point the other way. An Englishman stands the heat and cold of our climate far better the first year than the second. The thermometer often falls lower with us than in Russia, but there the cold weather lasts longer, and is steadier and more continuous. And the inhabitants feel it more and make greater preparations to guard against it than we do. The last half-hour of a cold ride is far more trying than the first half-hour. It is continuous cold that tests our strength. It is said that our climate is changing. Cutting down forests undoubtedly increases the severity of the wind. But otherwise there is no evidence of a change of climate. Our winters are no colder; our summers no hotter. By setting out evergreens and other trees for screens, and otherwise providing shelter, we can make the climate on any particular farm, garden, homestead, or barnyard just as favorable for grain, fruit, animals, or man, as it ever was. No change has taken place that man can not obviate. When the country was first cleared, the roots in the soil, probably, to some extent provided drainage, while the accumulated organic matter from centuries of fallen leaves, furnished plant-food, and rendered the soil rich and porous. Such soils are now in many instances wet, compact, and poor. We have the power to restore its original condition by underdraining, good tillage, and manuring. We can raise just as good wheat as we ever could, and more of it to the acre, because our land is free from stumps. And so of all other crops. Shame to the man that can not beat Nature! We highly venerate the great and good men of the past, but we have great faith in the men of the future, and are not wanting in respect for those of the present. We like to hear the fathers talk of the good old times; but depend upon it, times are no harder and the world no worse than in former days. We rejoice to believe that they are better.

It may be said that we could grow fruit easier when the country was new than we can now. Better shelter, richer land, and fewer insects and diseases sufficiently explain this fact, without attributing it

to a change of climate. And it may be that the varieties of fruit were not as good as those we now cultivate. Our common seedling-apple trees, choke-pears, and frost-peaches still bear abundantly. We have a peach-tree that bears bushels of fruit every year, and the tree is as vigorous and healthy as any peach-tree could have been a hundred years ago. But the labors of our pomologists have given us such delicious peaches that no one ever thinks of touching the fruit of this tree whenever the other trees in the orchard bear a crop.

It is quite possible that it is our taste and not the climate that has changed. We demand better articles, and we must pay a better price. No good thing can be had without care and labor.

On the other hand, if we will bestow the necessary attention, the choicest varieties of grain, vegetables, and fruit and the best breeds of animals always afford the greatest profit to the producer and the greatest satisfaction to the consumers. Every intelligent farmer and fruit grower, therefore, should aim to produce the best. It is the constant aim of the Agriculturist to teach and enforce this truth.

Hints about Work.

We have thousands of readers in the Southern States who will be busy this month preparing their land for spring crops, but with us in the North nothing can be done in the fields, except during a temporary thaw. Then we must be careful that no water is allowed to remain on the land. The outlets of underdrains should be looked to, and watercourses cleaned of any impediments. Few farmers seem to have any idea of how much water they can remove from their land by a little well-directed labor. Wherever you see water on the surface, no matter whether the field is occupied by a crop or not, get rid of it at once. It may be doing no harm now, but it will soak into the soil and keep the land cold and wet, or delay the operations of tillage several days or perhaps weeks in the spring. We are aware that when the ground is frozen underneath, it is not always easy to let off the water, but this should be no excuse for neglecting the matter altogether. Every gallon let off and thus prevented from soaking into an undrained soil, saves all the heat that would be required to evaporate it in the spring. Recollect that the sun must first evaporate the surplus water before it warms the soil.

Winter Wheat.—When the soil is frozen and comparatively free from snow, a little manure, or straw even, may be spread out on the wheat with advantage. As a rule, the prospects for winter wheat are not favorable. The ground was very dry last fall, and the growth small, and the winter, so far, has been very severe, with little snow. If March and April are unfavorable, much wheat will be damaged.

Good Prices for Wheat next Fall are highly probable. Everything points this way. Anything we can do in the way of top-dressing our winter wheat, will pay better than usual. Well-rotted manure, or 200 lbs. of guano and nitrate of soda, applied very early in the spring, will help the crop of wheat, and benefit the clover afterwards. The artificial manures can be sown broadcast and need not be harrowed in. The barn-yard manure should be spread evenly and then harrowed with Thomas's smoothing harrow. If it pulls any of the manure into small heaps, spread them out again. We would go over the field with the harrow two or three times in opposite directions. The harrow will not injure the wheat—quite otherwise.

Spring Wheat.—We think farmers will do well, in spring-wheat sections, to sow largely this year. But do not sow unless the land can be got into good condition. We expect good prices; but a large crop at a moderate price pays far better than a poor crop at high prices. We allude to this matter now, in hopes of inducing the readers of the American Agriculturist to get ready for putting in a good area of spring wheat, and of putting it in well.

Manure.—We should be glad to know that thousands of our readers have adopted our plan of piling manure as fast as it was made, and not allowed it to

lie in frozen heaps about the premises. Our own heap is fermenting nicely, even with the thermometer below zero. After the first fermentation slackens, turn over the heap, being careful to break up all the lumps and shake out the tangled corn-stalks, etc. It will facilitate the operation of turning to cut the heap with a hay-knife into sections three or four feet wide. If a large quantity of straw has been used, fermentation may be promoted and the quality of the manure greatly improved by scattering 25 lbs. of dry blood or 100 lbs. of bone-dust to each cord of manure as it is turned over. If this work is performed now, the manure will be in excellent condition for use in spring.

Milk-Cows.—Farrow cows that are being milked and fattened at the same time, must have an abundance of rich food—say four or five quarts of corn-meal per day, with cut stalks or hay. Beef is now low, but so are milk-cows, and it will probably be better to dispose of furrow cows that are fat than to keep them another season. If liberally fed we have known them milked up to the time they were sold to the butcher, and still prove very fat inside. As a rule, however, the butchers will pay a little more if they have been dry a few weeks.

Cows that come in before the first of April will now, in ordinary dairies, be allowed to go dry. In the majority of cases they cease to give milk of their own accord. With warm stables and liberal food, some cows will continue to give milk nearly or quite up to calving. A cow with great digestive powers, that will keep in high condition, nourish her calf, and give milk, may be allowed to do so. In fact, it is probably better to keep on milking her. There will be less danger of milk-fever after calving. But such cases, in our experience, are rare. It requires liberal food and the best of treatment to keep such a cow in vigorous health. As a rule, the average good dairy cow requires and will well repay a few weeks' rest at this season. And we need seldom be afraid to feed liberally. Any fat accumulated before calving will in the case of a good milkor find its way to the butter tub.

For ten days or two weeks before calving, it is well to give laxative food, such as bran-mash and linseed tea, or, if this is not sufficient, give a pound of Glauber salts, or half-pound of Epsom salts, and a table-spoonful of ginger. In case of very fat cows, it is well to give this dose once a week for three weeks or a month before calving, as a preventive of milk-fever.

Carding the Cows regularly and thoroughly is a point of great importance, especially where liberal feeding in warm stables is adopted. A dirty cow is a disgrace to a farmer and a direct pecuniary loss. We hope no reader of the *Agriculturist* will say carding is unnatural. Such a remark, though not uncommon, is simply silly. Furnishing shelter, providing hay, pumping water, giving the cows salt, and milking them, are just as unnatural.

Lice have never yet troubled any of our cows, horses, or pigs. Liberal feeding, carding, and clean stables and pens, are the best preventives. For a cure we should resort, first, to thoroughly cleansing the premises, and sprinkling crude carbolic acid in every nook and corner. Then mix an ounce of carbolic acid with a quart of crude petroleum, and rub it over the animal. It will kill every insect that it touches, and will not hurt the animal unless applied in excessive quantity. Care should be taken to mix the acid with the oil by thorough shaking. Should it not be well mixed, the carbolic acid would blister the skin and injure the animal. In such a case apply warm water freely, or rub on oil, or grease of any kind. If crude petroleum can not be obtained, use carbolic acid and water, an ounce of the acid to a quart of water. Tobacco water will destroy the lice, but the above remedies are less trouble and more effective.

Horses running in the barn-yard and fed on straw ought to have a comfortable shed to sleep in. A few ears of corn in severe weather will not be thrown away, and as spring approaches the quality of the feed should be gradually improved. This is particularly true of old horses, and of young horses that have not attained their growth.

Horses kept in the stables and not doing much work should be regularly cleaned and fed. Some farmers seem to think that unless a horse is to be taken out to work he does not need cleaning. Such a man, to be consistent, ought not to wash himself unless he is going to town! We feed our horses one bushel of chopped straw (say 8 lbs.), moistened with water and mixed with two quarts of corn meal, to each team, three times a day. They are allowed straw in their racks; but it is a good plan to take it out of the racks at say eight o'clock in the morning, and let them have no food before them until noon. Then feed them and remove all that is left in the rack at two o'clock, and feed again at night, letting them have all the straw they will eat until morning. In this way, horses that are standing in the stable will eat much more heartily than if the food is before them all the time. If they are worked feed a little more grain or hay. A few rutabagas or carrots may be fed to the horses with great advantage, say half a bushel per day to each team. As spring approaches feed more liberally.

Fattening Sheep should be allowed from a pound to a pound and a half of grain per day, according to their size, and it is well to give them one foddering of hay per day and all the straw they will eat. Wool is in demand, and most farmers will desire to keep their sheep and clip them before selling. On this account it is not improbable that those who sell their fat sheep the latter part of February or first of March, may realize more profit than by keeping them later.

Early Lambs for the butcher must have warm, dry quarters, and the ewes must be well fed. Nothing is better than clover hay and bran, with say half a pound of grain per day. Roots, of course, would be a great help. Water regularly. The lambs should have a place, into which they can run through a small opening, separate from the ewes, and be fed in a small trough all the corn-meal and bran they will eat.

Yearling Sheep should be kept in a flock by themselves and be fed more liberally than the older store sheep. If fed principally on straw they should have from half to three quarters pound of grain per day, and if of the long-wooled or South Down breed, a pound per day will be none too much.

Store Sheep, and ewes not expected to lamb until April or May, can be wintered very well on straw or stalks, with half a pound of corn or other grain per day. It is a great mistake to winter them on straw alone. Separate old or feeble sheep from the rest of the flock and feed more liberally.

Salt all animals at least once a week. Get rock salt, and let them have access to it at all times.

Pigs should have warm, dry, well-ventilated pens. Where straw is abundant let them have enough to bury themselves in, and change it frequently. Clean out the pens every day. It is little trouble if done regularly. Let the young, growing pigs have all the food they can eat. Feed three times a day. If they leave any in the troughs, remove it and feed it to the old hogs, and do not let it remain to freeze. See that they do not suffer from want of water. There is no cheaper food for pigs than corn-meal and mawgold wuzel—and nothing that will push them forward more rapidly. If they get fatter than you wish, lessen the corn-meal and replace it with bran.

Work in the Horticultural Departments.

This month everything ought to be made ready for active work, as out-door operations will be commenced next month, and no time should be consumed then in doing such things as can be done now. Send orders for trees, seeds, tools, etc., to the dealers at once, so that no delay may occur in waiting for them when they are needed. An enterprising horticulturist will make a trial of some of the new sorts of flowers, vegetables, etc., each season, but for the main crops it is safer to rely upon old sorts which are known to be good. It is well to test all seeds before planting, so that no failures

may happen from sowing poor seeds. Market-gardeners can not be too careful in purchasing seeds of reliable dealers only, even if at a higher price than that asked for seeds sold at the country stores.

Orchard and Nursery.

Buds may be cut now and packed in sawdust or earth and preserved in a cool place where the buds will not start.

Scraping.—This is a good time to remove all dead bark from trees in the orchard. Trees which have been neglected for several years are soon covered with mosses and lichens, and are thus rendered unsightly. The best wash that can be applied to trees is one of strong, home-made soft-soap, thinned with water so as to be easily applied with a brush.

Planting.—The time for planting will vary in different localities. In the Southern States trees may be set this month, while in Northern localities the ground will not be in condition for several weeks.

Varieties.—In planting an orchard regard should be had to the proper selection of varieties from the earliest to the latest. It is well, however, not to plant too many varieties, but have the larger portion of late-keeping sorts. Kinds known to succeed well in the neighborhood should be selected.

Young Trees are the best for orchard planting, many orchardists preferring those of only one year from the bud or graft, as these are more likely to be healthy and vigorous than older ones which have been crowded in nursery rows.

Injured Trees that have had their branches broken by winds or storms, should have the wounded surface smoothly pared and then covered with a coating of shellac varnish or melted grafting wax, to prevent the water penetrating and causing decay.

Insects.—Now is the time to prevent canker-worms from ascending the trees, the warm days which often occur this month being favorable for their movements. Their ascent can be partially prevented by placing around the trunks bands of paper which are to be kept coated with tar, taking care to renew the coating every few days, or as often as it hardens. Other methods, such as a gutter of tin or lead surrounding the trees, have been used, but the success of all of these contrivances depends upon constant inspection and care. A great many Tent-caterpillar's eggs can be destroyed by carefully searching the trees before they commence to develop their leaves; the eggs are attached in rings to the branches near their extremities.

Nursery Trees which are received early in the season will sometimes be found frozen or dried; if frozen put the packages in a cool place and allow to thaw gradually; if shriveled by drying, they will recover if buried in the ground for a few days.

Manure.—Cart to the orchard whenever convenient and place in small heaps, but not in piles around the trunks of the trees, as it does no good there, and often serves as a harbor for mice, especially if it is coarse and littery.

Fruit Garden.

Trees in the fruit garden proper should only be those grafted upon dwarfing stocks, and those that are trained upon walls or trellises. Many of the directions given in the "Orchard and Nursery," under Washing, Insects, etc., apply equally here.

Grape-Vines.—Prune when not frozen, if it has not already been done. Go over the vines pruned last fall and remove the extra buds which were left as a precaution against the severity of the winter.

Blackberries and Raspberries.—Set as soon as the ground will admit of being worked, as when left until late, the under-ground shoots, which form the canes of next season, start very early and are liable to be injured if left until late.

Strawberries.—Make new plantings as soon as the weather will permit.

Trellises will be needed for training grape-vines and trees, and the timber should be got ready now, so that it may be at hand when wanted. Posts of chestnut, cedar, or locust are the most durable.

Kitchen Garden.

Little can be done in this department at this season in the North, if no glass is used, except to have everything ready for early planting when the soil is ready. Very few market-gardeners, or even farmers, can afford to do without one or more hot-beds. The earliness of lettuce, tomatoes, and other crops more than compensates for the time spent in properly preparing a hot-bed, and no farmer who has once tried the raising of early plants in this way will be willing to give it up. In the South many of the early crops of hardy vegetables, such as beets, parsnips, onions, lettuce, etc., can be sown this month. It is never safe to sow the tender vegetables, such as cucumbers, beans, etc., until all danger from frost is over, and the ground has become thoroughly warmed.

Manure.—Do not allow the manure to become overheated, but turn over and mix with earth. When dry, water occasionally. Save the horse-manure in a separate pile, to use in hot-beds.

Cold Frames.—As the weather becomes milder, see that plenty of air is allowed the plants in the frames, and on warm days the sashes may be removed entirely; they should never be left open during the night, even if it is very warm, for fear of a sudden snow-storm or change in the temperature.

Hot-Beds will not be needed at the North until next month, unless very early plants are desired. In some parts of the South they may be prepared, and seeds of early vegetables planted. Shelter from prevailing winds should be given, and if necessary to make them in an exposed place, it will pay to erect a temporary board fence.

Straw-Mats or Shutters will be needed for protecting the plants in hot-beds and frames during cold spells, and from too much sun.

Brush and Poles for peas and beans should be cut, as it is poor policy to leave them until needed.

Root Crops.—Whenever the ground thaws, the roots left in the ground over winter, may be dug.

Potatoes.—A few may be started for early planting by placing in a warm room and allowing the sprouts to start, and then planting in a warm spot.

Boxes.—A few boxes, four inches deep, may be made and filled with rich garden soil, and many of the early vegetables started in these; they are a cheap and convenient substitute for hot-beds, if only a few plants are wanted.

Flower-Garden and Lawn.

Complete all plans for improvements which were begun during the winter, and have everything that is needed for carrying them out, ready for immediate use. All shrubs, trees, and seeds that will be needed, should be ordered at once.

Half Hardy Plants, which have been stored in pits or cellars, will need looking to, in order to prevent their starting into growth. See that plenty of air is given, and if the plants in the cellar become too dry, give them a little water occasionally.

Cannas and other roots stored in the cellar will need to be examined, as they are liable to suffer from dampness. If any signs of rotting appear, remove at once to a dry place, where there is no danger of frost, and cut away all decaying parts.

Wood Work.—All trellises, arbors, etc., will need a coat of paint or oil, to prevent their decay.

Annuals.—Seeds of hardy annuals may be sown in shallow boxes and placed in a kitchen window, as recommended for vegetable seeds.

Greenhouse and Window Plants.

Air should be given to the greenhouse every mild day, taking care to open the ventilators on the side opposite that from which the wind blows.

Sprinkling.—Give the plants a good sprinkling every two or three days, so that they may be kept free from dust. The best time to do this is in the afternoon, when the ventilators can be closed.

Bulbs.—Cut away the flower-stalks of all bulbs which have finished flowering, and gradually dry them off, when they may be taken out of the pots and stored in a dry place, ready to be planted in the open ground next fall. Bring a few pots from the cellar every week, so as to produce a succession of flowers during the early spring months.

Propagation of bedding and other plants should be continued; as soon as rooted, pot into thumb-pots.

Neatness.—Keep all the plants free from insects by fumigation and washing, and remove all yellow and dead leaves, as they detract very much from the beauty of a flowering or specimen plant.

Commercial Matters—Market Prices.

Gold has been down to 108 3/4, closing January 15th at 108 1/2, against 109 1/4 on the 16th of December. Business in breadstuffs has been on a restricted scale, with the main call for spring and red winter wheat, and mixed Western corn and Western rye, for shipment, at easier and irregular prices. The home-trade demand has been light and mostly for job lots, needed to meet pressing wants. Holders have been prompt in responding to the requirements of buyers, as a rule, at the current figures. Cotton has been active, excited, and higher, the principal dealings having been for home use, and on speculative account. Wool has advanced on a livelier inquiry, chiefly for manufacturing purposes, closing with prices in favor of sellers, on light stocks of desirable grades, particularly of fleece. Clover-seed has been freely purchased for export, at uniform rates. Hay, Hops, and Tobacco, quiet. Provisions have been moderately active, closing firmly at our quotations.

CURRENT WHOLESALE PRICES.

Table with columns for Dec. 16, 109 1/2, and Jan. 15, 108 3/4. Lists various commodities like Flour, Wheat, Corn, Rye, Barley, Oats, and their prices.

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. 15th, 1872, and for the corresponding month last year; also for the year ending December 31, 1871.

Summary tables for Transactions at the New York Markets, Receipts, Comparison with same period at this time last year, Exports from New York, and Stock of grain in store at New York.

5. Receipts at head of tide-water at Albany each season to Dec. 1st:

Table showing receipts of Flour, Wheat, Corn, Rye, Barley, Oats at Albany.

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

Table showing receipts of Flour, Wheat, Corn, Rye, Barley, Oats in New York for the last eight years.

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

Table showing exports of Flour, Wheat, Corn, Rye, Barley, Oats from New York.

8. Comparative Stock of Flour in New York, Jan. 1:

Table comparing stock of Flour in New York for 1869, 1870, 1871, and 1872.

9. Comparative Stock of Grain in New York, Jan. 1:

Table comparing stock of Grain in New York for 1869, 1870, 1871, and 1872.

New York Live-Stock Markets.

Table showing Week Ending Receipts for Bees, Cows, Calves, Sheep, Swine.

Table showing Average per Week for Bees, Cows, Calves, Sheep, Swine.

Beef Cattle.—There has been a falling off of 1,800 cattle per week when compared with the receipts of the previous month. Closing up the year we have 380,934 cattle against 356,026 in 1870. The light run of cattle for a month past has caused a steadily improving market, and prices are now 1c. higher than they were last month. Since the former report a large number of very fine holiday cattle were sent in, but they did not bring over 13c. @ 15c., or little more than prime stock is worth now. There were too many of them to sell well. One yard of 12 head was sold for \$2,000. The market closes very firm, Texans, which are scarce, selling at 9 1/2c. @ 10 1/2c., with fair Western at 11 1/2c., and prime 12 1/2c.; the best cattle selling at 12c. @ 13 1/2c., save a few head, very fine, at 14c., on the scales, 60 lbs. per cwt.

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

Dec. 18th, ranged 8 @ 15 c. Large sales 10 @ 13 c. A.V. 11 1/2

Dec. 25th, do. 8 1/2 @ 18 c. do. do. 10 @ 12 1/2 c. do. 11

Jan. 1st, do. 9 @ 18 c. do. do. 10 1/2 @ 12 1/2 c. do. 11 1/2

Jan. 6th, do. 9 @ 18 c. do. do. 10 1/2 @ 12 c. do. 11 1/2

Jan. 13th, do. 9 1/2 @ 14 c. do. do. 11 @ 12 1/2 c. do. 11 1/2

Milk Cows.—The supply has been large during the past month, and trade has been unsatisfactory. Milk has seldom ruled at the present low rates, during the winter season, and this is discouraging for the producers. Besides, dry cows have been hard to sell until within the past week. Fresh cows vary from \$40 to \$55 each for poor, \$65 to \$75 for medium to good, with a few choice at \$80 to \$90. Calves.—The run is light, as is always the case during this season of the year, and prices have advanced. Most of the calves are now sent in dressed, on account of cheaper freights and the ability to send them long distances. Good to prime milk-fed calves are worth 10c. @ 11c. @ 12c. @ 13c.; common to fair sell at 8c. @ 9c.; mixed lots, of large size, 4 1/2c. @ 7c. Hog-dressed are worth 12c. @ 14c. for milk-fed, and 6c. @ 9c. for grassers. Sheep and Lambs.—There has been quite a falling off in receipts, and prices have worked up from 7 1/2c. to 1c. @ 20c. There were some extra holiday sheep of 175 @ 200 lbs. sent in for Christmas, which were sold at 9c. @ 9 1/2c. @ 10c., live weight. The advance in wool helps the sheep trade, while farmers incline to increase their flocks, hence send in sparingly. Few sheep now sell below 7c. @ 8c., while good lots of 80 to 90 lbs. bring 7 1/2c. @ 8c. Lambs are now selling with sheep at same prices. Poor to medium sheep are selling at 6 1/2c. @ 7 1/2c. @ 8c.; fair to good at 7 1/2c. @ 8c.; and prime to best selections at 8 1/2c. Swine.—These are falling off in numbers, but there are somewhat few receipts of Western dressed, amounting to 26,321 during the past five weeks. Prices have ruled rather steady, the demand being unusually good. Live are worth 4 1/2c. @ 5 1/2c.; city-dressed Western 5 1/2c. @ 6 1/2c.; State and Jersey, 6c. @ 7 1/2c.; Western dressed, 5 1/2c. @ 5 3/4c.



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 Volume Thirty are now ready. 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.

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 \$3; making a club of 20 at \$1 each; and so of the other club rates.

Newspaper Recommendations.—Many parties advertise that such and such a newspaper says so and so of their wares or business enterprises, etc. Actual editorial commendations from papers which are honestly and ably edited, and which never sell editorial notices, are frequently valuable—when received by reliable parties, who give exact, ungarbled quotations, with the date of their publication. But it is always to be remembered that very many of these notices are taken from the parties' own advertisements in the papers referred to. Thus, a party inserts in the *Tribune*, *Times*, or other paper an advertisement praising himself and his wares in the strongest terms; and then in other newspapers or circulars he quotes from his own advertisement, and says the *Tribune* or other paper says so and so, when the editor of the quoted paper probably never even read the advertisement, and knows nothing of the matter.

Cheap Watches.—To several inquirers we answer, as often before, put no faith in the advertisements in newspapers or circulars, of very cheap watches. Good watches are, like gold and silver coin, standard articles which are sold at their cost and worth. It is nonsense to expect to buy "solid-gold hunting-case, full-jeweled watches, accurate time-keepers," etc., for \$20 or \$30, no matter how many respectable newspapers are said to commend them. The cases would cost all the price and more, and the running gear must be poor indeed. As a rule, the safe way to get a watch is through a known, responsible party, to whom you can look for redress if a watch prove poor. It is impossible for us to personally investigate every advertiser inquired after by our numerous readers. Advertisements in our own papers are believed to be trustworthy, or they would not be inserted.

The Hoosier School-Master.—This intensely interesting story, which has appeared as a serial in the columns of *HEARTH AND HOME*, is now issued in elegant book form, printed on fine paper, with twelve full-page engravings on tinted paper, and seventeen other illustrations, and bound in extra cloth. It is a truly AMERICAN STORY, and will be read with delight by all. Price, post-paid, \$1.25.

Will it Pay to Borrow Money to Drain Land?—A young farmer, Wilmington, asks if it would be advisable to borrow \$500 to remove stone from, and drain 8 acres of land which he wishes to improve. If the productive capacity of that land will be increased to the value of \$10 per acre per year, the cost will be repaid, with interest, in eight years. The contemplated improvement ought to be of even greater bene-

fit to the field, so that we can not but advise a young farmer to go ahead. Debt is to be avoided, but where the land is improved in value, no real debt is incurred.

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.

A Pump for a Deep Well.—A "Central Pennsylvanian" wants a pump for a well 40 feet deep, that will supply both the house and barn. Just the pump wanted is the Submerged Pump advertised in our columns, and offered as a premium for clubs for *American Agriculturist*.

Golden Rod.—"H." Naugatuck, Ct., has known this weed to be destroyed by two years' pasturing with sheep on ground that could not be plowed.

Club-Root in Cabbage.—E. G. Howland, Erie Co., N. Y.—It is supposed that club-root is due to some insect, but we believe it is not yet proven what insect it is.

Do Brahmas Mature Early?—It is said over and over again in books and periodicals that the Brahmas, light and dark, excel in the valuable quality of early maturity. We have asserted the same ourselves, but there should be some qualification. If by early maturity precocious laying is meant, then Brahma pullets are certainly entitled to that distinction. We have raised broods of which every pullet has laid within a week after attaining the age of six months. Mr. Wright, in his "Monograph on the Brahma Fowl," says that they lay with great regularity when from six to seven months, and when hatched early and highly fed from the shell, will sometimes begin at five. But if we turn from laying to increase in size, we find that the Brahma, like all other Asiatic breeds, arrives at maturity very late. Growth is not completed until the age of from fifteen to eighteen months. Though the Brahmas are so large when fully developed, the White Leghorns, a medium or small race, will, if hatched at the same time, and fed and managed in the same way, attain a good "broiler" size, say three pounds, live weight, at an earlier age. The Brahma cocks go stalking about, looking as stilly and awkward as so many young ostriches, for months after the cockerels of most other breeds appear nearly mature.

The Rural Alabamian.—Our Southern friends make the mistake of having an agricultural paper—and sometimes two—in each State. One good paper devoted to the Agriculture proper to the Gulf States, would be better than one in each State; however, that is a matter that will regulate itself. Our present business is to welcome the *Rural Alabamian*, a monthly of 40 pages, published at Mobile, Ala., at \$2 a year. Mr. C. C. Langdon, the editor, is no novice in agricultural and horticultural matters, and his first number is very creditable in both matter and manner.

Peach Grubs.—"O. W.," Newfane, N. Y. We suppose you mean the peach-borer. Borers already in the trees must be killed, by the use of a sharp knife and flexible wire for a probe. The parent insect begins to lay its eggs in June, and continues until September and sometimes October.

Cancer—The Latest Cure.—Cancer is such a terrible affliction that many sensitive persons imagine that they are visited by it, and assume that any obstinate tumor is the dreaded cancer. It is from this class of persons that the cancer-curers derive their patients and their pay. The latest dodge of these cancer chaps is now being practiced by a man in Pennsylvania. He writes to the various papers that he was cured by drinking "wild tea," and applying the grounds thereof to the cancer. Many papers have given this man the benefit of an advertisement by publishing his notice. If the editors of these papers are applied to to know what "wild tea" is, inquirers will be referred to the writer of the article.—Somebody has a "cancer cure" to sell, and takes this method of getting his advertising done, which some editors are green enough to do gratuitously. Those fearing they have or may have cancers will do well to read an article on the subject in *Hearth and Home* for Feb. 3d.

Bermuda Grass.—C. L. Huffman, Chambers Co., Texas. This grass rarely or never seeds. It is propagated by cutting the turf in small squares, scattering them over the field, and rolling. It should be put only where the pasture is intended to be permanent, as it is claimed to be impossible to eradicate it. In many parts of the South the problem is to get the grass out rather than to get it in.

The Poultry World.—This is a new poultry monthly of 12 pages, published at Hartford, Ct., at \$1 per annum. One of its editors is Mr. Stoddard, whose articles, including those upon "The Egg Farm," have frequently appeared in our columns. The first number is very neat in appearance, and gives promise of usefulness in its particular line.

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 73 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.)

Labels.—Sewall Fisher writes that he finds that chrome yellow, mixed with linseed oil, and rubbed upon wooden labels, is preferable to white lead.

Beans.—A. Walker, Randolph, Wis. The specimens sent arrived in fragments. Likely the Mottled Lima, but we are not sure.

Mr. Sargent's Butter.—It was stated in the *Ogden Farm Papers* for January, that Mr. Sargent's cows had yielded nearly \$900 each, during the year, in butter alone. He has since sent a definite statement on the subject. "Our total yield of butter for the year was 1,812 lbs.; number of cows, 10. Of these 'Anna' has not yielded one cent during the year, and supposing that the yield of two others has been consumed at the house, in milk and cream, it leaves seven butter-makers, or 253 lbs. per cow. This, at \$1.15 per lb., makes \$296.70. So, you see, my statement was not so very far out of the way. I do not consider this as good as it should be, and probably would be another year, for I have had hard luck in getting cows with calf. It has been a year of unusual drouth, to say nothing of the preceding year of drouth and heat, from which the cows have never recovered."

SUNDRY HUMBUGS.—There is a large class of swindlers, pretty widely scattered, who deal, or profess to deal, in vile books, pictures, instruments, stimulants, and the like. They now mainly locate in small country towns, where they are in less danger from the sharp city detectives. Mr. Gayler's stern course in withholding letters addressed to this class, has driven most of them from this city. (Pity he could not have an eye and hand in every P. O.) These operators secure mainly the names of young persons, though they do not all confine themselves to such customers, and send out alluring circulars describing their books, pictures, and articles. Most States have severe laws against the vendors of such literature, but they evade detection by withholding their names from the circulars, and slipping in a loose card with the address; or they carefully exclude all samples of their articles from their offices, and deal only through the mails or express, having the articles forwarded (if sent at all) from some other locality. These precautions, however, are only needed to avoid detectives, for, as a rule, those dealing with them are not likely to expose themselves by publicly prosecuting them for any awindling practiced. A majority of them pocket all the money received, and send nothing in return. We have complaints of loss of money sent by P. O. Order, and received by one calling himself M. Depan & Co., Hoboken, N. J., who advertises such things as no decent persons ought to have ordered or thought of ordering, and they deserve little sympathy in their losses. Others complain of a "Tailor & Co.," who is flooding Maryland and other States with offers of similar articles and pocketing the money sent to him. Another villainous circular, offering obscene books, prints, and articles, incloses a card of "Scott & Co., 22 Ann St., N. Y." To

those foolish and depraved enough to want and order these things, we say first, that almost invariably, your money will be coolly pocketed and nothing returned; and second, that the articles, if sent, are not as represented, and are dangerous to yourself, morally and physically. To Parents and Guardians we again say, be very careful to know what those under your care receive through the mails. Multitudes of reports come to us from parents who have found their sons (sometimes daughters, too) patronizing these vile, seductive swindlers. . . . A Wisconsin writes us that he sent \$2 to a Maine concern, on the promise of, post-paid, or express paid, a canvasser's outfit of 200 papers, samples of splendid chromos, etc., but after three letters of inquiry can get no response; that a neighbor, a lady, wrote for the same and received a box with a C. O. D. bill of \$4, and express charges of \$2.25. . . . A Salem, Mass., subscriber writes us regretting that so good a paper as the *YOUTH'S COMPANION* should not be more careful in what it admits to its advertising columns, and we join in the regrets—which extend to many other good journals. We hope the complainants will write directly to the editors of such papers, and let them plainly understand what their readers think about the matter, and what they intend to do about it if persisted in. . . . The "Queer" operators still find dupes enough to keep them going. This month we have, among others, J. P. Strang, *alias* J. D. Wolston, 16 South Fifth avenue, N. Y., who pretends to I. O. O. F. ship—and under other names circulates the "Spanish Policy" humbug circulars; Noah Judson & Co., 109 William St., N. Y., *alias* F. Drake & Co., 51 Liberty st., N. Y.; Hudson, Wood & Co., 44 Liberty st.; Jno. Hood, Jr., Wilmington, Del., whose letters are forwarded by express to 198 Broadway, N. Y., where he has his head-quarters, as a pretended collecting agent. The same man operates under the name of Amos Wainwright, 170 Broadway, N. Y., and same street and No. in Trenton, N. J., with Masonic and I. O. O. F. symbols, his letters being post-marked at N. Y. City.

PROFITABLE.—Money can be easily made by any one, old or young, with little time or attention required. How it is done will be learned by a careful reading of what is said on page 73.

Those Dob-Sleds.—"H.," Rileyville, Pa., thinks the sleds figured in the *American Agriculturist* of December last, would come to "pi" if a stone was struck when they had a heavy load on. This may seem so, but such sleds are extensively used in the great pine-ries in Wisconsin and Michigan, where the logs are much larger than the Pennsylvania logs, and are found to be strong and durable.

Washing Machines are commonly used only for the storage of articles sure to be found in every family, which are not good enough to keep, and still a little too good to throw away. They must be put somewhere, and what place so appropriate as the washing machine, which is often just the same kind of property? The Continental washing machine is not one of this kind. We have tried it, and found it to work rapidly, easily, and effectually. It is a great labor-saving machine, and it would prove a blessing in any house that is not already furnished with a good washing machine.

Do Water-Rams Waste any Water?—"J. C.," Kansas, asks if water-rams waste any water? Undoubtedly. The water elevated is raised by the power gained by the fall of a certain amount of water, depending on the height to which the water elevated is raised, and the fall from the spring. A large quantity of water is used to raise a comparatively small quantity.

Small-Fruit Notes and Queries.—"C. S.," La Porte, Ind. A single question (or two) is usually answered at once. A perfect swarm like yours must wait. We will try and condense: *Wilson's Black-berry.*—The fruit is imperfect because the flowers are sometimes incomplete. They are not "the poorest we ever tasted," but very good. Still valued at the East as a market berry. *Philadelphia Raspberry.*—If yours are of superior flavor to the Clarke, then you can not have the right Clarke, or tastes unaccountably differ. No variety in the New York market equals the Hudson River Antwerp. *Mulching Grape-Vines.*—We should not advise this except upon a very light soil. The roots of a vine need to be warm and dry. *Mulching Strawberries.*—Leave the mulch on until after the fruit is gathered; pull up such large weeds as force their way through the mulch. When the crop is off, remove the straw and cultivate. *Rogers's Hybrids.*—No. 15 is Agawam; the other numbers mentioned have not been named.

Forest-Tree Seeds.—"D. A. S.," Bellevue, O., asks about raising chestnut, sugar-maple, hickory, and white oak from seeds. Unless he can find

seeds that have been properly preserved in sand, he can do nothing next spring. Seeds that have become thoroughly dried will not germinate. The first two may be sown in drills and covered with leaf-mold, and transplanted when one or two years old. The hickory and oak are best planted where they are to grow, putting two or three seeds together, and when they have started removing all but one. They do not transplant readily.

IF.—If you persuade a neighbor to take and read a wide-awake, instructive, reliable journal, treating specially of his business, you set him to thinking, you elevate him and his family. He will experiment, and you will have the benefit of his experiments. His family will read and be more intelligent neighbors. The tone of society will improve; and your own property even will be improved in value. Every additional reader in the place will have a like tendency. Scatter annually in any neighborhood \$30 worth of good periodicals and books, on agriculture, horticulture, and domestic economy, and it will change the character of the neighborhood, and increase the intelligence and the desirableness of the place, and raise its product many hundreds of dollars in the aggregate every year. One easy, cheap way of accomplishing this is, for the people to unite, raise a club, and each receive this journal, or *Hearth and Home*, or both, and get one of the book premiums as a library for common use by all. It only needs some wide-awake, enterprising, public-spirited man or woman—young or old—to start the enterprise in each neighborhood. See premiums 94 to 106, pages 73 and 74. By a little effort any man or boy may secure quite a lot of good books for himself as a premium without money.

Coal Ashes.—"G. D. C.," Philadelphia. Coal ashes are worth so much less than wood ashes that we can not give their relative values. Coal ashes are useful on some soils, and the more wood or charcoal is used in kindling the coal the better the ashes. They are not worth carting far. We use them on roads and paths, for which, in our sandy soil, they answer a good purpose.

"Insects Sent."—"C. S.," Ind. The "insects" sent in a quill are not properly insects, but crustaceans. They are popularly known as Sow-bugs, and belong to the genus *Porcellio*. As they live upon decayed wood and other vegetable matter, it is probable that they do no injury.

Mistletoe.—R. H. Dixon, Canandaigua, N. Y. Mistletoe can not be grown from alips. The English propagate it by means of the seed, raising a sliver of bark upon the underside of a branch, and inserting a berry beneath it. We have not known the European Mistletoe, which is quite different from our native one, to be grown in this country.

"Smilax."—"J. F. F.," St. Paul, Minn. The proper name of this plant is *Myrsiphyllum*. Your want of success is doubtless due to your not having heat enough. It does best in a warm greenhouse. Your temperature, 35° to 55°, is cool.

Steaming Feed with Hot Water.—"A. C. W.," Washington Co., Md., asks, "Will it do to steam feed in a tight box, by pouring hot water on and covering until cool, where there is no steaming apparatus?" It will answer to some extent as a substitute for proper steaming, and will be found proportionately but not equally useful.

Lilac Bushes.—"A. W.," Randolph, Wis. It is the nature of Lilac bushes to spread. You may be able to keep them within a certain space by digging a trench, removing all roots outside of it, and filling up the trench with coal ashes.

Apple Orchard.—"O. W.," Newfaun. If your orchard has been manured "heavily" every year, you probably have stimulated a growth of wood at the expense of fruit. Let it rest for a few years; then use lime.

House and Garden is the title of a monthly made up from the weekly columns of the *Ohio Farmer*. Published by Gen. E. Blakelee, Cleveland, O., at 80 cents per annum.

Cabbages after Potatoes.—"J. H. G." (some-kind-of-town, can't read it), Md.—Cabbages may follow potatoes. Use a plenty of manure.

How to Use Peas most Profitably.—A "Subscriber" has two barrels of gray peas and wants to use them most profitably. We do not know of a better use than to sow them with oats and feed the crop to stock, either green or dry. It is an excellent crop for soiling, or feeding green to horses, cows, or hogs.

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 as getting as many as fifty subscribers a day. Others get one, two, or 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 claptrap about this. At least *Fourteen 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, is 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 73 and 74.

Rain at Will.—Mr. Edward Powers, a civil engineer of Chicago, finds that battles both in this country and in Europe have been followed by rain which he attributes to the effect of cannonading. He petitions Congress to allow him the use of 300 cannon with powder for the purpose of experimenting.

Ring-Bone.—"C. W. P.," W. Va., has a horse lame of ring-bone in the fore feet, and wants a cure. If of late appearance let the horse rest, feed liberally, and apply a hot bran-and-water poultice, with one drachm of camphor. Afterwards rub with an ointment of iodide of lead, one part to eight parts of lard. Continue this for two weeks. An old ring-bone is incurable, but rest will relieve the lameness.

Post-Hole Digger.—"T. S.," Greenwood, Miss., wants the best post-hole digger. Where there are no stones to interfere, the common post-auger is the best; where there are stones, the post-spoon and a crowbar to loosen the earth are the best tools.

Peach-Trees and Canker-Worms.—"J. A. H.," Roxborough, Mass.—We do not think a "little salt" would injure your peach-trees, nor do we think it will do any good; better use ashes or lime. It is doubtful if any application can be made to the soil to destroy canker-worm.

Breeding from a Young Sow.—"H. H. S. II." asks if it is wise to breed from a sow that is only five months old. Hardly. Her growth will be checked and the pigs will not be worth raising. Better wait for pigs until September next.

Size of Ox-Yokes.—"A Subscriber," Wis., gives the size of timber necessary for an ox-yoke, used in the Western prairies, viz., 8 x 12 inches. There, where heavy draft is common, a wide yoke is used and two-inch bows.

The Copper-Strip Hay-Cutter.—"W. H. P." asks if the copper-strip hay-cutter is the best. We have used it, and for a small stock think very highly of it.

Lime-Spreaders.—"S. & Co.," Bellefonte, Pa., asks who makes lime-spreaders, and if a plaster-sower, mentioned in the N. Y. Tribune, is able to do it? That plaster-sower is useless for spreading lime, however much the N. Y. Tribune may recommend it. It can only sow plaster and finely ground materials in small quantities. No plan of spreading lime is better than from a sled that will hold 25 bushels, with a long-handled shovel.

To Prevent Skippers in Hams.—"Z. D. R." keeps hams free from skippers by lying them closely in a paper sack and hanging in a dry room.

The "World" Agriculturally Considered.—We do not refer to the "Wide, Wide World," but to the newspaper of that name. It has become the custom, of late, for the daily newspapers to devote a share of their weekly editions to agricultural matters, and the agricultural departments of these papers are good or bad, according to the ability of the editors in charge of them. Persons who differ with the World in political matters, will agree that its agricultural department is not surpassed, if it is equaled, by any of its rivals. There are not so many long "original" articles as in some papers, but a great variety of original and well-selected matter, which shows much conscientious labor on the part of Mr. A. B. Crandall, who has charge of this department. Its reports of the Farmers' Club are the fullest that are given, and if one cares to know how much people can talk and say little, he can find it in the World the next morning after the Club meeting. Other dailies wait a week before they publish the Club reports, and whatever faint sparkle they may have, has subsided.

What We Sleep On, has much to do with enjoyment in and refreshment from slumber. The perfection of a bed consists in its giving support to as much as possible of the surface of the body lying upon it. A straight, unyielding surface touches few points of the curves of the person, and as these must bear the whole weight, aching limbs and restless slumber are often the result. Thick feather-beds relieve pressure, but are not healthful. We have found the woven wire-mattress meet the requirements of a good bed in the highest degree, giving the fullest support by conforming to the body, requiring only moderate covering to insure comfort, being highly elastic, cleanly, durable—in short, a great advance in the art of bed-making.

Drying up Cows.—"I. H. H.," referring to our article on "Drying up Cows" in *American Agriculturist* of December, 1871, and also to "Hints on Work" in same number, where this subject is also treated, asks which course he must take, as a seeming contradiction occurs. There is no contradiction. If I. H. H. wishes to improve his stock in milking capacity, let him follow the course pointed out in the first-mentioned article; if he desires to follow the "old plan," under ordinary circumstances, he will follow that in "Hints upon Work." Another correspondent, "W. A.," indorses fully the course indicated in the article entitled as above. It is certain that improvement may be made in our dairy stock, and we have indicated one way in which it may be begun.

How to make a Heifer Fat, which refuses to eat.—"B. S.," Muncy, Pa. This is a difficult business. The appetite must be tempted. Probably cut turnips, sprinkled with salt, would be eaten, then some mill feed may be sprinkled on them. If this is not successful, give her a half-pound of Glauber salts, followed with a little powdered gentian root and tincture of iron, daily, in something she will take, until her appetite is invigorated.

Suffolk Swine.—"L. H. T." has looked in vain in the columns of the *Agriculturist* for breeders of Suffolk swine. As this is a favorite breed with many, those who have them for sale should take note.

Grubs in Cattle.—Jos. H. Moffat, Colorado, removes "warbles" (the larvae of the cattle Gad-fly) by pressing the swelling between the two thumb-nails, which discharges the grub, and the wound heals. He says, killing them by puncturing, which leaves the dead grub in the skin, causes a sore spot. If forced out in the above manner, the grubs should be destroyed.

Blood and Bone Spavin.—"Jas. D. W.," Carroll Co., Md., wants a remedy for blood and bone spavin. On page 6, *American Agriculturist*, we gave the proper treatment for blood spavin; for bone spavin firing is the only remedy that may effect a cure, but generally it is incurable. Bone spavin is an enlarged growth of the bone of the hock, which the contraction of the skin, by firing, tends to prevent. When a spavin becomes confirmed, it is best let alone.

Large Crocks for Setting Milk.—Mr. Eaton, of Erie Co., Pa., writes to "Ogden Farm": "Your plan of setting milk in deep vessels is not new among the Scotch-Irish inhabitants of Pennsylvania. We use stone crocks holding one gallon each. We have a spring house; set our crocks in spring-water. They are flaring, about one foot across on top, can be bought for from 12½c. to 15c. apiece, will last a great many years if not broken, are easily cleaned, and will not rust in water like tin. We gather our cream in a stone jar, from three or four cows; save about a quart of strippings at a milking, which we strain in a crock by itself, and leave it until the next milking to cool, when it is poured in

with the cream. I may state also that many of our neighbors who have no spring-house use the same kind of crocks to set their milk in their cellars."—This plan we have long been familiar with. It is very different from the "deep-can" system, where even 10 or 15 gallons may be set in one vessel if ice-water is used for the bath. Metal has a decided advantage over earthenware, in the greater ease with which it transmits heat, allowing the milk to cool more rapidly—a very important point.

Hen-Lice.—B. Drake, Lexington, Ky., recommends as a preventive and cure for lice on poultry, a dry sand bath, given in a box 4 feet square and 6 inches deep. Another correspondent, "T. T. F.," says dry, slaked lime is effectual when dusted over the house, nests, and roosts.

Comparative Value of Roots.—"C. S.," Laporte, Ind., asks the value of carrots and white turnips as compared with potatoes at 65 cents per bushel, for feeding to cows or hogs. Carrots ought to be worth 40 cents and white turnips 30 cents per bushel, but at these prices neither could be fed with economy unless hay and corn or other grain should be excessively dear.

Fleas.—"O. E.," Montour Co., Pa., thinks that the abundance of fleas in some localities is due to allowing the hogs to run at large, and that the remedy is to keep the swine shut up and supplied with clean litter.

How to get an Old, Poor Field into Clover.—W. J. Thorn, Juno, Tenn., has an old field, soil red clay, which has no lime in it, and is covered with broom-sedge; he wants to know how to apply lime to get it into clover. After the field is plowed apply 25 bushels of lime per acre, harrow it in, sow a peck of clover seed, and brush it in with a brush harrow.

Black Leg—Anthrax or Splenic Fever.—"A Correspondent" describes the symptoms of a disease affecting the cattle in the neighborhood of Winchester (Va.?). Swellings appear on various parts of the body, which are soft and appear full of blood and water, and on pressure give forth a gurgling sound; after death decomposition is very rapid. The liver is full of green blisters, the gall bladder is filled with bile.—This disease is Anthrax, or splenic fever. Causes, bad food, musty fodder, exposure to swamp exhalations, or impure drinking water. Treatment: Good stables must be provided, dry bedding, pure water, nutritious food, and the prompt separation of sick from healthy animals. Sulphate of soda (Glauber salts) may be administered, and if the animal is not weak, bleeding has been recommended. If the animal is weak, stimulants, such as camphor, whisky, and carbonate of ammonia, are to be administered. The tumors may be opened, and washed with carbolic acid, dissolved in twenty parts of water.

Plants Named.—The following was crowded out by press of matter, but, though late, we publish it to clear our files. Those whose plants are not enumerated, will understand that their specimens were not in proper condition for determination. H. T. Yates, Glencoe, Miss. *Helenium tenrifolium*, or Sneezeweed, a common weed in low lands, at the South. J. B. Fairfield, Hickman Co., Ky. No. 1. *Hibiscus Trionum*, or Bladder Ketmia; No. 3. Some species of *Malva*; No. 5. *Cleome pumgens*; No. 8. *Amarantus paniculatus*, one of the red-leaved Amaranths. The other specimens are too poor to be determined. Lewis Horning, Montgomery Co., Pa. The plant sent is probably a species of *Lycopus*, or Water Horehound. It usually grows in a damp and poorly cultivated soil, and is easily eradicated by good cultivation. J. B. Briggs, Russellville, Ky. *Iysanthus gratioloides*, or False Pimpernel. As this plant is an annual, there is no difficulty in eradicating it, if the meadow is mowed often enough to prevent its seeding. "W. L. W.," Charlestown, Ohio. *Eunymus radicans variegatus*, a very pretty greenhouse and house plant, does well in the open ground during the summer. P. H. Adams, Florence, Texas. *Hibiscus Trionum*. L. F. Tapp, Liberty, Mo. *Christum lanceolatum*, or Common Thistle, and not the Canada Thistle, as you suppose. The Canada Thistle was figured in the *Agriculturist* for 1863. The plant sent is a biennial; its seeds are furnished with down, and they are scattered over a large extent of country by means of the wind. To destroy them, do not allow them to run to seed, and cultivate the land thoroughly. "Chemist," New York City. The plant you call "Ripple Grass" is probably *Plantago lanceolata*, and is quite common everywhere. "M. E. F.," Waltham, Mass. *Euphrasia officinalis*, or Eyebright—a very pretty flower, found upon the White Mountains and northward. "J. B. F.," Clinton, Ky.—No. 1. *Cleome pumgens*. A very pretty, free, flowering annual, with showy, purple flowers, which change to white as they grow old. Further South it is found growing wild. No. 2. *Amarantus panicula-*

lus, has green flowers, slightly tinged with red, of no particular beauty as a flower. No. 3 is the old Bouncing Bet, *Saponaria officinalis*, which is so common around old houses. No. 4. *Hibiscus Trionum*, or Bladder Ketmia, a low-growing annual, with bright, yellow flowers and a blackish eye in the center; it is very pretty in cultivation, but the flower soon drops, whence it has been called "Flower-of-an-hour." No. 5. *Tradescantia Virginica*, or Spiderwort, often cultivated at the North, but a native of the Southern States; it has beautiful blue flowers, which grow in dense clusters, and which open early in the spring. No. 6. *Ansonia salicifolia*. A branching perennial, with small, blue flowers, of no especial beauty. No. 7. *Leptopoda brachypoda*, a coarse growing composite, with yellow flowers.... "J. G. P.," Piqua, O. *Artemisia caudata*, or Slender Wormwood; a biennial with pretty, finely divided leaves, and small, yellowish flowers.... "G. L. C." *Gentiana crinita*, a very pretty plant with blue flowers, opening late in the fall; commonly known as Fringed Gentian.... "Mrs. J. T. W.," Minneapolis, Minn. *Malva crissa*, or Curled Mallow; an annual with small and insignificant flowers in the axils of the leaves.... "W. M. H.," Fairfield, N. Y. *Sicyos angulatus*, One-seeded Star Cucumber; a weed, with fruit covered with prickly bristles.... "M. R. A.," York Co., Me. No. 1. *Smilax herbacea*, Carrion Flower; a climbing prickly vine, which bears black berries. It is called Carrion Flower from the bad odor of its flowers. No. 2. *Trientalis Americana*, or Star Flower; one of the prettiest and most delicate wild-flowers we have at the North. No. 3. *Lysimachia thysiflora*, or Loosestrife; a perennial bearing a spike of light, yellow flowers.... "N. S. W.," Blakeville, N. H. *Goodyera pubescens*, or Rattlesnake Plantain; a member of the beautiful Orchid family.... "E. E. F." No State given. *Kerria Japonica*, or Japan Globe Flower. Described in *American Agriculturist* for February, 1871.... "W. S.," Logan, O. *Gentiana Andrewsii*, or Closed Gentian.... "A. S. M. A.," Franklin Co., Pa. *Soya hispida*; a pea-like native of the East Indies, the seeds of which are used in preparing a kind of sauce.... "M. W.," Lancaster Co., Pa. *Sedum ternatum*. Three-leaved Stone Crop; an old garden plant, but, like all members of this genus, very difficult to destroy when once established.... "F. S.," St. Joseph, Minn. *Medicago maculata*, Spotted Medick.... "Mrs. W. B.," New Haven, Mich. A species of *Tradescantia*, and not the *Myrsiphyllum asparagoides*; a very rapid-growing vine for covering mounds, etc.... "Subscriber," Canaan, Me. *Crassula coccinea*; a thick-leaved plant with beautiful pink flowers, common in greenhouse cultivation.... "R. C. H.," Kingston, N. C. *Quamoclit coccinea*, an annual climber, with beautiful, small, light scarlet flowers. "Miss R. C. McF.," Newton Co., Texas. *Dioscorea villosa*, Wild Yam; a high-climbing vine with handsome leaves, and small, greenish-yellow flowers.... "M. W.," Lancaster Co., Pa. No. 1. *Lilium Philadelphicum*, or Orange Red Lily; an erect, bell-shaped flower, quite common in many parts of the United States. No. 2. *Eriogonum bellidifolium*, or Robin's Plantain; a troublesome weed in grass lands, where very abundant.... "E. A. G.," Willsborough, N. Y. *Solanum Dulcamara*, or Bittersweet; has small, red berries and purple flowers, sometimes cultivated for its handsome berries.

Hand-Thrashing Machine.—"Connecticut" asks if the hand-thrashing machines are to be classed in the "sundry humbugs," that they are no more heard of. Probably not. Still the days of hand labor on farms are run out, and band machines of all sorts are too slow and too laborious to suit the times.

East Tennessee as a Sheep Country.—C. L. Kellog, Braden's Knob, E. Tenn., has been two years on the table-lands of the Cumberland mountains, and finds it very healthy and well adapted for sheep raising. Peaches and chestnuts are plenty, the soil good, and all vegetables and grasses thrive abundantly. Thirty families from the Northern States comprise the settlement. Lands are very cheap and a railroad is soon to pass through the district.

Foul in the Foot.—"F. P.," Pa., has had his cows troubled with sore feet between the hoofs for more than a year, and wants a remedy. Washing with soap and water and applying sulphur ointment, and feeding a table-spoonful of sulphur in salt twice a week, will probably cure this.

The Best Stable Floor.—"F. E.," Salem, Ct., wants an economical and durable stable floor. Chestnut plank would make a very poor floor, being too soft. Oak plank is cheap and durable. A good, cheap, lasting floor may be made by paving with cobble-stones and pounding a mixture of coal-tar and gravel or coal-ashes firmly between the stones. Rats will not penetrate it, and the horses' feet will not cut it up. Coal-tar is very cheap, and one barrel is enough for an ordinary stable.

How to Raise Ducks.—"J. M.," St. Michaels, Md., writes that he and many of his neighbors have found duck-raising extremely profitable, and one of the number has, in fact, made a small fortune at the business. He says the best way is to set ducks' eggs under hens, and commence incubation not earlier than the first of April, and stop not later than June 1st, and claims that ducklings from eggs set later than the latter date can seldom be reared.

Will Hens Lay Half the Year?—"D. B. S.," Brooklyn, N. Y., asks this question. Ordinarily they will not. In some instances they will lay eight or nine months of the twelve. There is much variation, depending on breed and management. It is not wise to base calculations on the remarkable yield of an occasional flock, published far and wide, for the very reason that it is remarkable. Some fowls will lay twelve dozen apiece yearly, but seven or eight dozen is a fair yield. Now, it will be seen that there can be but few instances of fowls laying daily, or two days out of three, during about one hundred and eighty days in a year.

His Apple-Tree.—W. Hayden, Stringer, Kansas. Tent-caterpillars' eggs is what's the matter. Cut off and burn all you can find.

Cions—Grafting.—"J. H. L.," Hancock Co., Ohio. Choose short-jointed, well-ripened wood; "water shoots" are not usually of this character. Grafting wax can be made hard or soft by the use of more or less linseed oil or lard.

Wheat and Chess.—Joseph Weaver, Wayne Co., Ind. Your view of the occurrence of chess is said to be the result of "searching." We can not accept it without specimens to prove it. We know perfectly well that wheat makes secondary roots, but we do not know that the primary roots will, as you claim, produce chess. Let us have proof.

What to do with a Scabby Pig.—"H. S.," has two pigs four months old, of the same litter and kept in the same pen. One thrives well; the other, in spite of repeated washings, gets scabby, or scabby, and appears tight in the skin and poor. "What," he asks, "would you do to set him to rights?"—We have no faith in physicising pigs, but would suggest giving him a table-spoonful of a mixture of sulphur and saltpeter every other day in his food. Add carbolic acid to the water in which he is washed—an ounce to a gallon.

Proper Temperature for Scalding Hogs.—"K.," wants to know how hot water should be to scald a hog just right. A few degrees below boiling heat is best. It is not well to scald too much.

The Value of Charcoal Dust.—"A Subscriber," Camden, S. C., asks the best mode of using charcoal dust as manure. It is of little use directly otherwise than as an absorbent. We at one time burned a large quantity for the ashes, which were more valuable than the charcoal.

Composting Rotten Wood, Leaves, etc., with Liquid Manure.—"B.," Vegetable matter must be kept moist or it will not ferment and rot. The liquids should, therefore, be thrown over the pile, and, if the ammonia escapes, sods or earth may be thrown upon the heap. Pine-wood ashes contain so little potash that they would not injure a compost heap.

Sowing Clover-Seed on Wheat.—"G. A. B.," Prince Edward Co., Va., wants information about sowing clover-seed on wheat, and of laying down permanent pasture. Clover may be sown early in spring, on the last snow, which on melting carries the seed down into the soil; or later, by sowing on the soil when the ground is sufficiently dry to bear a harrow, and harrowing the wheat with a Thomas smoothing harrow, which covers the clover and benefits the wheat. Timothy may be sown at the same time as the clover; quantity, one peck of each.

Disease in Cattle.—"A Subscriber," Charlemont (no State), has some cattle suffering from a complaint which appears as sores, or raw places, mostly on the legs, which heal over, leaving bare spots. This is owing, doubtless, to low condition. Give good food, shelter, and pure water; also salt, in which some sulphur is mixed, for them to lick.

Mexican Ever-bearing Strawberry.—Who can tell us how the Mexican Ever-bearing Strawberry behaved itself during the year 1871? Will some of those pomological gentlemen who allowed their names to be used in its behalf, and those wise editors

who directly charged or mildly insinuated that we knew nothing about the subject, have the kindness to take the witness-stand? We received more abuse for opposition to this strawberry, and from persons of whom we had a right to expect better things, than ever fell to our lot before. We do not retort upon these gentlemen, but merely ask, How about that Mexican Ever-bearing Strawberry?

North Pacific Railroad.—Parties settling on the lands granted to the North Pacific Railroad Company along their line now constructing, can have the priority in purchasing their locations when the lands are brought into the market, and have their improvements thus secured to them. An immense territory of fertile lands is opened to settlement by this road.

Peanuts.—"E. R. P.," The crop requires good land and should form part of a rotation. We have no space now, but will try to give an article in season.

Stuffing Animals.—"J. W.," Billings, N. Y. The proper method of stuffing a quadruped can only be learned by practice. Careful measurements are to be taken of all the parts, and the size and natural position accurately preserved. The limbs and neck are strengthened by wires. Hemp, bran, and fine grass are used for stuffing, according to the size of the specimen. The skin is first poisoned with arsenic. Maynard's Naturalist's Guide is the best work on the subject. Price \$2.00.

Agave Virginica.—In an article in November last we expressed our doubts whether this plant would live after flowering. Mr. J. Williams, of Verona, Miss., writes that it flowers from year to year. We find that our plant has produced buds for another year.

Colorado Potato-Bug.—Some one asked through our columns, some months ago, if the Potato-Bug had, in its Eastern progress, left Colorado. Several have written to inform us that in Colorado it "still waves," but perhaps less troublesome last season than in previous years.

China-trees for a Hedge.—F. A. Looney, Bosque Co., Texas. By China-tree we suppose you mean what is commonly known in Texas as the "Wild China"—*Sopindus marginatus*. We have never heard of its being used as a hedge plant, and as it has no thorns we should not think it would make a very effective barrier. The late Mr. Affleck, who paid much attention to hedging in Texas, gave decided preference to the Cherokee Rose. The Pyracanth Thorn is also very useful. Almost any tree or shrub will make an ornamental hedge if kept properly cut back.

Raisins.—"T. L. N.," Winslow, La. The finest raisins are grapes merely dried in the sun. The Muscatel raisins have the stalk of the bunch partly cut through and are dried upon the vine, the leaves being removed to allow of full exposure. Commoner kinds are dried upon lines and afterwards dipped into a lye to which salt and oil are added. The effect of this is to give the raisins a brown, varnished appearance and to cause the exudation of sugar, seen on common raisins. Grapes that contain sugar enough will be gradually converted into raisins in an airy room, if not packed too closely.

Red-Root.—"C. S.," La Porte, Ind. We believe that the plant called Red-root by "Walks and Talks," is *Lithospermum arvense*, though we could never get him to send us a specimen. It is a most unfortunate name, as the weed is but a local one, while the widely-spread *Amaranthus retroflexus* is known as Red-root throughout the Western States. The common name of *Lithospermum* in England is Gromwell, and as we probably received the plant from there, we ought to take the name with it.

The Period of Incubation.—"B.," Ashland, Va., is positive that a hen of his hatched thirteen chickens from eggs that had been in process of incubation but fourteen days, instead of the normal period of twenty-one days. We would not question his veracity while disbelieving the account. Some person may have stolen the original eggs before they were spoiled, and substituted others that had been set upon for a week. Any reasonable theory whatever is preferable to one that involves a repeal or suspension of nature's laws.

Poultry Books.—"X.," no post-office given, asks us to name the best works on poultry. Our advertising columns afford a sufficient answer. A very modest but sound and reliable book is entitled Saunders's Domestic Poultry, and another, written by a gentleman who stands at the head in English poultry literature, is called Wright's Practical Poultry-Keeper. Both for sale at this office. The *Agriculturist* gives each month prac-

tical information concerning the management of fowls, and is in constant communication with some of the most extensive breeders in the country.

Degrees of Frost.—"J. W. F.," asks what is meant by ten or any other number of degrees of frost. We never heard any but an Englishman make use of the term, and it means the number of degrees below the freezing point. Ten degrees of frost would be 22°.

Citron.—"F. W. M.," Sacramento, Cal. The citron of commerce is the candied rind of a fruit resembling the lemon, but it is much larger and the rind very thick in proportion to the pulp. It will grow wherever the lemon and orange can be raised. The citron that "grows upon a vine" is a kind of watermelon, and can not be made into a substitute for the real thing.

Apples and Pears on Wet Land.—F. A. Looney, Texas. If your land can not be drained plant your trees upon the surface, put soil enough upon the roots to hold them in place, and then plow furrows towards the trees upon both sides. This will leave the trees upon ridges with trenches between the rows.

Mailing Seeds.—"C. S.," La Porte, Ind. If you wrote the labels upon the seeds, the postmaster might, by a very strict construction of the law, collect letter postage. A liberal view is generally taken of the law, and written labels are allowed by almost all postmasters. The label is regarded as a part of the seed.

Grafting.—"Subscriber," Dover, Del. The chestnut is very difficult to graft in the ordinary way. Success is most likely to follow grafting below the surface of the ground, as this would keep the cion and stock from drying. Peaches are seldom grafted; the wounds exude gum and are very difficult to heal.

Grafting Mineral Fertilizer.—This puzzles us. From the chemical analysis we should judge it to be nearly inert. Still those who have tried it, among them persons for whom we have respect, say that it is useful. Science and practice seem to be at variance in this case, and we allow it to be advertised with the distinct understanding that the analysis shall be given.

Minnesota and its Productions.

We lately inspected samples of grains and roots—potatoes, carrots, beets, turnips, and kohlrabi, with cabbages of enormous size, cranberries, and some fair-looking apples, all the product of the extreme northern part of Minnesota. Heretofore that country has had the character of being snow and ice-bound for the greater part of the year, and it seems to have been one of the special offices of the great railroad which is now constructing through our North-west territory, to remove from our minds the impression of the sterility of these vast tracts of land. Certainly the immense size of the roots and the plumpness of the wheat, barley, and oats, brought from near the western shores of Lake Superior, remove all doubts as to the agricultural capabilities of this part of Minnesota. Minnesota is but a young State, as yet; still with her fertile soil and enterprising population, aided by the various railroads now crossing her territory, and her very salubrious climate, she has made an excellent position among her sister States, which every year doubtless see improved.

Bee Notes for February.—By M. Quinby.

Hives that are out-doors should be raised when a warm day loosens them from the bottom, to see if the mice are nibbling the combs or destroying the bees, and all droppings swept off. Mice, if busy, should be trapped. Let such hives as are to have their location changed, be moved now, before the bees fly out. Give plenty of room between the hives—ten feet, if convenient, is none too much. Have a separate stand and roof for each hive. Bees are moved in a sleigh better than in any other way. Wagons with elliptical springs are next best. If bees are to be confined to the hive more than twenty-four hours, put over wire-cloth, instead of muslin. Shade the hives in bright sunny days, when there is a light snow on the ground. When it has thawed sufficiently to bear the weight of a bee, let them fly.

Bees that are housed should not be confined to the hive and removed to a distance, without first being set out on a warm day and allowed to fly. Those out-doors can be moved at any time. In purchasing bees, look out for foul brood, and be careful not to bring it into a neighborhood that is exempt from the disease. It is contagious and spreads rapidly. In twenty years we have learned nothing

new concerning this trouble. What I then said about it has only been confirmed, and what was recommended has been successful, with us at least. We rid ourselves of it by destroying the contents of every affected hive. Our near neighbors have not brought in any from abroad, and we expect to remain free from it until they do. Movable combs will allow close inspection of every comb. When every neighborhood is sufficiently informed, and will reject every diseased stock, foul brood will be among the things only heard of. Those expecting to make the most from their bees, must make themselves acquainted with the mel-extractor, its advantages, use, etc., and find another great advantage in the movable combs. Study the subject—Bee Culture—now, before work occupies the entire attention. The field for discoveries is extensive, and to a great extent unexplored.—[Mr. Quinby's "Mysteries of Bee-Keeping" still continues to be the standard work. See Book List.—Ed.]

Books Noticed.

Proceedings of the Pennsylvania Fruit-Growers' Society, 1871. A volume of less than 100 pages, but contains more than much larger reports often do. An address by President Hoopes, a paper on Pear Culture, by Mr. Satterthwaite, and one upon Insects Injurious to the Apple, by Mr. Rathvon, are among its contents.

Treatise on Ventilation. Comprising Seven Lectures, delivered before the Franklin Institute, Philadelphia, by Lewis W. Leeds. New York: John Wiley & Sons. This seems to be a thorough discussion of a most important subject and is copiously illustrated.

Smithsonian Report. The Annual Report of the Board of Regents of the Smithsonian Institution for 1869, with the moderation that becomes books printed at the Government office, has just reached us. The scientific papers attached to the report appear to be more than usually interesting.

American Home-Book of In-door Games, Amusements, and Occupations. By Mrs. Caroline L. Smith (Aunt Carrie). Illustrated. Boston: Lee & Shepard. This is, with one exception, a capital work for young people. It is full of games, new and old. The book would have been much better if the stuff about the Toilet, which is worse than useless, and the matter relating to sick-rooms, had been omitted.

Fireside Science. A Series of Popular Scientific Essays upon Subjects connected with Every-day Life. By James R. Nichols. New York: Hurd & Houghton.

The New York Observer Year-Book for 1872. Sidney E. Morse & Co., New York. \$1.

Independent Sixth Reader. By J. Madison Watson. New York: A. S. Barnes & Co. \$1.50. This seems to be a very judicious selection from the writings of authors from Shakespeare down to Greeley.

The Department of Agriculture—Report for 1871.

Mr. Capron resigned his position as Commissioner of Agriculture, to take office under the government of Japan, and Mr. Frederick Watts, of Pennsylvania, was appointed successor, and assumed the duties of Commissioner in August last. All that we know about Mr. Watts is, that he is highly esteemed in his own locality, as an excellent citizen and a good farmer; that he is over seventy years of age, and that he was President of the Board of Trustees of that much mismanaged institution, the Agricultural College of Pennsylvania. The appointment having been made and confirmed, nothing is to be said upon its fitness. The public acts of the officer and the official documents emanating from him are proper subjects of notice and criticism by the agricultural press.

In his first report Mr. Commissioner Watts labors under two difficulties: he has nothing to say, and he takes 14 pages to say it in. We do not often meet with so much commonplace, even in government reports.

Upon page 4 of the Report we find the following:

"It will be remembered, that by the act of the 2d of July, 1862, Congress donated to the States public lands to 'provide colleges for the benefit of agriculture and the mechanic arts.' This was a new and important era, and may be said to mark the beginning of scientific knowledge as it pertains to agriculture."

If this language means anything, it means that previous to the year 1862 there was no "scientific knowledge as it pertains to agriculture," but that this knowledge had its beginning in that year. Later in the report, the Commissioner, in speaking of the works in the Department library, says, "Many of them are not accessible in any other library in the country." It must have been from some of these remarkable books that the Commissioner

obtained this remarkable information in regard to "scientific knowledge as it pertains to agriculture."

Those who read only accessible books, suppose that Davy, Berzelius, Liebig, Boussingault, Way, Johnstone, Voelcker, Lawes, Gilbert, Pugh, and a host of others, long before 1862 contributed something to "scientific knowledge as it pertains to agriculture." But the head of our Department of Agriculture says differently, and he ought to know. We are informed that the various literary colleges spoil farmers' sons, while the agricultural colleges turn them out good boys, willing to stay upon their fathers' farms. Neither of these propositions is sufficiently established to make it safe to assert it in an official report. Detraction of "universities, colleges, and schools" seems to be a hobby with Mr. Watts. He was "down on them" in 1864, and is after them again in 1871.

In the report of the Board of Trustees of the Agricultural College of Pennsylvania to the Legislature, for the year 1864, and signed by Frederick Watts, President, we find Mr. Watts's views, and that they are unchanged in 1871, is shown in his report as Commissioner:

PRESIDENT WATTS IN 1864.

"The individual members of the Board of Trustees have labored assiduously for several years to establish a school, where an education may be obtained which will qualify farmers' sons intelligently to pursue their fathers' business. They have been influenced by the belief that this object can not be attained at any of the literary colleges of our State; that the knowledge and habits which they impart disqualify youth for such pursuits, and thereby defeat the object of the parent, and add nothing to the interests of agriculture. Our experience teaches us, that a farmer's son, graduated in such an institution, finds no place, ever after, in the domestic circle of his family; he is actually driven, by his education, into the necessity of resorting to some neighboring town, in pursuit of a learned profession, where he soon forms habits of idleness and intemperance; and the result is, that the father not only loses the expenses of his education, but the son himself."

Warmed-over dinners are often necessary and tolerable, but are not we entitled to something better than warmed-over reports?

We have not time to notice the Commissioner's peculiar views concerning Agricultural Colleges; but we think it will be long before they send the results of their experiments to Washington to be worked up, as he suggests they do.

The Commissioner thinks that the Annual Volume should not be published, in which we can only in part agree with him. In the main, the Annual Reports for the past few years have been creditable and useful, and if the Commissioner's suggestion that they be placed on sale at cost be adopted, the objection of free book distribution at Government expense would be removed. But the Commissioner proposes to run opposition to the agricultural journals by means of his monthly reports. In referring to the foreign journals received at the Department he says: "They furnish the results of the very latest investigations in entomology, botany, agricultural geology, and microscopy, as well as experiments in agriculture, which could be abridged and published in the monthly reports of the Department before they could be reproduced by the agricultural journals of the country." How do our brethren of the press like this?

The seed business is to be continued in its objectionable features, and, instead of pints and quarts, bushels and half-bushels of grains are recommended. We are in favor of a properly managed distribution of seeds. New varieties, not yet in commerce, may be obtained by the Department and distributed, but we do object—and so does every right-thinking man—to furnishing to Members of Congress, at public expense, innumerable packages of seeds with which to court favor with their constituents. These seed packages are a thorough fraud; they contain the seeds sold everywhere, of the commonest sorts. It is a flagrant injustice to the seedsmen, and no one can tell why Government should interfere with their business any more than with that of the druggist or grocer. If we

are to have a general free seed distribution, let us have one also of family pills and spices. Let us also have the hoes, and rakes, and all other implements necessary to cultivate the plants sent by mail with the seeds. The "Tabular Statement" of seeds sent out includes under "Cereals," 113 varieties of vegetables and 54 varieties of flowers. In the same table, under "Textiles," we have peanuts. We once knew a pompous man who spoke of a potato as an excellent condiment, but it takes an official report to call a peanut a textile. We might show up more of the weaknesses of this weak report, but we leave it with a feeling of melancholy that the official representative of American agriculture should make so poor a showing. We have no high hopes for the Department of Agriculture under its present administration. We await in patience further developments. It may be that one who makes a weak report with his pen may prove a good executive officer. One of these days the farmers will make themselves felt; then the Department of Agriculture will be quite different from what it ever has been.

Maple-Sugar Item.

BY W. I. CHAMBERLAIN, HUDSON, O.

Last spring, in painting a lot of new covers for sabbuckets, it occurred to me to make one side red and the other white. The object is this: in gathering sap where the trees are close together, and of course not in rows, it often puzzles a man to tell which trees he has visited. It is harder still, if two or three men gather to one team, or when you have to go and empty the barrels, or when night suspends the work unfinished until the next morning. The best local memory needs some help. Now, if when tapping you place all the covers red side up, for instance, and at the first gathering turn each cover white side up when you take the sap from its bucket, there never will be any uncertainty. You never will need run to a tree the second time, nor miss one. You can tell ten rods off, by the color of the cover, whether there is sap in the pail. Each gathering will change the color of all the covers. If one does not wish the expense of painting and painting both sides, a simple "dab" of red paint one side will answer the purpose. One stroke of the brush will do. Still, the covers ought to be planed and painted on both sides, to keep them from soaking water, and from warping in the sun; and they can just as easily be painted different colors on different sides. They ought to be turned over, too, at each gathering, or they will warp in time, even if painted. So this device makes no extra expense or work, and saves many steps and much leaving of sap. It is not patented, but saves more labor and loss than many devices that are. The more it is used by sugar-makers, the better I shall like it.

Another improvement I have lately made. Instead of the barrels for gathering sap, as given in the article and engraving (*Agriculturist*, Feb., 1870), I have a cask, six feet long and about 30 inches in diameter. It holds four barrels, and this full on a light stone-boat sled makes sufficient load for a team on bare ground. It tapers slightly towards the front end of the sled, so that when the top is level, the sap will drain completely from the bottom of the hind end. Here is a large iron faucet, and a tin conductor runs the sap down the side-hill into the store-troughs. This saves the time and labor of rolling the barrels up over the troughs to empty, and keeps all dirt and mud from falling into them from the outside of the barrels. With these improvements and the apparatus and methods described in the articles in February and March, 1870, and February, 1871, a man can make first-class syrup, rain or shine, cold or hot, through the entire season, and sell even that made late in the season at \$1.50 per gallon, when ordinary syrup will hardly bring \$1.00.

Sending Poultry to Exhibitions.

It has been customary in this country to send fowls and other poultry to the fairs in the same coops or cages in which they were to be displayed. Exhibitors have been expected to provide their own exhibition coops, and personally to attend to the wants of their poultry. Happily, we are now on the eve of a great change in this respect. The old system was fraught with danger to the poultry, and with both inconvenience and unnecessary expense. Before speaking of a better plan, we allude to some of these disadvantages. (1.) If the coops look well, are well made and strong, they will be quite costly. (2.) They will be liable to be broken and otherwise damaged by the careless handling of expressmen, railroad men, and car-

men. (3.) Unless they are lined with cambric muslin, the fowls are liable to be handled, poked at with sticks, and to have their feathers pulled

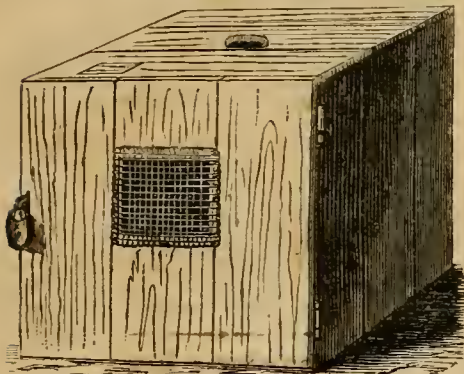


Fig. 1.—BOX FOR TRANSPORTING POULTRY.

out, etc., by mischievous boys or men. (4.) The poultry are in a constant state of excitement, seeing everything that goes on. (5.) They feel every draft, and are chilled by the constantly changing air. (6.) The coops are far too large for traveling boxes, and as they are carelessly tossed about, the fowls are thrown or

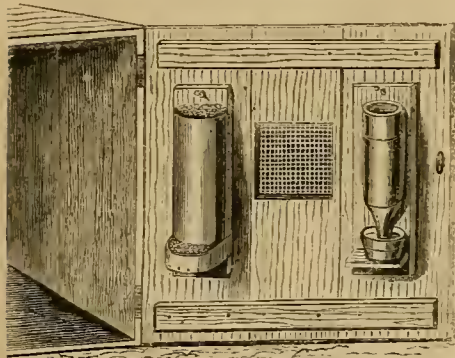


Fig. 2.—INSIDE OF BOX.

slide from one side to another, breaking their feathers, if not getting bruised. (7.) A large percentage usually arrives sick with colds, and the roup is almost sure to follow colds taken in this way. Colds pass into roup most rapidly and imperceptibly; especially if there be a roup fowl within a moderate distance. (8.)



Fig. 3.—HASP.

The coops of different breeders are recognized by persons familiar with our poultry shows quicker than the fowls, which effectually prevents that ignorance on the part of the judges as to the exhibitors which is considered so important. These are by no means all, but they are the principal disadvantages of the old system.

The N. Y. State Poultry Society, according to the prize schedule, rules, etc., before us, does much to abolish all this by providing exhibition coops, and not permitting exhibitors to use their own. This does away with the last objection (No. 8), and a very serious one it is. As for the other seven, the individual exhibitors are responsible for them; being no longer required to bring their own show-coops, they may place their poultry for the journey in as comfortable boxes or hampers as they please.



Fig. 4.

We describe some which are within the means of everybody. First, fig. 1 is a cubical box which, if intended for large Asiatic fowls, should be about 20 inches every way. The material may be five eighths to three quarters

inch spruce, larch, or pine, if lightness is a requisite, and it should be planed on the inside, and put together as close as possible. One entire side of the box is a door; in the door is a 5 by 5 window, covered by woven wire, nailed on upon the outside. Upon the door the feed and water holders are attached, as seen in fig. 2, so that the light from the window will fall full upon the water and the grain. In the middle of the top a hand-hole is cut of sufficient size to admit the fingers of a large man's hand. The door may be hung upon a pair of common butts, and the simplest and best fastening is made by taking a piece of stiff loop-iron and punching three holes in it, as shown in fig. 3. This is attached by "clout nails" or screws to the side of the box in such a way that the end containing the hole at the left hand will project through the door a little way from the edge; this hole is supposed to be large enough to receive a padlock.

The water-holder (fig. 4) is simply a common junk-bottle, inverted into a small tin-cup, and held suspended by wires, so that its mouth will not touch the bottom of the cup; both the cup and the bottle being attached to a piece of board which may be fastened by two screws in its place upon the door. There is little or no danger of the bottle breaking from frost, if a sound bottle is selected, the form of which is slightly conical. The water may freeze solid in such a bottle, provided it is inverted, and it will not break.

The feed-box (fig. 5) is made by taking a piece of board, 5 inches wide by 12 long, nailing a piece 3 inches wide, having the front corners rounded off, upon it at right angles, about an inch from one end; and then, first taking a sheet of tin, 9 inches long and 8 inches wide in the clear, that is, after allowing for the lap sufficient to nail in, say half an inch on each side, tack it upon the sides of the board, beginning half an inch from the top. It will form an arch or half-cylinder, extending to within an inch of the little board at the base, around which bottom tack a piece of tin, the upper edge of which has been turned over, extending a little higher than the bottom of the half-cylinder. This will hold



Fig. 5.

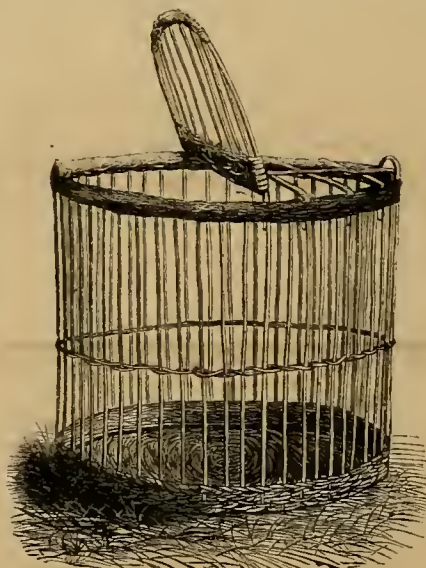


Fig. 6.—POULTRY HAMPER.

corn enough for a trio of well-fed fowls for three days upon a journey.

When the fowls are transported, the floor

should be covered with dried earth and clean straw, the birds well fed, sponged and cleaned, put in dry, and locked up. If care is taken in the construction to leave no slivers or rough edges of tin, ends of wire, or screw-heads, the feathers will not be harmed; the birds will be quiet, they will not catch cold, nor freeze their combs or feet in severe weather, and so all the objections from 1 to 7 may be avoided by this simple traveling box.

Fig. 6 represents a common hamper of willow-ware, easily made by any one familiar with the first principles of basket-making. When used for transporting fowls, it should be lined on the top and sides with cotton cloth, tacked in with strong thread. The water and feed vessels may be easily attached to the sides.

Fig. 7 is inserted as a suggestion. It represents one of the large baskets made for the use of paper-box manufacturers. It would be very easy to place in cross-pieces resting upon those strands which are woven in to strengthen the sides in the middle, and to lay upon these cross-pieces a movable floor made of thin wood or wicker-work, dividing thus the basket into two stories. Each of the stories might again be divided into two or three compartments by

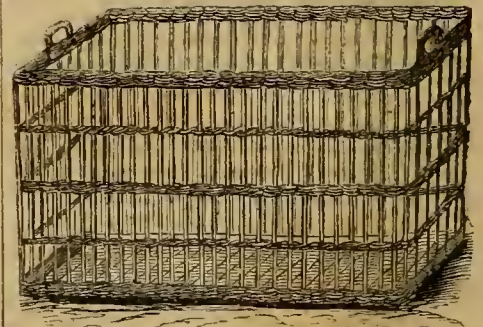


Fig. 7.—PAPER-BOX-MAKERS' BASKET.

partitions of sacking or of strong cotton stuff, which should be carried also around the outside. With plenty of straw, feed, and water, several trios might thus be sent by express at a cost not exceeding that required to send one or two in exhibition coops.

Ogden Farm Papers.—No. 25.

When my autumn work was well advanced, and I could spare a little time away from home, I indulged in that most profitable of all pastimes for a farmer—a little foreign travel. Without much thought of "agriculture," only bent on having a good time, I went to visit some friends in Montreal, with an eye to the cheap clothing and French Catholic oddities for which that charming old town is noted. My friends thought to entertain me by showing me some of the farms in the neighborhood of the city. Not to seem rude, I made no objection, but I went, with some indifference, to see what the colonial agriculture was like. I came back a wiser man than I went, and, if the truth must be known, a sadder one; for I must frankly confess that I saw among the British settlers of Canada better farming than I had hitherto supposed to exist in America.

I might fill several columns with general observations as to the farming of Mr. Sheldon Stephens, Mr. Shedden, and other worthy examples, but I believe it will be more useful to my readers if I describe somewhat in detail a single instance of good agriculture, which seemed to be more strikingly suggestive than the others for an av-

erage American farmer, because it is an instance in which a laboring man, by the aid of the best processes, has worked out his own success without the aid of the large capital that, for our purposes, vitiates the experiment in so many instances of the more conspicuous farming in Canada as well as elsewhere.

The case to which I refer is that of Thomas Irving, the tenant of Logan's Farm, on the high ground immediately north of the city of Montreal. I was so much struck with his success as a farmer—I trust I shall not offend my patriotic readers by saying that he is a better farmer than I have seen elsewhere—that I have taken pains to investigate, so far as I could, the causes of his success; causes which may all be summed up in the one expression, Thoroughly good and faithful high farming. He came to Canada a healthy, stalwart young Scotch plowman in 1848, with his trade for his fortune. He soon became the manager of the farm, and in 1860 he commenced to carry it on on his own account as tenant. From that time until now he has had, so far as I could learn, no special advantage that any honest, industrious, thrifty, and intelligent laborer can not always command. That is, he was trusted by his landlord, and was given facilities for carrying on his business in a profitable way, even before he became, as he is now, a rich man. How rich he is, what rent he pays for his farm, what profit he makes year after year, I had no means of learning, nor would I have a right to report it if I knew. I did learn that he is an entirely satisfactory tenant, and that he is considered, even among the larger farmers of Canada, as more than "forehanded." The impression I received was that he has probably accumulated more money than falls to the lot of one farmer in a hundred thousand in the United States, and the only source of income that he has ever had has been the savings of his own wages while he was laborer or foreman, and his legitimate profits as a farmer since he became a tenant.

The exact amount of land under plow and in grass is 240 acres. Of this, 124 acres was last year in grass, and 116 acres under the following crops: Wheat, 20; barley, 10; oats, 40; corn, 3; horse-beans, 2; flax, 1; potatoes, 30; carrots, 3; mangolds, 4; turnips, 3. The grain-crops had not been thrashed at the time of my visit, but there had been stored 8,000 bushels of potatoes (besides 5 acres sold green in August), 2,400 bushels of carrots, 4,200 bushels of mangolds, and 2,100 bushels of turnips. The season for the latter was unfavorable. The stock on the farm consists of 15 horses and colts, 31 head of the choicest bred Ayrshire cattle, 20 Leicester sheep, and 15 swine. Of the horses, 11 are enormous thorough-bred Clydesdales, weighing some 1,500 pounds each. Three teams are kept for farm-work, and one for market. *The number of hands employed the year through is eight.* In spring, hay-time, and harvest, these are increased as the work may require, sometimes to twenty hands, including women.

Mr. Irving has imported on his own account five Clydesdales—three stallions and two mares; two Ayrshire bulls, "Robbie Burns" and "Lord Douglass;" and several heifers.

Being a good business man, Mr. Irving is a large exhibitor at agricultural shows, and he gave me a list of premiums taken at Kingston and Quebec in 1871. At Kingston he took seven first prizes on live-stock (including the herd premium for Ayrshires), and ten other premiums. At Quebec he took thirteen first premiums, and eleven others. He was also a large prize-taker at the Montreal Horticultural

Show. It is by no means to be understood that he is such an exceptional farmer in Canada that all these honors befell him as a matter of course. There are plenty of others as good as he, and the competition has always been so sharp as to give a real value to the prizes. Neither have I mentioned his case so particularly because it is a very unusual one in Canada; only because it is the one that seems to carry the plainest lesson for American farmers. Here is a man, brought up in the most laborious walks of his profession, full of practical shrewdness and dearly-bought experimental knowledge, who, on a farm of 240 acres—acres that are for five months of every year buried under the snow—keeps a much larger force of men and teams than any purely practical farmer in the United States with whom I am acquainted would dream of doing, who studies his *North British Agriculturist* as though he had never heard book-farming laughed at, and who devotes his money and time and skill and energy to working out in his own business every suggestion he receives, from whatever source, that commends itself to his judgment as worth trying. If ever there was a "book farmer" and a "high farmer," Mr. Irving is one; yet his fields, and his barns, and his stables, and his root-cellars, and—if the stories that are told of him are true—his "stocking-heel" especially, all mark him as a more thoroughly practical farmer, and a much more successful one, than we are accustomed here to see. I went more than once to his farm, and endeavored to find what "secret" might underlie all this success. For all that I could see, it is only the old, old secret of a good business well followed. The land is not very rich, and it lies so flat that, being heavy, it has all to be worked in narrow "lands" to keep it dry.

It is more a Scotch farm than an American one. Scotch horses, Scotch harness, Scotch plows, and Scotch plowmen turn the furrows with a precision and uniformity for which the farmers of North Britain have always been noted; and all of the details of the business, in the fields and about the buildings, had to me a very foreign look. There was everywhere the evidence of a large capital being employed, and of far greater attention being given to a workmanlike completeness of all farming operations, that is at least unusual with us. It was really a source of regret with me that I was not so situated that I could commence my farming life over again, and learn the art in so systematic a school.

The crops are all good, and uniformly good, but none of them very remarkable, except for the absence of very poor yields; the average is very high, because there are no poor crops to reduce it. The animals are well chosen, well bred, well cared for, and bountifully fed. The home-made manure is abundant, and purchased manure is easily accessible. If I were farming in Canada, on a similar soil and in a similar location, I should be glad to do as well as Mr. Irving does; yet I fail to see anything, either in the location or in the soil, any better than I have at home. It is true that labor costs him only half as much as it costs me, but the same products would bring nearly twice as much with me as with him. My buildings are as good as his, and I have as good facilities for obtaining manure. In applying his measure to my own results, I see no recourse but frankly to confess that he is a very much better farmer than I am. My only consolation is a conviction that if ever I shall become as good a farmer as he is, my success will be as great. Consequently, all that I saw and what I have tried to de-

tail for the benefit of my readers is entirely applicable to the circumstances of us all; and it is a not inappropriate end of my reflections to think that the best way "To Keep the Boys on the Farm" would be to have them realize that well-regulated and skillfully managed farming is here shown to possess every advantage that they can hope to gain from professions which are erroneously considered to be more learned, more worthy of an intelligent mind, and more profitable than good farming.

I came home from Canada late in November to find the winter closed in, in dead earnest, a month earlier than usual, and the work we are accustomed to leave in our moderate climate for December, all thrown at sixes and sevens. We have had a hard time in sowing some crops that we ordinarily gather at our leisure, after others, farther from the sea-shore, have gone into winter quarters. However, thanks to our facilities for steaming food, we have commenced our winter diet without much checking of our yield of butter, which, even in the coldest weather, did not fall below sixty pounds per week; and is now, as the cattle are eating their winter rations more eagerly, increasing week by week.

I have arranged to have my cows come in as far as possible in April and May, but some of them are always out of time, and three have calved since August. Two others are due in January, and although these are all young ones, and the better cows are fast going dry, I hope that copious feeding will enable us to keep up our full product.

I have found less trouble than I anticipated in curing my corn-fodder. It was bound in large stooks in the field, and we took pains to keep it up until winter feeding commenced. Then, in hauling in, we always took first that which stood the least securely and was in danger of being injured; never hauling in more than five loads at a time; but this quantity, stored ten feet deep in the mow, has shown no tendency to heat. At this writing (Christmas) we have a month's supply still standing in the field, where it has withstood many storms of snow and rain without the least injury, keeping in perfect condition.

This corn was cut when in full bloom, much of it ten feet high, and when the stalks were so hard that as green fodder only the leaves and tops were eaten. Now, the rind seems to have been softened in curing, the pith is almost as sweet as sugar-cane, and the cattle eat it greedily to the butts when it is given to them whole. Cut and steamed with bran, they eat it to the last particle, licking their mangers clean. For a month past they have had no hay whatever (as its price is inordinately high) only corn-stalks and cured oats cut up together as the basis of the steamed food. They were never in better condition.

An Egg Farm.

BY H. H. STODDARD.—Tenth Article.

When poultry are kept upon a large scale they can obtain but few insects, for the latter are attracted and supported by vegetation, of which there is next to none near the adult fowls, though care is taken to rear a part of the chickens among growing crops. The ample grounds around each station house, and the areas inclosed by the yards for sitters and for breeders, give space to secure cleanliness and

exercise, but that is all. As far as affording insect-foraging is concerned, a paved court in a

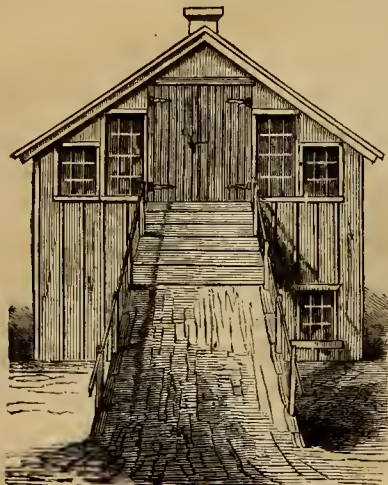


Fig. 1.—SOUTH ELEVATION.

city, or a continuous rock, would be about as good. Ground room out of doors, upon our farm, whether inclosed in yards or not, is solely for air, sun, and exercise. These secured, it matters not whether there is more or less space, so long as there are no insects to be procured. We hear much about the number of fowls proper to an acre of ground; some say 50, and others 100; but in order to give a 100 good forage they should have the range of no less than 4 or 5 acres, containing grass and a variety of other crops. Now, if we give up as impracticable, as we must, pasturage of this sort, and afford nothing but a field entirely bald, save for a few patches of clover and such other vegetables as may be plucked when young and tender by the birds, under such circumstances one acre is as good as four. We go further, and say that 15 or 20 rods of ground, and the grain for the fowls buried to induce exercise, will answer the purpose better than an acre without such an artificial provision of natural conditions. But the feed, which must be all brought to the fowls, costs in money if purchased, or in labor if raised upon the cultivated part of the farm. In fowl-keeping upon a small scale, where one flock has for a range as large a portion of a farm swarming with insects as they choose to travel over, food is obtained for nothing. The food for fowls is more expensive than that of any other live stock in proportion to the value of the animals themselves, necessitating economy in its choice. There are many things "good for" fowls, but we must use principally

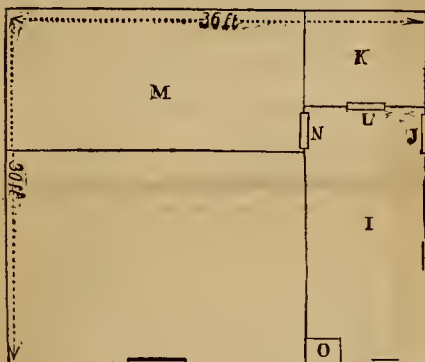


Fig. 3.—GROUND PLAN.

those only which supply all the needful nutritive elements, and are at the same time the cheapest.

There are three classes of articles in which the natural and indispensable diet of fowls con-

sists; grains or seeds, green plants, and insects. Corn and wheat-shorts should be the main reliance to fill the first division; boiled potatoes and raw cabbage in winter, and newly-mown grass in summer, are the most suitable vegetables, and chandlers' scraps and butchers' waste, procured fresh, are the most economical animal food, excepting near the coast, where clams and various sorts of fish can be obtained at a trifling cost. While depending mostly upon the above, because they are the best and cheapest, a great many other things must be given occasionally for the sake of variety, such as oats and buckwheat, both ground; rye; barley; wheat; brewers' grains; various vegetables, such as carrots, beets, and yellow turnips, boiled and thickened with corn-meal or wheat-bran; raw onions, chopped fine; and for animal food sometimes young calves may be obtained from milkmen at a low price, and the carcasses boiled and fed. It must be an invariable rule to give every bird, whether young chicken, layer, sitter, or fattening for the table, a portion in each of the three divisions—grain, fresh vegetable, and animal food—every day in the year. It has been asserted by some that there is no

The south elevation of the granary and cooking-house, fig. 1, shows the manner of making a "side-hill barn" on nearly level ground, the object being to drive the wagon containing dry earth to as high a point in the building as possible. The drive-way is made of masonry and earth, excepting near the building, where a wooden bridge is substituted. A corresponding drive-way at the north end, shown in fig. 2, enables the team to pass out without backing. The dotted lines in figure 2 indicate the floors *A A*, which follow the inclination of the drive-ways till the level space *B* is gained at the center, where is a trap *C*, through which the earth falls into a hopper-shaped chamber, as mentioned in our third article. For filling the corners there are additional trap-doors at *D D*. This chamber or bin slopes at the bottom, the position of a part of which is shown by the dotted lines *E E*, which converge at the point *F*, where is a slide-door, through which the contents are discharged to be carried to the stations, the wagon being backed for the latter purpose through the doors *G G*. West of the room, where the dry earth is discharged into the wagon, is a bin for potatoes, etc., built of

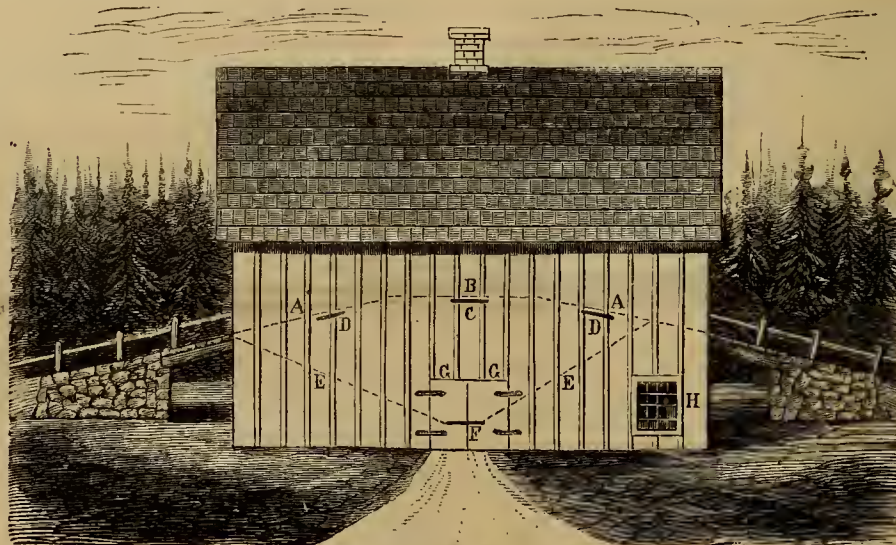


Fig. 2.—EAST SIDE OF GRANARY AND COOKING-HOUSE.

substitute that can fill the place of insects for poultry. We say that beef and mutton are as much better, as oats are better than grass for horses of which much work is demanded. A partridge or a wild jungle fowl can produce her normal number of eggs from forest fare, but not such quantities as are laid by a White Leghorn or Houdan. Two thirds of the grain fed must be ground. The natural mill of a fowl's gizzard, containing hard gravel for mill-stones, is capable of grinding all sorts of grain perfectly, but at too great an expense of muscular exertion which, though involuntary, is severe, and employs force that had better be used for growing eggs or flesh. One half of the feed for both grown birds and chickens is cooked, because more easily digested, and because less is needed. We should cook it all only for the fact that a part raw is preferred by the fowls.

The building which contains the cook-room must also store the grain and vegetables where they will be handy, and dry earth is kept at the same place, because in connection with other apartments a receptacle may be most economically constructed, which shall admit of labor-saving in the unloading and reloading of so heavy an article.

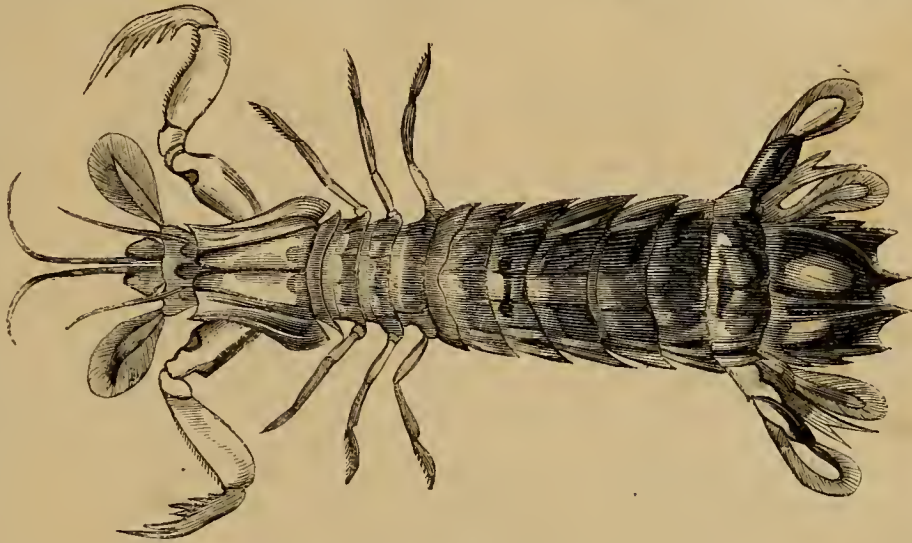
thick stone walls, to prevent freezing. This bin is filled from above by driving a load of roots to the floor *B*, and allowing them to slide down an inclined plane. The cook-room, with which the window *H* communicates, occupies the north part of the lower story of which fig. 3 gives a ground plan. *I*, cook-room with its outside (north) door *J*. *K*, grain-bin entered at the door *L*. The root-bin is at *M*, and entered at the door *N*. The cook-room is used in winter as a place in which to dress fowls, and contains also a work-bench with tools. The cooking apparatus is at *O*. There is no chimney proper, but only a chimney-top supported by strong timbers near the peak. A brick flue rises from *O* perpendicularly as far as the eaves, terminated by an ordinary stove-pipe, which conducts the smoke to a large drum in the upper room, and from thence to the chimney-top. In this way the garret is warmed to accommodate in February a few of the early chickens. The south wall of this nursery apartment is well glazed—see fig. 1. Enough late fall chickens of the half-blood sitting variety are raised to tenant it during December and January. The dimensions of the building are 36 by 30 feet, with 18 foot posts.

Venus's Flower-Basket.

The beautiful object represented in the engraving was some years ago only known in rare collections, and it was a long time before its real nature was ascertained. To ordinary inspection, it appears like an exceedingly ingenious arrangement of spunglass, its fibers being, like that, brittle and transparent. Few would suspect it to be a product of the sea, and much less a sponge, or rather the framework or skeleton, so to speak, of a sponge. For a long time it was a matter of doubt whether sponges should be considered as animals or vegetables, but now their animal nature is well established. Sponges belong to the division of Zoöphytes, which includes so many obscure forms of

animal life. The living part of the sponge we seldom see; it is a gelatinous substance, which is supported and strengthened in several ways. The common sponge of commerce is the fibrous-horny skeleton of certain species of what are called horny sponges, the gelatinous portion having been removed in preparing it for market. In other sponges the gelatinous body is supported by spiculæ of lime of various forms. Others, again, have a skeleton of pure siliceous—the same material as quartz or flint; to this last class the Venus's Flower-basket belongs. Sponges may be multiplied by division; if cut in two the parts will grow, and each form a perfect sponge. Their usual way of propagation is by budding. Gemmules or buds sprout from the body of the sponge, and are finally detached; these young sponges are able to swim about by means of vibratory hairs, or ciliæ, and when they find a suitable place they attach themselves and commence to grow, never moving afterwards. The form of the Venus's Flower-basket is shown in the engraving, which is photographed from a specimen belonging to one of our associates. It is generally about a foot long, and two inches wide at the top. It is usually somewhat curved, and has been compared in shape to a cornucopia. In growing it stands as shown in the engraving. At the base the glassy threads are separate, and include sand and other extraneous matter, showing that the sponge was anchored at the bottom of the sea by this portion. From below the middle to the top there arise from the surface elegant ridges or "flounees," as they might be termed, arranged diagonally with the squares of the network of the body. They are of the same material as the rest of the structure, and appear to be for the purpose of strengthening it. The top of the "basket" is covered by a network of glassy threads, crossing in various directions, but leaving numerous openings,

so that it looks somewhat like the cover of a pepper-box. When we examine the body of the structure with the unassisted eye, we see bundles of glassy threads, running longitudinally about an eighth or three sixteenths of



MANTIS CRAB.—(*Squilla empusa*.)

an inch apart. These threads are crossed by similar horizontal ones, dividing the whole surface into more or less regular squares. Then smaller threads cross these square meshes at the corners, giving the whole—to compare a de-

given to show the structure more clearly. The individual threads appear precisely like spunglass, and like that can be bent to a certain degree. A chemical examination shows them to be pure siliceous. Moderately magnified, the threads are seen to be variously branched, the branches forming junctions with those from other threads. After exposure to heat, the threads when examined by a high power are found to consist of concentric layers, one deposited over another. Although the individual threads are transparent the structure that is formed from them is not so. In this, as with spunglass, the action upon light is such that transparency is lost, and the whole has a delicate satiny luster. The first specimens were brought from the Philippine Islands, but it is now said to be found in other localities, and it is occasionally offered for sale by dealers in curiosities. We believe that naturalists have not yet had the opportunity of examining this interesting sponge in its complete state. The scientific name is *Euplectella speciosa*. The generic name, Euplectella, is from the Greek words, meaning *well*, and *to plait*.

The Squillas or Mantis Crabs.

A rather rare member of the family of Crustaceans (to which the crab and lobster belong) was brought to us not long ago by a gentleman who lives upon the coast of Long Island. It is so curious in its structure that we give an engraving of the animal. At first sight it resembles a small lobster, four or six inches long, but differs from it in a number of important points. There are seven pairs of true feet. The first pair, as in the lobster, are much larger than the others, and serve the animal in seizing its food. The first lower joint is curiously bent back upon the next one, giving these legs much the appearance of those of the insect known as the Praying Mantis, on which account this animal and its relatives are called Mantis Crabs. The next three pairs of legs are much smaller, and with the first pair are placed close around the mouth of the animal, and beneath a broad loose shield, which in the drawing conceals them. There are three more pairs of true legs upon the joints of the thorax. Along the abdomen are five pairs of false feet, and near the tail are several strong paddles. One of the most curious things about these Mantis Crabs is, that, unlike the majority of crustaceans, its gills are not placed within the cavity of the body, but are attached to the appendages or false feet, under the abdomen, so that these crabs may be said to breathe through their feet! The animal being drawn as seen from above, these appendages are not shown, being completely hidden by the abdomen



VENUS'S FLOWER-BASKET.

licate structure with a coarse one—an appearance not unlike the open-work of a cane-seated chair. An enlarged portion of the network is

shown, being completely hidden by the abdomen

Walks and Talks on the Farm—No. 98.

John Johnston has just paid me another visit. He is in his eighty-first year, but is as much interested in everything pertaining to farming as ever. He is a genuine enthusiast, and has unbounded faith in underdraining, thorough cultivation, good stock, and rich manure. He approved highly of my plan of managing my manure. I have a basin in the yard gradually sloping to the center. I formerly threw all the manure into the basin and let it lie there until the following autumn. During the winter, being spread over such a wide space, each layer of manure froze as fast as it was thrown into the basin, and, consequently, little or no fermentation took place until spring. Now, instead of spreading it all over the basin, we commenced a small heap on one of the sloping sides of the basin; with a horse and cart we drew to this heap, just as winter set in, every bit of manure that could be found on the premises, and everything that would make manure. When got altogether it made a heap seven or eight feet wide, twenty feet long, and three or four feet high. We then laid plank on to the heap, and every day, as the pig-pens, cow and horse stables were cleaned out, the manure was wheeled on to the heap and shaken out and spread about. The heap soon commenced to ferment, and when the cold weather set in, although the sides and some parts of the top froze a little, the inside kept quite warm. Little chimneys formed in the heap, where the heat and steam escaped. Other parts of the heap would be covered with a thin crust of frozen manure. By taking a few forkfuls of the latter and placing them on the top of the "chimneys," they checked the escape of steam and had a tendency to distribute the heat to other parts of the heap. In this way the fermentation became more general throughout all the mass and not so violent at any one spot.

"But why be at all this trouble?"—For several reasons. First, it saves labor in the end. Two hours' work now, will save three hours' work in the spring. And three hours' work in the spring is worth more than four hours' work in the winter. So that we save half the expense of handling the manure. 2d. When manure is allowed to lie scattered about over a large surface, it is liable to have much of its value washed out by the rain. In a compact heap of this kind, the rain or snow that falls on it is not more than the manure needs to keep it moist enough for fermentation. 3d. There is as much fascination in this fermenting heap of manure as there is in having money in a savings bank. One is continually trying to add to it. Many a cart-load or wheelbarrowful of material will be deposited that would otherwise be allowed to run to waste. 4th. The manure, if turned over in February or March, will be in capital order for applying to root crops; or if your hay and straw contains weed-seeds, the manure will be in good condition to spread as a top-dressing on grass land early in the spring. This, I think, is better than keeping it in the yards all summer and then drawing it out on the grass land in September. You gain six months' or a year's time. You get a splendid growth of rick grass, and the red-root seeds will germinate next September just as well as if the manure was drawn out at that time. If the manure is drawn out early in the spring and spread out immediately, and then harrowed two or three times with Thomas's smoothing harrow, there is no danger of its imparting a rank flavor to the grass. I know from repeated trials that

when part of a pasture is top-dressed, cows and sheep will keep it much more closely cropped down than the part which has not been manured. The idea to the contrary originated from not spreading the manure evenly.

"But why ferment the manure at all? Why not draw it out fresh from the yards? Does fermentation increase the amount of plant-food in the manure?"—No. But it renders the plant-food in the manure more immediately available. It makes it more soluble. We ferment manure for the same reason that we decompose bone-dust or mineral phosphates with sulphuric acid and convert them into superphosphate, or for the same reason that we grind our corn and cook the meal. These processes add nothing to the amount of plant-food in the bones or the nutriment in the corn. They only increase its availability. So in fermenting manure. When the liquid and solid excrements from well-fed animals, with the straw necessary to absorb the liquid, are placed in a heap, fermentation sets in and soon effects very important changes in the nature and composition of the materials. The insoluble woody fiber of the straw is decomposed and converted into humic and ulmic acids. These are insoluble; and when manure consists almost wholly of straw or corn-stalks there would be little gained by fermenting it. But when there is a good proportion of manure from well-fed animals in the heap, carbonate of ammonia is formed from the nitrogenous compounds in the manure, and this ammonia unites with the humic and ulmic acids and forms humate and ulmate of ammonia. These ammoniacal salts are soluble in water—as the brown color of the drainings of a manure heap sufficiently indicate.

Properly fermented manure, therefore, of good quality, is a much more active and immediately useful fertilizer than fresh, unfermented manure. There need be no loss of ammonia from evaporation, and the manure is far less bulky and costs far less labor to draw out and spread. The only loss that is likely to occur is from leaching, and this must be specially guarded against. I have a barrel sunk down in a hole below the heap and pump back the drainings on to the heap.

Our winter wheat is in rather a precarious condition. The ground was so dry that it made very little growth, and winter set in unusually early. I put a ton of dried blood on ten acres of my wheat. There is a poor, sandy knoll in the field, out of which we have taken a great many stones. After we were through sowing the manure, we went over this knoll again, and thus gave it a double dose. Last fall we could distinctly perceive, from the darker color of the wheat, how far this extra dressing extended. The whole field was of a good color, though the growth was very small. I dug up some of the plants, and think I never saw such a great growth of roots with so little growth of top. To my view this is a very favorable indication.

Mr. Johnston says, in the fall of 1835 snow fell two feet deep on the 20th and 21st of October. It remained until near the end of December, when it thawed and all went off. On the 8th of January a great snow-storm set in. Snow fell three feet deep all over the country, and remained on the ground until the middle or end of April. Farmers were then in the habit of sowing their wheat even earlier than they do now. Mr. J. had been experimenting for some years as to the best time to sow wheat, and had found that from the 20th to the 25th of September gave the best results. And so he had sown all his wheat that year at about that time. It had made very little growth when the snow fell

on the 20th of October. Those farmers who had sown early, got a great growth in the fall, and the result was that it was smothered by the snow. Wheat was a general failure. Many farmers did not get their seed. Wheat had to be imported from England. Mr. Johnston had a good crop, averaging 36 bushels per acre. The next fall, while attending an auction sale in the neighborhood, a miller from Waterloo saw him in the crowd, and called out to him: "Scotch, Scotch! have you sold your wheat?" "No." "Have you thrashed?" "Yes." "How many bushels have you?" "I have about 1800 to sell." "What do you ask for it?" "They tell me," replied Mr. J., "that it is going to be worth \$2 per bushel. I will take that for it." Without speaking a word, the miller put his hand in his overcoat pocket and drew out a great roll of bills. "There," said he, "is a thousand dollars to bind the bargain." "It gave me," said Mr. Johnston, as he told the story, "it gave me a great lift, I can tell you."

A farmer in Virginia wants to know about our "Dog Law," and how it works. The Deacon, who is a "squire" as well as a deacon, says, the law in this county allows any person to keep one dog on the payment of 50 cents a year; if he keeps more than one, he has to pay \$1 for the second dog; for a female he must pay \$3 a year. The money so raised is kept as a fund from which to pay for sheep killed or injured by dogs. In this county the fund is increasing, the tax bringing in more money than the loss of sheep calls for. But if the dogs should attack a flock of thorough-bred sheep, it is not improbable that the fund might be used up in a single night. The law is a good one—the only difficulty is to get it enforced, and that depends a good deal on the vigilance of the neighborhood. In some other States, judging from a letter I have just received from Texas, the law might need to include other animals besides sheep. I sent two pair of choice thorough-bred pigs to Dr. Stiles and B. R. Townsend, of Austin, Texas. Mr. Townsend writes me that the pigs got there safe and they were much pleased with them; "but last evening, before midnight, one of the pigs was killed by a dog. It is needless to say," he adds, "that in common parlance I 'went for that dog.'"

A Maryland farmer writes me that he is tired of sending his grain to a mill and paying one seventh for grinding. He wants to get a cheap mill, that can be run by one horse. I presume there are such mills, but I do not happen to know of one. The only one I have is the "People's Mill," which consists of a number of vertical cast-iron plates. It grinds rapidly and well, but chokes so easily as to be practically useless. I think that if a farmer is within five or six miles of a mill, he can get his grain ground cheaper than he can grind it himself. It is not well for a farmer to try to do everything himself.

Col. Weld writes me in regard to an Essex boar, recently imported. He is about 18 months old. "Measures 4 ft. 10 in. from snout to root of tail, measured over the back. From snout to between the ears, eight to nine inches. It is rather an indefinite spot to stop at. The ears are about five inches long. I wish you would measure some of yours, and give me a chance to compare measurements."

I have just measured and weighed some of my pigs, with the following result:

"Gen. Grant," 16 months old; whole length from snout to root of tail, 5 ft. 1 in.; girth, just

back of the fore legs, 4 ft. 3½ in.; length of nose, 9 in.; weight, 307 lbs.

"Old Adam," 15½ months old; length, 5 ft. 5½ in.; girth, 4 ft. 1 in.; nose, 8 in.; weight, 285 lbs.

"Willie's Favorite," a boar pig, 4 months and 10 days old; length, 3 ft. 3 in.; girth, 2 ft. 8½ in.; nose, 7 in.; weight, 92½ lbs.

I also measured and weighed a couple of my breeding sows.

"Sunfish," the sow which took the first prize at the State Fair; length, 5 ft. 3 in.; girth, 5 ft. 4 in.; nose, 9 in.; weight, 348 lbs.

A four-year-old sow, that looks to have a far longer body than "Sunfish," was found to measure exactly the same length, or 5 ft. 3 in.; girth, 5 ft.; nose, 9 in.; weight, 391 lbs.

"Sunfish" has produced more litters of pigs than any other sow I have. She is as thin as I can keep her. Neither of these sows gets anything but coarse bran, and a short allowance at that. The two boars are merely in fair working order. They have nothing but bran, with a few peas occasionally to keep up their vigor. "Willie's Favorite" is a square, fine-boned, well-formed pig, inclined to fatten rather than to grow. There is no waste timber about him.

The Deacon claims that he has better pigs than any of mine. He had a part Chester White sow that he crossed with a thorough-bred Essex, and he had a litter of black-and-white pigs, that are certainly remarkably well formed, of good size, and almost as fine-boned as the Essex. One of my men gave the Deacon seven dollars for a pair of them when two months old. Common pigs at the time were selling at a mere nominal price; and a German who works for me had one given him for nothing. But as soon as he saw the pair bought from the Deacon, he concluded that his pig was dearer as a gift than the others were at \$3.50, and he immediately bought one from the Deacon. These are facts. And I think they prove all I have claimed. If a grade pig at weaning time is worth only one dollar more than an ordinary common pig of the same age, how much is a thorough-bred boar worth in any neighborhood where the farmers avail themselves of his service?

I do not say that the Essex is the best breed. I believe it will make comparatively little difference what breed is selected, provided the animals are pure-bred, highly refined, with small bone and offal, quiet disposition, with the hams, shoulders, and other valuable parts well developed in proportion to the rest of the body, and, above all, that the individual animal is healthy, and comes from a herd which has always received the best care and attention, and has neither in himself nor his ancestors ever been stinted in food when young. In other words, if he inherits the quality of converting all the food he eats into growth, and has not been taught by experience that he must "lay up something for a rainy day." If he has sufficient "prepotency" to impress his qualities, disposition, and characteristics on his offspring, such a pig, of whatever name or breed, can be used with great profit by any farmer who will bestow the necessary care on his stock.

Depend upon it, no discovery in science, or mechanical invention, or improvement in the breed of animals, will ever do away with the necessity of mental or physical labor. They may change the character of our work, but "in the sweat of thy face shalt thou eat bread" will

be the condition of man until the end of time. There is to-day, in this latter part of the glorious nineteenth century, as much need of care, patience, thought, energy, and perseverance, as in the darkest days of any preceding age. In fact, we probably work harder now than ever before. What, then, have we gained? It would take a far abler pen than mine to answer that question. It is perfectly clear, however, that a given amount of mental and physical labor now gives us more of the comforts, necessities, and luxuries of life than at any previous period with which we are acquainted.

But do not dream that when we get the steam-plow or any other mechanical invention, we shall have little or nothing to do. We shall need a higher class of workmen than such as can only use the spade or the plow. It has required years of patient thought and persevering endeavor to produce the steam-plow or any other valuable invention, and it will require an extra amount of intelligence to manage it. And so with improved breeds of animals. They are the result of no less energy, care, intelligence and perseverance, and they require a no less extra amount of intelligence to manage them. There are men who had better stick to the scythe and the cradle, than undertake to run a mowing-machine or a reaper; and there are farmers who had better keep only the common kind of cattle, sheep, and hogs, than to introduce improved blood into their stock.

But it is as great a loss for an intelligent farmer to keep nothing but common stock as it would be for him to stick to the flail in thrashing, or to the sickle in reaping his wheat. He is wasting his energy, skill, and intelligence. Such men as Thomas and Barry sometimes assert that it is just as easy to raise the choicest as the commonest variety of fruit. And in their grounds such is the case, for the simple reason that their usual treatment and cultivation are fully up to the requirements of the most improved sorts. For them to plant inferior varieties would be a great waste of good opportunities. But it will not do to assert that it is as easy to raise choice fruit as poor fruit. It is not true. There are many men who could raise the Choke-pear that could not raise the Sheldon. And it is equally true that there are farmers who can keep Texan or native cattle that could not keep Alderneys or Shorthorns. The aim of agricultural and horticultural writers should be, and I believe is, to elevate the general standard of management and cultivation to the point where it is "just as easy to raise good stock and good fruit, as poor stock and poor fruit." There is pleasure and profit in raising the best.

I am always pleased to hear from farmers in different sections of the country. But it is impossible for me to answer all the letters I receive; I should have to write a Cyclopaedia of Agriculture to answer some of them. I have letters from several Northern farmers who have gone South, asking how they had better proceed in renovating their farms. My plan would be to find the best and most experienced farmer in the neighborhood and ask his advice. There may be reasons for certain practices that you do not understand—such as the character of the labor, climate, soil, and market. It is not wise to attempt sweeping measures of reform at once, or on an extended scale. Feel your way. Renovating a farm is slow work at first. There is no royal road to improved agriculture. You must learn to labor and to wait. But with the right use of means the end is sure to be satisfactory. Study principles. These are the same

everywhere. It is their application only that varies. We must get rid of stagnant water, kill weeds, and develop or apply plant-food before we can get good crops of either corn, cotton, clover, grass, or wheat. This is true everywhere. The land may be of such a poor, sandy nature that it may be cheaper to buy phosphates, potash, and nitrogen, in the form of artificial manures, than to try to develop them from the soil. One farmer in the South asks me if it will pay him to apply gypsum at \$40 per ton. I think not. Superphosphate at \$50 would be far cheaper. There is a grand opportunity for some man or company, with sufficient capital, science, and honesty, to embark in the manufacture of artificial manures. Give us available phosphates, nitrogen, and potash, at the cheapest rates at which they can be produced, and hundreds of thousands of tons will be used.

I do not care for "testimonials" as to the value of this or that artificial manure. Give me the right kind of an analysis from some reliable chemist and tell me what the manure is made of, and, so far as the value of the manure is concerned, I do not care for a catalogue of testimonials from the best farmers in the world. Farmers must insist on having a guarantee of the condition and composition of the manures. Until this is done, testimonials are an impertinence.

Several farmers have written me that they intend to try white mustard. I think they will not regret it. But they must recollect that the soil must be made as mellow as possible. It will not do on rough, cloddy land. It is a renovating crop, and the soil must be thoroughly prepared for it. Plaster, ashes, superphosphate, or guano have a great effect in stimulating its growth. The crop must be fed while green and before it goes to seed. It can not be made into fodder—at least I have never heard of its being so used. It is generally fed off on the land where it grows, but I cut a good portion of mine with a reaper, and use it in the yards or on grass land as a soiling crop for cows, sheep, and pigs. If the land is in good condition, half a peck of seed, sown broadcast and harrowed in with a light harrow, is sufficient. It can be sown at any time after all danger of spring frost is past, and in this section will mature a crop, sown as late as the middle or end of July. The better way would be to sow it in succession. In the Southern States three or four crops might be grown on the same land in a season.

Brick-Making.

In brick-making the most important item is the clay. This should have a certain proportion of sand mingled with it, which, unless naturally mixed, must be supplied artificially. The clay should be of a dry, loose texture, rather than of a sticky, greasy character, and should break into fragments easily in the hands. The process of tempering reduces it to a plastic and adhesive state. This is performed in the mill, which is sometimes called a clay-mill, but more commonly a "pug"-mill, represented at figure 1. This is a cylindrical tub of planks, strongly bound with iron hoops, set upon a platform of timber. In the center of the tub is an upright shaft, armed with projecting knives or cutters. This is worked either by an arm or sweep, fixed to the top of the shaft and turned by a horse which travels round the mill, or by means of bevel wheels beneath the platform turned by a tumbling shaft from a horse-power placed on one side. The clay fed into the top of the mill

is cut and sliced by the knives, and as the flat blades are made to slope somewhat backwards the clay is gradually pressed downwards towards an opening on the platform, where it escapes ready to be molded. Generally there is water sufficient in the clay as it is fed into the mill to make it work easily. It is dug and moistened a few days previously, and this short

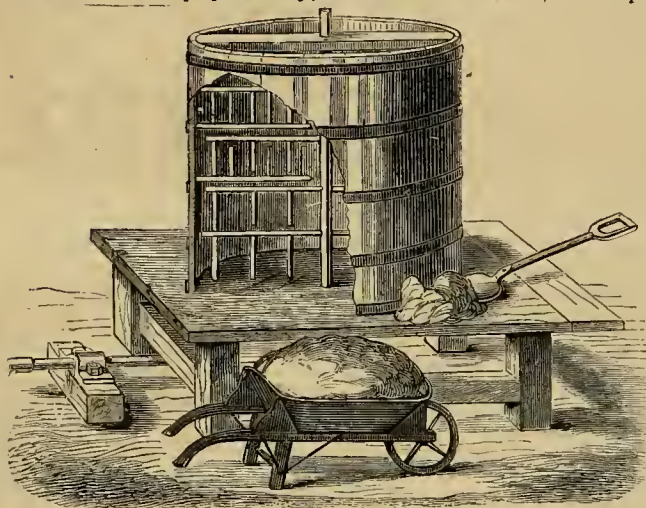


Fig. 1.—MILL FOR WORKING CLAY.

exposure very much assists in the tempering. As the soft clay comes from the mill it is taken in wheelbarrows to the molding-bench, or it might be molded at the mill if desired, if the yard is not a very large one. The barrows are dusted over with sand before the clay is put into them; it can then be dumped out without sticking. The molding is the next process. This is done very rapidly by an expert workman, seven bricks per minute being the usual quantity molded, but we have seen fourteen molded in that time. The molds are of wood. They are merely a box without top or bottom, the sides of which project about an inch beyond the ends for the purpose of lifting them up easily when filled, and are a little larger than the brick to be made, to allow for the shrinking of the clay in drying. The molds are dropped, by the boy who lays the brick on the floor, into a trough of water at the molder's right hand. He takes one from the trough, dashes a handful of sand over it, with both hands digs into the pile of clay before him, and, taking up a proper quantity, throws it into the mold with force enough to make it fill all the corners. He then presses the clay down to make it compact, scrapes off what is super-



Fig. 2.—MAKING BRICKS BY HAND.

fluous with a small, smooth stick, and pushes the mold to the boy at his left hand, who

turns it on its side and carries it in this position to the drying floor, where it is dropped out on to the smooth, hard, prepared ground to dry.

Feeding Lambs.

One of the greatest difficulties in raising early lambs, more especially with some breeds which are not naturally good mothers, is the disposition of the ewe to disown or neglect the lamb. When she has twin lambs this not seldom happens. Without great attention at yeaning time a farmer may lose some fine lambs which might easily be saved. We have experienced this ourselves and have saved many early lambs by feeding with cow's-milk. It has been said that cow's-milk is poisonous to a lamb. We never found it so, but have had very good success, even with that very tender breed, the Leicesters. The critical time with a lamb, more especially in cold weather, is the first day of its life. Often the ewe may be as good a nurse as possible, but the lamb may be weak and chilled. A mouthful of warm milk will often revive a lamb when it is not able to get up to suck. To feed a lamb that has been altogether disowned by the ewe, we used a tin can, a common kerosene-oil can (as in fig. 2), with a piece of sponge wound round the end of the spout and covered with a cotton bag, shaped like a teat, which was tied on. The milk was made warm and a little sugar dissolved in it. The teat being put in the lamb's mouth it will immediately suck eagerly, and will soon get accustomed to the strange method. When a ewe is weak and has but little milk, a few spoonfuls a day will help the lamb very much. When a ewe will not own her lamb, it is best to take her as shown in fig. 1, and with one hand hold up the wool so that the lamb can get to the teat. Let the sheep be held so that she can turn her head and smell the lamb, and if a little salt be sprinkled on it, she will commence to lick it and her unmotherly objections be soon removed. Such a ewe should be placed with her lamb in a small stall by herself. As soon as the lamb is strong enough, it will, by dint of perseverance—when the sheep can not escape—learn to help itself. In two or three days the ewe will have become friendly to it.

The sheep-pens should be visited several times a day, and the last thing at night and the

first in the morning, as soon as lambs begin to appear. The ewes should be removed a day or two previous to this event, into a pen by themselves, where more care and a little extra feed can be given them. It should be remembered that when a can or bottle is used to feed the lamb, it should be carefully rinsed with



Fig. 1.—MAKING AN EWE OWN HER LAMB.

scalding water immediately after using, lest any sourness should occur. Sour milk will kill lambs very quickly. In case diarrhea should occur from any neglect in this respect, it may be stopped at once by administering the follow-



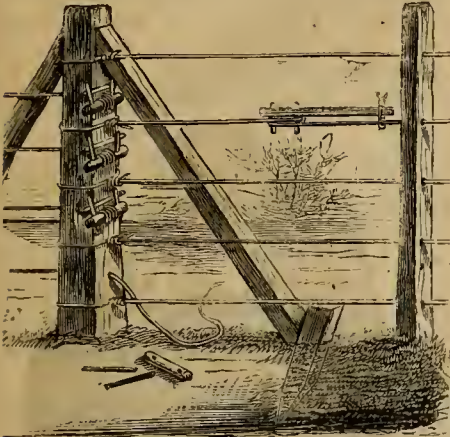
Fig. 2.—FEEDING YOUNG LAMBS.

ing cordial: One pint of peppermint water with one ounce of prepared chalk, in doses of half a teaspoonful or more, according to the age of the lamb, three times a day. It is very rarely, however, that this will be needed if care is used. It is also very important that warm, dry quarters with clean straw bedding be furnished.

Tighteners for Fence Wires.

A proper method of tightening the wires is of great advantage where wire fences are used. One of our Kansas friends sends us a sketch of a plan he uses, which we illustrate. The straining post is firmly set in the ground, and has two braces to help support the strain. The wires to be tightened pass through holes bored through the post, and are attached to small rollers, which have holes bored in the ends to receive the stakes, by which the rollers are turned and the wires wound up. As the rollers are turned by the stakes the wires are drawn up and tightened, and when a sufficient

strain is secured a stick placed between the stakes and the post prevents the roller from



METHOD OF TIGHTENING FENCE WIRES.

turning backwards, and allowing the strain to become weakened. When it is desired to slacken the wires, the stick is removed and the wires are unwound. A mode of tightening wires in common use, but which may be new to a beginner in this business, is also shown. A stout rod has two iron pins (strong hickory pins will answer) passed through one end six inches apart. The wire to be drawn up is passed between these pins, and the rod is turned around until the wire is tight enough. A loop is then passed around the end of the rod and the wire, and it is secured.

Protecting Banks of Streams.

The spring is a time when freshets often do



Fig. 1.—PROTECTING BANKS OF STREAMS.

serious damage by washing away or undermining the banks of streams. Very often a point projects into a stream which throws the current with great violence against the opposite bank,

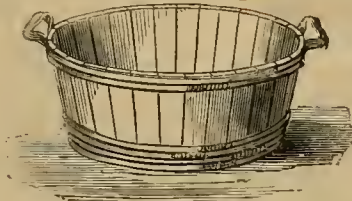


Fig. 2.—CRIB FOR PROTECTION.

and renders necessary a sufficient protection to sustain the point attacked, lest it should give way and a permanent change be made in the

bed of the stream. Very often the planting of willow-slips on such exposed banks makes a good protection, but we have seen banks and trees washed away, that might have been saved had a simple breakwater been built at the commencement. One method (shown in fig. 1) is to drive stakes into the ground, perpendicularly, at the edge of the stream, on to which planks should be spiked. A brace or two may extend backward against the bank and be pinned into the ground. The stones filled in behind will hold this brace tightly and prevent bulging outwards or pressure inwards. At the foot of the planks a few well-chosen flattish stones should be laid, over which the stream will flow, and washing of the bed will be prevented. The other method is to build up a crib with logs, or light timber, and fill it in with stone, as in figure 2. The logs should be pinned together so that the frame is tied. This should also be protected at the foot with stone. No bridge-pier should be built in a bank without such a protection as either of these on the upper side.

A BARN BASKET.—Little economies on the



BARN BASKET.

farm are worth considering. A reader sends us a description of a barn basket which costs nothing, and is as useful as one that costs a dollar. The ends of a flour barrel are cut off above the second row of hoops, and leather handles are nailed or lashed on with thongs. Here is a feed basket that is light, handy, and costs only a little labor.

Making Stone Drains.

A "Subscriber" has a piece of land which he wishes to drain; drain-tiles are not to be procured in his locality, but he has plenty of round stone: will they answer a good purpose?—It is probable that next to a tile drain, a well-made stone one is the best that can be laid. There are some rules to be observed in building them on which their permanency and efficiency depend. In making stone drains a double purpose is served; the secondary purpose, getting rid of the stone, being often quite an important one. Therefore, we can very well afford to make the drains wider than would be necessary with tiles. The first operation is to locate the drains. This should be done so that a regular fall can be had with the least digging. Then commence at the outlet and work upwards. With the level described elsewhere, there will be no difficulty in getting a proper grade, so that the stone may be laid and the drain finished as it goes along. The stone may be laid in three ways. Fig. 1 shows two stones supporting each other, and prevented from losing their position by bracing stones on top of them. Fig. 2 shows a stone in the center of the drain supporting two other stones which lean against the side of the ditch. Fig. 3 shows two stones supporting a flat one, which is laid on them. Where flat stones can be procured, this is the best mode, and we know of no reason that should prevent it from being as permanent as

the best tile drain. The writer laid a drain of this character sixteen years ago, and it is in as good condition to-day as when first made. The other two modes are subject only to injury

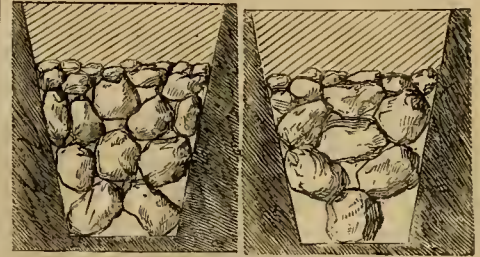


Fig. 1. STONE DRAINS. Fig. 2.

from the caving in of the sides of the drain. Where the soil is at all compact there is little danger of this, and it may be guarded against by packing the filling of the drains carefully against the walls. When the water channels are properly built, stones may be filled in to within a foot of the top, taking care that they be compactly laid and small pieces laid carefully over any holes that may be left. The earth may be then returned to the ditch, with care

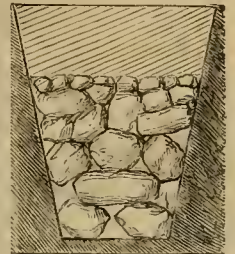


Fig. 3.—DRAIN.

that the stones are not displaced and that no earth be permitted to fall down amongst them. It is advisable to dig the drains four feet deep, two and a half feet wide at top, and twelve or fourteen inches wide at bottom. With one horse and a light plow much of the work may be done more quickly than by hand.

A Cheap Deep-Can Creamery.

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

The severely cold weather of December has added the only test necessary to convince one that the deep-can system for creaming milk is suitable not only for warm weather, but equally so in winter. We have had the thermometer

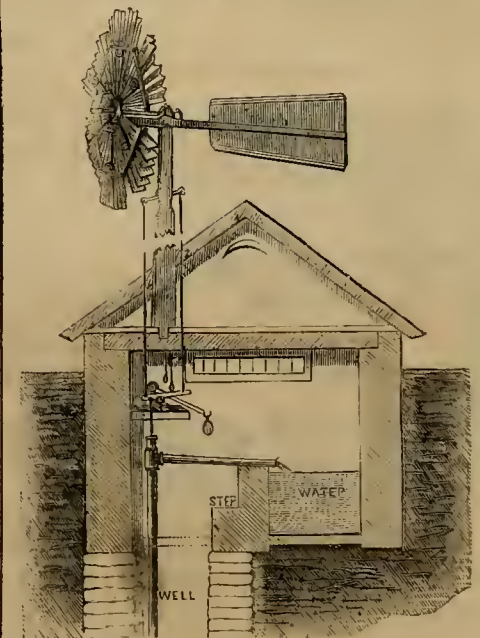


Fig. 1.—SECTION OF CREAMERY.

down to 6°, with a high wind blowing, forming a skin of ice in our water-tank—the water works having been frozen up by the sudden

cold; and even then there was no perceptible difference in the amount of cream raised, nor in the time required for it to rise.

Whenever the water is running in the tank it

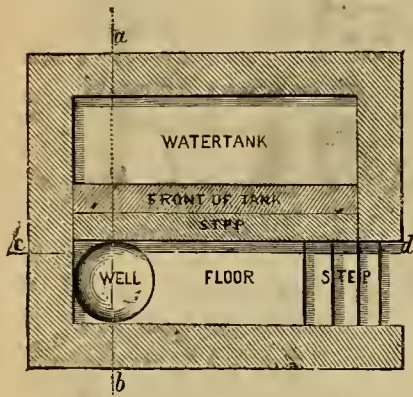


Fig. 2.—GROUND PLAN OF CREAMERY.

remains at all seasons at about the same temperature (58°), and the milk in the cans is entirely immersed in the water, the cans being covered, with only a 1½-inch hole for ventilation. The influence of the air on the very small surface of the milk is not enough to make it materially colder—even if this would be a disadvantage, which I doubt. The result is that, so far as the rising of the cream is concerned, it makes little or no difference, whether we are working in the dog-days or in the dead of winter.

Being satisfied of this fact, and having noticed that the discussion of the merits of the deep-can system is being actively agitated in the agricultural papers, I propose to say nothing more about it unless some new and noteworthy fact presents itself; but assuming that there is no question as to the advantage of the system, shall proceed to devise the best means for carrying it out under different circumstances. The plan set forth in the accompanying engravings is the one which will probably be applicable to the greatest number of cases. It is intended for level land, where water can be obtained only from wells, and where there is no fall to carry away the drainage.

Fig. 2 is the ground plan of an underground tank, some 10 feet long and 8 feet wide, the

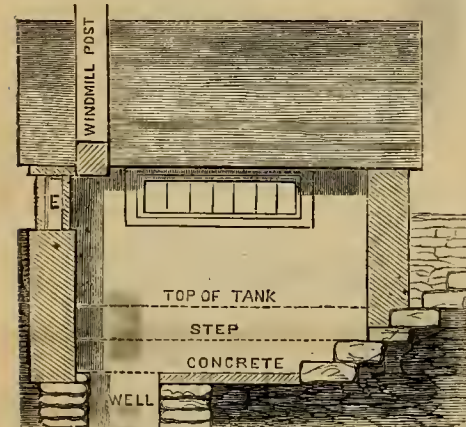


Fig. 3.—LONGITUDINAL SECTION.

water-tank at one side being 10 ft. long, 3 ft. wide, and 2½ ft. deep. This is separated from the passage way by a mason-work partition, the lower part of which is widened to form a step high enough to facilitate the handling of the cans in the tank. This tank is large enough for thirty cans 8 in. diameter and 25 in. deep. At the far end of the passage a well is dug deep enough to insure a good supply of water in the driest weather.

Fig. 3 shows a longitudinal section of the

house, with steps approaching it, windows for ventilation, etc. The window marked *e* need only be put in in cold weather. Double windows should be provided for three sides, none on the south. The door, which should be in the east end, need not be double. The ceiling should be plastered to inclose an air space under the roof—to keep out both heat and cold.

Fig. 1 shows the construction of the working parts more clearly. The building is mainly in the ground, and its walls of course must be built of stone or brick. The wind-mill (supported in a stout cross-timber) need not be large; the smallest size that is made of any good mill will answer for the work. All that is necessary is to have a slight stream running whenever the wind blows; but, of course, the more the better. This will be often enough to keep the water fresh. The water may be made to enter the tank at the end nearest the pump, and overflow at the other end, running along a gutter in the floor and back into the well. The drawings are made to a scale, and the dimensions given will indicate the other measurements.

A HALTER-KNOT.—Howard Hawes, Riverside, Ct., sends us a drawing of a knot which will not slip, and is perfectly safe for tying halters or fastenings for horses in the stable. It is one also that is very easily untied, which is not its least recommendation.



HALTER-KNOT.

We give an engraving from which the mode of making the knot may be learned. A little practice with a string will soon enable one to tie it.

Sugar-Beets for Cattle Feeding.

In October last we saw, on the farm of Mr. I. M. Mackie, at Great Barrington, Mass., a field of sugar-beets of remarkable size and uniformity. They were of a variety originally obtained from the Patent Office by the Hon. Henry Lane, of Cornwall, Vt., and by him brought by careful selection to their present perfection.

We were so much struck with the superiority of this beet that we applied to Mr. Lane for further information concerning its history. We gather the following from his letter on the subject, and from an address delivered by him before the Vermont Dairymen's Association. In 1858 he received from Washington three varieties of sugar beets. They were carefully grown, and the variety called "Imperial Sugar-Beet" was found to be much superior to the others, and to any other beet that had been seen in the region. It at once supplanted all other varieties in use among his neighbors, and it has been so much improved by Mr. Lane that he claims that it yields "with greater certainty, a greater amount of food per acre than any other root, at less cost, of better quality than the turnip, nearly as good as the carrot for young stock, and better for milk, ready to feed by the first or middle of October, and keeping sound through the winter until late in the spring." Our own observation of Mr. Mackie's crop, and his opinion of the feeding value of the root, lead us to accept Mr. Lane's estimate as a just one.

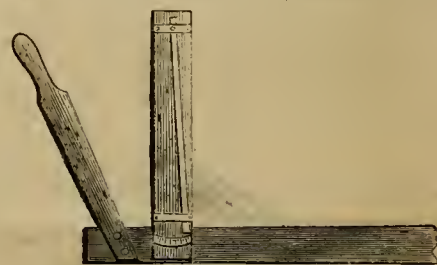
It is recommended that this beet be sown very early in the spring (if possible by the middle of

April)—as soon as the land is fit for work—on strong, heavy land, free from stagnant water. He claims that the amount of the crop is (in his latitude) just about double its amount on the first of September, and that all the growth we are able to secure by that time will be doubled between then and harvest time. Whether this idea is correct or not, there is no doubt of the profit of early sowing. The land should be rich and additional manure should be used in the drill. The drills should be 30 inches asunder, and the plants stand 18 inches apart in the row, being singled to this distance as soon as they have put forth the second pair of rough leaves. After this they are to be thoroughly worked with the horse-hoe, and once by hand, before the leaves begin to cover the ground. They will be ready for harvesting by the middle of October, and they should be well dried before being taken into the cellar or dumped on the ground.

The usual yield per acre, in Vermont, is from 28 to 32 tons, but 40 tons have been grown. Mr. Lane says, in his address: "Without going into details, I estimate the cost of labor after the manure is applied, at \$40 per acre; the use of the land and manure \$40 more, making a crop of 1,000 bushels per acre, cost 8 cents per bushel, which I think is a fair average cost." Forty tons of these beets would be equal, in feeding value, to ten tons of good hay, without allowing for their good effect on the appetite and health of the animals feeding on them.

Drain-Level.

A subscriber sends us a sketch of a drain-level, which we illustrate. It is a very useful implement, and easily constructed. It consists of a parallel-edged board, seven or eight feet long, with a **L** affixed near one end, which supports a pendulum. A scale is marked on the board at the foot of the pendulum, whereby its motions are noted. When the board is perfectly level the foot of the pendulum marks 0. When the board inclines either way it varies accordingly. A handle is fixed to the end of the level, which serves to hold it in position when in use. In case it is not wished to lay out the bottom of a ditch to a very accurate grade, the mere movement of the pendulum to the left, when looking at the scale or index, will show that the grade is downwards. But if accurate measurement is desired, it will be neces-

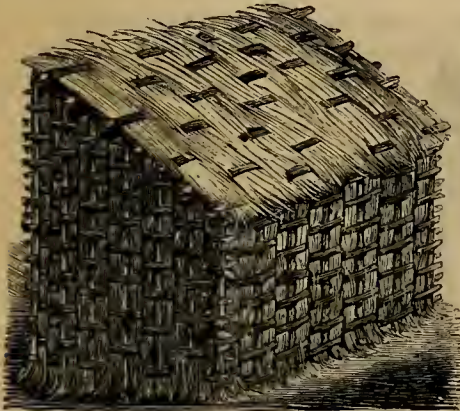


DRAIN-LEVEL.

sary to make the instrument in proportion, and mark the index carefully also with a proportionate scale. Thus, if the bottom of the level is six feet long, and the **L** two feet high, an elevation of the hinder end of the instrument of half an inch would be equal to a grade of one inch in 12 feet, or one in 144, or eight inches in 100 feet, and would cause a deviation from the perpendicular of the pendulum of one sixth of an inch; a grade of 16 inches in 100 feet would cause a deviation of one third of an inch. If such close measurement is desired the instrument will have to be carefully made. For or-

inary operations, it will only be necessary to take care that the **L** is set on quite square, and then the least movement forward of the pendulum will show the grade to be correct.

WATTLE SHELTERS.—A plan has been requested for making shelter for stock on the Western prairies, where timber is scarce and the winds are often so severe as to make some kind of protection necessary. Where small poles or brush can be cut, wattle shelters are easily built and very useful. Poles, six to eight feet long, are driven into the ground about a foot



WATTLE CATTLE-SHELTER.

apart and for such a distance in length as may be desirable; occasionally a forked pole is driven into the ground, about six or eight feet in front of this row, to sustain a roof, which is made also of poles. Small brush is woven amongst the poles and coarse swamp hay laid over the brush, the ends of the bunches of hay being wound in amongst the brush to hold it. If this is built in the shelter of some knoll, considerable protection is afforded, and with a little care a very comfortable hovel may thus be made to which stock, especially sheep, will run for shelter. If built in a semicircular shape it will be stronger, and a more complete shelter against the winds.

Can Farming Pay such Taxes?

We are not thinking, now, of the Internal Revenue tax—which so many manage to evade—nor of our "State, County, Town, and Road" taxes, which we can not avoid. These are comparatively moderate, and somehow or other they do get paid, and the world still moves on.

There is, however, another tax, though it is not called by that name, from which few of us can hope to escape, and which is entitled to the gravest consideration. It is cutting into our substance like a two-edged sword—on one side idleness, on the other extravagance. Worst of all, the sword is wielded by our own flesh and blood, by those who love us, and whom we love—by our own daughters.

The reader will please notice that we make no assertion in the heading of this article; we only ask a question. We are not, ourselves, prepared to give it a definite answer; but we think there is at least grave cause for anxiety in the habits and tastes of farmers' daughters. On our drive to town, this afternoon, we met three young women, daughters of three ordinary farmers—men who have the usual struggle to make both ends meet, and who practice the usual economies in their households and on their farms. These damsels were so dressed that at a little distance they looked like the daughters of the rich city people who board in our neighborhood,

in the summer. As they came nearer, it was plain to see that they had economized in material as much as they had squandered in form and color, and this marked a wide distance between their brighter exemplars. Yet, save as they might, there was not one of them who had not on her person—counting everything from "button-gaiters" to what Mr. Punch calls "Chig-nonsense," and hat-feathers—the value of a first-class mowing machine, with reaper attachment. If this were the end, it would not be so bad, but it is only the bad beginning. It is not the capital invested in finery that tells on our fortunes, but the awful interest in the shape of renewals. A first-class two-dollar "back-hair" we might stand, and done with it, but fashions change and back-hair wears out, and the next style is worse yet, and costs three dollars. And so it goes from the crown of the head to the soles of the feet; there is the same eternal grind that wears away clothing and finery alike. The more it cost the more must we spend in repairs; and your modern country miss, with her Harper's Bazar and Peterson's Magazine for the law and gospel of her attire, is very apt to be a sort of well-dressed mortgage-deed upon her father's farm, and to become a sort of ornamental mill-stone about the neck of the man who marries her.

Aside from all this we would call attention to the occupation of these girls. Too often we shall look in vain for the steady, cheerful industry of their mothers' times. If they work, they are half-ashamed to be seen at it, and they rarely accomplish, from one end of the year to the other, a tenth part of what they are easily capable of.

In the "good old times," when farmers were none too prosperous, when the land was richer than it now is, and when the cost of living was far less, our grandmothers and their sisters were cheaply clad, they wore their own hair, the renewal of their gear cost wonderfully little money, and they worked like little beavers. If we can trust our grandfathers' account of them, they were as sweet and attractive and as promising sweethearts as the more costly and less useful jewels of our own modern firesides.

We are not grumbling, and we are not blind to the great advantages that modern civilization offers to the young of both sexes, as compared with those who have gone before; we only express our anxiety, lest the extravagance that a perversion of our civilization has caused, end in the ruin of the hard-riden fathers.

If farming was but a moderately good business forty years ago, with the industry and economy of that time to help it, we fail to see how, with the high price of labor, the low price of produce (comparatively), and the necessity for buying manure (that is becoming so universal), the farming of the present day is going to support a houseful of girls who cost so very much more than they come to.

Spreading Manure in Winter.

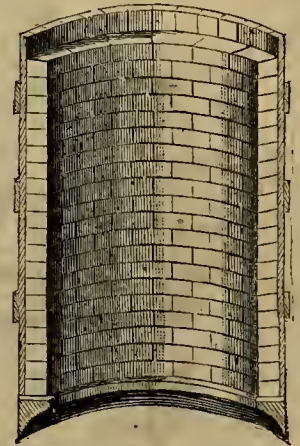
We are asked what advantage there is in spreading manure on frozen ground. It depends much upon the condition of the ground. If it is covered with grass, either a pasture or meadow, there is a great advantage in more than one respect. The surface is protected from sudden changes during winter, and the first thaw carries the manure to the roots, where it causes a vigorous growth early in the spring. If the ground is plowed for a spring crop, it is

also benefited by having the manure ready to be absorbed by the soil whenever the ground thaws; the seed, as soon as it sprouts, finds what it needs close at hand. On sod ground to be plowed for corn in the spring, the same advantages are gained as in the case of grass lands, and the manure is on the spot in time, which in a late season it might not be, for want of time or improper condition of the ground. But after all, it is far better to get the manure upon the ground before it is frozen, if possible; the earlier in the fall, the better. Winter top-dressing of grain is only a poor substitute at best for a proper and timely preparation in the fall, and rarely pays for the trouble, unless it may be in the advantage gained by the spring-sown clover.

A Curb for Digging Wells through Quicksand.

A "Correspondent" from Illinois gives his experience in digging wells to procure water for stock in a part of the State where quicksand is found twelve feet beneath the surface for a depth of several feet, and which must be passed through before water is obtained.

He has used a curb of two-inch plank, bound by iron hoops, in the shape of a large tube, a few inches narrower at top than at the bottom. This is set on a circular frame, with a sharp edge, and securely fastened to it. The frame, as shown in the engraving, is wide



CURB FOR WELL-DIGGING.

enough to carry a row of brickwork, which is built up within the curb. The bricks are laid in cement; the brickwork, of course, being laid after the curb is placed in the well, which is done as soon as the sand is reached. When the cement is quite dry the digging is resumed. As the sand is removed the curb sinks down (being smaller at the top than below, it readily does this), and the curb resists the pressure of the quicksand, which is very considerable. When solid clay or gravel is reached beneath the quicksand, water is generally found; if not, and more curbing is needed, another length is built and connected with the previous one. Thus the well-sinking is done safely and permanently.

Calks on Horses' Shoes.

During winter, when the roads and yards about a farm are often covered with ice, sharpened calks on horses' shoes are a necessity. It is absolute cruelty to do without them, not only on account of the risk of damage to the animal, but on account of the painful terror to which some horses are subject. Sometimes they may be seen trembling with fear when trying to keep a footing on smooth ice. But when horses' feet are thus armed, they become dangerous to themselves and their fellows. They should be very carefully driven, especially when turning round, and the greatest care should be taken that they



[COPYRIGHT SECURED.]

AN ICE-BOAT REGATTA.—Drawn and Engraved for the American Agriculturist.

are not allowed to get loose in the stable or to frolic in the yard. Most of the blemishes which have injured horses either for use or in value have happened at this season, and from the above causes. In case a horse should be kicked with a sharpened shoe, a deep gash is made, which should be immediately stitched with a curved surgeon's needle, making one stitch in a place, and tying the ends of the thread, and cutting them off before passing to another. If swelling occurs, bathe with cold water to reduce it before putting in the stitches. Prevention will save much needless trouble and expense.

Ice-Boats.

Ice-boat sailing is the most delightful of outdoor sports in the winter season. It combines all the excitement derived from the rapid and easy-gliding motion of skating, without the severe muscular exercise incident to that sport, with the quieter but not less agreeable pleasure of a sleigh-ride. Wrapped in warm robes and muffled in furs, one can sail with a good ice-boat and on good ice, with plenty of *sea room*, at the rate of fifty miles an hour, with no resulting fatigue to detract from the pleasure.

Poughkeepsie, N. Y., on the Hudson River, is the head-quarters of a fleet of ice-boats, which are fitted up in most exquisite style. During the present season there are boats in use built of walnut and other polished and ornamental woods, with hollow masts and spars, built expressly for lightness and strength, with nickel-plated wire rigging and mountings. With warm rugs and cushioned seats, and all other possible comforts, these boats furnish the means of the most luxurious sailing. But we have enjoyed a sail on a boat built of pine scantlings and rough seats quite as much as we could possibly enjoy one with the most costly turn-out that could be devised. If built on correct principles, and with ordinary means of comfort, the plainest boat will sail as well and as pleasantly as the most finished. An ice-boat consists of a triangular frame of wood; plank or scantlings will answer equally well. The apex of the triangle is the head of the boat, and the base the stern. The base should have a sufficient spread to resist any tendency to capsize when sailing with a beam wind—about equal to half the length is a good proportion, eight feet in a sixteen-foot boat for instance. A floor is laid on this frame, on which seats may be built to

accommodate the passengers, who may be as numerous as possible, the "more the merrier" being the general rule in loading. Beneath the frame there are three runners, one at the head, which is fixed on a swivel, so that it can be turned by the steersman, who sits at the front and guides the boat by this movable runner, and one under each corner at the stern. A mast and bowsprit are rigged in a similar manner to those of a sloop, and the sails are a jib and a main-sail, either with or without a boom, to which the sheet is attached as is usual with such sails. Some experience in managing sails is necessary before very swift sailing should be attempted, as the velocity attained is so great that an upset might be dangerous. The steersman should be cautious and experienced, as on him depends in the greatest degree the safety of the passengers. It is well to have the runners grooved or bluntly angular on the under surface, to gain a hold on the ice that will resist lateral movement. A boy's boat may be made with a small frame mounted on three boys'-sleds, the one in front is so arranged that it can be turned with the feet or with two strings, as is seen in the picture. A mast and one small sail is all that is required.

The Horned-Poppies.

Here and there in waste places, especially near the sea-coast, is found, though rarely, the Horned-Poppy, *Glaucium luteum*. It forms a large tuft of bluish-green cut leaves, and bears yellow, poppy-like flowers which are succeeded by narrow pods six to ten inches long. The shape of these pods has suggested the popular name. The plant has a yellow juice. We do not recollect to have seen this plant in cultivation, but with the present taste for striking foliage, it would no doubt be admitted. Another species, from Southern Europe, *Glaucium corniculatum*, was introduced by Olm Brothers, of Springfield, Mass., a year or two ago. We had it last year, and certainly never saw anything finer in its way. It forms a dense tuft, over a foot across, of beautifully-cut Acanthus-like leaves, which are of a most charming silver-gray color. It is highly ornamental, whether grown as single specimens or as an edging-plant to a flower-bed. With this, as with many other plants grown for the beauty of their foliage only, the flower-stalks should be cut off as soon as they appear. In its wild state it is an annual, but by preventing it from flowering it may be made biennial, as it is perfectly hardy. There is no beauty in the flowers, and if the plant is allowed to bloom it becomes irregular and ragged. When used for edging, well-established plants should be employed, and these can only be had of a proper size by starting them early in the greenhouse or hot-bed.

The Willow-leaved Amaranth.
Amaranthus salicifolius.

Each season has its horticultural sensations, and the weather can not be more certainly forecast from the admirable Government reports, than can the aspect of the horticultural horizon for 1872 be foretold by the inspection of the advertisements in the English journals for the last months of 1871. The deluge of wonderful peas, marvelous turnips, and unheard of potatoes, comes as sure as the fall rains, and then we have a sprinkling here and there of new flowers. The latest sensation is the new Amaranth, *Amaranthus salicifolius*. A literal translation would be Wil-

low-leaved Pigweed, but as we call only the coarser Amaranth Pigweeds, we will not be too literal, especially as some of the Amaranths are highly ornamental. This new plant comes from the Philippine Islands, where it was dis-

lish papers, and it has attracted great attention and received prizes at several horticultural shows. The Gardeners' Chronicle expresses doubts as to its being an Amaranthus, but we can hardly suppose that such eminent plantmen as the Messrs. Vietch would send it out with this name unless they felt sure of its correctness.

How Varieties are Improved.

Mr. Lane, of Vermont, who has been so successful with his sugar-beet culture, sends us an account of his processes. He commenced 12 years ago, selecting for seed the best six beets of those that approached nearest to the particular type he wished to produce. From the crop raised from this seed the best six were again selected; and so on until the present time, when he claims to have produced his ideal "of a good beet to raise for the dairy—a beet that for uniformity of shape, color, solidity, quality, size, and yield is not excelled by any beet or mangold that is raised in this country. . . . The largest beets raised the past season in our vicinity weighed 19 to 21 lbs." The specimens exhibited by Mr. Lane at the time of delivering his address weighed respectively 6 lbs. and 10 lbs. Grown at 18 in. x 30 in. spaces, roots averaging 6 lbs. would make a crop of nearly thirty-five tons per acre; roots averaging 10 lbs. would make fifty-eight tons per acre.

Mr. Lane has also made experiments of the same character with onions; and he thinks that instead

of trying to get better vegetables by producing new varieties, if we would improve the best old varieties, we would attain more uniformity and better quality. He thinks he can take the Peachblow potato, and by selecting a few specimens for seed the nearest

the type he wishes to produce, continuing this selection for 10 or 12 years, "produce Peachblows either round or oblong, white or peachblow in color, and uniform in either of these characteristics." The same is true of other vegetables besides roots; tomatoes and Indian corn are examples in which we can most strikingly see the good results of selection. So with flowers. By choosing for seed those speci-



WILLOW-LEAVED AMARANTH.—(*Amaranthus salicifolius.*)

covered by the late J. G. Vietch. The plant is from two to three feet high, with leaves five to seven inches in length, and one fourth of an inch wide. The graceful fountain-like habit of the plant is shown in the engraving. The color of the leaves in the young state



HORNED POPPY.—(*Glaucium corniculatum.*)

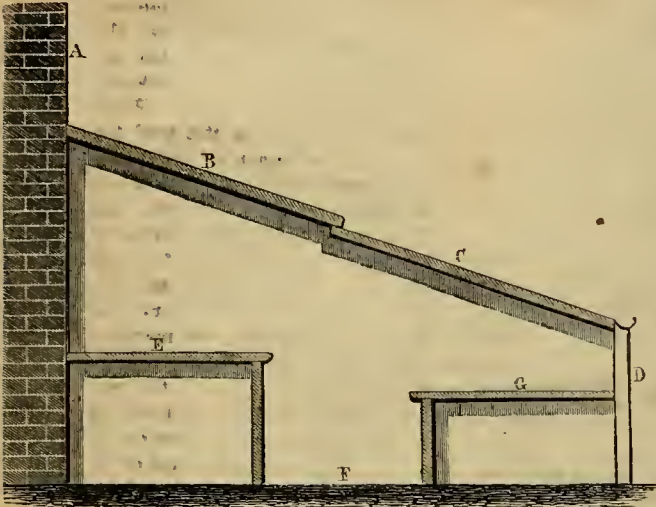
is a bronzy green, which, as the plant grows older, turns to a bright orange-red color. This novelty is spoken of in high terms by the Eug-

mens only that present desirable characters we can each year improve upon their beauty. Many varieties will deteriorate without this care.

Greenhouses attached to Dwellings.

BY PETER HENDERSON.

Every now and then the inquiry is made: "How can I best attach a greenhouse to my dwelling?" Nothing is more simple, as far as the mere shell of the greenhouse is concerned, but the difficulty is to heat it. Many may not know that a greenhouse, even without any artificial means of heating, can be made very useful in the early spring months in this latitude, and all through the winter in those Southern



SECTION OF A CHEAP GREENHOUSE.

States where the thermometer does not fall lower than 20° or 25°.

In the diagram of an end section of a simple house here given, the sashes (*B* and *C*) are 3 feet wide by 6 long; the top one is so placed that it can be let down by weights and pulleys over the lower one, and thus secure ventilation. The front wall and ends are best built by using 4 × 6 inch chestnut or cedar posts. Upon the outside of the posts rough planking is nailed; against that a layer of tarred paper; and against the tarred paper the weather boarding is nailed, either overlapping or tongued and grooved, as may be desired. The outer walls of all greenhouses built of wood are now thus made with us, and it is found to be far preferable to the old and objectionable mode of filling in between the boards with sawdust or shavings. The tarred paper is a good non-conductor, and we find walls so constructed are equally as good a protection against frost as a nine-inch brick wall, which would cost twice as much. A greenhouse of this kind, 25 feet long by 11 wide, should not cost more than \$100 complete, if plainly built; that is, without heating. Heating is a difficult matter in greenhouses so attached to dwellings, unless in cases where there is a surplus heat at night from furnaces or stoves in the rooms adjoining. In such cases, the windows or doors, if low enough, could be opened, and enough heat be supplied from the rooms of the dwelling; or, better yet, if it were so arranged that a register from the furnace opened into the floor of the greenhouse. But when this supply of artificial heat can not be obtained, the greenhouse as it is will be sufficient to protect plants against any frost that is likely to occur in this latitude after April 1st, particularly if light wooden shutters are put over the lower tier of sashes. I have recommended this style of greenhouse to many dealers and retail florists in the different States. Those who are simply dealers in plants experi-

ence great difficulty and loss in keeping what they purchase for sale in stores or dwelling rooms; for if not sold at once, they quickly get injured. But this cheap and simple style of greenhouse not only by its appearance advertises their business as dealers in flowers, but it enables them to buy from the wholesale florists at an earlier season. Besides this, they can purchase in March and April at less than half what the same plants would cost in May, and it gives them time to repot into larger pots. Placing them in the greenhouse where they have sufficient space to grow, the plants that are bought for \$12 per 100 in March, with but little trouble in potting, airing, and watering, will freely retail for 50 cents each in May. These greenhouses are also economical and useful to the amateur who purchases for his flower-garden in spring. Bedding-plants, as they are called, can not be safely planted out in the Northern States until the middle of May, and if the amateur buys from the florist then, he generally pays quite double the price that he could purchase the same plants for in March or April, for the florist always wants room in his greenhouses, and can better afford to sell a dozen Geraniums in

March for \$1.50 than for \$3 in May. Besides, the plants if purchased in March, and shifted into larger pots, and allowed plenty of room to grow, would be far better than could be purchased at any price from the overcrowded tables of the florists in May. The care of such plants in the greenhouse is very simple. The board benches or tables *E* and *G* should be covered with two inches of sand, upon which to stand the pots; place them so far apart that the leaves will not touch; water *thoroughly* whenever the surface of the soil in the pot appears dry, which will be every day in hot weather. Ventilate by letting down the sashes, more or less, as the day is warm or cold, whenever the thermometer indicates 75° or 80°; in other words, keep the temperature in the day time as near as may be to 60° or 65°, as marked by a thermometer placed in the greenhouse where the sun will not strike it. Burn half a pound of *damp* tobacco stems on the floor of the greenhouse twice a week, to destroy the aphids. One dealer in Maine informed me that from a greenhouse so constructed, 30 feet long by 11 feet wide, placed against the south side of a high board fence, he sold last spring, in six weeks, sufficient bedding-plants that he had purchased, and vegetable plants that he had raised from seed, to afford him a profit of \$200, or nearly double the cost of his greenhouse.

The "Late Roses."

BY GEO. W. CAMPBELL, DELAWARE, OHIO.

Your correspondent from "The Pines" mentions a fact of which I was not before aware, namely, that there are *three* varieties of potatoes claiming to be new, and each called "Late Rose." This is certainly unfortunate; and unless the names can be yet changed, I see no better way of distinguishing them than by prefixing the originator's name to each sort.

As I am informed, two of these varieties are

claimed to be "sports," or accidental variations from the Early Rose. I have had no experience with *sporting* potatoes, but it seems to me questionable whether they would be reliable or permanent in their character; and if they might not be disposed to *sport* back again to their original type, or into other, and perhaps undesirable, variations.

The third variety mentioned was produced from a seed-ball of the Early Rose, and was selected from forty seedlings raised at the same time, and from the same source. This batch of seedlings was in many respects interesting; especially remarkable, however, for their extreme variability. Nearly every variety of form and shade of color known in potatoes was produced; and the difference in production was equally varied. More than half these seedlings produced, the first year, quite small potatoes—from two to a dozen tubers in a hill, in size from a filbert to that of a pullet's egg. Others yielded more and larger potatoes, the product varying, with one exception, from one pound to two and a half pounds to a plant. The exception mentioned is the variety which has been named "Late Rose," but which I propose hereafter to call "*Campbell's Late Rose*." This potato yielded the first year, from a single seed, *twenty* potatoes of marketable size, the largest tuber weighing twelve ounces, and ranging from this size down to that of a hen's egg, the entire product *six and a half pounds*.

This remarkable productiveness continues unabated; and tested with the Early Rose, its yield has been invariably at least four times greater from the same area. The past season a parallel row of the same length, and under precisely the same conditions, was planted beside Bresee's Peerless. The result was *four bushels* of Late Rose, to *one bushel* and three pecks of Peerless. Several parties, to whom I sent specimens for trial last spring, report from one to *three bushels* from single potatoes cut into eyes, and planted with common field culture.

Next to great productiveness, its late keeping in spring is, perhaps, its most desirable quality. In the same cellar, and under the same temperature and conditions, where Early Rose had sprouts two feet long, and was, consequently, shriveled and unfit for eating, the eyes of this seedling remained dormant, and the tuber sound and crisp as when first dug. It is emphatically a late potato, the tops remaining fresh and growing into October. In quality it is, as described by your correspondent from the Pines, "excellent," and has received almost universal commendation. I believe it to be fully equal to that of the Early Rose, or any other popular variety now grown. In form it is much like the parent Rose, in color a little deeper, or more rosy.

Parsons's White Mignonette.

BY W. C. STENO, BRIGHTON, MASS.

In the December *Agriculturist*, Parsons's White Mignonette is classed by Mr. Henderson with the numerous frauds in novelties which are annually sent from Europe. Certainly we have reason to be indignant that so many wonders with high-sounding titles should serve to illustrate "a distinction without a difference." Sometimes they prove even worse. But the very fact that we are so often deceived is a good reason why we should recognize and appreciate a real prize. I am quite sure Mr. Henderson is mistaken in his estimate of the value of this White Mignonette. Possibly its name may be an unfortunate one, as it leads the public to in-

fer that the general effect of the spike is that of a white Spiræa. Of course this is expecting quite too much. We are to compare it with that which we now have, and in doing this Parsons's Mignonette seems to me to be decidedly superior. In the common variety, the general effect of the flower is a dull red, the anthers being of this color, while the light shading of the crest-like petals is less prominent than the color of the anthers. In the Giant Crimson variety, so called, the dull color of the anthers is still more prominent, and though it seems to be very strong in growth it can not be considered desirable. As Mr. Henderson says, "no stretch of imagination could honestly call it crimson." But in the Parsons's White, while the anthers remain of the same size and color as in the old kind, the superior, crest-like petals are at least three times as large as in that, giving to the individual flowers and to the spike a decidedly lighter and more floriferous appearance. The habit of the variety is also excellent, and its bloom abundant and continuous. It may be true that a casual observation might not detect the superiority of this variety, but it must be that Mr. Henderson has a mixed or spurious seed. His good judgment would have noticed the improvement in the Parsons's "strain." It is proper to add that my opinion is formed by an examination of specimens of various kinds raised by Mr. Joseph Tailby from seed imported by Washburn & Co., and that other florists who have tried the same seed agree with Mr. Tailby in giving this variety a decided preference.

The Quinn Pear.

Fruits, like men, have their histories; these are often quite commonplace, but sometimes there is obscurity enough about them to make them interesting. It is not rare to meet men who are polished, and every way acceptable, about whose antecedents we know little or nothing. In this category we must place the Quinn Pear; it is very excellent, but when we would trace its history we must stop at a certain point. All that is known of the Quinn Pear is this: Many years ago the late Prof. J. J. Mapes imported a lot of pear-trees, among which was the one now called Quinn. It was simply labeled "Knight's Seedling." In planting, this tree was not put in the orchard with the rest, and when unsatisfactory trees were grafted over, this, though it bore nothing for twelve years, being in an out-of-the-way place, escaped. A few years ago the tree commenced to bear, and now produces good crops of a small pear, of the size and shape shown in the engraving. The skin is of a greenish russet, which in well-ripened specimens approaches to golden russet. There are no markings of any kind, but sometimes there is a slight ruddy tinge upon the sunny side. In its general appearance the fruit much resembles a well-grown Seckel. The flesh is gritty towards the core, sweet, juicy, and of a remarkably high musky flavor. The pear is in eating in December, and without any especial care readily keeps into January. In order to ascertain the name of the fruit, Mr. P. T. Quinn, who now has charge of the place upon which it grows, took it a few years ago to the Farmers' Club. None of the savans there knowing it, they of course concluded that it must be unknown, and named it the Quinn Pear. In this the Club was more fortunate than it sometimes is in the bestowal of names, as the best pomologists of the country have been unable to identify it, and it is

gratifying to know that in all probability Mr. Quinn's name will remain associated with this excellent variety. It is likely that it is a seedling that never was named by Mr. Knight, and that the original tree was lost by accident or destroyed as unpromising. The tree in question stands in an unfavorable place, and has received no care whatever, and it is probable that under good culture it would come into bearing earlier and produce larger fruit. The list of really good winter pears is so very small, that we gladly welcome an addition to it that possesses so many excellent qualities as does the Quinn Pear.

FROZEN PLANTS.—Some plants in a room where the fire went out, allowed some observations to be made upon the effects of cold, which in part compensated for their loss. Some Chinese Primroses, which were just coming into bloom, had every leaf completely killed, while the flowers and the flower-stems were not touched. One would suppose that the delicate tissues of the flowers would show the effects of frost sooner than the more robust leaves. It seems impossible to predict what will be the effects of cold upon different plants that are closely related. There were several Begonias; all those of the *Fuschoides* section were killed to the root, while *Begonia nitida* did not suffer at all. We naturally expect plants with very succulent leaves to be most liable to injury by sudden freezing, but succulence does not seem to have much to do with it. *Echeveria metallica* was badly cut; *Echeveria secunda* was not injured.

Rabbits and Snares.

In some localities rabbits amount to a nuisance, doing great mischief in gardens and to orchards. Everywhere, however, they are acceptable in a pot-pie or a savory stew, and the destruction of them by traps or snares has a twofold object. These animals will always run in an old or well-beaten trail or path, and when they have once made a run



Fig. 1.—SNARE.

they will use it in preference to making a new one. This peculiarity makes it very easy to snare them. Snares are made of fine brass or copper wire. A piece eighteen inches in length is taken, and a small loop made at one end; the other end is passed through the loop and a ring formed. The end of the wire is twisted around a twig which lies at the side of the rabbit's run, and the ring stretches across it in such a position that the rabbit as it runs along puts its head into it. The wire tightens around its neck, and the animal is caught. (See figures 1 and 2.) A snare may be placed in a hole in a fence, or in a brushy place, or even in the open ground, by driving a stake on each side of the run.



Fig. 2.—SNARE.

Rabbits are very fond of salt, and they may be captured by means of a salted string. A box

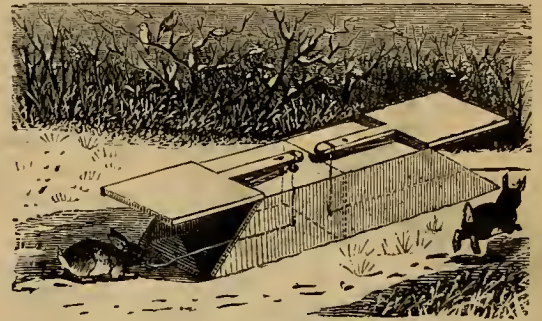


Fig. 3.—RABBIT TRAP.

with falling doors is made (fig. 3), each door is held open by means of a string dipped in salt water and dried; this passes through a hole in the top of the box and is tied to a peg in the floor of it. Another salted string is carried from the box and stretched across the run. The rabbit finds the string, and eats it up to the peg to which it is tied. As soon as the string is cut the door falls, and is held firmly by a hinged leg fastened to the top of the door, which prevents its being opened. The rabbit is trapped. The common steel traps are of little use for rabbits; their long and broad feet cover not only the pan, but the jaws also.

The Dyehouse Cherry-Tree.

BY H. T. HARRIS, LINCOLN CO., KY.

About thirty years ago, an old man by the name of Dyehouse found growing in his orchard, among some English Morellos, a small, bushy tree, which differed in form from the others, and also ripened its fruit some four weeks in advance of them. The fruit was



DYEHOUSE CHERRY-TREE.

about the same size of the Morello, but different in color and shape; and the tree was found to be much hardier than its supposed parent. It grew vigorously, and soon became a full bearer. The original tree is now dead, but its numerous progeny—gathered from sprouts—have been disseminated to a limited extent only over this (Lincoln) and a few adjoining counties. The old gentleman was not a fruit-grower. He lived out in our hill country, far removed from fruit regions, and no one, until recently, save a few neighbors, knew anything of this cherry. Eight years ago I planted fifty of the "sprouts," about five feet high and one inch in diameter, and they grew rapidly, and for the past four years I have gathered full crops from them. They have been in full bearing for three years, and have not wholly failed, even the present year (1871), when all other fruits, without ex-

ception, were totally destroyed by the severe cold of April 28th. The fruit ripens in this latitude with strawberries—say from the mid-



DYEHOUSE CHERRY.

dle to the last of May. The tree is a semi-dwarf, with pendent, willowy branches; something like a Kilmarnock willow, although not so leafy. My trees, now ten years old or more, can have nearly all the fruit picked from them by standing on a chair. The original tree, as well those from which mine were taken, grew upon soil almost too poor to produce anything else; a slaty, cold, bluish, yellow clay, with a sand-stone substratum. In rich soil, the trees grow somewhat larger and faster, but do not ripen the fruit so early. I believe this fruit is well adapted to rigid climates and sterile soils, and planted in such places, I should advise a heavy mulch during winter and summer. The fruit is a bright, pinkish scarlet, when fully ripe, and somewhat opaque. A tree in full bearing, when ripe, has the appearance at a short distance of being covered with a scarlet cloth, such is the abundance of the fruit. I sent over three hundred of these trees to different parts of the country for trial, and sent some of the fruit to different eminent horticulturists, among them F. R. Elliott, of Cleveland, O., who pronounced it the "Early May." In this he is certainly mistaken, for we have the Early May growing beside it, and while there is much resemblance in these fruits, a novice can tell the difference at a glance, when seen side by side, at any season. They differ in shape of tree and time of ripening, also in color and shape of fruit on my grounds; and as to hardness, there is no comparison; the Early May being killed while the Dyehouse yielded a full crop, as could have been seen the present season in several localities about here. The "*Cerise Indulle*" of Downing is not

this fruit. I verily believe that it is a *seedling*, and new. It is certainly very desirable. As a fruit for tarts, pies, and especially preserves, it has no near competitor in the Cherry kingdom. Persons who know the fruit often pay fifty cents per gallon for them to make preserves, rather than use the old Morellos when they could be had for the picking. The fruit is quite tart, but when fully ripe is, to my taste, perfectly delicious, having the most pleasant and agreeable acid. One never knows when to quit eating it. I send you a rude sketch of a fair sample of my orchard of fifty bearing trees, now eight years transplanted. I believe these trees would make a fine wind-break and ornamental hedge, if planted eight feet apart, and cut down at planting time to within a foot of the ground, and annually pruned. It will bear much hacking, with impunity. I saw a small orchard of them which had been repeatedly browsed by stock, and it grew finely. I cut one down to the ground, and it threw up a dozen vigorous stems, and grew into a beautiful bushy tree.

I am only an amateur cultivator for the love of horticulture and fruit, and have no "ax to grind," having no trees for sale at any price.

The Hop-Tree.—(*Ptelea trifoliata*.)

A few years ago there was very generally advertised a Hop-tree for which was claimed great advantages over the common hop; as, being once planted, it would go on and yield its yearly crop of fruit without further care. This Hop-tree, which in its wild state is only a shrub, is



HOP-TREE.—(*Ptelea trifoliata*.)

very common from Pennsylvania westward, and southward to Florida; we have seen it very abundant in Michigan, but do not know its northern limit. Its leaves are compound, and

made up of three leaflets, as shown in the engraving. We notice that it is the latest of all our shrubs to start in the spring. The flowers are



QUINN PEAR.—(See preceding page.)

small and greenish, and are borne in clusters at the ends of the new shoots. They have a most unpleasant odor, as do the leaves when bruised. The flowers are polygamous—i. e., there are male, female, and perfect ones upon the same plant. A magnified representation of a single perfect flower is given in the engraving. The fruit is a two-seeded capsule, and is surrounded by a broad ring; it very much resembles the fruit of the elm. As an ornamental shrub, the

Hop-tree has in its favor a very neat habit and freedom from insects, and when in fruit it is at least interesting if not showy. When kept to a single stem it grows quite large. There are in England specimens thirty and forty feet high. The fruit has a very strong and nauseously bitter taste, entirely without the aromatic quality of the bitter of the hop. The use of hops in making yeast and beer is to prevent the fermentation from proceeding too far. Were it not for these, acetous fermentation would set in and the liquid become sour. Before hops were introduced into England, various bitter herbs were used in brewing. It seems that many, if not all, vegetable bitters possess with hops the property of retarding or preventing the souring of fermenting liquids, and hops are only to be preferred for the reason that their bitter is more agreeable to the taste than that of most others. So far as effectiveness goes, we have no doubt that the fruit of the Hop-tree will answer as a substitute for hops, but we should be afraid that its exceedingly disgusting taste might be communicated to bread from yeast made with it. The engraving here given represents the leaves and fruit of about half the natural size.

THE HOUSEHOLD.

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

Home Topics.

BY FAITH ROCHESTER.

WHERE TO PINCH.—No exact line can be drawn between the rich and the poor. They are poor who are discontented. There are persons who pity me, I suppose, because they think I am denied so many things that are essential to their comfort; while I consider my own lot greatly preferable to theirs, and really do not have to practice the self-denial they imagine, in doing without such things as it is evidently not best for me to have at present. In the mean time I rejoice over possessions and investments which they do not envy, because they are unable to appreciate their value as I do. Let us spare our pity, then, for only those who mourn over what is beyond their reach, instead of enjoying the best they have already. While we are contented with our present lot, it is entirely reasonable to be reaching out for the things that are beyond, trying steadily to better our condition. The two states of mind, contentment and dissatisfaction, are not incompatible.

"Can't afford it," is a frequent excuse. Neighbor A takes only the county paper this year—times are hard and he "can't afford" as many papers as he took last year; but he still smokes expensive cigars, and, to please his palate, his wife breaks her back over the pastry board—for he must have a piece of rich pie at nearly every meal, and doesn't relish his coffee without a ginger-snap or doughnut to eat with it. When he finds it necessary to economize, he begins to pinch his mind before his body—a small mind, of course, or this thing would not happen. His wife and children feel the pinch more than he does, and it is a real injury to them all.

The same kind of a mistake is made by Mrs. B., who is a widow with two nice little daughters. She earns enough to keep them all decently, but watches all expenditures with a jealous eye. She is often solicited to let her little girls join some class in penmanship, gymnastics, vocal music, or something of that kind, when competent instructors make up classes in the little village where they live. She



Fig. 1.—SUSPENDERS.

"can't afford" anything of that kind, and her bright little daughters take their chance under the changing instruction of the ungraded district school. Other children try in vain to get the name of Lizzie B. in their club for *Our Young Folks*, and both little girls earnestly begged their mother to put down her name for *Hearth and Home*, when a lady who was making up a club called there the other day. Mrs. B. refused, but, being fond of reading herself, she thought to satisfy the children by subscribing for another paper which, she says, is just about as good and a great deal cheaper. It costs less money, to be sure, but it is very poor stuff. Trashy, sensational stories make up the bulk of it, and it is unreliable when it professes to give facts and attempts to instruct.

If Lizzie and Alice B. learn to like such literature, as they probably will, the natural result will be to make them sentimental, extravagant young women, given up to novel-reading dissipation. While their mother "economizes" so closely in these matters that concern their intellectual and moral development, she strains every nerve to dress her little girls as finely as any children with whom they associate. They are not pinched for ribbons, nor feathers, nor artificial flowers, though they often shiver for lack of warm undergarments in winter.

When we feel the necessity for retrenchment, shall we not begin to cut down our expenses at some point where only a personal whim or fancy has led to the expenditure? Not until our dress is brought down to the actual requirements of comfort, neatness, and simple good taste; not until our tables are supplied only with a wholesome variety of plain, nourishing food, should we think of dispensing with a good supply of the best periodical literature, or refuse to add to our growing library an occasional well-selected volume. Not until we have actually begun to pinch ourselves where we can feel the pinch, should we refuse our mite to those in need of charity.

CLOTHING FOR LITTLE GIRLS.—The perfect ideal has not been attained, but here is an effort toward it:

The little girl in question wears a loose-sleeved waist, with drawers attached, made of her mother's old merino (or ribbed) wrapper. The sleeves reach to her wrists and the drawers to her ankles, going inside the warm, yarn stockings, and having a strap under the foot to hold them down. An inch from the top of the stocking, on the outside of the leg, is a button to which fastens an elastic strap, which buttons again at the waist. This strap answers the purpose of a garter—or answers a better purpose, holding the clothing in place without interfering with the circulation of the blood, as garters do. A pair of heavy red flannel drawers is worn over, gathered into bands at the bottoms of the legs. These bands button around the leg, a little below the knee, and a button-hole in each band, fastened to the button, for the elastic on the stocking keeps the drawers from shoving up or down too far. The drawers button at the top to the waist of the under-drawers, which has a facing of thick cloth to hold the buttons firmly. Next comes the flannel skirt, with its shoulder-strapped waist; then the lined flannel dress, then the high, sleeved apron.

The long legs of thick, cotton stockings of large size, could be made to answer well as under-drawers for a child two or three years old, cutting them over to fit the ankles, and ripping them down several inches at the top, where they join the waist. Sleeved waists of cotton flannel are worn by many children instead of chemises, and to these the drawers are buttoned.

It seems quite reasonable that additional clothing should be put upon the feet and legs when going out from a warm room into the cold. Arctic overshoes and long yarn leggings are good, but long yarn socks with thick bottoms (leather is best for the bottoms) are very comfortable. Old woolen stockings, considerably worn at the toes and heels, can be cut over for small children, and bottomed with leather or with thick cloth. If the legs are long enough to come above the knees, so much the better. The knees should always be well protected against cold. I have seen daughters of prosperous people out-doors with their knees bare, when the mercury was below zero, this very winter!

A LETTER ANSWERED.—A mother writes to me from Missouri. She wants Miss Peabody's Kindergarten Guide, but does not know where to send for it. Let her send \$1.25 to the office of the *Agriculturist*, and they will send her the book by mail.

The same mother asks my opinion about allowing her eldest child, her only daughter, to play and romp with her brothers. She is advised not to do so by older mothers. I presume these "older and wiser" mothers think that it is not "pretty" for little girls to be noisy and fond of active games. They think that "boys will be boys," and the best you can do to get rid of their noise is to keep them out of doors as much as possible. They have quite a different programme for their girls.

I don't know as much about all this as I wish I did, and I am not trying to give advice now—only

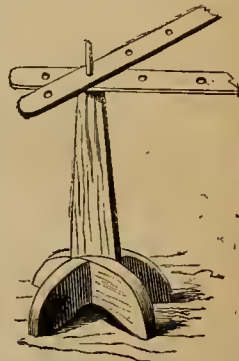
to talk the matter over a little. This Missouri sister wishes she could talk with me about these things. She can hardly desire it more earnestly than I, to talk with her and get her experience—the experience of any earnest, observing mother.

No two children are exactly alike. Some girls are boyish and some boys are girlish, but there is a general type of the boy nature and of the girl nature. As a general rule girls are more quiet than boys, inclining more to dolls and to domestic pursuits, but the exceptions to the rule are so numerous that great liberty should be allowed. Little girls almost always suffer from being kept in the house too much. If they take injury from outdoor life, it is usually on account of the barbarous exposure to cold their limbs get, because they are so imperfectly clothed. There is no reason why girls should not be dressed as warmly and as evenly as boys. It seems to me a fortunate thing for both boys and girls when they are put together in the same families as brothers and sisters, and I think it well for them to share each other's pursuits as far as possible. Good manners should be taught to both sexes alike. Rudeness should be checked; the stronger should be taught to help the weaker. We want gentle boys as well as gentle girls, and hearty, active, strong-limbed, wide-awake girls are quite as desirable as the same kind of boys. Modesty is equally desirable in both sexes. A mother must keep her eyes and ears open, always ready to ward off impending danger from the young minds about her. Little girls are not in as much danger of corruption from the evil communications of their own brothers as from their brothers' playfellows who have no sisters of their own.

No; let the little girls have a fair chance to learn to coast, and skate, and row a boat, and harness and drive a horse. Let them jump, and climb, and learn to hoe, and mow, and rake, and bind, if they like. And encourage the boys to emulate the girls in the arts of sewing, knitting, dish-washing, etc. None of these things will affect the real nature and make a boy less manly or a girl less womanly.

A Support for Quilting-Frames.

Here is a little contrivance which will do away with the usual and awkward way of supporting a quilting-frame upon the backs of chairs. A model was sent us by Mr. Edward Skinner, of Middletown, N. Y., from which we have had an engraving made. The cross-pieces, forming the foot, are 18 inches long, and the upright 31 inches high. A piece of stout wire is driven firmly into the top of the upright, and as it passes through the holes in both pieces of the frame, no pins are required.



SUPPORT FOR FRAME.

About Suspenders.

"W. H. B.," Oakwood, Kansas, sends a plan for arranging suspenders which obviates the inconvenience resulting from their slipping off the shoulders when one works in his shirt-sleeves. Sewing the suspenders together at the point where they cross each other does not entirely answer the purpose. So our correspondent uses a strip of elastic, sewn to the two suspenders just across the shoulders, as in fig. 1. The elastic should be of good quality, an inch broad, and long enough to allow one to slip off the suspenders at will, but not so loose as to allow them to fall from the shoulders without aid. Our correspondent's plan is somewhat like that of some of the "patent braces." We notice that the suspenders made of late, instead of being sewed together at the crossing, are fastened

as in fig. 2, where each suspender is bent back upon itself, and the two firmly sewed together. This gives a strong doubled edge to sew to. The single edges are stitched, as shown by the dotted lines.

Letter from a Housekeeper.

HINTS ABOUT CRUMPETS.—A Frenchman brings to the door a very nice article of crumpets, for which he charges twenty cents a dozen. My English friend says, "They are nothing but flour and water, and fearfully dear." I think she is mistaken about their being nothing but flour and water. I have often made them, but never to my satisfaction, unless the batter was mixed with pure sweet milk, and at least two eggs to the quart of batter. Any housekeeper trying my receipt, will, I think, be pleased with it. Use a tin pail with a closely fitting lid. Take a quart of new or perfectly sweet milk, and raise it to a bread-making temperature. Mix it with flour enough to make a stiff batter. Now stir in a teacup of lively yeast and let the pail stand in a warm place until the sponge is very light. A teaspoon of salt may now be added, and the well-beaten whites of two or three eggs. Mix very thoroughly and let them stand again until very light, when they are ready to bake. A moderate fire is best, and the cakes should not be turned until the holes on the upper side are formed and set. A sort of secret, and a very important part of good crumpet-making, is this: After the crumpets are baked, do not remove them to a plate, or place them one over the other while warm; do not put them on the table or any solid substance, but pass each crumpet as soon as done to a cloth, drawn over an empty barrel, or suspended in a similar manner. In this way they cool rapidly and remain perfectly light, which would not be the case if this precaution was not observed. After they are cold you may place them one over the other without affecting their lightness in the least. Rings of the proper size should be provided, but they are not indispensable, as the crumpets may be made without and taste just as good. In this case, however, after they are cold it is well to trim them to a uniform shape, using a large pair of scissors for the purpose. They will keep for a week or more. When wanted for the table, they must be toasted brown, generously buttered, cut into three triangular-shaped pieces, and served very hot. They must be piled from three to five on the plate before being cut. If the pieces are displaced in the least, you will gently push them into place. My English friend tells me that they are an indispensable addition to a tea-table in her country, especially if invited guests are present, and that they are very generally used for breakfast. Husband is very fond of buckwheat crumpets, which are much less difficult to make. The buckwheat flour cooks and sets much quicker than wheat flour, so that it is quite possible to have the crumpets light and nice without milk or the whites of eggs. I often make them for tea, using the batter left from the morning's breakfast. No matter how light they are, if you place them one over the other, or even on separate plates, while just hot from the stove, they will be heavy. To insure their excellence, you must place them on a suspended cloth as directed for the wheat crumpets.

I have met with individuals who preferred crumpets toasted so much that they were dry and hard. This I consider a perverted taste, as the nature of the cakes is, to be soft, tender, and delicate.

ROASTING OLD POULTRY.—It is quite a general idea (and I think an erroneous one) that old and mature poultry should invariably be boiled to insure its being tender. This may be a good general rule, but it is not always necessary to follow it. For instance, if I want a roast chicken for dinner, and the one provided is an old one, by merely cooking it a longer time and at an even temperature, it may be made as tender as though it had been boiled. My experience, although of course limited, has taught me this. My mother once suggested to a young housekeeper that the goose intended for the Sunday's dinner was old and would require considerable cooking, but gave no length of time re-

quired. The young person, who had had very little practice in the art of cooking, put it in the oven as soon as the fire was well lighted in the morning. At nine o'clock she took it out until church-time (a little after ten), when she gave directions to the girl to keep it in the oven till they returned to dine at one. It was so tender that it broke away before the edge of the sharp carving knife, and the meat was a dark walnut color throughout. I relate this to show that an old bird may be made tender by roasting. The orifice at the neck and apron should be securely sewed together, in order to confine the steam and keep it moist. Another young housekeeper of my acquaintance some years since gave a dinner party, and naturally enough her husband bought the largest turkey in market. An experienced neighbor told her, "It is an old gobbler, and you will have to steam it." So the day before the party she steamed it until it was as tender as a spring-chicken, and ready to fall to pieces. Then she roasted it until it was a fine brown. The next day, an hour before the dinner, it went in the oven to be warmed up. This also fell before the knife, and so far as eating roast turkey was concerned, was a complete failure. Now, if this turkey had been properly trussed, the knee joints pushed up to the side of the breast under the skin, and then roasted in a moderate oven for about three hours on the *very* day of the party, and been well basted, I have no doubt it would have been tender.

SWEET-BREADS, cooked properly, are very delicious and exceedingly nice for invalids. A little butter only should be allowed in the pan with them, and no seasoning of any kind. After they are a fine brown all over, a little salt may be sprinkled over, and they may be served. They need a moderate fire and at least thirty minutes' time. Some years since I was in the habit of soaking and blanching them, but I have since learned better. I merely wipe them clean and cut off any unpleasant-looking part. It is best to purchase only those that are white and free from blood.

BOILING CLOTHES.—By a little incident that happened under my own observation, I am reminded to suggest to the inexperienced that clothes to be boiled should be placed in cold water. I have seen washer-women put the clothes into a boiler of very hot water. It is a mistake, and will be certain to make the clothes yellow. It would be well to say just here in this winter-time, that unless considerable care is exercised while taking clothes from the lines, they will be badly torn. Instead of pulling at the goods, simply bend or lift the part immediately under the clothes-peg from the line. It will separate easily, and will not injure the fabric in the least. Do not try to bend the articles while frozen, but allow them to remain on a table or the clothes-horse until the frost is out. A few moments in a moderate temperature will be sufficient.

How we Live at Our House.

I was about to write this to your horticultural department, but, upon the whole, I think I will send it to the Household, provided anything from a masculine pen can be admitted there. We live in the country, and have more or less visitors. Those who stay a few days usually make a direct or implied compliment to the way in which we live. This has been done so often as to induce me to consider in what particulars our living differs from that of people in general, and I find it all sums itself up in—vegetables, and plenty of them. Our butcher's bill is unusually small for a family of its size, and we do not take much pains to procure delicacies or rarities in that line; but upon vegetables, as the slang phrase goes, "we throw ourselves." To one from the city the profusion and quality of our vegetables is naturally a surprise, and it is still more so to the average farmer who now and then makes us a visit. Farmers, as a general thing, have fewer vegetables than those who live in cities. Our rule is, three or four vegetables besides potatoes, according to the season. I know I shall be set down for a heretic, but I never could see why people must

always have potatoes for dinner. To the world in general a dinner without potatoes is no meal at all, and in deference to custom we always have potatoes, which "himself" seldom troubles. Of course the foundation of this abundance of vegetables is the garden. I need not tell you what the farmer's garden generally is, nor what it ought to be, for you have been preaching about it these many years. I have been North, South, East, and West as far as most people, and know how meager are the farmers' tables as far as vegetables are concerned. There are pies, puddings, cakes, pickles, and preserves in costly profusion, for these the good wife can manage without man's aid, but few women care to undertake a garden. Some few do it, and capitably too, but they are not numerous enough to serve for examples. Though I do say it, the head of this family looks out for the garden products as being next in importance to bread. From the time the departing frosts allow the winter-covered spinach to be cut until the ground closes the next November, there are fresh vegetables every day. In the one item of "greens," there is no day between these two periods when there is not a cutting of something: Spinach, New Zealand Spinach, Spinach Beet, Sorrel, and Kale, or Sprouts, one or the other, is at hand. It is not necessary to go through the catalogue of the varieties we enjoy, as it would include nearly everything edible in the vegetable line. Let us look at our present winter's supply; it consists of Savoys and common cabbages, beets, turnips, onions, carrots, salsify, parsnips, scorzonera, squashes, sweet potatoes, celery, horse-radish, common potatoes of course, and beans. So in winter even there is a chance for abundant variety. Having the winter's store of vegetables, there are two things essential to their full enjoyment—proper keeping and proper cooking. As to the keeping, that is not a matter belonging in the Household Department. It is sufficient to say that each is stored according to its requirements, and that especially the roots are kept in bins where they are stratified with earth.

My two favorite vegetables in the above list are carrots and celery, and they are both cooked in the same way. I know that some will hold up their hands in horror at the notion of cooking celery—but just try it. We have a plenty to eat raw, but we like it cooked besides—they are two different things, just as are raw and stewed tomatoes. Cooking is, besides, an economical way of using celery, as that which is not well blanched may be cooked. As to cooking, the celery is cut up into inch-pieces, and the carrots into dice about the same size. They are stewed in a little water until tender, and what water remains is poured off; milk enough to make a sauce is poured on, and a good lump of butter, previously rolled in flour, is added, and the whole boiled up again. This makes a rich creamy sauce for the vegetables, and one who has never tasted carrots other than plain-boiled, will be surprised at the difference cooking can make to a common vegetable. Those who have never tried celery treated as above, will find it a new culinary revelation. Mind, I never cooked them as described, but that is the way "the Missis" says it is done. Salsify, which people will call "Vegetable Oyster," when there is no oyster about it, but good enough without borrowing a name, and Scorzonera, which is like Salsify, only a little more so, are both cooked in the same way. The Savoys are cabbages glorified; don't profane them by boiling with meat, but cook in pure water, and when done, drain and cover with a nice drawn butter, as you would cauliflower. Don't, when you have done this, make common cabbage of it by drenching it with vinegar. If this letter was not already too long, I would like to say something about the use of vinegar and other condiments, but that must remain for another time. I am not a "vegetarian" in the accepted sense of the word; we have meat twice a day, but it is quite astonishing how little of it suffices when there is an abundance of nicely served vegetables. If those who live in the country would expend dimes on the garden, they would save dollars in the yearly expenditure for meat, and it may be that health and comfort would be greatly increased. THORSON.

BOYS & GIRLS' COLUMNS.

Those Map Prizes.

I suppose that many of you will be looking for the announcement of the decisions on the maps sent for prizes. But you must recollect that the time for receiving maps is not up until the first of this month, so nothing can be said about it until March. There is already a goodly heap of them, and if they continue to come in as they have for the past week or two, it will be no little task to go over them all. Let us all have patience, and we shall next month know who are the successful ones.

THE DOCTOR.

AGRICULTURIST AND HEARTH AND HOME.—A great many of our boys and girls see both these papers, but some only take the *Agriculturist*, and to these we must say, that Aunt Sue is such a puzzling woman, that she puzzles in both papers. She is sometimes troubled because some who write her, do not say which paper the writer refers to. The good lady has two sets of boy and girl correspondents, one belonging to the *Agriculturist*, and the other to *Hearth and Home*, and she loves them too much to wish to disappoint either, by replying to them in the wrong place. Again we must ask that all answers to puzzles and all letters relating to her department be sent to Box 111, Brooklyn, N. Y., and not to 245 Broadway.

Tricks of Parlor Magic.

Tricks of legerdemain, or slight of hand, as it is often called, can afford much amusement in the social circle. If done at all, they must be well done, and no one should undertake to exhibit a trick until he has practiced it sufficiently to be able to do it smoothly and without any mistake. The performer should be perfectly self-possessed, and be able to keep up a lively talk, which will occupy the attention of the spectators and prevent them from watching his trick too closely. Some of the feats done by experts in the line are truly wonderful and are the

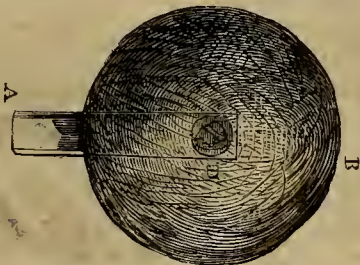


Fig. 1.—THE BALL PREPARED.

result of much ingenious contrivance and careful preparation. We give now a simple trick, which does not require expensive preparation, and which, when cleverly done, will prove very wonderful to those not in the secret. We have some other tricks ready, but we have room for only one at the present time.

TO PASS A PIECE OF COIN INTO THE CENTER OF A WORSTED BALL.—To perform this trick, you want three or four skeins of worsted yarn and a flattened tin tube, as shown by A (fig. 1). This tube must be exactly wide enough for a nickel cent to pass through. You must, previous to performing the trick, wind the worsted on the end of the tube, in the form of a ball, getting it as round as possible, and so that the end of the tube reaches



Fig. 2.—UNWINDING THE BALL.

only to the center of the ball, as shown in D (fig. 1). When finished, place it in a room adjoining that in which you are going to perform the trick. The last thing required is a pocket handkerchief, in the center of which you fix a nickel cent in such a manner that it does not show on

the other side. To commence the trick, borrow from one of the company a cent, at the same time getting him to mark it, so that he will know it again. Produce the handkerchief, and holding it up by one corner, and in such a manner that the coin fixed in it can not be seen, say, "I am now going to place the coin in the handkerchief," at the same time place the hand in which you are holding the cent-piece, under it, but retain the coin in your hand. Wrap up the handkerchief, and, still holding it, let the company feel that it is there. (They, of course, feel the coin which has been fixed in the handkerchief.) Now place the handkerchief, just as it is, on a chair close to you; pretending to have forgotten the ball, go to fetch it. When out of the room, drop the marked cent-piece down the tube into the ball, then draw out the tube, and by pinching the ball, the hole made by the tube will close, at the same time keeping the coin in its place. You should have a long piece of the worsted left unwound, so as to cover the hole after you have dropped the coin in. Now bring in the ball, saying to the company that you propose to cause the coin to pass from the handkerchief into the center of the ball. Place the ball into a glass tumbler (fig. 2) upon the table, lift the handkerchief and shake it, showing that the coin is gone; then let any one of the company unwind the ball, and when it is undone nearly to the center, out will drop the coin.

Aunt Sue's Puzzle-Box.

The "Arithmorem" is a very interesting puzzle when understood: therefore let us understand it at once. It is based upon the Roman numerals, and as you can not find those numerals in all the dictionaries, I will give you a list of them here.

A = 500.	G = 400.	N = 900.	T = 160.
B = 300.	H = 200.	O = 11 & 0.	V = 5.
C = 100.	I = 1.	P = 100.	W = 55.
D = 500.	K = 250.	Q = 500.	X = 10.
E = 250.	L = 50.	R = 80.	Y = 150.
F = 40.	M = 1000.	S = 7.	Z = 2000.

These; the Romans used those letters for figures, all except the W, which we have made 55 (because it is two Vs), just for our own convenience.

Now let me show you how to ring some of the changes on them.

5110018. What word does that make?
 5 = V, 1 = I, 160 = T, 1 = I, and 8 stands in this case for ate: so there we have VITIATE.
 95250200 = Nineveh.
 10500100160 = Exact.
 120009 = Immix.

These are the simplest specimens, they may be made much more complicated.

Now I want all of you to find out the following, and then go to work, yourselves, and make some more, which you may send to Box 111, P. O., Brooklyn, N. Y.

- ARITHMOREMS.**
- 10011900150080500.
 - 1090025077250250.
 - 11500500.
 - 7200118010.
 - 11153500.
 - 10500.
 - 3009.
 - 1601.

- ANAGRAMS.**
1. No Latin cent.
 2. Ten lines.
 3. Queer Patt.
 4. Miner science.
 5. Charm pay.
 6. Limit ray.
 7. Star money.
 8. Mad rail.
 9. Hate coin.
 10. Carl say it.

- OPPOSITES.**
(Names of Flowers.)
1. Crow's whip.
 2. Green gong.
 3. Old maid's hair-pins.
 4. Cat's tail.
 5. Sour Betsey.
 6. Prussian blue.
 7. Speak truly! Speak truly!
 8. Evening darkness.
 9. Cheese plate.
 10. Never think of me.
- ADOLPH M. NAGEL.

- DECAPITATIONS.**
1. Behead a dish and leave a bird.
 2. Behead an animal and leave part of a flower.
 3. Behead a certain noise and leave an ancient vessel.
 4. Behead a mineral and leave a sound.
 5. Behead a kind of wood and leave an animal.
 6. Behead that which often covers a multitude of sins and leave a preposition.
- F. W. HALL.

- SQUARE WORD.**
- Square the word "care." A. H.

TRIANGULAR PUZZLE.

The founder of the city which rests on seven hills; a bird; to join; a consonant; a part of the circumference of a circle; a kind of pure clay; the commander of a regiment. Read downwards through the center will give an English word which means to endure; read downwards in the center to the middle letter will give a Latin adverb, which means "whereby;" read downwards through the center from the middle letter will give a Latin word meaning "wherefore."

R. S. ISBESTER.

NUMERICAL ENIGMA.

I am composed of 12 letters.
 My 1, 3, 12, 11, is a boy's nickname.
 My 4, 7, 6, 8, is what no one likes to be, but many are.
 My 9, 2, 10, 5, is an instrument of torture.
 My whole is the name of a bird.

HARRY S.

ANSWERS TO PUZZLES IN THE DECEMBER NUMBER.

- ANAGRAMS.**—1. Mysterious. 2. Advantageous. 3. Understand. 4. Sandwiches. 5. Cupboard. 6. Symptoms. 7. Displaying. 8. Thoroughfares. 9. Establishment. 10. Journeys.

SQUARE WORD.

11. W R O N G
 R A C E R
 O C H R E
 N E R V E
 G R E E N

- TRANSPOSITIONS.**—12. Awl, law. 13. Trap, part. 14. Ape, pea. 15. Ant, Nat. 16. Tub, but. 17. Cat, act.

GEOGRAPHICAL PUZZLE.

18. 1 Inn. 2 Turkey. 3 Bourbon. 4 Madeira. 5 Table. 6 Cork. 7 Air. 8 Chili. 9 Negro. 10 Bath. 11 White. 12 Shanghai. 13 Canary. 14 Reading. 15 Man. 16 Black. 17 Yellow. 18 Guinea. 19 Farewell.

GEOGRAPHICAL REBUS.—Okefinokee.

NOTICE.

Those sending puzzles to AUNT SUE, Box 111, P. O. Brooklyn, N. Y., will please specify whether their contributions are intended for the *Agriculturist*, or for *Hearth and Home*.

AUNT SUE'S NOTICES TO CORRESPONDENTS.

BELLE R. I like to hear that "Ma and Pa both helped." I rather think you will have to call in the assistance of Uncle William, Aunt Mary, and Cousin John this month! Give my love to "Georgie."

A. F. G. says she is very fond of children—likes to have them about her, but does not know how to attract them, being shy, etc. I will tell you one of my secrets, *Addie*—wear a watch-chain and attach to that watch-chain a bunch of "charms," a cherry-stone or almond-shell cut into a little basket, a bead, a ring, almost anything; and the little ones will gather close to you and lean against you, that they may examine with their little eyes and fingers those charms; and their mothers will say, "My dear, don't lean on Miss Addie!" then you will pass your arm around them so that they can't help "leaning." That's the way I fix them.

Glad to hear from Chalmers, Otis A. G., John R. S., Richard White, J. E. Du B., Charlie D. S., and Mary A. E. Thanks for puzzles, etc., to Adolph M. N., Tempy (of course), R. S. Isbester, Ella E. F., Max, and A. F. G.

The Eagles and the Teal.

The Eagle is our national emblem, as we all know. "But what is an emblem?"—That is just the way with you matter-of-fact boys and girls. There might have been something very eloquent following that first sentence, if some one had not asked, "What is an emblem?" That is right, however, let us understand things as we go along, but it would spoil a great deal of what passes for fine speaking and fine writing, were the speaker or writer obliged to explain the meaning of the words he uses. Perhaps the simplest definition of an emblem would be, "a figure that stands for something." Thus a dove is the emblem of peace, a lamb the emblem of innocence, a crown that of royalty. Not only are emblems used to express ideas, but they are adopted by nations and by parties. The Crescent, or New Moon, is the emblem of Turkey; the Lion and the Unicorn that of England; and the Eagle is the emblem of America. Your fathers will tell you that years ago the political parties used the hickory-tree, the coon, and the log-cabin as emblems. The emblem net only stands for a nation, but for the leading ideas of its people. So the Eagle not only means America as a nation, but it represents things peculiar to America, such as a republican form of government, political equality, religious liberty, etc. Thus you see that the eagle has a great deal to answer for, and ought to be a very noble and dignified bird. We do not know the reasons that induced our government to choose the eagle as our national emblem, but those who are familiar with his habits do not think him a very



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THE EAGLES AND THE TEAL.—*Drawn and Engraved for the American Agriculturist.*

noble bird, and that our early Congress made a mistake in selecting him. When he has on his company manners, the eagle is a very fine-looking bird. If he has had a good dinner and stands contentedly upon some elevated rock, or if he has his dinner to search for, and is soaring high up, sweeping majestically upon his broad wings, he presents so noble an appearance, that we are quite willing to adopt him as our national emblem. In his domestic habits, in his moral character, the eagle is not to be admired. Emperors and kings sometimes do very mean things, and very high dignitaries are often cross at home, especially when they are hungry and dinner is late. This being the case, we shall not be surprised to learn that our eagle will steal from and tyrannize over birds weaker than himself, and that he is very quarrelsome with his equals. His conduct towards his humble relative, the

Fish-Hawk, though it is not unlike that of some rulers towards their subjects, is not to be excused by the fact that he is called king of birds. The Fish-Hawk gets its food by fair hunting: it sails above a lake quietly and patiently until it discovers a fish, and then, with almost the rapidity of lightning, it descends and seizes it, and starts off with the prey to feed its young. The poor Fish-Hawk does not know that from some high point afar off the keen eye of an eagle has been watching its movements, but as soon as it is making off with its fish, down comes the eagle on broad and swift wing, and the poor hawk has nothing to do but give up its hard-earned dinner to the stronger bird. In fact, our noble eagle gets the greater part of his living by stealing. Our artist has made the quarrelsome character of the eagle serve him for a subject of a very spirited and beautiful picture. As

it is an equal match, it represents the eagle in a rather better light than he shows in when robbing a smaller bird. An eagle having caught a teal is met by another, who is hungry enough to fight for the possession of the bird. In the heat of the fight the poor captive struggles and regains its liberty with the loss of its tail feathers. Of course, our sympathies are all with the poor teal, and we are glad to see him escape. The eagles, though they make a fine picture, certainly do not look amiable. We hope that this picture does not convey any lesson to our boys and girls. We don't believe that any of them ever wrangled over the possession of a toy to such an extent that the mother took it away from both, and so, like the eagles, they lost in the quarrel the thing that caused the difficulty. Oh! no. Our boys and girls never do such things. If you don't believe it, ask their mothers.

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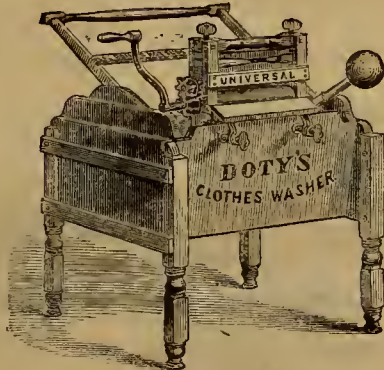
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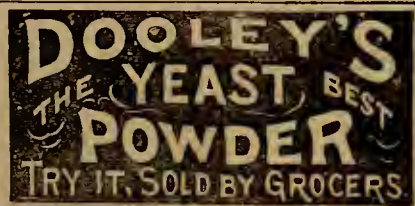
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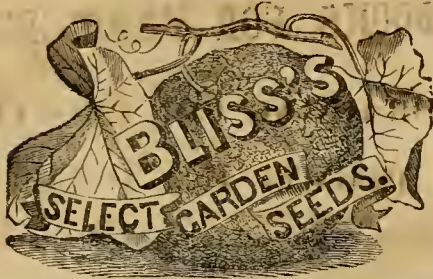
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We have just received a fine stock of the above from one of the most reliable growers in Wethersfield...

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The flowers sent by you were received in good time. I was really surprised at their size...

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The plants forwarded by you on the 7th, by mail, reached me in eight days, in first-rate condition.

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Moore's Early Sweet Corn,
 The Largest, Earliest, and Best
 Sweet Corn in Cultivation.
 Silver Medal Awarded.

We are pleased to announce to our customers that we have again made arrangements with Captain Moore for his whole stock of this favorite variety, which we introduced last season. This corn has been thoroughly tested in every part of the United States and Canada the past year, and has proved all that was claimed for it.

The following extract from the report of the Vegetable Committee of the Massachusetts Horticultural Society for 1870 will give a full description:

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"To Capt. J. B. Moore, the well-known horticulturist of Concord, Mass., belongs the honor of originating this splendid variety. It is a cross between Crosby's Early and Barr'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 is 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 garden."

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

CHARLES N. BRACKETT, Chairman.

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We have received hundreds of testimonials, which will be found in a circular, to be had on application.

Price, per pkt., 25 cents; selected ears, 25 cents; post-paid; per quart, 75 cents; per peck, \$3.00; per bushel, \$10.00.

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We are pleased to announce that the 26th annual edition of this well-known work is now ready, enlarged and improved, and containing a magnificent new colored Lithograph, besides hundreds of Engravings, in addition to its full descriptive Price-list of 3,000 varieties of Flower and Vegetable Seeds, rare Gladioli, Lilies, Tuberoses, etc., with full directions for their culture. This is, without doubt, the most perfect work of the kind before the public.

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- Per 100, Per 1,000.
- Asparagus, Van Sicken's Colossal (1 yr. old), \$3.00 \$30.00
- (1 yr. old) 2.00 15.00
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- smaller " by mail, per doz., \$3.

SEEDS, by Mail or Express.

Asparagus, Van Sicken's Colossal.....	Per oz.	1/4 lb.	lb.
" Conover's.....	50	\$5.00	\$10.00
Beet, Egyptian Turnip.....	50	1.00	3.00
" Dewing's Ex. Early.....	40	1.25	3.00
Cabbage, Early Jersey Wakefield.....	1.00	3.00	10.00
" Early Wyman.....	1.50	6.00	20.00
" Fottler's Imp'd Brunswick.....	75	2.50	8.00
Canllflower, Autumn Giant, per pl., 25c. \$1.00			
Celery, Henderson's Dwarf.....	50	1.50	5.00
Corn, Moore's Early Concord, per quart, 75c.			
Lettuce, Early Curled Simpson.....	40	1.25	4.00
" Drumhead or Malta.....	30	1.00	3.00
Onion, Giant Rocca.....	50		
Tomato, Early Shipping, per pkt., 25c. 1.50			
Trophy.....	25c. 1.00		
Peas, McLean's Blue Peter.....	Per 1/2 pint pkt., 50c.		
" Kentish Invicta.....	Per 1/2 pint pkt., 25c.; per qt., \$1		
Watermelon, Phinney's Early, Per oz., 20c.; per 1/4, \$1; m., \$3			

The above are fully described in our Catalogue (now ready). They are all of the best of their kind, and are guaranteed fresh and pure. As the stock of some kinds is limited, early orders will be necessary.

Peter Henderson & Co.
Seedsmen and Market-Gardeners,
35 Cortlandt st., New York.



The above show the form and some of the uses of the Sugar-trough Gourd. They grow by the acre to hold two bucketfuls each, and I have raised them to hold over eleven gallons each. My Catalogue tells how to grow them, and illustrates and describes over 200 varieties of choice vegetable and flower seeds. Send stamp for Catalogue, or 25 cents for it and package of the Gourd seed. Address **WALDO F. BROWN, P. O. Box 2, Oxford, Butler Co., Ohio.**

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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.

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See Here!

NOW

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A GOOD THING

(YOUR OWN CHOICE OF 106)

WITHOUT MONEY,

AND WITH

Very Little Trouble

DURING

THIS MONTH

OF

February, 1872.

Over 13,500 Others

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Free Articles

WITH PLEASURE AND PROFIT,

and

YOU may do the Same.

Read over the list of good articles in the Table, and descriptions on page 74. They are all new, first-class, reliable, valuable articles, just as good as money. The assortment is so large that every one will find something needed.

Any person who chooses may collect a small or large list of subscribers and receive the premium. It is only necessary to show copies of the papers, explain their value, and collect and forward names. [Specimens Free.]

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 \$35,000 worth of fine engravings, and more good reading than can be found in 100 books costing one Dollar each.

Premium Clubs can be made up of subscribers to either paper, or partly of both, 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 four months, to fill up your list.... (d) Send the exact money with each list of names, so that there may be no confusion of money accounts.... (e) Old and new subscribers all count in premium clubs, but a portion, at least, should be new names; it is partly to get these that we offer premiums to canvassers....
- (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 \$5.00 a year, for the two papers; also at the club rates of \$1 and \$3.50; 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.

No.	Names of Premium Articles.	Price of Premiums.	(1) Or (2) Or (3)		(4) Or (5)		Or (6)	
			Number of Subscribers required at \$1.50	at \$3.00	Number of Subscribers required at \$1.50	at \$3.00	Number of Subscribers required at \$4.00	

1	Knives and Forks (Patterson Bros.)	\$14 00	21	70	11	35	13	13
2	Knives and Forks (do. do.)	\$18 50	27	90	14	45	16	16
3	Knives and Forks (do. do.)	\$22 00	33	110	17	55	19	19
4	Knives and Forks (do. do.)	\$25 50	39	124	20	62	22	22
5	Carver and Fork (do. do.)	\$5 00	18	57	7	19	8	8
6	Plated Steel (do. do.)	\$3 50	6	25	3	15	4	4
7	Czech Cook's Knife, Fork, and Steel	\$3 00	8	30	4	15	5	5
8	Pocket Knife (Smith & Clark)	\$2 00	5	22	3	11	4	4
9	Pocket Knife (do. do.)	\$2 00	5	22	3	11	4	4
10	Pocket Knife (do. do.)	\$2 50	6	25	3	13	4	4
11	Ladies' Pocket Knife (do. do.)	\$2 00	5	22	3	11	4	4
12	Mutton in Parvo Knife (do. do.)	\$5 50	8	30	4	15	5	5
13	Cake Basket (Lucas Hart Man'g Co.)	\$12 19	19	63	10	33	11	11
14	Casters and Fruit Basket (do. do.)	\$30 00	44	110	22	70	25	25
15	Revolving Butter Cooler (do. do.)	\$8 00	16	52	8	26	9	9
16	Card Receiver (do. do.)	\$7 00	15	49	8	26	9	9
17	Nut-picks and Crackers (do. do.)	\$12 00	19	65	10	33	11	11
18	Half Dozen Napkin Rings (do. do.)	\$6 00	15	45	8	28	9	9
19	One Dozen Teaspoons (do. do.)	\$5 00	15	55	8	28	9	9
20	One Dozen Tablespoons (do. do.)	\$12 00	19	60	10	30	10	10
21	One Dozen Table Forks (do. do.)	\$12 00	19	65	10	33	11	11
22	Child's Cup (do. do.)	\$2 75	7	27	4	14	5	5
23	Gold Pen, Sil. Case (George E. Hawkes)	\$3 25	8	30	4	15	5	5
24	Gold Pen and Silver Case (do. do.)	\$5 00	12	37	6	19	7	7
25	Gold Pen, Handle gold-tipped, (do. do.)	\$6 00	13	37	7	19	8	8
26	Gold Pen and Rubber Case (do. do.)	\$3 00	9	24	5	15	6	6
27	Ludden's Patent Revolving Pencil	\$1 50	4	19	2	10	3	3
28	Ludden's Patent Revolving Pencil	\$3 50	8	30	4	15	5	5
29	Annulet	\$6 00	13	37	7	19	8	8
30	Baby's Chair (L. O. Colvin)	\$4 00	9	32	5	16	6	6
31	Paylor Kaleidoscope	\$7 00	16	52	8	26	9	9
32	Model Floral Set (Moore Man'g Co.)	\$1 00	2	24	1	10	2	2
33	Steam Engine	\$1 00	3	24	2	6	2	2
34	Garden Seeds for a Family (40 kinds)	\$5 00	12	33	6	17	7	7
35	Flower Seeds for a Family (100 kinds)	\$5 00	12	33	6	17	7	7
36	Garden Seeds & Flower Bulbs (Selection)	\$2 00	5	22	3	11	4	4
37	Set of Field Croquet	\$8 00	16	52	8	26	9	9
38	Sewing Machine (Grover & Baker)	\$55 00	60	240	30	120	35	35
39	Sewing Machine (Clarence)	\$45 00	44	176	22	88	27	27
40	Sewing Machine (Willcox & Gibbs)	\$55 00	60	240	30	120	33	33
41	Bickford Family Knitting Machine	\$25 00	33	120	19	60	21	21
42	Washing Machine (Doty's)	\$15 00	21	70	11	35	13	13
43	Clothes Wringer (Best—Universal)	\$9 00	17	54	9	29	10	10
44	Blanchard Churn	\$8 00	16	52	8	26	9	9
45	Heliotrop, Lactone (O.A. Prines & Co.)	\$7 00	18	54	9	28	10	10
46	Melodeon, Six-tone (do. do.)	\$12 00	18	60	9	30	10	10
47	Piano, Splendid Oct. (Steinway & Sons)	\$645 00	630	1550	300	775	330	330
48	Silver Watch (American Watch Co.)	\$40 00	50	150	25	75	28	28
49	Ladies' Fine Gold Watch (Am. Watch Co.)	\$100 00	110	330	55	175	61	61
50	Brace, Ladies' (do. do.)	\$15 00	24	80	12	40	14	14
51	Double Ebl. Gun (Cooper, Harris & H.)	\$50 00	46	150	23	75	26	26
52	Tool Chest (Patterson Bros.)	\$45 00	60	190	30	95	33	33
53	Charles Pratt's Astra Oil (1 can, 5 Gal.)	\$4 00	9	32	5	16	6	6
54	Barometer (Woodruff's Mercurial)	\$10 00	18	58	9	29	10	10
55	Barometer (Woodruff's Mercurial)	\$15 00	22	75	11	38	13	13
56	Buckeye Lactone (do. do.)	\$15 00	18	58	9	28	10	10
57	Patent Cylinder Piano (B. H. Allen & Co.)	\$18 00	27	90	14	45	16	16
58	Collins & Co.'s Cast-Steel Plan	\$25 00	33	120	19	60	21	21
59	Hand Cultivator and Weeder (Comstock)	\$9 00	17	54	9	27	10	10
60	Chook's Broadcast Seed-Sower	\$10 00	18	58	9	29	10	10
61	American Submerged Pump	\$15 00	19	65	10	33	11	11
62	Trap and Sprinkler (Page's)	\$5 00	13	37	7	19	8	8
63	Family Scales (Fairbanks & Co.)	\$4 00	21	70	11	35	13	13
64	Building Blocks (Crandall)	\$2 00	6	20	3	10	4	4
65	Pocket Lanterns (One Dozen)	\$9 00	17	54	9	27	10	10
66	New American Cyclopaedia (Appleton's)	\$80 00	96	325	48	163	53	53
67	Worcester's Great Illustrated Dictionary	\$10 00	18	58	9	29	10	10
68	Any Back Volume Agriculturist	\$1 75	20	70	10	35	12	12
69	Any Two Back Volumes do.	\$3 50	40	140	20	70	24	24
70	Any Three do. do. do.	\$5 25	13	37	7	19	8	8
71	Any Four do. do. do.	\$7 00	15	47	8	24	9	9
72	Any Five do. do. do.	\$8 75	17	57	9	27	10	10
73	Any Six do. do. do.	\$10 50	19	61	10	32	11	11
74	Any Seven do. do. do.	\$12 25	21	68	11	34	11	11
75	Any Eight do. do. do.	\$14 00	23	71	12	37	12	12
76	Fifteen Vols. XVI to XXX (Each odd' Volume at same rate)	\$26 25	36	118	18	59	20	20
77	Any Back Volume Agriculturist	\$2 50	24	84	12	42	6	6
78	Any Two Back Volumes do.	\$5 00	48	168	24	84	12	12
79	Any Three do. do. do.	\$7 50	16	48	8	24	9	9
80	Any Four do. do. do.	\$10 00	18	60	9	30	10	10
81	Any Five do. do. do.	\$12 50	21	71	11	36	12	12
82	Any Six do. do. do.	\$15 00	24	82	12	41	14	14
83	Any Seven do. do. do.	\$17 50	27	92	14	46	16	16
84	Any Eight do. do. do.	\$20 00	30	102	15	51	17	17
85	Any Nine do. do. do.	\$22 50	33	110	17	55	18	18
86	Fifteen Vols. XVI to XXX (Each odd' Volume at same rate)	\$31 50	50	150	25	75	25	25
87	Farmer's Boy's Library	\$5 00	12	36	6	17	7	7
88	Farmer's Boy's Library	\$5 25	16	52	8	26	9	9
89	Farmer's Boy's Library	\$11 26	20	65	10	32	11	11
90	Farmer's Boy's Library	\$15 73	25	85	13	42	15	15
91	Farmer's Boy's Library	\$20 00	30	90	15	45	17	17
92	Any Back Vol. Hearth & Home (Bound)	\$4 00	9	32	5	16	6	6
93	Any Two Back Vols. do. do.	\$8 00	16	50	8	25	9	9
94	A \$10 Library (Your Choice)	\$10 00	16	58	9	29	10	10
95	A \$15 Library do.	\$15 00	24	85	12	43	14	14
96	A \$20 Library do.	\$20 00	32	106	16	53	18	18
97	A \$25 Library do.	\$25 00	38	125	19	63	21	21
98	A \$30 Library do.	\$30 00	44	141	22	72	25	25
99	A \$35 Library do.	\$35 00	50	162	25	81	28	28
100	A \$40 Library do.	\$40 00	56	177	28	89	31	31
101	A \$45 Library do.	\$45 00	62	192	31	96	34	34
102	A \$50 Library do.	\$50 00	68	207	34	105	38	38
103	A \$60 Library do.	\$60 00	80	240	40	119	44	44
104	A \$75 Library do.	\$75 00	100	282	50	141	55	55
105	A \$100 Library do.	\$100 00	125	360	63	180	70	70
106	A Choice of Good Books. (See Description.)							
107	Smoother Harrow (J.J. Thomas & Co.)	\$25 00	38	120	19	60	21	21

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

Full Descriptions

of all the Premiums are given in our last October number, which will be mailed free to 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 73 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 \$13.50. 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 \$23. 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 123 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 Alhata, and warranted double-plated with coin-silver. The Forks with No. 4 are warranted triple-plated with coin-silver. These Forks are also furnished to us by Messrs. Patterson Bros. The Carving-Knife and Fork and the Plated Steel are made by The Meriden Cutlery Co., with the best Ivory, balanced Handles.

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.—Minitum 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. 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 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 book, for \$4. L. O. Colvin, 94 Waverley Place, Newark, N. J.

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 49 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. 107.—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 33 subscribers to *American Agriculturist*, at \$1.50, or 120 do., at \$1, or for 19 subscribers to *Heath 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.

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 B. 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 Wringer 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. 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. 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. 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.

TREES, FRUIT AND ORNAMENTAL, For SPRING of 1872.

We invite the attention of Planters and Dealers to our large and complete stock of Standard and Dwarf Fruit Trees, Grape-Vines, Small Fruits, Ornamental Trees, Shrubs, Roses, New and Rare Fruit and Ornamental Trees, Evergreens and New Plants.

Prompt attention given to all inquiries. Descriptive and Illustrated priced Catalogues sent prepaid, on receipt of stamps, as follows:

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Address **ELLWANGER & BARRY,** Mount Hope Nurseries, ROCHESTER, N. Y.

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American Arbor Vitæ, seven sizes, all transplanted. Also the beautiful dwarf varieties, Hovey's Golden, Hoopes', Heath-Leaved, Parsons', Booth's, etc., etc., in several grades. Irish and Swedish Junipers, Siberian Arbor Vitæ, etc.

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No. 3. Wholesale List for Nurserymen and Dealers.

HOOPES, BRO. & THOMAS, Cherry Hill Nurseries, Westchester, Pa.

C. RAOUX, 35 Maiden Lane, and P. O. Box 2,956, New York City, offers for sale his importation of Fresh French Pear Seed, crop of 1871, and French Nursery Stocks. Price-list sent on application.

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600 Acres. 21st Year. 13 Greenhouses.
10,000 Apple Rootgrafts, strong, \$50
1,000 Pear, Plum or Cherry Rootgrafts, 30
1,000 Std. Pear, extra, 1 year, 3 to 4 ft., 160
5,000 Silver Maples, average 1 foot, 10
10,000 Osage Orange Plants, 1st class, 25
10,000 Concord Grape, or Willow Cuttings, 8
100-Page Illustrated Catalogue, 10 cents.
Flower and Vegetable Seeds, large stock.
Colored Plates, Fruits and Flowers, 5 samples by mail, \$1.
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A special wholesale price-list of Bedding Plants, and Plants suitable for Hanging Baskets, Vases, Rock-work, etc., etc. Ready first of February. Mailed free on application to **A. B. WOODRUFF,** Proprietor, Or, H. C. CHITTY, Superintendent.

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Apple-trees, three years, very fine; Peach, Pear, Plum, Cherry, Small Fruits, Ornamental Shrubs, etc.; White Ash, Elm, Maple, and Chestnut for groves; 2,000,000 Evergreens, two years, from seed well grown, and fine. All at bottom prices. Price-list free.

BARNES, BROS. & CO., Young America, Ill.

IMMENSE STOCK OF APPLE AND OTHER

FRUIT TREES, VINES, & PLANTS, Of Finest Quality, at Astonishingly Low Rates. Extraordinary inducements to wholesale buyers. Catalogues free.
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Apple-trees, one year old, Peach-trees, Conover's Colossal Asparagus, Concord Grape-vines, Strawberry, Raspberry, Blackberry plants, and other Nursery Stock for sale.
Address **CALKINS & BROOKS,** Bricksburg, N. J.

Fruit and Ornamental Trees. Evergreens specialties. Large stock for spring. Send for prices.
J. S. BOYNTON, Stryker, Williams Co., Ohio.

APPLE SEED. Five hundred Apple Seed for sale cheap. **LASSING, WELLS & CO.,** 74 Chatham St., New York.

ARBOR VITÆ, 4 to 6 in., at \$2 per 1,000. Price-list free.
WM. MORTON & SON, Box 1,483, Portland, Maine.

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While our assortment of Flower and Garden Seeds, as well as Seeds of Forest Trees, is as good as it can be, we make a specialty of Field Seeds, and offer at WHOLESALE and RETAIL a stock very superior in variety, excellence, and freedom from foul seeds.

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Wilson's Albany and Charles Downing Strawberry.....	\$0.75	\$3.00	\$25.00
22 other varieties equally low rates. No charge for packing.			
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Kittatiny, Lawton, and Mo. Mammoth.....	1.00	6.00	50.00
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Conover's Colossal Asparagus Roots (1 yr.).....	1.00	6.00	50.00
" " " (2 yr.).....	1.50	8.00	75.00
" " " Seed, Crop 1871, 1/2 bush.....			75c.

1 bu., \$1.25; 10 bu., \$10.
Early Rose and Peerless Potatoes, \$1.50 per bush; \$3.25 per bbl.; \$30 per 10 bbls.; \$275 per 100 bbls.

All persons wishing any of the above should order early. Those living South should attend to it at once, and have them in time. Send for a Catalogue before ordering elsewhere. **THOS. C. ANDREWS,** Moorestown, N. J.

500,000 Grape-Vines for Sale!

Concord, 1 and 2 years, as they ran, \$4 per 100; \$25 per 1,000. Concord, 2 years old, prime layers, only \$5 per 100; \$30 per 1,000. Delaware, Hartford, Diana, Iona, Norton Virginia, Martha, Rogers' Hybrids, Cynthia, Eunelton, and all leading varieties, very extra, and cheaper than anywhere.
Also Chirants, Gooseberry, Strawberry, Raspberry, Blackberry, Roses, Quince, and also a large stock of APPLE, PEACH, PLUM, and CHERRY TREES, most extra, and below market price, for sale. Address **DR. H. SCHRODER,** Bloomington, Ill.

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is now ready, and will be mailed to all applicants inclosing stamp. Address

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The Herstine Raspberry,

The largest and finest-flavored hardy variety of a bright red color. No "root-pruned" or "winter-propagated plants," but strong, well-rooted plants, grown in the open air, and icanvanted genuine. Price \$5 per dozen. Mailed free.
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Choice Grape-Vines for Spring Trade.

Eumelan, Martha, Walter, Crofton, and other choice kinds; also general nursery stock. Merrill & Coleman, Geneva, N.Y.

Shaker Grape Roots.

Ives' Seedling, 2 yr. selected roots, at \$35 per 1,000. Martha, No. 1, at \$20 per 100.
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The largest, handsomest, best, and most productive HARDY RED RASPBERRY. Grown by WM. PARRY, Cincinnati, N. J. Send for Catalogue.

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All the best varieties. Send for Catalogue and How to Grow them. **SILAS WALTON,** Moorestown, N. J.

400,000 STANDARD Pear Trees

at greatly reduced rates, and a complete assortment of Nursery Stock. Address **E. MOODY & SONS,** Lockport, N. Y.

GUANO, BONE, PLASTER.

Best No. 1 Peruvian Guano. Best Gromad Bone. Best Lead Plaster. Sold in lots to suit, to either the farmer or dealer, by **GRIFFING & CO.,** 60 Cortlandt St., New York. Send for Circular.

GUANO. Crude and finely ground Fish Guano, rich in Ammonia and Phosphoric Acid. Warranted unadulterated. Samples on application. Reliable agents wanted. Delivered in New York. **WM. H. H. GLOVER,** Southold, N. Y.

THE ONLY GENUINE MINERAL FERTILIZER IN NEW ENGLAND.

The Grafton Mineral Fertilizer & Destroyer of Insects.

The following is an analysis of average samples of the fertilizer by Dr. Torrey, of New York, and Thos. C. Raymond, of Cambridgeport, Mass.: Silica, 30.30; Protoxide of Iron, 6.27; Lime, 20.60; Magnesia, 11.17; Carbonic Acid, 32.11. Total, 100.45.

THE GRAFTON FERTILIZER IS DEATH

to Canker Worms, Grubs, Rose-Bugs, and all other Plant-Destroying Insects. It protects the plants from insect mischief, and largely promotes the growth of all vegetation. Warranted as represented.

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To Farmers and Gardeners. BLOOD AND BONE FERTILIZER.

\$65 per ton. Equal to best Peruvian Guano. See testimonials of leading Market-Gardeners around New York, which we will send on application.

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GAS LIME, 1 1/2 cent per bushel. For sale at the works of the Manhattan Gas Light Company, foot of West 18th st., and foot of East 14th st., New York.

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R. H. Allen & Co., Dealers in Agricultural Implements, Field and Garden Seeds, and Fertilizers, have constantly in their hands for sale, or can readily procure, **Thoroughbred or Well-bred Live-Stock** of all kinds, from **Shorthorns to Rabbits, from Bronze-Turkeys to Pigeons,** and ship to all parts of the country. Catalogues on application with stamp.

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And breeders of PET and FANCY STOCK of all kinds. Send for the

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a monthly paper, beautifully illustrated, devoted to your interests. It reports all the poultry shows and prizes taken, employs able writers, has distinguished correspondents both at home and abroad, and is the recognized authority upon Poultry matters in America. Subscription price, \$1; each number 10c. Address **THE POULTRY BULLETIN,** P. O. Box 316, N. Y. City.

Plymouth Rocks.

(See illustration in January No. American Agriculturist, page 13.) Eggs from the above, and other fancy fowl. A few fowls for sale. Send stamp for prices.

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CAPONIZING INSTRUMENTS.

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Near Frankfort, Ky., Thorough-bred Horses, Trotting Stock, Imported Alderneys.
J. W. HUNT REYNOLDS.

WEBB SOUTH-DOWNS for sale, from imported stock, by **GEORGE H. BROWN,** Millbrook, Dutchess Co., N. Y.

Premium Chester Whites; Berkshire and Essex Pigs.

Bred and for sale by **GEO. B. HICKMAN,** West Chester, Chester Co., Pa. Send for Circular and Price-list.

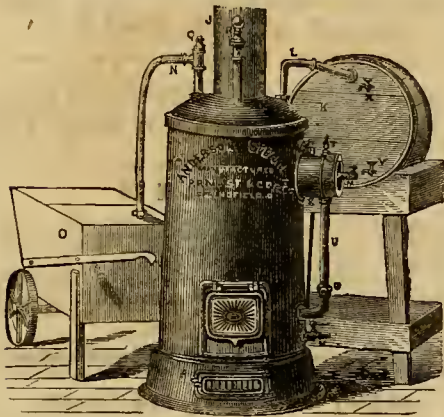
PURE-BRED POULTRY and **BERKSHIRE HOGS.** Over 100 prizes awarded to my stock the past year at the two Poultry Exhibitions and N. O. Fair at Cleveland, O. Prime exhibition fowls now, and eggs in their season, for sale. For references, prices, etc., address **FRANK FORD,** Ravenss, O.

ESSEX PIGS.

Blood of RECENT IMPORTATIONS. Pigs of all ages.
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ANDERSON'S AGRICULTURAL STEAMER, for Steaming Feed for Stock; Heating Cheese Vats, Tannery Vats, Conservatories, etc. This Steamer is made of Wrought Iron, thoroughly riveted and finished in good style. It has a reliable Automatic or Self-Regulating Water Feeder, Safety Valve, Vacuum Valve, Water Gauge Cocks, Whistles, etc., all complete. The boiler is peculiar in construction, being ONE COMPLETE DOUBLE BOILER WITHIN ANOTHER, the two communicating one with the other. It has an extraordinary amount of fire space for the size of the boiler; No. 3, a medium size, having 3,833 square inches of fire surface; consequently, it requires but little fuel to run it. Either wood or coal may be used for fuel.

It will cook more feed or heat more water in a given time than any other steamer of the same size or cost. It is more durable than any other, for the reason that the fire-box is made of wrought iron, and is entirely surrounded with water. We are also manufacturing

Anderson's Low Pressure Steam Heater, for heating Private Dwellings, Stores, Churches, Conservatories, etc. We manufacture for all the territory east of Illinois. For further particulars, address

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Metropolitan Agricultural Works.

Nishwitz Pulverizing Harrow,
The best implement for the purpose now in use, price \$30.
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PHILADELPHIA, PA.,
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Grain and Clover Threshing and Separating Machines.

Address **The Glen & Hall Manufacturing Co.,**
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Catalogues sent free to all applicants.

CARHART'S
Patent Two-Horse
Pulverizing Cultivator

was awarded the First Premium at State and County Fairs in 1870 and '71.
It is superior to the best Wheel Cultivator.
The draft is reduced nearly one half.
The depth you wish it to run is regulated without the use of wheels.
It can be drawn close to a tree or plant without injuring it.
It is not disturbed by short undulations of earth like the Wheel Cultivator; but pulverizes, levels, and fits the ground for the Mowing Machine better than any Cultivator in use, and can be used for more purposes than any other implement on the farm. Price \$20.

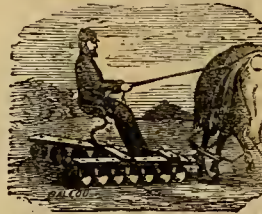
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"March Winds" and "Poor Help" can't prevent owners of a galvanized No. 3 Patent Drill from getting in their peas, guano, etc., evenly and quickly. Made only by **S. L. ALLEN & CO.,** 119 S. 4th, Phila., Pa. Circulars, with abundant testimonials, free.

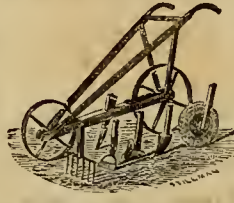
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Not to be Paid for Until Tried.



Do you want one for your own use, or the agency of
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PULVERIZING
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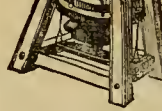
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Copper-Strip Feed-Cutter,
13 sizes, \$10 to \$40. Cut fine or coarse from one to twelve bushels a minute.
Gale's Turnip, Carrot, and Potato Slicer, \$12 to \$20. Send for Circulars to
PEEKSKILL PLOW WORKS,
94 Beekman St., New York, or 61 Merwin St., Cleveland, O.



PRICES REDUCED.
Crawford's Garden CULTIVATOR.
Hand machine for all kinds of Garden Cultivation. Warranted to do the work of 4 men. Send for Circulars.
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LITTLE GIANT LEVER HORSE-POWER.—Strong, Durable, Simple, Cheap. Easy for horses. Will do all work. Persons using them say they are the best. Send for Circular to
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PORTABLE MILLS.
For Corn-Meal, Wheat-Flouring, and Stock Feed.



GRIST-MILL, Two Run of Stone, complete for \$1,200. Bolts, Smutters, Corn-Shellers, and Mill-Work generally.
SEND FOR DESCRIPTIVE PAMPHLET.
ISAAC STRAUB & CO.,
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DANA BICKFORD'S
KNITTING MACHINES
IMPROVED
FAMILY
KNITS EVERYTHING
PRICE \$25.

This Machine starts the work with a selvage edge, and is guaranteed (in its present completeness) to meet every want of the household for either domestic or fancy work.
It Knits Everything.

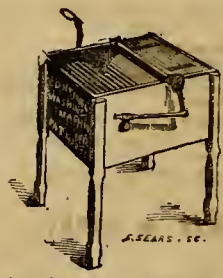
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Bird Houses, Tables, Bird Cages, &c., &c.
SEND FOR A CIRCULAR WITH ENGRAVINGS AND PRICES TO THE TRADE. Address
JAMES KING, - - New Haven, Conn.

CONTINENTAL
WASHING MACHINE.



At the great trial of Washing Machines at Utica, N. Y., under the auspices of the New York State Agricultural Society, on the 22d of September, 1870, the CONTINENTAL won the FIRST PREMIUM, and was awarded the Bronze Medal, also First Premium and Medal at N. Y. State Agricultural Society at Albany in 1871.
It will wash a single collar or any amount of small articles at once up to the hulk of two or three sheets. It will wash the collar or wristband of a shirt, the hem of a garment, the feet of stockings, or any part of any clothing that may require more washing than the rest, and it will wash them clean. For washing bedding, it can not be excelled. A half-grown boy or girl can operate the machine with ease. It does not rub the clothes a particle, and consequently does not wear them or tear off buttons, which alone makes it worth many times its cost. Its action upon clothes is to turn and squeeze, thereby forcing the water through them; the mass revolving in the same.
So rapid, easy, and thorough is it in its operation, that in every case those who have purchased and used it, say they no longer dread washing.

NEW YORK TRIBUNE OFFICE,
New York, Sept. 6th, 1870.
Gentlemen—I have examined your Washing Machine, and heard the testimony of others better qualified than I am to pronounce upon its merits, and I concur with them in regarding it a very good one. I know it will save clothes. I have no doubt it will save labor—while doing its work very thoroughly.
I commend it to the careful attention of all who believe that progress ought to visit the kitchen and laundry, and not be confined to the shop and the field.
Yours,
HORACE GREBLEY.
Messrs. BRINKERHOFF & Co., Auburn, N. Y.

[From Governor Seymour.]
UTICA, Aug. 29th, 1870.
Those who do the washing in my house are very much pleased with the Continental Washing Machine. They did not care to try it at first, but now they think highly of it. It is simple, strong, and easily kept in order. In my opinion, it will prove to be a valuable invention.
HORATIO SEYMOUR
[From S. Willard, M.D., President of Oswego Starch Factory, Auburn Savings Bank, etc.]
AUBURN, Oct. 15th, 1870.

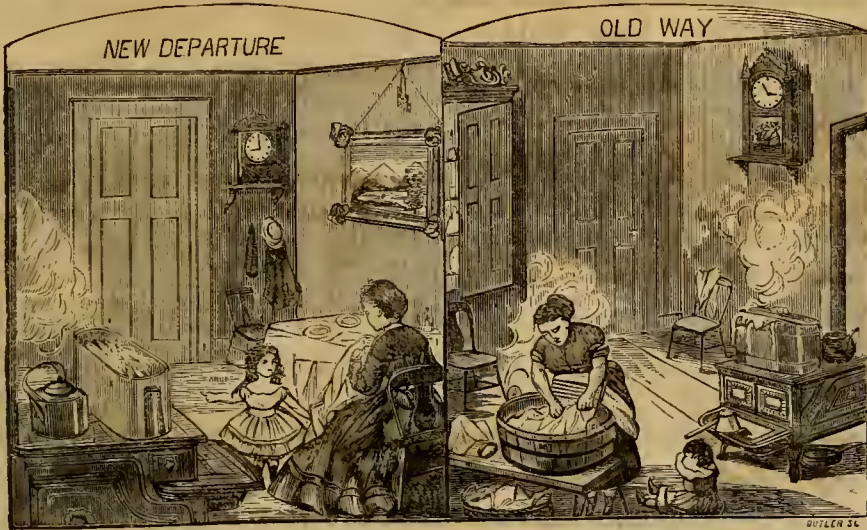
Messrs. BRINKERHOFF & Co.:
After an ample trial of your Washing Machine in my family, it is found to combine all the valuable properties which can reasonably be hoped for from any machine used for that purpose. It is simple in structure, easy to operate, cleanses the fabric with very little labor in a very short time, by a process which neither wears nor tears the most tender clothes. It is truly a boon to the washing family.
Respectfully yours,
S. WILLARD.

All who feel the want of a machine that will fully sustain all the recommendations given, are invited to try the CONTINENTAL, which will be shipped as directed on receipt of the price, \$15.
If entire satisfaction is not given one after four weeks of fair trial, the money will be refunded to all who will thus notify us.
Agents wanted everywhere, to whom liberal inducements will be offered, and exclusive sale given.
Address
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A JUDICIOUS USE OF
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Prepared Harness Oil
Blacking, for Harness, Carriage Tops, etc., and his
LEATHER PRESERVATIVE
AND
WATER-PROOF OIL BLACKING,
For Boots and Shoes, is most excellent economy. These articles are always reliable. Manufactured by
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J. C. TILTON'S STEAM WASHER
 WILL CLEANSE YOUR CLOTHES WITHOUT RUBBING.
 EVERY ONE SOLD IS FULLY WARRANTED.
 NO FLUIDS OR EXTRA SOAP USED.

It consumes less Soap, less Time, and less Fuel than the usual method. It saves Labor, Wear and Tear, and the Annoyance of Wash Day.
It Requires no Attention while the Process of Cleaning Goes on.
It will do the washing of the Family while you are eating Breakfast and doing up Dishes.

(READ CIRCULAR.)

I respectfully ask all to read this circular carefully, and candidly consider what I propose as a matter of business. Before making known my terms, permit me to state that the matter of washing clothes is one of no small consideration; it is something which concerns every family and every individual. It is but recent since **Hand Washing** was in common use. Latterly, however, the inventive genius of the country has been directed to the invention of various devices by which much of the labor, drudgery, loss of time, and wear of material might be obviated. Ponderous as well as intricate WASHING MACHINES have been constructed—many of which are decided improvements over the old method of washing—and these machines have been very salable. People will continue to have Washing Machines; but let me ask you if the **STEAM WASHER** can be constructed for a few dollars (much less than any ordinary Washing Machine), and enable all to wash by STEAM without labor, loss of time, without wearing of clothing, etc., is it not reasonable to suppose that it will supersede, in a great measure, all Washing Machines now in common use? The sale of this WASHER is unparalleled, and must be so. There is nothing like it in use. It is new, and every family needs it, and will buy it. I wish to secure a few good men to sell rights for me, and in order to secure as many as I need immediately, I offer extra inducements.

If you will agree to sell for me, I will allow 66% per cent commission. You shall have the right to sell any County or State for me, and on application I will forward deed to any County or State which you have sold for me, provided I have not already disposed of it before receiving your order.

Many of my patrons have requested me to suggest the best method of selling the **Steam Washer**, in order to make the most money in the shortest time. In reply, I would say there are many methods which might be suggested, all of which seem to work well, but the most prominent of which I will suggest: In the first place, send for a sample and carefully test it. You will learn by a single trial how to wash with it most successfully. All you have to do now is to exhibit it to others. I will suggest that you make an engagement to wash at a certain place, at an appointed hour; manage to have as many present as possible. You will be astonished at the intense excitement it will produce after the water and steam have rushed through the tubes and foamed over the clothing, rushing back through the clothlag to the lower bottom to be suddenly returned again in the same manner—say for thirty minutes—you take out the clothing, rinse, and wring out, and find the clothing perfectly clean. You will find all perfectly delighted with it.

You can take orders from nine in ten present, to be filled afterwards, at prices ranging from \$8 to \$10 each. A single trial in this manner will satisfy you that the **Steam Washer** is a success and will sell. You should lose no time in ordering a deed for your County, to be sent by express, C. O. D., if not convenient to advance the money. You should continue to take orders, and by the time your deed would come to hand you might have a gross sale. You should arrange with a Tinner to make the WASHERS—the price will vary according to style and finish. I have known some agents to sell as many as twenty Washers in a day. After you have introduced it more or less in your County, you can take another County, and rest assured that wherever you get a single Washer into a neighborhood it will sell many more. Consequently, after you have sold a few hundred in a County, you can sell the right of your County for much more than at the start. You can calculate what your gains will be by buying a single County, but this is not a tenth part what you ought to make, for while you are traveling you will meet with many men who want to make money, to whom you can sell rights. There is no business you can engage in which offers such splendid inducements, besides it is a safe business, no loss, and pleasant because it renders perfect satisfaction. I can not see how I can propose better terms. Should I allow my patrons to make their own terms, I scarcely believe they could make better terms for themselves, and make more money.

On the receipt of five dollars I will ship you a complete Washer, extra copper-bottomed, as a sample, together with a Certificate of Agency, with full instructions how to conduct the business. And upon the receipt of the Washer you may have time to test it, and if you find it not as represented I will refund your money. The Washers retail at from \$8 to \$10. After I send you a sample I will hold your County a reasonable time for you to decide whether you wish to purchase or not. I will furnish blank deeds, and will do all I can to enable you to succeed in the business. Let me hear from you soon, or your choice of territory may be taken by some one else.

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S. M. Agents: It don't pay you to fight the best machine. Prove our claims. Get the agency and sell it. Address **"DOMESTIC" S. M. Co., 96 Chambers St., N. Y.**

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MANUFACTURED BY **BLEES Sewing Machine Co., 623 Broadway, N. Y.**

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Our Agents report over \$300,000 worth of property saved from *Five* this year by these pumps, being the most powerful force-pumps in the world, as well as **Non-Freezing.** See October number, page 896, also the Premium-List, page 993, of the *Am. Agriculturist*. This paper never deceives the farmers. See notice in February number, page 45. Try one. If it don't do the work claimed, send it back and get your money, as we warrant our pumps to do all we claim for them on our circulars.

Send for circulars or orders to the **Bridgeport Mfg Co., No. 55 Chambers St., New York.** An order for nine No. 1 Pumps secures an exclusive town agency.

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\$100 to 250 per month guaranteed sure to Agents everywhere selling our new seven-strand WHITE PLATINA CLOTHES-LINES. Sells readily at every house. Samples free. Address the GIRARD WIRE MILLS, Philadelphia, Pa.

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GALVANIZED WIRE AND WIRE CABLE, for Fencing and Vineyard purposes. Imported by LAUGHLAND & CO., 212 Franklin St., New York. Send for priced circulars.

Hinkley Knitting Machine. The Simplest, Cheapest, and Best in use! Has but one needle! A child can run it. Agents wanted in every Town. Send for Circular and Sample Stocking to HINKLEY KNITTING MACH. CO., Bath, Me.

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Watch No. 1089, U. S. Watch Co., Stem-Winder—variation, 2 seconds in 14 Months. I. R. CHITTENDEN, late Reg. U. S. Treas. Watch No. 21,039, U. S. Watch Co., Stem Winder—variation, 7 seconds in four months. S. M. BEARD, firm Beards & Cummings, 128 Front Street, N. Y. Watch No. 10,543, U. S. Watch Co., Stem-Winder—variation, 5 seconds per month. Z. O. PRIEST, Ass't Sup't N. Y. C. & H. E. R. Watch No. 1007, U. S. Watch Co., Stem Winder—variation, only 5 seconds per month. HENRY SMITH, Treas. Panama R. R. Co., 88 Wall St., N. Y. Price Lists furnished the trade on application, including business card. For sale by the trade generally. Ask your Jeweler to see the MARION

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Success the Criterion of Excellence.

Compared with the following well-known Companies, the prosperity of the **EMPIRE MUTUAL LIFE** has been most remarkable.

The average number of Policies issued by the

Empire Mutual in the first 2 years was.....	4,016
Mutual Life.....	21 " " 1,468
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Charter Oak.....	13 " " 1,027
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The ratio of Policies issued in 1870 by the Empire over those issued in 1869 was 167 per cent, and of Receipts, 600 per cent.

Number of Policies issued in first two years, - -	8,032
Annual Premium thereon, - - - - -	\$793,742.45
Amount Insured thereby, - - - - -	\$17,296,406.00
Average Amount of Policies, - - - - -	\$2,153.00
Total Assets at the end of two years, above -	\$700,000.00

Notice the following **Liberal Features:**
Ordinary Whole Life Policies **absolutely Non-Forfeitable** from payment of the first annual premium.

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All restriction upon travel and residence removed and **no permits** required.

One third of all premiums loaned to the insured, if desired, and **no notes** required.

No accumulation of interest on Deferred Premiums, and no increase of annual payment on any class of policies.

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We make separate Brakes for each article. The Flax Brake is well known as the best in any market. The Hemp Brakes are strong, and will break fast and first-rate, taking out nearly all the woody matter. The Ramie Brake will do the work, and clean this new plant as required. Please send for Circular to **JOHN W. QUINCY**, Treasurer, Mallory & Sanford Flax and Hemp Machine Co., 98 William St., New York.

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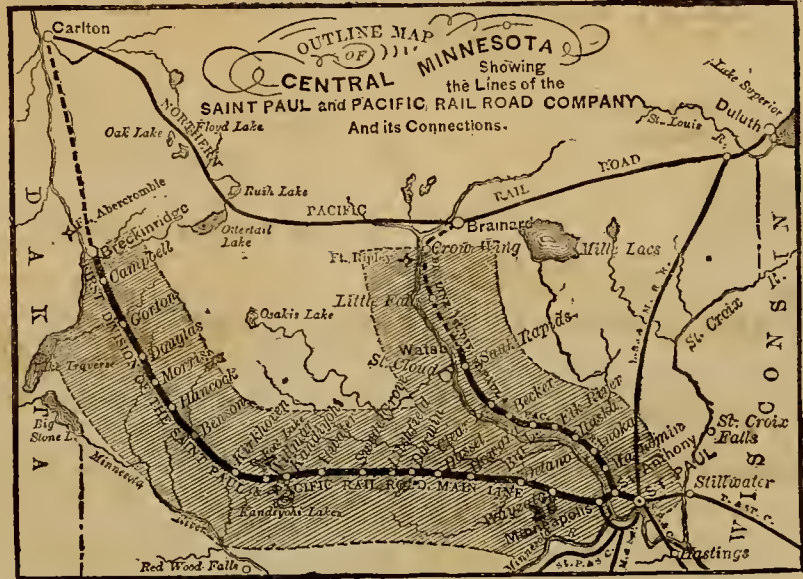
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In twenty flourishing Towns and Railroad Stations.

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Michigan Pine Lands

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The grant of lands to the Grand Rapids and Indiana Railroad Company, to build their Road from Fort Wayne, Ind., to Traverse Bay and Mackinaw, Michigan, comprises in its farming lands every variety of soil, from the rich clay loam, to the light sandy, and they are found in that section of Michigan, north of the city of Grand Rapids, and contiguous to the great fruit belt on the eastern shores of Lake Michigan, now being rapidly developed by railroad and other enterprises.

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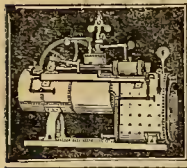
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THEIR

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We consider this the most valuable work that has recently been issued from the American press. It embraces all branches of the important subject, and fills a vacancy in our agricultural literature for which work the author by his many years' experience and observation was eminently fitted. It ought to be in the hands of every owner of cattle; and the country, as well as individuals, would soon be much richer for its teachings.

Journal of Agriculture (St. Louis).

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

N. Y. Tribune.

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

Practical Farmer (Phila).

We think it is the most complete work upon neat-stock that we have seen; embodying as it does a vast amount of research and careful study and observation.

Wisconsin Farmer.

His history of cattle in general and of the individual breeds in particular, which occupies the first 180 pages of the volume, is written with much of the grace and charm of an Allison or a Macaulay. His description of the leading breeds is illustrated by cuts of a bull, a cow, and a fat ox, of each race. The next one hundred pages are devoted to the subject of Breeding. This is followed by chapters on Beef Cattle, Working Oxen, Milch Cows, Cattle Food, Diseases, etc. The arrangement, illustrations, analytical index, etc., of the work are in the best style of modern book-making.

New England Farmer.

The work is one that has long been needed, as it takes the place of the foreign books of like nature to which our farmers have been obliged to refer, and furnishes in a compact and well-arranged volume all they desire upon this important subject.

Maine Farmer.

Whatever works the stock farmer may already have, he cannot afford to do without this.

Ohio Farmer.

It is one of the best treatises within our knowledge, and contains information sound and sensible, on every page.

The People, (Concord, N. H.)

The object of the work, as stated by the author in his preface, "is not only to give a historical account of the Bovine race, to suggest to our farmers and cattle breeders the best methods of their production and management, but to exalt and ennoble its pursuit to the dignity to which it is entitled, in the various departments of American agriculture." From the little examination we have been able to give it, we can not recommend it too highly.

Canada Farmer.

Considering that there are some ten millions milch cows in the United States, and nearly a thousand millions of dollars invested in cattle, the magnitude of this interest demands that the best skilled talent be devoted to the improvement of the various breeds, and the investigation of the best method of so caring for the animals, as to gain the greatest profit from them. This volume will give the farmer just the instruction which he wants.

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New York Observer.

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New York Independent.

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Christian Intelligencer.

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Calendar for March.

Table with columns for Day of Month, Day of Week, and sunrise/sunset times for Boston, N. York, Philadelphia, N. Y. City, and Washington.

PHASES OF THE MOON.

Table showing moon phases (3d Quart., New Moon, 1st Quart., Full., 3d Quart.) for Boston, N. York, Wash'n., Cha'ton, and Chicago.

AMERICAN AGRICULTURIST.

NEW YORK, MARCH, 1872.

It is not easy for us, here at the North, to realize that spring has come. We sometimes have "six weeks sleighing in March," and at any rate it is seldom that much real spring work can be done before the middle of April.

In a well-regulated factory, the manager can often tell what the men will be doing each day, for a week or a month ahead. But it is not so on a farm. We know what work there is to be done, but are never certain as to the particular time when we can do it.

performance of the work he must throw off his coat and labor with his might. He must pay great attention to such important little things as he is inclined to overlook and neglect, and he must study his operations until he finds out what are the points of greatest importance.

Hints about Work.

The first work in the spring, on our own farm, when the snow begins to melt, is to let off any water that accumulates on the surface. No matter how carefully the dead furrows and outlets may have been made in the fall, there is always more or less to be done in the spring, to provide free egress for the water.

Spring is a Good Time to Underdrain.—Unless we can do the work in the winter, spring is the best time to dig underdrains. The land is full of water, and it is much easier digging than in the summer or autumn.

The Cost of Draining depends a good deal on the nature of the land and the depth of the drains. In sandy or mucky land a ditch 2 1/2 feet deep for tiles should be dug, with labor at \$1.50 per day, for 15 cents a rod; 3 feet deep, 20 cents a rod.

Spring Wheat is the first crop to be sown in the spring. We hope our readers will bestow extra pains in putting it in well, for we anticipate considerable demand for wheat next fall.

Barley, taking one year with another, is a well-paying crop on good land and in the hands of those who know how to manage it. But it is a poor crop on poor land. A careless, slovenly farmer, whose land is poor, wet, and foul, should not attempt to raise barley.

Peas for Plowing under.—"J. M.," Portage Co., O. The best pea for this purpose is one with a great amount of stalk and leaves, like the large Marrowfat. Two to three bushels of seed should be used, as the ground is richer or poorer.

vious winter, by sheep; but in this country our heaviest crops are raised on soil of a more loamy character. The essential point on these heavier soils is, to get them thoroughly fine and mellow the year or fall previous. Barley is sometimes sown on a clover sod, but unless it was plowed last fall, it is not a good plan. As a rule, barley is sown on corn stubble, and is followed by winter wheat.

Oats do not require as careful culture and nice judgment as barley, but they will well repay far better treatment than they generally receive. They will grow well on land too mucky for barley, and a great crop is sometimes obtained on heavy clays. We believe in thick seeding for this crop, and would drill in not less than 3 bushels per acre, or 3½ bushels, if sown broad-cast.

Peas should be sown early. If on sod-land, we should plow as soon as the frost was out of the ground, and drill in the seed, 3 bushels per acre, as fast as the land was plowed and harrowed. After drilling roll the land smooth. Two bushels of plaster per acre, sown before or after the peas come up, as most convenient, usually prove beneficial.

Oats and Peas sown together is a favorite crop with us. If the land is rich enough and in good order, and the crop is sown early, a great amount of valuable fodder and grain may be obtained per acre. We would sow 2½ bushels peas and 1½ bushel oats per acre. They can be sown together with an ordinary grain-drill, but it is necessary to see that they are well mixed in the drill. Roll the land after the drill, and pick off everything that would interfere with a mowing machine. On rough land they are a troublesome crop to harvest, but when the land is so smooth that the machine can be set to run as close as a mower, they can be cut and delivered in bundles with a self-raking reaper.

Potatoes.—We are inclined to think that farmers seldom plant their potatoes early enough. If planted earlier and deeper, and the land was harrowed repeatedly with Thomas's harrow before the potatoes came out of the ground, and afterwards, far less hoeing would be required, and we think a better yield would be obtained.

Harrowing Winter Wheat is a practice we would earnestly commend. Many farmers are afraid that the harrow will pull up the wheat, but such is not the case. If the land is dry, a good heavy, forty-toothed harrow will destroy many weeds, break the crust, stir the soil, and greatly benefit the wheat.

Clover Seed can be sown on the snow, or when the ground is frozen hard enough on the surface to make good walking. But when the wheat is to be harrowed, it is necessary to defer sowing clover and grass-seed until the land is dry. Harrow first, then sow the seed, and, if necessary, roll afterwards. If Thomas's smoothing harrow is used, sow the seed first, and then harrow it in. Our own practice is to sow eight quarts of clover-seed alone per acre. Six quarts clover and four quarts timothy is a good and liberal seeding. If the land is intended for pasture, we would add one quart of white clover and four quarts Kentucky Blue-grass. This is heavy seeding, but we think it will pay.

Harrowing Meadows and Pastures is often very beneficial, and we are surprised that the practice is so generally neglected. Put three horses to a harrow, and get on and ride. Harrow the field both ways, and lap, if necessary.

Horses that have had little to do during the winter, and have been kept principally on straw, should now be fed more liberally and gradually accustomed to work. Let them be well groomed. When brought in heated, rub them dry. Do not suffer them to be blanketed in the stable, unless very much exhausted from hard driving. In this case put on a blanket, and rub the legs, ears, etc. Nine tenths of all the complaints in horses are caused by indigestion and consequent derangement of the bowels. Overwork, improper feeding, exposure to a chilling wind when heated, ill-ventilated stables, and want of grooming are the chief causes of indigestion in farm-horses. For colic we know of nothing better than an injection of warm water and soap. If this does not afford relief, give two table-

spoonfuls of laudanum in warm water or ale or whisky. If the pain is very severe, give four table-spoonfuls of ether in addition to the laudanum. If this does not afford relief, repeat the ether every hour, and repeat the laudanum in four hours. Blanket the horse, and set three or four men to rub him vigorously—legs, ears, belly, etc. Fomentations of hot water on the belly are excellent.

Cows.—Treat them gently. Card freely, water regularly, and feed liberally. Nothing is better for a cow at calving than good hay and warm bran-mashes. Give all the water the cow will drink, but for a week after calving take the chill off it. See hints for last month.

Sheep will now require better feed and more care. Nothing tests the judgment of the sheep farmer more than thawing weather and cold rain-storms. The great enemy of sheep is dampness. No sheep will thrive in damp, close quarters, or with fermenting manure under them. Even young lambs will stand dry cold far better than moist warmth. As lambing time approaches, it is well to have the ewes in small flocks, and there should be convenient pens for putting the ewes and lambs by themselves for a few days. Keep close watch of the ewes, but do not be in haste to assist at lambing, until it is necessary. If a lamb get chilled, wrap him in flannel and take him to a stove. If nearly dead, put the lamb in a pail of warm water, as hot as you can bear your hands in. Many a lamb, apparently almost dead, has been saved in this way. See that the lambs get milk enough. A lamb will sometimes suck warm milk from a bottle, furnished with an India-rubber nipple, when it has not strength enough to suck the ewe. Give the ewes good hay and bran, and roots, if you have them. But it is very desirable to save a few roots for the lambs in April and May. Oats are better for the ewes than corn, and this year nearly as cheap.

Pigs.—The low price of pork has disgusted thousands of farmers with the pig business. They have disposed of everything that would sell. Spring pigs that were intended for wintering over, have been slaughtered, and the fresh-meat market has been flooded with last fall's pigs. Breeding sows have been fattened and killed, and the indications are that there will be a scarcity of hogs to fatten next fall. Or, at any rate, there is little probability that there will be an excess. Those who have farrowing sows, should take good care of them. Thousands of little pigs perish every spring for want of proper attention. Farmers have no one to blame but themselves for having sows that will not let them go into the pen, to bestow the necessary care. A savage sow, in a cold pen, with a litter of chilled pigs, on a stormy night in March, is a case not provided for in the books. But with a quiet sow there is little difficulty in saving the pigs, no matter how cold the weather is. The first thing to be done is to stop up every hole or crevice in the pen. Shut the door, and bank it up on the outside with straw or litter. If the pigs are chilled, it is better, as a rule, not to take them away from the sow as long as she will lie down. Cover sow and pigs with a horse-blanket, and tuck them in. The heat from the sow will revive the pigs, and they will begin to nurse. If the sow has plenty of milk, and the pigs take hold, all immediate danger is past. Give the sow plenty of warm slops, such as bran mash, and be sure that she has all the warm water she will drink. In a week feed her richer food.

Work in the Horticultural Departments.

The weather is usually so changeable this month, that it is difficult to give directions for out-door work. Though the winter may have been comparatively mild, March will probably furnish its usual amount of cold and disagreeable weather. Everything should be in perfect order, to commence operations as soon as it is warm enough. The aim of the horticulturist should be to keep in advance of his work, and not allow himself to be driven by it, for if once ahead of him, it necessitates a loss of both time and money. Many of the directions

given last month will apply for this in more northern latitudes. We write for the latitude of New York, where the season is several weeks earlier than in the New England States and northward.

Orchard and Nursery.

Planting.—Whenever the ground is in proper order, plow thoroughly and apply a good coating of manure, which should be harrowed or plowed under. The sooner the trees are planted, if the conditions are favorable, the better, though they may be safely planted two months later if properly heeled in last fall. If any of the trees in young orchards have been badly injured, set new trees in their places.

Manure.—Cart to the orchards as soon as convenient, in order to prevent delay in planting, etc., when the spring fairly opens. If there is snow, the manure may be hauled upon a sled, and save much labor in loading. Supply the stables with plenty of absorbents, in order to save all the manure possible. Fork over the manure-heap once a month, in order to facilitate decomposition.

Root-Grafting ought to be got out of the way as soon as possible, so that no delay will occur in grafting trees in the open ground.

Cions.—Cut when the tree is not frozen, and before the buds start, and if not needed at once, store in sawdust, moss, or sand, in the cellar.

Washing and Scraping.—When the weather is suitable, give the trees a thorough scraping, and afterwards apply a wash, made with soft-soap.

Stocks, budded last year, should be cut back to within three inches of the bud.

Fruit Garden.

It is better to have the fruit garden separate from the kitchen garden, if one is able to do so, if for no other reason that the trees and bushes are liable to be broken in cultivating among the garden crops.

Strawberries.—Prepare the ground for new plantations as soon as possible, and give the old beds a fresh supply of manure and work it in well between the rows. Set in rows two feet apart, with eighteen inches between the plants.

Blackberries.—Set out in rows six feet apart, and allow from four to six feet between the plants, according to the variety. Cut the plants back to six inches before planting. The old plants should have their canes cut back to four or five feet.

Raspberries.—Do not uncover too soon. Plant as soon as the weather will permit, setting the plants four feet apart each way.

Grape-Vines may be pruned at any time in March, when the vines are not frozen, though it is always better to prune in the fall when possible. There are so many different ways to train a grape-vine, that each one can select the style which pleases him best, or adopt several methods.

Cuttings of currants, gooseberries, etc., may be made now, and planted out in trenches prepared for them as soon as the weather permits.

Dwarf Trees only should be admitted to the fruit garden proper. This is a good time to prune.

Kitchen Garden.

As usual at this season of the year we enumerate a few of the sorts of garden vegetables which are known to be good. The seed catalogues of the present day enumerate such large lists, that it is often difficult for a novice to select such sorts as will prove satisfactory.

Hot-Beds.—Directions for making hot-beds have been given so often that it will not be necessary to repeat them here. They should be prepared this month, and when the heat has subsided to 90°, place two or three inches of soil over the manure; after this has warmed through, sow the seeds in rows 3 or 4 inches apart. Admit air every mild day, and water whenever the soil becomes dry. During very cold nights cover the frames with straw-mats or shutters, to exclude the frost.

Window-Boxes are very useful for starting a few early plants of tomatoes, cabbage, etc., where the expense and care of a hot-bed are inconvenient.

Artichoke.—This vegetable is seldom cultivated at the North, but often grown at the South. The seeds may be sown in the hot-bed, and the young plants set out as soon as large enough. Set out in rows three feet apart, with two feet between the rows. The fleshy scales of the flowers are the parts eaten. The Green Globe is best.

Asparagus.—Give the beds a good coating of manure, if not applied last fall; spread also a dressing of salt. Set out new beds of one-year-old plants, two by three feet, after the ground has been plowed and manured. Conover's Colossal is the best.

Beans.—Do not plant in the open ground until all danger of frost is over. Then sow in drills two feet apart. One of the earliest sorts is the Valentine; the Dwarf Wax is the best bush for snaps; the Asparagus is a pole variety, excellent for late snaps, as is Giant Wax. Large Lima is the best of all beans.

Beets may be sown as soon as the ground can be worked, and if there is snow or frost, a board placed over the rows will prevent freezing. The best early beet, the New Egyptian Blood, is from one to two weeks earlier than the Bassano and Early Blood Turnip, which are both good. Sow in drills, one foot apart.

Broccoli requires the same treatment as cabbage. Sow White or Purple Cape.

Cabbage Plants, wintered in a cold-frame, or started in early hot-beds, may be set out as soon as the ground opens, if well hardened off. For early sow Jersey Wakefield, or Winningstadt, and Marblehead, Drumhead, and Flat Dutch for winter.

Cauliflower.—Early Paris and Early Dwarf Erfurt are good early sorts. Treat the same as cabbage.

Carrots.—Sow Early Horn in drills, 12 inches apart.

Celery.—For early crops sow Dwarf White Solid, and Boston Market, in hot-beds.

Corn.—When the ground is warm, plant Crosby's Early, Mammoth Sweet, Mexican, and Stowell's Evergreen, in drills $2\frac{1}{2}$ feet apart.

Cress.—Sow at intervals of a week, in shallow drills one foot apart. Curled is the best.

Cucumbers.—A few seeds of Early Russian may be planted on pieces of sod, in a hot-bed, for early; for general crop, White Spine, and later Green Prickly for pickles.

Egg-Plant.—Sow Long Purple in hot-bed for early, and Purple or Black Pekin for later.

Horse-Radish.—Sets may be planted in well-manured trenches, two feet apart.

Kale sowed last fall should have the soil well worked around the plants, to prevent the growth of weeds.

Kohl-rabi.—Sow Early White in two-foot rows in the open ground.

Leek.—Sow Flag or Musselburgh, same as onions.

Lettuce sowed last fall should be uncovered, and the soil loosened between the rows. Sow seeds in the hot-bed or open ground. Curled Silesia and Tennis-Ball are valuable sorts.

Melons.—Treat the same as cucumbers. Ward's Nectar, Skillman's Netted, and Cassaba are best.

Onions.—Sow in drills 15 inches apart, as soon as the ground can be prepared. Early Red and Yellow Danvers are good for the general crop. Plant out set and potato and top onions for early crop.

Parsley.—Sow the Curled variety in drills one foot apart, after soaking the seeds.

Parsnips.—Dig those left in the ground. Sow Hollow Crown in drills 15 inches apart, early.

Peas.—Plant in double rows Carter's First Crop and Daniel O'Rourke for early, Champion of England for main crop, and for dwarfs McLean's Little Gem is best; the dwarfs should be sown in single rows, one foot apart, and do not require any brush.

Peppers.—Start in hot-bed; the Squash variety for pickles, and Sweet Mountain for stuffing.

Potatoes.—Start a few for early in the hot-bed; those for early planting in the open ground should

be cut and exposed to a warm atmosphere for a few days before planting. Early Rose is the best early.

Radishes.—Sow thickly in rows in the open ground, at intervals of a week or ten days for a succession. Early Scarlet Turnip, Olive-shaped, and French Breakfast are good varieties.

Rhubarb.—Dig in plenty of stable manure around the roots, and if wanted very early, take up a few plants and put them in half-barrels, nearly filled with manure, with sufficient earth on top, and place in a sheltered spot, watering it often with liquid manure.

Salsify which was left in the ground during the winter, should be dug, and seeds sown for the next crop, the same as recommended for parsnips.

Scorzonera is very similar to salsify, and requires the same treatment.

Spinach.—Uncover the beds planted last fall, and in a few days it will be ready to eat. Sow seed for spring and summer crops in drills one foot apart. Round-leaved is best. New Zealand, for summer use, is sown later.

Sorrel.—The French sorrel is excellent for greens, and its slightly acid taste renders it particularly pleasing to most persons.

Sweet Potatoes are started in hot-beds, with two or three inches of compost placed over them, and when the sprouts are large enough, they are replanted in ridges. Nansmond and Southern Queen are the best for northern latitudes.

Squashes.—Summer Crookneck for early, and Boston Marrow and Hubbard for late.

Tomato.—Sow seeds of Trophy and Early Smooth Red in the hot-bed or window-box.

Turnips.—Sow Flat Dutch for early use, and Red and White Strap-Leaf for later; White French and Yellow Stone for ruta-baga sorts for family use.

Seeds.—Where roots are to be planted for seeds, they should be set out early, and the earth drawn up around the crowns to prevent freezing; when all danger of frost is over, it may be removed.

Flower-Garden and Lawn.

Annuals.—Sow a few seeds for early flowering in window-boxes or a hot-bed. Hardier varieties may be sown in the open ground, in sheltered places.

Lawns.—Gather up all rubbish which has collected during the winter, and if there are any spots where the grass has been winter-killed, sow fresh seed, and rake it in with a steel garden-rake. Give a compost of well-decomposed manure.

Walks.—Have all walks properly rolled and cleared of leaves, etc., which may have collected, and keep the center of the walk a little raised, to allow the surface water to run away.

Shrubs.—Prune, where needed, and cut off all broken branches.

Edgings.—Where box is used, re-set as soon as the ground is dry enough.

Greenhouse and Window Plants.

The increasing heat of the sun will render fire-heat less necessary, though the fires should be kept up during the night, as a sudden change of temperature might do considerable damage. Admit air freely, whenever the weather is mild.

Propagation.—At this season the gardeners should prepare a large stock of plants for planting out.

Azaleas.—As the plants begin to flower, give more water, and see that they are sheltered from the drip, which soon spoils the flowers.

Camellias which are just starting into growth should be allowed a little more heat and water.

Dahlias.—Place a few tubers in the greenhouse, to secure plants for early flowering; when the sprouts are two or three inches long, pot into rich soil.

Climbers, such as Passion-Flowers, Wax-Plants, etc., should have their branches trained to the rafters of the greenhouse, and kept properly tied up.

Bulbs which have flowered must be gradually dried off and stored in a dry place, ready for another year.

Roses.—Give the bushes liquid manure occasionally.

AMERICAN AGRICULTURIST.

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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, \$1.00 each; Twenty copies and upward, \$1 each. Papers are addressed to each name.

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N. B. - - - 1

Spring Work is coming on, and thousands of people will gladly avail themselves of the Hints and Suggestions given in the *Agriculturist*.

N. B. - - - 2

HEARTH AND HOME (weekly), with its 20 large pages, full of Good Things for old and young, including an average of \$500 worth of Instructive Engravings in each number, is the best journal for the family—for every Home. It is everywhere very popular.

N. B. - - - 3

Any one taking copies of the above two papers, (specimens free,) and showing them to his or her friends or neighbors, can quickly gather names enough to secure one or more of the very valuable articles on page 119, each one of which is fully worth the same as money.

N. B. - - - 4

Four Months' time yet remains to make up premium clubs, as they will remain open until June 30th. This month is a good time to begin a club, or to fill one up and start another. Every name sent in on account of a premium list is credited to the sender, and he can fill up the list at leisure.—See list of good articles on page 119. They are all *new, first-class, reliable, valuable—just as good as money*. The assortment is so large that every one will find something needed. See page 119.

Over 13,500 Others

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WITH PLEASURE AND PROFIT,
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YOU may do the Same.

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.

See Page 119.



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 Volume Thirty are now ready. 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.

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 \$3; making a club of 20 at \$1 each; and so of the other club rates.

SOME YOUNG LADIES complain that our publishers have given premiums to men, to boys and girls, etc., but never offered any special premium for young ladies. They forget the pianos, and many other things in our general list, but even these complaints are now done away with, in part at least. The new \$10 Sewing Machine, offered on page 83, is of special value to young ladies. They can easily collect subscribers enough among their friends to secure a sewing machine all their own.

Manuring by Pasturing.—"A Subscriber" asks whether drove cattle pastured on grass land at ten cents per head, after the grass has been cut, would be as cheap a way of manuring the land as hauling manure six miles, and paying \$1.50 per one-horse load. If the cattle are mainly full-grown and in good condition, and the manure left by them is well broken up and spread, and the money received expended in bone-dust and applied to the land, it will be more cheaply managed than by purchasing manure as stated.

When to Spread Ashes.—"J. J. L.," Crisfield, Md., asks the best time to spread ashes, and are coal-ashes worth saving as manure?—Spread ashes early in spring on grass or wheat; for corn or potatoes throw a handful in the hill at planting. Coal-ashes are worth but little on light soil, and but little more on heavy soil, except to loosen the texture.

Price of Drain-Tile.—"J. M. Hubbard, Middletown, Ct.," thinks the cost of drain-tiles mentioned in January number, viz., 20 cents per rod, too low (his cost \$25 per thousand). The cost there given was that actually incurred by us about three years since. Tiles, 1½ and 2¼ inch, are quoted at \$15 per thousand by a dealer in New York, length 15 inches, which will bring our estimate about right.

Fish Manure.—"A. Hampton lives on the bank of a river swarming with fish, and wants to know how to use them on his land.—First catch them, then pile them in layers, with swamp muck or earth, until rotted, then turn over once, and when heated, once more; cart on to the land and spread broad-cast on grass, or plow in for corn, wheat, or roots. One cord of fish to six or eight of muck will make a rich manure, equal to the best stable-manure. It is excellent for all crops.

Mad Itch.—"K. K.," Caput, Mo., found one of his cows with swollen head and jaw, and one eye nearly closed. She rubbed her head violently against a post until the hair was taken off, and pawed the ground and appeared wild. He drenched her with salts and

sulphur, and bathed her head with salt and water, but ineffectually. She died in a few hours. Was the treatment correct?—Nothing more could have been done in the effort to cure. The disease was "mad itch," but possibly, had sulphur been fed regularly, an ounce once a week, the complaint might have been averted. The usual treatment is a dose of one pound of sulphur, followed in eight hours with a pound of Glauber salts.

A Batch of Questions.—"Geo. S. W.," Chatham, N. Y., asks if the articles on An Egg Farm are based on actual experience?—Yes. What is the best kind of millet for seed, average per acre, time to sow, and value of straw?—The true millet (*Panicum miliaceum*), sown early in spring, produces 25 to 30 bushels seed per acre, on good soil; hay, when ripe, is equal in value to oat straw. Will coppers injure night-soil?—No.

How to Use Muck.—"C. O. B.," Pike Co., Pa., asks how he shall use muck, and what is the best artificial manure to mix with it? Muck should be dug in the winter, and exposed to the weather. The frost will reduce it to a fine condition, the summer's heat will cause it to ferment, and then it will be in a fit state to spread upon grass lands. There are many tanneries in Pike Co., Pa., and the refuse from them would be valuable to compost with muck. Fish-guano or bone-dust might well be mixed at the rate of a barrel to a cord of muck.

Hungarian Grass.—"A. J. W.," Port Gibson, Miss. Hungarian grass, Hungarian and Cat-tail millet, are all different names for the same plant, *Setaria Germanica*, usually called Hungarian grass. For a fodder crop it would be better to sow rather thickly, say twelve quarts per acre, in a succession, rather than depend on repeated cutting of the same sowing. When the straw is ripe, it is coarse and harsh, and considered poor feed. If the soil is not rich, a good crop can not be expected.

Hand Thrashing-Machine.—"J. H. Z.," Lancaster Co., Pa., asks our opinion of the hand-power thrashing-machine. We have no confidence in what is claimed for it. No combination of machinery can increase the motive power of a machine, without decreasing, proportionately, the velocity; nor can the velocity be increased without an increased expenditure of power, so that any way a man's power is not added to: the only advantage there can be is in the better application of the power than with the flail.—J. H. Z.'s answers to pruzzles should be sent to Aunt Sue, P. O. Box 111, Brooklyn, N. Y.

To Dissolve Ground Bone.—"S. C. S.," Aiken, S. C., asks, What proportion of sulphuric acid is required to dissolve ground bone? Twenty-two pounds of acid will dissolve one hundred pounds of bone. But the Charleston phosphate is not bone, and contains no animal matter; and a larger proportion of acid is necessary to dissolve it; we do not know the exact quantity, but it can be easily determined on trial; probably 50 pounds.

Curing Clover.—"Subscriber," Richland Co., N. Y., asks the best way to cure clover. We cure by putting it in cocks, after lying in the swath until near sundown, and keeping it twenty-four hours in that condition. It heats during the night, but in the afternoon of the second day it is in good condition to put in the barn. The exposure in loading and unloading carries off all excess of dampness.

Shall He Go West?—"D. W. H.," River Styx, Ohio, has twenty-five acres of land, in a good locality for fruit and gardening, near three railroads, and asks: Can he better himself by going West?—He can get a larger farm, but with more land he will have less comfort, and in ten years may be no better off than he now is, and less than he may possibly be, if he should stay in Ohio. The landless are those who should go West.

Early-laying Pullets.—"J. W. P.," Goffstown Center, N. H., alludes to our statement in the February number respecting Brahmas laying when six months old, and has a story to beat it, and about the "common sort of fowls" too. He says some of his pullets laid last summer before they were five months old, and one commenced to sit before she was five and a half months of age. He adds, "It is care that brings the eggs along more than extra breeds." Our correspondent's case is not unexampled. Instances have been known where pullets have laid in fifteen weeks from the time they were hatched. It is pretty well agreed among poultry-keepers that the common fowls can not be as well relied upon to lay at the age of five or six months as the Brahmas. The normal time of commencing to lay is at the age of twelve months, and early maturity is possible only under highly artificial influences.

Breaking Oxen.—"Subscriber," Sandy Spring, Pa., wants to know something about breaking oxen. Any one who can drive oxen can break them, if he commences when they are yearlings. A light yoke and bows should be made, and at first the steers should be led around with a cord and taught to understand the words of command and the duties required of them. When this has been well learned, a light sled or cart may be made for them, and when three years old they will be found useful for light work. According to the skill and patience of the breaker, they will be docile and laud, or otherwise.

Shall He Improve his Common Stock?—"F. R." asks whether to improve the common stock would not lead to a higher system of farming?—Certainly, and this course is open to every farmer who wishes to rise in his profession and improve his condition. Improved stock comes through improved ideas, and they result in improvements all around.

Warbles.—"W. S. G.," San Diego, Cal., has discovered a number of small lumps along the back of one of his heifers, in which a grub is concealed. These are warbles, or the larvæ of the Cattle Bot-fly. If left alone, the grub will escape when it is mature, and no injury will result. But the grubs may be discharged by pressing the lump between the two thumb-nails. After this the opening will heal. The grub should not be destroyed in the skin, or suppuration will take place.

Pawlonia.—"L. D. Scott, Ohio. We notice that some journals are helping some speculators to revive this tree, which had its day years ago. It grows very rapidly when young, and is no harder than the Catalpa. Its merit is in its flowers, which around New-York escape winter-killing probably one winter in three. It will bloom regularly farther South, but then it has the insuperable objection to an ornamental tree that its large clusters of seed-pods remain on until beaten off by the winds. This much disfigures the tree, and in our eyes condemns it, except as a curiosity.

Harrowing Wheat in Spring.—"D. W.," Holton, Kansas, asks if it would be better to go through his fall wheat in the spring with a harrow, or with the drill. When wheat has been drilled, the drill may be run through in the spring with advantage, but a light harrow would more effectually stir the ground and not injure the plants. We use the Thomas harrow for wheat.

Produce of Fifteen Hens.—"An octogenarian writes that his flock of fifteen hens averaged one hundred eggs each from January 1st, 1871, to the 27th of the December following. They were the common breed, and were fed regularly twice a day with wheat bran and Indian meal, scalded with hot water or milk, a little pepper occasionally, and the scraps from the table, and a small allowance of wheat and corn in the kernel.

SUNDRY HUMBUGS.—Any man wishing to spend \$500 or \$600, or more, in a sacrifice to his vanity, can be accommodated by a "publishing firm" that professes to enroll ever so many distinguished men in a grand book, with a steel portrait and biography of each one—that is to say, each one who will "come down" handsomely with greenbacks to pay a big price for the steel plates, and half a dozen other big prices for as many of the big books. From the number and kind of men approached by said Publishing Company, we judge that the chief thing necessary to be done to become distinguished, is to raise the needed greenbacks. This is an age of progress and improvement. To be ranked alongside of the "eminent" men of the nineteenth century, one need not work, toil, study, and strive through a long series of years; a lucky strike in trade, or speculation in vacant lots, yielding a few hundred dollars, will do the thing. If the speculation yield \$1,000, we suppose it will secure a rank in this book as the most eminent man of the age, unless some richer, vainer speculator outbids you for the place. . . . Omaha, Neb., seems to be a kind of head-quarters for the gift enterprise operators. Nobody but quernhorns and very foolish people will bite at the several apparently tempting baits, issued in flaming circulars, extras of newspapers, etc., from Omaha, but not many of such people will read this journal, and we will not devote space to analyzing the schemes. These last remarks apply equally to the Magnolia, Iowa, gift enterprise, and sundry other like schemes in various parts of the country, especially West and South. One number (Vol. I., No. 1) of a paper is issued in the interest of these schemes. . . . Several "queer," or "sawdust," or pretended "good" counterfeit money operators are still at work. A majority of these now use Masonic or I. O. O. F. symbols as a blind. No member of these orders is ever allowed to use these

symbols for business purposes. Here are some of the new and old names assumed by these swindlers: Amos Wainwright, 170 Broadway, Trenton, N. J., and N. Y. City; Dennis Dunn, *alias* G. C. Peck, 16 South Fifth Avenue, N. Y. City; John Hood, Jr., Wilmington, Del., and at corner Broadway and 29th Street, N. Y.; Rowley & Son, 176 Broadway; Albert Todd, 79 Nassau Street, N. Y. . . . The jewelry prize scheme of Pardee & Co., at Binghamton, N. Y., has, we believe, been shut up by legal process; if not, it should be at once. . . . Reuben Graham, P. O. Box 153, Williamsburgh, N. Y., sends out circulars advertising obscene prints, pictures, etc., under the thinly disguised plea that they are exposures of tricks, etc. Parents and guardians should be careful that their children and wards do not receive these circulars by mail; and the post-master at Williamsburgh will of course stop all letters coming to such a demon, whose proper address is in the lower regions. Such operators usually pocket the money sent them, sending nothing in return; or if they do respond with their poisonous trash, it is done from some out-of-the-way point. Furthermore, their patrons are not likely to come forward as witnesses and expose their own shame; this is the reason why such swindlers so generally escape the State Prison. . . . **Operators in Maine.** Every month we have more or less complaints against the operations of two parties at two points in Maine, which indicate a good deal of sharp dealing, if not positive swindling. We will be obliged to our readers if they will send us positive, definite accounts of what they know of these operators in books, papers, sewing machines, recipes, agencies, and a host of implements, medicines, gin-cracks, etc. We only desire to get at the facts, in reliable, responsible form.

A Capital Story is the "Hoosier School-Master"—or Life in the West. It is now published in a fine bound volume, and is so highly prized that the printers can scarcely keep pace with the demand for it. Price, prepaid, by mail, \$1.25.

Which is the Best Stock?—"F. E. D.," Wayne Co., Pa., asks, Which is the best stock, for size, beauty, beef, and butter?—For size, beauty, and beef, the Shorthorn is pre-eminent, next the Hereford. Sometimes these breeds are good at the pail. For butter and beauty only, the Jersey or Guernsey (the name Alderney is dropped now, but it includes both these) are best. There is no one stock that can be said to be best in all points, under all circumstances. The Ayrshires are beautiful, make good beef, and are good milkers, but are of moderate size. Devons are good beef and workers, only.

Kidney-Worms in Hogs.—"I. L. L.," can probably cure his hogs affected by the kidney-worm, which causes paralysis in the hind parts, by giving half a teaspoonful of copperas daily in the feed, for a few days. Salt, ashes, charcoal, and sulphur, given occasionally in the feed, is a complete preventive.

Mink-Raising.—"W. J. McC.," Reid City, Mich. There is no difficulty about it. First catch the minks. Make a tight-boarded yard, with water-tanks, hiding places of rock-work and dark retreats, with separate apartments, where the breeding minks can make their nests and be shut up when necessary. Feed on livers and fresh fish. Keep clean with dry earth. Abundance of fresh water is required. Close observation is necessary to understand their wants, which must be attended to. We can not say if it has ever been made profitable, but doubt it.

A Good Fowl-House Needed.—The following explains itself. "Dear *Agriculturist*: I have been a reader of your paper for years and enjoy it much, but there is one thing I regret, it does not stir my husband to farming up to the times. I have been coaxing him for years to build a henery. I like raising fowls; my children delight in helping take care of them. We have over two hundred light Brahmas, besides dark ones, and other breeds, and my greatest grievance is that they will freeze their feet roosting in the trees this winter. Now, if you will print something to induce my husband to build a house for them, I will continue to subscribe to your excellent paper so long as I am an inhabitant of this planet." We give the above in full, because sensible that it is better than any argument that we can make. If repeated home admonitions have failed, and this in type does not take effect upon the lady's husband, then we give him up as incorrigible.

How to Feed a Heifer Coming in.—"F. M.," proposes to feed a heifer soon to come in as follows: Hay three times a day, with 6 quarts of potatoes and yellow turnips, daily, until three weeks of calving; then change the roots to two quarts of oats per day, until the time is up, when he will give her two quarts of meal

with four quarts of carrots. This will be good and judicious treatment. If she is a large milker, the quantity of meal may be doubled.

Navicular Disease.—"Subscriber" asks for the treatment of navicular disease of long standing. It will most likely be found past cure. The horse may be eased of the acute pain by dividing the nerve, an operation easily performed by a real veterinary surgeon.

Cure for Cribbing.—J. Teackle, Baltimore, sends a cure for cribbing, which is a basket of wire fixed on the nose by straps over the horse's head. This comes below the nose, so that the horse can not get hold of the crib, and the practice is prevented. We should like to see a drawing of this nose-basket.

Seeding a Marsh.—"E. M.," Hillsdale, wants to seed a marsh to grass; has got the ground harrowed, but too late to sow in the fall.—Sow early in spring. The mixture of timothy and red-top, half and half, is proper for this purpose. In time the red-top will crowd out the timothy, unless the ground is dry.

Manure from Straw and Grain.—"E. M.," II., asks which is of most value, the manure from cattle fed on hay, or that from those fed on straw and grain. Either will be poor enough, unless considerable grain is fed, when that from grain and straw will be the best.

Earache in Horses.—"W. E. G.," asks, "Do horses suffer from earache, and what is the cure?" Doubtless. Make a sack to fit the upper part of the head, and apply a warm fomentation to the base of the ear.

Depth of an Artesian Well.—"C. K. R.," Schuyler, Neb., asks how to tell the depth necessary to bore for water in an artesian well. If the geological character of the country is sufficiently well marked, a geologist might make an estimate which might turn out nearly correct. But there are very few localities where even a guess could be hazarded. In your position (Platte valley) it would be safest for your neighbors to join you in the expense of testing the depth of an underground stream, as they would be equally benefited with you.

Salt in the Garden.—"J. H.," Mayfield. Your waste salt may be used to advantage upon the asparagus-bed, at the rate of five bushels to the acre, applied before the plants start. Onions, when four or five inches high, are benefited by the application of about three bushels to the acre. It is useful, according to some, as a dressing in the cabbage field. There is but little positive knowledge as to the fertilizing value of salt, but several good cultivators agree as to its utility in the cases above named.

The Right Sort.—"R. M. T.," writes that "reading the *Agriculturist* induced me to buy a farm about two years ago, and the more trouble I have the more I seem to like it." That man don't loaf at the grocery and complain of hard times and bad luck.

Curenlio, Lady-Bugs, Borers.—"A. J.," Smyrna, Tenn. "The Curenlio" is a dark gray or blackish snout-beetle that deposits its eggs in plums and other fruit. There are hundreds of species of Curenlio, but the one called by fruit-growers "the curenlio," is the chap that makes such havoc with plums. All red and black lady-bugs are your friends. They are around your apple-trees in search of plant-lice. Apple and peach borers are insects; the sap-sucker, although it bores, is not a "borer" in the accepted term.

Now for those Peach-Buds.—This is the time when we look out for dead peach-buds. We don't know how peaches grow, but we are quite sure that the buds are all killed every year—at least by those who bull or bear (we don't exactly know which) the peach market. Peach-buds were badly killed last spring, but in September loads of peaches were thrown away, to save the baskets. This spring every bud is as dead as a door-nail, yet we shall probably get our Delawares at a dollar a basket, or less.

Northern Pacific Railway.—By the opening of the European markets to the Northern Pacific Railway loan, a new interest has been awakened in the Northern road that is now pushing out rapidly towards the Pacific. The mutual interests, commercial and political, existing between the East and West of our great country render it imperative that there be abundant, speedy, and uninterrupted railway communication. There will soon be business for several railways. The Northern and Southern routes are even more feasible than the central one; while, of

the former two, the Northern one will have the advantage of passing through a rich agricultural region, in nearly its whole course, that will furnish an immense local travel and traffic, instead of running through broad, arid plains. There is a popular error in regard to high latitude and cold climate of the country traversed by the Northern route. A glance at the map will show that in nearly all its course it runs on a latitude corresponding with the north of France, Austria, and Southern Russia in Europe. Minnesota is one of the finest wheat sections, and similarly fertile regions of country are found stretching away westward towards the Pacific. All the inhabitants of Sweden, Norway, and much more of Europe, would find a warmer climate, more generous soil, and abundant room between Minnesota and the Pacific coast. The wonderful natural scenery along the Yellowstone River, now coming into notice, will ere long attract immense throngs of visitors from all parts of the country and from the Old World, and these sight-seers will pass over this road. So much for the future of the Northern Pacific Railroad. In answer to numerous inquiries from our readers, we will add that we do not see how the Bonds of this road can fail to be a safe investment, with the large business the road must ere long enjoy, and with the fifty-seven million acres of land granted by Congress as an additional security. Other inquiries are answered in the advertisement of Messrs. Jay Cooke & Co., on last cover page.

The Trophy Tomato.—W. R. Woodard, of Chicago, to whom we sent, last spring, a packet of Trophy Tomato seeds as a premium, writes: "I was rather surprised to read the account of the competition on the Trophy Tomato in your last. I anticipated much larger things than are there recorded. A packet of seed, which I received in April, as a premium, and planted in a box in the kitchen window, produced plants that in August gave me better results than any you there mention, and that, too, without receiving anything like proper care. A dozen plants, which I took the last of April, when three inches high, to Mercer County, gave, under the very good care they received, the largest and best tomatoes I ever heard of, the largest weighing 36 ounces, and those weighing 25, 30, 34, being numerous. Without care it has done better than any sort I ever tried, while it seems to me to yield better returns for extra care than any other, and I have for years made it a rule to try every new tomato that I hear of."

To Preserve Trees from Rabbits.—"R. W. M.," Kent, Ohio, preserves his fruit trees from rabbits and sheep by washing them with a mixture of fresh cow-dung and water. This is always available, while blood is not. This will do for rabbits, but sheep or goats should never be permitted in an orchard.

Gray Squirrels and Maple-Trees.—"E. C. B.," wrote from Embarrass, Wis., last March, "Why do gray squirrels gnaw the bark from the branches of the sugar-maple? An army of them have lived in a sugar-bush belonging to my brother, the past winter, and on many of the trees the whole of the upper branches are completely denuded of their bark. Some small saplings are stripped from root to topmost twig. As late as two weeks ago he shot one in the act of gnawing off fresh bark. Did you ever hear of a like circumstance? There is even now a plenty of acorns near by, but they seemed to prefer the bark."—We never heard of this trick of the squirrels. They probably do it for a change of diet.

Cranberry Culture.—"S. K. K.," asks if it will pay to make a cranberry meadow, where the preparation will cost \$280 per acre, and where he can flow the land—but not at will—and where frost is liable to affect the vines.—We fear the experiment is a risky one. The time for extreme high prices for cranberries is past, and for the future calculations must be based on an average of five or six dollars a barrel, or even less.

Cuttings of Grapes and Currants.—J. F. Herrick, Ky. Autumn is much the best time for making these cuttings; with currants particularly, nearly a year is gained. They can be made now with a fair show of success. As soon as possible, when the plants are not frozen, make cuttings of the wood of last year's growth. Cut the currant wood into pieces of six inches and the grape into lengths of two or three buds each, as most convenient. Tie the grape-cuttings in bundles, tops all one way, and bury in the cellar, or in a place outdoors where water does not stand. If possible to work the ground, set the currants at once; if not, bury them and set at the earliest day. Set in a trench, leaving one bud above surface, and crowd the earth well against their lower ends. Put the cuttings four to six inches apart, keep free of weeds through the summer, mulch when dry weather comes, and in fall set where they are to grow. Put out the grapes when the soil is warm and mellow, in

the same way, one bud at the surface, mulch with leaves, and water if need be. Some varieties of grape can not be grown in this way, such as Delaware and Norton. Do not set cuttings where they are to grow, but give them their first year in a bed.

Pine-Wood Ashes.—“J. M. W. K.,” Morristown, finds that Dana in his “Muck Manual” states that pine-wood ashes contain four times as much potash as hard-wood ashes. Dana, on the authority of Berthier, certainly says this; and J. F. W. Johnson (Johnson’s Agricultural Chemistry), on the authority of Sprengel, says that beech-wood ashes contain ten times and oak seven times as much potash as pine ashes. Sprengel, and not Berthier, is correct; we never saw or heard of potash made from pine ashes, while it is largely made from those of hard wood. No backwoods house-keeper would think of using pine-ashes for her soap.

Value of Tanners’ Refuse.—“C. S. E.,” Peabody, Mass. Tanners’ refuse is composed of lime, hair, and some animal matter, and is useful as a top-dressing to grass lands, or for orchards. It can hardly be compared with stable-mannure, as it contains no potash or phosphoric acid, and is rich only in lime and nitrogen.

Value of Marl.—“G. A. P.,” Charlestown, W. Va., has a bed of marl, composed of the following: Organic matter, with traces of ammonia, and water, 15.60 per cent; carb. of lime, 54.60; peroxide of iron and alumina, 2.40; silica and insoluble silicates, 27.40. What is its value as a manure, and in what quantities should it be used?—This marl is of value only for the lime and ammonia; it would make a good material to compost with swamp-muck as a dressing for grass lands. Alone, three or four tons per acre would be a proper quantity to apply on a meadow. Its value is about one dollar per ton, but might be increased by burning.

Hen Manure.—Vindex, Long Island, has ten barrels of hen manure, and now the question occurs, “What will I do with it?” Poor man! we are sorry for you; head up the barrels tight and pay the freight to our place and it won’t trouble you anymore. When it arrives, we shall mix it with two or three times its bulk of the driest earth at hand, shovel it over and mix thoroughly, and put it in a heap, with a few inches of earth over that. If it does not heat in a few days, we shall make the heap over, and wet it as we go, and cover the new heap with earth. If any ammonia escapes, put more earth on the heap. It will soon disappear as hen-mannure and be incorporated with the earth, and we shan’t buy any guano this year. We shall use it for corn and all sorts of quick-growing crops, top-dress cabbages, and anything else for which we would use guano. As it is very strong, it will not do to put it in direct contact with the seed. If he chooses to take the trouble, “Vindex” can do this himself, but we should be glad to do it for him.

Swindled in Eggs.—A correspondent in Wisconsin wishes us to expose the manner in which an individual in Chambersburgh, Pa., swindled him in an egg trade. He ordered geese, duck, and hens’ eggs, and sent the money to pay for them. The hens’ eggs came, and not a single one hatched. No duck nor goose eggs were received, nor has our correspondent been able to get the money back. We are always ready to expose swindles when we have the documentary evidence to back us. While we have not the least doubt that the case is as our Wisconsin friend represents, we should be subjected to great inconvenience were we called into court to answer for publishing it in full. The Chambersburgh man has long been denied admission to our advertising columns.

Manufacturing Bone Manure.—C. H. Stoffers, Knox Co., Tenn., wants to engage in making bone manures in a small way, and asks what the machinery would cost. It will not pay to engage in this business in a small way; the mill for crushing bones alone would cost \$150 to \$600. The mill figured in the *Agriculturist*, November, 1871, p. 417, might be built for \$150, without the power. The vats for dissolving the bone, and machinery for pulverizing and preparing the superphosphate, might cost \$150 more for a small manufactory. A power of six to ten horses is necessary to grind so tough an article as bone.

Seeding Down Corn with Clover is sometimes adopted with excellent results. Cultivate the corn on the flat, and after the last cultivating, say in July, mount a horse, and with a Cahoon’s broad-cast sowing machine sow five quarts of clover seed per acre. If the ground has been thoroughly cultivated and is moist and mellow, the clover will soon start; and if it should not, go over the field again after the first rain, and sow six quarts of timothy seed per acre. We would suggest this plan to J. T. B., of Maryland. His five-field rota-

tions would then be: 1. corn, seeded with clover in July; 2. clover, pastured; 3. pasture or summer fallow, and sow with wheat in the fall; 4. wheat, seeded with clover; 5. clover for hay and seed, or pasture; 6. corn, etc. If clover seed is grown, sell it and buy manure, or bran, cotton-seed cake, or other food with the money, and keep a flock of mutton sheep.

Steam-Engine.—“Subscriber.” Why don’t you sign your name? Do you and a thousand others think we will answer matters of an entirely private nature in these columns? Your name and a stamp would have given you a reply.

Rotation of Crops in Maryland.—“J. T. B.,” a young Maryland farmer, whose soil is light but not sandy, wishes our opinion as to the best rotation for five fields. He has hitherto raised nothing but corn and wheat, but thinks this brings the land too frequently in wheat and corn. We suppose the present rotation to be—1. corn, 2. wheat, 3. clover, 4. clover, 5. clover, 6. corn, 7. wheat. If the corn-stalks, wheat-straw, and clover are all consumed on the farm, the above is not an exhaustive rotation. If the land is well cultivated when in corn and is clean, we do not see how to better the rotation. If the wheat crop will not average 30 bushels per acre, we should be inclined to use some artificial manure, say Peruvian guano, or nitrate of soda, and a phosphatic guano or superphosphate.

The Wild Onion.—A correspondent in Albemarle Co., Va., asks how to destroy the wild onion. If this onion is one which propagates by seed, putting the land in grass, and mowing, would certainly destroy it in time. If it propagates by offshoots from the roots, nothing but plowing, harrowing, and gathering the roots will avail, so far as we know. We have heard that trenching the ground and thus burying the roots deeply will kill them. As this is a serious trouble in some localities, we should be glad to hear from those who have had experience with it. Fortunately we have had none.

Branching Corn.—We have published testimony adverse to the “Branching Sweet Corn,” and we now give the only favorable report that has come to us. Mr. J. M. Beckwith, Norwich, Ct., who planted the corn and raised from two to five ears to the stalk. Some of the hills had from five to ten ears each.

Catalpas and Magnolias.—“L. D. S.,” Hudson, O., asks which are the best varieties. The common Catalpa is well known; it is barely hardy at New York. *C. Kaempferi* seems to be hardier. It is more dwarf, very leafy, and a free bloomer. *C. Bungei* is recommended, but we have not tried it. All the native Magnolias (except the Southern *M. grandiflora*) are hardy, and the Chinese varieties are likely to be so with you, though the spring frosts may catch the flowers. *M. conspicua*, white; *M. purpurea*, purple; and *M. Soudanqueana*, a hybrid between the two, are old sorts. *M. Lenei* is a newer variety, and the flucst, but scarce and dear yet.

Evergreens.—“L. D. S.” Both *Cupressus Lawsoniana* and *Thuyopsis borealis* are generally hardy in the Middle States. They sometimes get badly injured near New York.

Burned Swamp Land.—“E. G. H.,” Lake Co., Ind., asks how corn, oats, potatoes, or onions would grow on a tract of peaty soil, which has been burned over from six inches to two feet deep. Such soil, when plowed and mixed with the ashes, would grow corn or potatoes excellently; oats would probably lodge on it until two or three crops have been taken off.

Diseases of Cattle.—“S. C. B.,” Topeka, Kansas, asks for the best work on cattle diseases. “Dad’s Diseases of Cattle” is a useful work, and as good as any.

Colorado.—“G. E. S.” wants to know all about the climate, soil, etc., of Colorado. The climate is dry, healthy, and cool on cloudy days and at nights; during winter there are occasionally severe storms, during which cattle need feed and shelter. Crops need irrigating, and then yield about equal to a good farm in New York or Pennsylvania. There is a colony near Pike’s Peak—we do not know the name of it.

The Best Beef-Cattle.—“A Subscriber” wants to know which is the best breed of cattle for beef? For a hilly country with light pasture, the Devon; for a moderate pasture, the Hereford; and the Durham or Shorthorn is best for the richest pastures on level plains. Cotswold is the hardest and largest mutton sheep. South Down is the choicest quality, but medium weight.

Measuring Hay in the Stack.—“G. W. B.,” Lafayette, Ind.—Hay is measured in the stack by the same rule as hay in the mow. See *American Agriculturist* for January, 1872, page 7.

How to Feed Carrots.—“P. P.” says his horses will not eat carrots; how shall he feed them? Cut or chop them with a sharp spade in a box, and sprinkle a little salt and ground feed over them. Roots are often refused at first, when fed whole.

Lolling of the Tongue in Horses.—“O. W.,” Newfane, N. Y., asks for a remedy for the unsightly habit in a horse, of hanging the tongue out of the side of the mouth. A bunch of small links of chain fastened to the center of the bit is sometimes used to prevent this habit, by occupying the attention of the horse, and causing him to champ the bit; a strong bitter decoction, as of gentian root, rubbed on the outside of the mouth will sometimes make him withdraw his tongue.

Paint for Tools.—“Mechanic” says there is difficulty in procuring crude petroleum in some cases, and recommends Venetian red or French yellow and boiled linseed oil as cheap paints for implements.

Raising Roots.—V. Yannier has sandy, warm, black soil, and asks which would be the most suitable roots to raise. We would recommend him to raise a variety—carrots, sugar-beets, mangels, and rutabagas. They can be grown side by side, and cultivated together. Manure is needed for all roots, and bone-dust and guano are especially useful. Artichokes are not to be recommended as a farm crop, unless the land can be given up to them.

Are Twin Cattle Barren?—“Subscriber” has a valuable twin heifer, which has shown no inclination to change her condition, and asks if this is inevitable. Not always. Some believe twin animals are necessarily barren. We do not believe it, having had a cow which was twin-sister to a useful bull.

Buying Food for Hogs.—W. S. Payson, Ill., writes: “Ogden Farm Papers say that a man can afford to buy food for stock if he can afford to feed what he has raised. Is this always a safe rule? If so, would it pay to make a specialty of pig-raising, calculating to buy all or most of the corn for fattening? Could such a business be depended on as profitable through a series of years? Will hogs do well in warm sheds or houses without straw?”—To answer the first question, the rule is always a safe one. Whether it would pay to make a specialty of raising pork, is another proposition, but it is one that is not at all affected by the question of raising or buying corn. The profit of such an operation would be very much affected by the value of manure in the locality where it is carried on. The question is a purely commercial one, in which the prices of pork and of corn and the value of manure are the factors. It is, we think, fair to assume, that no staple article like pork will sell, one year with another, for less than the cost of producing it. It is from the profit made by the production of staple articles that the population of the world mainly gains its living. The chances of success would probably be very good, if the business were carried on on a large enough scale and with sufficient care as to details. Hogs should have some sort of dry bedding, either straw, dry earth, or something else, that will keep them out of the mire, especially in cold weather. If many are kept together, their quarters should be very thoroughly ventilated.

Cabbages for Fattening.—“G. B.,” Lodi, O., asks if cabbages are profitable to raise for fattening sheep and cattle. No. Ruta-bagas, with the manure needed to grow a good crop of cabbages, would make a heavy crop and would be a much more valuable feed for fattening.

Yorkshire Swine.

The modern improved Yorkshire hog is an instance of what may be done in improving a breed by care and judicious selection for a series of years. Originally, the Yorkshire breed was reputed to be the worst in England, but by crossing on another race, and by care in selecting, it has been brought up to be one of the best. They are good feeders and quick growers, and readily attain a weight of four hundred to five hundred pounds at twelve months old, and eight hundred pounds when full grown, and are very prolific. Prize animals have been fed up to 1100 and 1200 pounds. The specimens represented in the engraving on the first page, are the property of Brodie, Son & Co., of Rural Hill, N. Y., who took four prizes at the New York State Fair of last year, on their Yorkshires.

A Great Boon—A Good Cheap Sewing Machine, at Last.

The *American Agriculturist* was the first journal in the world to bring effectively before the public that great labor and clothes saver—the wringing machine. So, also, this journal prepared and published the first popular illustrated article showing, in a clear manner, "How Sewing is Done by Machinery." The illustrations used in that article have been taken up, copied, and printed many millions of times by the various manufacturers. And now we have the pleasure of bringing before the public a practically useful, low-priced sewing machine. While so often recommending the utility of Sewing Machines, we have been all the while earnestly looking for the appearance of something that would come within the reach of the large class that could not possibly buy a \$50 or \$60 implement. But though we have bought and tried a multitude of machines of all sorts, sizes, and prices, until a spacious lumber-room would be required to store all the samples, we have, until now, felt obliged to continually caution our readers against buying any of the low-priced machines. And we still say that for general use the sewing machines, sold for from \$45 to \$75 each are to be preferred when obtainable. But not one half of the families in our country have any useful sewing machine, simply because not half the people feel that they can possibly spare \$50, or more, in this direction, and so the everlasting "stitch, stitch, stitch," by slow hand-process, goes on, exhausting the strength and health of the toilworn and careworn mothers of the land—just that class who can not hire help and most need the aid of the sewing machine.

The new machine, now introduced, we have been watching for months, and trying to like it on account of its cheapness, and because it was well made (which we could not say of other low-priced machines we have seen); but this was unsatisfactory simply on account of the motion, or method of applying the power—by a vertical motion of the hand for every stitch. Happily this difficulty is at last obviated. A crank and multiplying wheel have been devised, and now we are prepared to indorse the \$10 Beckwith Sewing Machine as one worthy of being at once secured by all who can not purchase the expensive machines; and as will be seen below, many of those who have the larger machines will want this one in addition. Here are some of the advantages of the Beckwith Machine:

1st. It is well and strongly made, and thoroughly electro-plated with nickel throughout, by the new process, which is decidedly superior to the usual thin silver-plating, as it is far more durable, and does not tarnish. It is simple in its parts, and its use quickly learned, and it runs so easily that a child can work it.

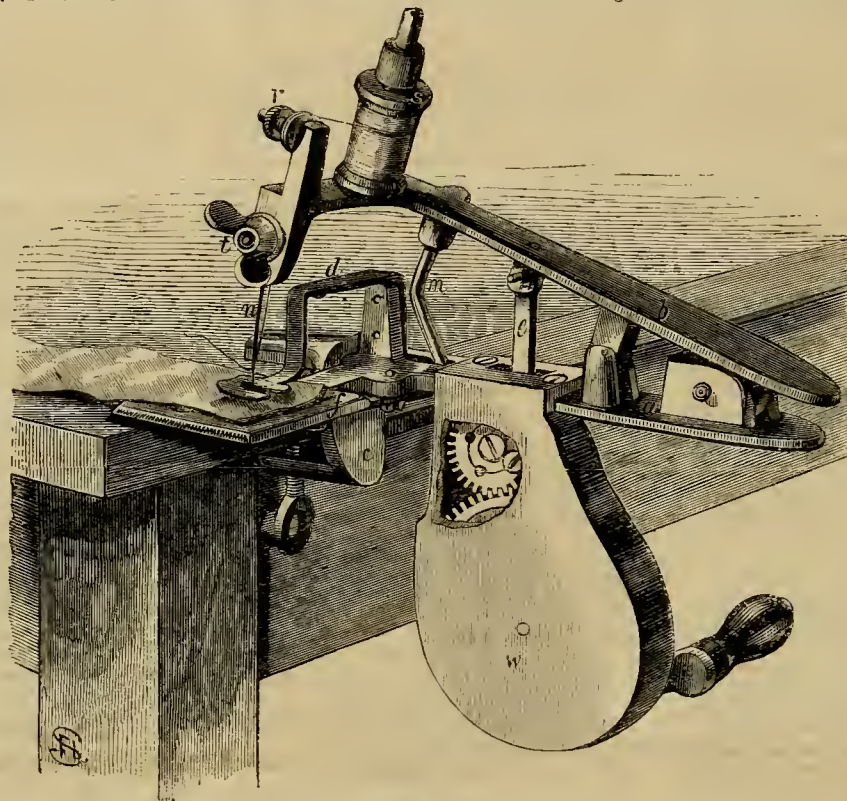
2d. It is easily attached to any table or stand having a leaf or edge projecting an inch or so, and can thus be used in any part of the house, near a window, etc. It is so light and portable that a lady can carry it with her in a reticule when visiting, or on a journey, ready for use at any moment. It is so convenient in this respect that it will be a useful addition where other machines are used, either for carrying to different rooms, or when two wish to sew at the same time. It is applicable for almost all kinds of family sewing.

3d. It makes the elastic loop-stitch (the same as the Wilcox & Gibbs and some other good machines), which, with a little care in making the closing stitch, is abundantly strong for nearly all kinds of sewing, and less liable to break in washing and wearing, owing to its elasticity. It has the advantage that the stitch can be removed when desired. Those who have lock-stitch machines, will find this stitch more convenient for many kinds of sewing, for embroidering, etc. Many contend that the elastic loop-stitch is more durable.

4th. While we do not gainsay the merits of the "foot-pedal," many persons who are unable to use that, will

find no trouble with this crank-motion. This gives complete control of the needle and every movement, so that the operator can stop on every stitch if desired. The crank in this new machine is placed below the table, which is an advantage over all other previous attempts at low-priced machines. The work is fed from the table towards the operator, which is claimed as a merit.

But the great commendation of this new machine is, that while it is practically useful, it is sold at the low price of \$10, and this brings it within the reach of a hundred thousand families that want a sewing ma-



BECKWITH'S NEW \$10 SEWING-MACHINE.

DESCRIPTION.—c, clamp holding machine upon edge of table; H, shield over wheels, with an opening to show the wheels; z, the crank-bar or pinion-arm, by which b, the upper arm, is moved; a, the lower arm; f, cloth plate; n, needle; t, thumb-screw to hold the needle; d, presser foot-spring; r, tension screw and disks; s, spool of thread; m moves the stitch-maker, which can not be readily shown. It is very simple, in form, and sure.

chine and can not raise funds to buy higher-priced ones.

We have contracted with the Beckwith Sewing Machine Company for the first 1,000 of them to supply our own friends, and as *Premiums*. Each machine is put in a neat, compact box, with *hammer and guide, oil-can, bottle of oil, thread, different-sized needles, etc.*, with full Printed Directions for using, and delivered to any express office in this city, without extra charge above the \$10. As we buy the machines at wholesale price, we have decided to give our readers some advantage of this, and we therefore propose to make a present for himself or herself, or for any friend, of one copy of *Hearth and Home* or two copies of the *AMERICAN AGRICULTURIST* for the balance of this year (1872), to the first 800 persons who send us \$10 for one of the new machines.

The New Sewing Machine as a Premium without Money.

To enable those to get this machine, who can not raise even the \$10 to buy it, we make the following offer:

We will send the Machine free to any one who will collect and forward SIX subscribers for HEARTH AND HOME one year at \$3 each; or TWELVE subscribers to AMERICAN AGRICULTURIST for one year, at \$1.50 each.

Almost any lady can readily secure this small number of subscribers and get a machine free; or some friend can thus obtain it for her, as a present.

Cultivation of Corn in the South.

A correspondent, "J. C.," Savannah, Ga., asks some very pertinent questions about growing corn, which, as they are of general interest, we reply to in full. He asks: 1st, Is it best to plant in beds or on a level surface? 2d, Is nine square feet sufficient room for one stalk (hill?) of corn? 3d, Is white or yellow corn the most productive, and which is the best variety of either kind? 4th, Would Early Canada, King Philip, or Dutton be likely to succeed in the South, and have the branching varieties any advantage? 5th, Would it be safe to cut the crop entirely at that stage when fodder is usually pulled; if not, how early could it be safely cut?

ANSWERS.—1. Level cultivation is now considered preferable to the ridge or bed system. 2. Nine square feet is not sufficient for a hill of corn, except of the small varieties. For a single stalk, six square feet (4 ft. \times 1½) would be room enough. 3. The white Southern corn is doubtless the best for a Southern latitude; the large, yellow gourd-seed corn would be adapted to stronger soils. This corn in Southern Pennsylvania has yielded over 100 bushels of grain per acre. 4. These varieties are best suited to a Northern climate, where the season is short. They are not so prolific as the larger and later varieties. The branching field corn is a myth, to say the least of it. The branching sweet or popcorn is not always to be depended on—sometimes it don't branch. 5. The grain is not fit to harvest when fodder is generally pulled, and this practice is often condemned as injurious to the grain for this reason. It may be harvested as soon as glazed, when it will cure safely in the shock.

We shall be happy to hear from J. C. in the manner he intimates.

The Agriculturist's

Ice-Boats.

— We have received several communications from ice-boat men on the Hudson in reference to the ice-boats figured in February. The difference between their boats and ours is, that ours is built to carry passengers, and theirs for racing purposes or speed only. The steering apparatus, being placed in front, enables the steersman to give his attention to that alone; the captain is behind, and gives orders to the steersman when necessary. When we go ice-boating, we enjoy the company as much as or more than the swift motion; it is with us, in fact, an old-fashioned sleigh-ride, without the horses. We think, with one of our correspondents, that our form is an improvement, as giving opportunity for enjoying this sport socially.

The Map Prizes.

When the Boys and Girls' part of the paper went to press, I was unable, as stated on page 107, to make the decisions. It has taken me no little time to examine all the maps, and when it came to decide upon the best three out of a dozen or more very good ones, the matter became very difficult. I find that the prizes all fall to boys. There were some forty maps sent by girls, but none of them seem to have taken the pains with them that the boys did with theirs. The first prize—five dollars—goes to Edward Hickey, Athens, Bradford Co., Pa.

The second prize—*Hearth and Home* for 1872—to *Jasmin Bergeron*, St. Louis, Mo.

The third prize—the *Agriculturist* for 1872—to *Edmund D. Redd*, Buena Vista, Henrico Co., Va.

It does not look well to see the prizes all go to boys, and I have requested the publishers to give gratinities for the best two maps drawn by girls. Consequently the *Agriculturist* for 1872 will go to *Alice Stewart*, Beaver Dam, Wis., and *Ellen N. Phillips*, Bellville, O.

Miss Frances S., Princeton, Ky., and Andrew M. G., Peterboro, N. H., worked under peculiar disadvantages. Mary R., Scott Township, Iowa, deserves great credit for her perseverance, and Hugh V. W., Macon, Ga., should be encouraged. These and some others will hear from me by mail.

THE DOCTOR.

Improved Sugar-Beet.—In answer to inquiries concerning the sugar-beet mentioned last month on page 58, we would say that we have learned that the whole disposable stock of seed has been purchased by B. K. Bliss & Son, of this city, who will no doubt make the fact known in their advertisements.

Clevis for Three-Horse Evener.—E. Fisher, Carroll Co., Ill., writes us that parties are claiming a patent-right on a clevis for a three-horse evener, figured in *American Agriculturist*, Aug., 1869, p. 293. Unless these parties can show that they hold a patent issued previously to above date, their claim is illegal. No payments should be made unless they can show this.

Farmers Look Out.—There is a very taking humbug after you just now. We have just received a pamphlet, setting forth the merits of "*Saccharum officinarum*, or Saccharine Sugar-Cane," which attempts to make farmers believe that they can raise the true sugar-cane as far north as Wisconsin. This pamphlet cautions people against being humbugged, appeals to the clergy, and is up to the latest dodges of the most refined humbugger. If people do not believe what is said, they will "forward samples of the sugar to any post-office in the United States, by mail, on receipt of twenty-five cents in currency, which analysis will prove is no ordinary or adulterated sugar." That is, indeed, convincing proof, but not so good as the Dutchman's, who said, "Hans, if you don't believe that is goat whisky, schust schmell of the cork." Seriously: The price of this remarkable seed is \$3 a package, with all sorts of club and other inducements to purchase by wholesale. We hope that no reader of the *Agriculturist* is so stupid as not to know that the true Sugar-cane (*Saccharum officinarum*) is so much of a tropical plant, that it barely maintains itself in Louisiana, and that they can no more hope to grow it in the open air in the Northern States, than they can Pineapples or Bananas. Good things and new things don't come sneaking along in such a dubious way as this. Let this Sugar-Cane alone!

Bliss & Son Want to Know.—The well-known seed firm of B. K. Bliss & Son wish to know where their money goes to or where it comes from—we don't know which. At any rate, they say in their advertisement, "We will send a packet of choice flower seeds, gratis, to persons ordering catalogues, if they will state the name of the paper in which they saw this advertisement." Here is a chance for women as well as men, to vote. No repeating, no ballot-box stuffing, but let us have a square vote. Read advertisement and order your catalogues.

Dyehouse Cherry.—Notwithstanding that the gentleman who described this cherry in February stated he was only an amateur and had no trees for sale, we have applications by the dozen, asking for his full address. This we must decline to give, as we can only say what he has already said, that he has no trees to dispose of. If any of the Kentucky nurserymen have propagated the Dyehouse Cherry, they will do well to advertise the fact, as inquiries are numerous.

Four Months still Remain, during which any and all persons who wish them, can secure, without money, one or more of the splendid assortment of useful and desirable articles described on page 119. Multitudes of people, now planning the work of the year, need and will appreciate the hints and suggestions of such a journal as this. *Heath and Home* is rapidly advancing in value and in the public favor, and some very valuable things are in preparation for its pages during the summer. . . . One only needs to take copies of these journals and show them to his or her friends and neighbors, and explain their merits, to soon have subscribers enough to secure a valuable premium article, that will be quite as good as the money it would cost. See pages 84 and 119.

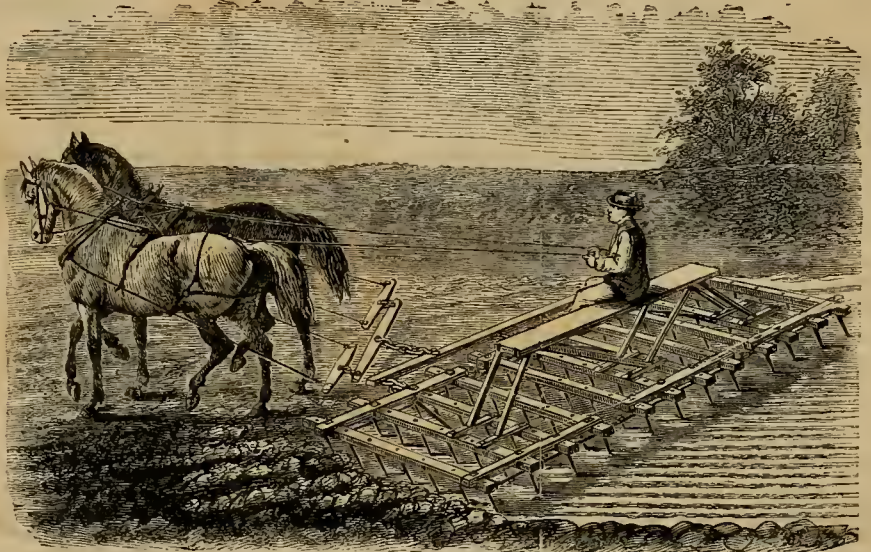
Spring Work is Coming on, and hints and suggestions are wanted. See "Four Months," above.

Barry's Fruit Garden.—The new edition of this work, which was long ago announced, but which, by unavoidable causes, has been delayed, is now on the press. The Fruit Garden has long filled a place which has been occupied by no other work. It is full enough upon all the processes of propagation to suit the nurseryman, and this part of the subject, as well as those of pruning, training, and cultivation, are exactly suited to the needs of the amateur. A carefully considered selection of fruits of all kinds makes the work a most useful one to those who plant in a large or a small way. While the same general plan of the work has been preserved, the new edition has been in some parts re-written, and in others so largely added to, that it is essentially a new

work. To those familiar with horticultural literature we need only announce a new and thoroughly revised edition of Barry's Fruit Garden. To the novice, we can say that he can have no better guide than this work, which embodies the ripe experience of the veteran nurseryman and pomologist, P. Barry. The illustrations, which are all re-engraved and much augmented, are numerous and instructive. Price \$3, post-paid.

Organs and Melodeons.—Several parties have within a few months supplied their churches with small organs by canvassing for our papers, and secured the premium by a few hours' labor. We have given L. A. Prince & Co.'s instruments for many years, and have never had a complaint from any who have received them.

The Death of Joseph B. Lyman.—The friends of Mr. Joseph B. Lyman were startled by the announcement of his death, which took place, after a



THOMAS'S SMOOTHING HARROW.—(See next Page.)

brief illness, on January 28th. Mr. Lyman was the Agricultural editor of the New-York *Tribune* and a prominent member of the New-York Farmers' Club. He was a fluent and ready speaker and writer upon agricultural and other topics, and was much esteemed by his many friends.

The Quinn Pear.—Several have asked where they could obtain trees of the Quinn Pear. Mr. Quinn informs us that no trees have been propagated, consequently there are none for sale.

The Bickford Knitting Machine, which we offer as a premium on page 119, is a good and reliable machine. A great variety of work can be done with it rapidly and well. Any lady can do good, and obtain a valuable household helper, by canvassing at odd times for this paper.

A Fine Truck Farm, near New York City, can be bought at a bargain. For particulars, address S. F. Gooding, at 245 Broadway.

A Fine "Spring Bazaar" for our Readers is presented in our advertising pages this month. It will pay well to read through every item, and see what is offered, and by whom. *Nowhere else* can one find so many good business announcements together, without being annoyed with the sight of medical and other swindling advertisements. We believe there is not among all these a man who has not the ability and intention to do what he promises in his card. When writing to any of these parties for circulars, on business, ordering, etc., please let them know where their business cards were seen. We want every business man to know when he is dealing with our readers.

Bee Notes for March.—By M. Quinby.

Be sure that every stock has a queen, for without one almost any swarm will run down at this season, and if diseased the calamity will probably be greater from contagion. See that they are strong, and unite weak ones if necessary. To feed box-hives at this season, lay sealed honey on the open holes at the top of hive, and cover closely. To examine such a hive, turn it over with care, and quiet

the bees with smoke if necessary. Let the sun shine directly between the combs, and if they are strong, the cluster of bees will be seen to extend nearly through them. If the stock is seen to be weak, close the entrance, allowing room for only one bee to pass at a time.

While the hive is inverted, look at the top of the outside combs for sealed honey, and, if that is to be seen, they will probably live two weeks, unless plundered. This inspection is better done, this month, in a warm room, with all the windows darkened, except the one before which you are operating. A stock is often saved by a little timely care now, and sometimes, when the bees are thought to be dead, they may be revived. If, after warming a few of them, they exhibit any signs of life, they may be saved. In such case, pour a little liquid honey or sugar directly among them on the combs. Confine them with a cloth and bring near the fire. After a little, they may be returned to the stand and fed as before directed. Should any desert, as they may do at this season, they will be quite likely to join some other stock and be destroyed.

If they cluster, return them to their own hive and feed

regularly. Stocks with movable frames may be fed by putting a frame containing honey in place of an empty one. Save with care all combs left from weak stocks, if in good condition. It takes a large amount of honey for the secretion of a little wax, hence never melt up good worker combs. Protect them from the moth by freezing, or fumigate with sulphur and use them for swarms.

If not already done, get some rye finely ground, without bolting, with which to feed the bees, beginning on the first warm day. We can not afford to lose any day in which bees can work, even before the flowers yield honey or pollen. We want to stimulate breeding now, by every means in our power. To induce them to take the ground rye, scatter it at first in several places. Put a very little honey on or near it, until it is found. It is unnecessary to attempt this after the flowers yield pollen.

Mr. Waite, at the Clevealand Convention, gave us a new plan of feeding. Instead of a large floor or platform, as before described, he made a shallow box, with a rather coarse wire-cloth bottom, and put the feed in this, and covered it, raising one side a little, so that the bees could work under the bottom. Another box under it may be needed to catch the coarser particles as they fall.

In taking bees from winter quarters, we should avoid doing it in unpleasant weather, as well as in that which is unusually warm, for the season. Take out a dozen hives at a time, and then rest for an hour; when those first removed are comparatively quiet, set out more. If each stock can occupy its old stand of last year, there is much less danger of their mixing in each other's hive, but if stands are to be changed in the home yard, now is the time to do it, as there is very much less loss than after the bees have had a fly. They should be looked to many times through the day to see that all is right. If the place they are in is a new one, the bees sometimes leave their own and join a neighboring hive, in so large numbers as to reduce, and often ruin, the one they have left. Sometimes, when they have no queen, they will desert entirely. If the weak condition is discovered by the strong ones, the honey will all be carried off in a few hours, and the bees left to starve. These things should be detected within the first few hours. It is not to be supposed that every indication can be given, but he who looks at his bees very frequently will soon learn if anything is wrong, and will feel paid for what some might call needless trouble by the knowledge he will gain.

The Thomas Smoothing Harrow.

In an article in the *Agriculturist* for August, 1871, we spoke of the Thomas Smoothing Harrow as an excellent implement; it is designed for a wider range of operations than any other harrow in use. It serves not only as an implement to bring the soil into a proper state to receive the seed, but to destroy the weeds which germinate immediately after sowing, and by harrowing the growing crop to stimulate its growth and keep it clean at the same time. All this is effected by using a large number of fine steel teeth, and sloping them backwards at an angle of 45 degrees. Thus the teeth do not

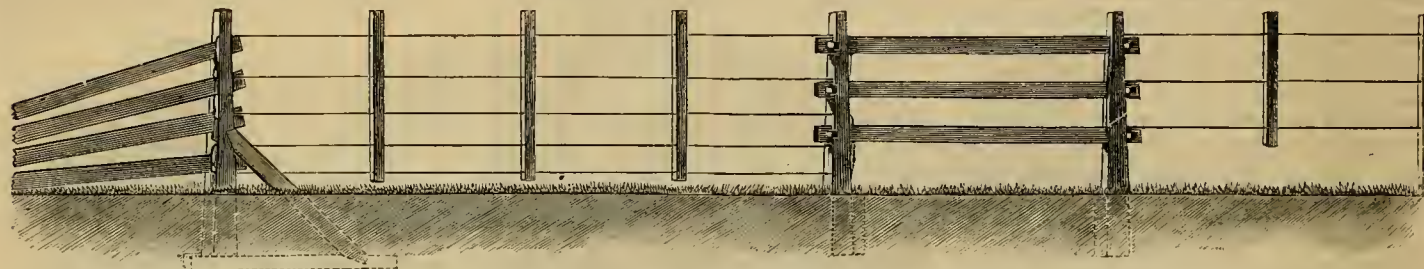
weeds and mellowing the ground, both of which are of very essential service. In a similar way the potato crop may be worked.

Thomas's harrow has been used by several of the editors of the *American Agriculturist*, and they unite in speaking favorably of it. A committee of the 'Farmers' Club of the American Institute reported unanimously in its favor. The inventor and manufacturer of this harrow is Mr. John J. Thomas, widely known as a farmer, editor, and author of valuable works on farm implements, fruit culture, etc., and in view of all the testimony in its favor, we have put this implement (figured on the preceding page) upon our premium list. See page 119.

Ogden Farm Papers.—No. 26.

It is very probable that my readers may be interested in the details of some other butter-making experience than my own. I have given in another article an account of a cow owned in Providence. I was satisfied that her performances were due not entirely to the fact that she is a good Jersey, but in very great measure to the treatment she receives. I knew that it would be easy to make wheel-grease butter from her milk. I have therefore endeavored to find out all I could about Mr. Perry's practice, and about Mrs. Perry's part of the work, too.

My letters of inquiry have brought the fol-



SPEAKMAN'S COMBINATION OR PRAIRIE FENCE.

penetrate the fine soil more than two inches, which is not sufficient to permit them to injure the sprouting seed or the young shoot, and by a dragging motion which presses downward at the same time, they are able to pass over the surface without tearing out the growing plants, but at the same time disturb the small growth of weeds sufficiently to destroy them. The large numbers of this harrow now in use amongst farmers all over the United States, and the increasing demand for them, show that it is what it claims to be—a practical and useful instrument. As a pulverizer of the ground, after plowing and previous to sowing, it is in our estimation a perfect harrow, leaving the ground smooth and mellow, and in the best condition for the drill. Besides this primary use, it has many others to which it adapts itself in the most satisfactory manner. It can not clog either with trash, sods, or coarse manure, but rides easily over all obstructions and forces them into the soil. In harrowing plowed sod-ground this peculiarity is especially valuable, as also in harrowing meadows in the spring, which have been top-dressed during winter. By its use the manure is broken up fine and evenly worked down into the grass. The draft is also much decreased, both by the small size and position of the teeth, and a field may be harrowed equally well in half the time required by a common harrow. But as a cultivator it is most valuable, for no other harrow can be used to cultivate growing crops. On winter wheat it has been used in the spring with the best effects, and assists very much in securing a successful stand of clover. On growing corn and potatoes it has also been successfully used until the crops are sufficiently advanced to resist the ill effects of weeds, and the ordinary cultivator comes into operation. The corn crop is the one which it is claimed is essentially benefited by the use of this harrow. It is necessary to plant the corn level with the surface to enable the harrow to ride over the crop without injury. By its use corn may be cultivated in drills, using the corn planter, which will easily plant and cover ten acres per day with the labor of one man and a horse, and a gain of one fifth in the quantity of the crop be made. The round, sloping teeth pass over or through the young corn without injury, destroying the

A Prairie Fence.

We give an engraving of a "Combination or Prairie Fence," invented and patented by Thomas Speakman, of Philadelphia, and designed specially for Western farms. The fence is of wire. As many strands may be used as may be needed for small or large stock. The posts may be eighteen feet apart if desired, and the stretching posts 500 to 1,000 feet, according to circumstances and the size of the wire.

Between the stationary fixed posts are placed intermediate slats, the object of which is to strengthen the fence and make it plainly visible to stock. These intermediate slats are four inches wide, and may be of any desired thickness. They are bored edgewise, and the wires pass through the holes; thus a flat, broad surface is presented to view, making the fence conspicuous. The stretchers consist of movable posts, working in slots sunk in the ground, and the wires are tightened by means of cross-bars passing through the posts; the ends of the cross-bars being mortised to receive wedge-shape pins which, on being driven home, draw the movable posts together and stretch the wires tight.

It is not necessary to stretch this fence as tight as in an ordinary wire fence, as the slats support the wires and prevent sagging; only tension sufficient to keep the fence in line is required.

The end posts are strongly braced, to resist the strain, as in an ordinary fence. The stretching bars may be removed when needed to afford a passageway into or out of the field.

This fence combines the advantages of the wire fence with those of the ordinary picket fence, and its cost is about eighty cents to a dollar per rod for a three-wire fence, and a dollar and a quarter per rod for a five-wire one.

If galvanized wire is used, this fence is very durable. The slats may be renewed at any time by using two pieces and cutting grooves in each to receive the wires, and fastening them together with wrought nails. In a similar manner the posts may be renewed, and the whole fence may be thus replaced, as needed, piecemeal.

The inventor thinks this fence meets all the requirements of cheapness, durability, and efficiency; and although we have not seen the fence in operation, it seems to us as though it had sufficient good points to make it worthy of trial.

lowing reply: "I unite grazing and soiling, because it is more convenient for me to do so. I feed as great variety of food as I can readily obtain at fair cost, and always intend to give my cows the kinds or kind which they appear to like best and *will eat the most of*; keeping in view the chief object which I have in feeding them, which is to get the *most* 'gilt-edged' butter I can, *at least cost*, without forcing the animals to their injury.

"In the season for grass my cows get from one quarter to one half their food grazing, and the remainder from soiling with the common kinds of soiling-plants in their season, such as clover, corn, millet, kale, cabbage, beet-leaves, etc. I then give them but little grain in any form. Though if the cows are extra good ones for butter, (and I endeavor to keep no other), they will fall off in flesh to such an extent that they are almost skeletons, and too poor to be in good working condition, or even to look healthy and wholesome. To prevent this I give from one to two quarts of Indian meal per day, generally dry, sometimes clear, and sometimes mixed with wheat bran. I do not like to feed much concentrated food to milch-cows, any way, for I think it has a tendency to fill up the carcass more than the cream-pail. In winter and spring I feed hay, made from grass cut quite green, and rowen, which is still better for cows in milk. For the nearer hay approaches green grass as animals get it in the fields, the handsomer and better the butter will be. In addition to all the good hay they will eat, I give from a quarter to a half bushel of roots, to each cow, according to age and size, every morning. I raise several kinds of beets, carrots, and turnips, and change them in feeding as I think they will do the most good. In the evening each cow has her ration of from four to six quarts mixed feed, composed of wheat-bran and Indian meal, in about the proportions of 100 lbs. bran to 50 lbs. meal, or, in bulk, from five to six times as much bran as meal. I sometimes feed corn and oats, ground together half and half, but always mixed with bran—say 100 lbs. of the latter to two bushels of the former. I do not use cotton-seed meal when making butter. I think I like well-cured fodder corn and stalks, for a change, and for making winter butter, about as well as hay."

"I have told you my present way of feeding

milk-cows kept exclusively for the purpose of making butter and to supply the wants of a large family with milk, etc. I have never kept more than three or four cows at a time, but have fed them in various other ways, though not to so good satisfaction. The way I have described may not be the best—indeed, I do not think it is, for, as I have occasionally made some change, which has been to advantage, so I trust I shall continue to make improvements in the manner of feeding. I have never tried the steaming process, but sometimes I think I will.”

This gentleman has also a Jersey heifer that has recently dropped her first calf. Of her he says: “She is giving between eight and nine quarts of milk and making over one pound of butter per day, and her flow of milk is on the increase. I will tell you how I have fed her. For two or three days after calving, on *air chiefly*, with a very little hay, bran, and water. The hay and bran have been gradually increased, with a few roots, until now (ten days after calving) she has all the good hay she will eat, a peck of beets in the morning, and five quarts of coarse shorts in the evening, with all the water she wants to drink, and nothing else, except a little salt for seasoning. If I had a hundred heifers, I should treat them all in a similar manner, until I learned a better way.”

So much for feeding. The lesson taught is one of which all good farmers will recognize the importance, namely: while avoiding concentrated food, to give as much variety as possible, studying the cow's appetite, and doing everything to induce her to eat the largest possible quantity. The reason for this is, that all profit in feeding, whether for flesh or for milk, comes from the excess of the food consumed over what is necessary to keep the animal in a healthy condition.

Concerning the making of butter, Mr. Perry says: “We set the milk in old-fashioned tin-pans, in the usual manner, and skim every day; or, in other words, let it stand twenty-four hours. We keep the cream in the cellar, which is well ventilated, and stir it thoroughly every time more cream is added. A few hours before churning we bring up the cream and place it where the temperature is considerably warmer. We churn twice a week as regularly as we conveniently can. The time required is, on an average, about ten minutes, occasionally fifteen, and sometimes less than five or even three minutes. The butter is immediately taken from the churn, worked over with a wooden paddle till most of the buttermilk is out. Salt is then worked in with the paddle, a little at a time, to the amount of just one ounce to the pound, which we have found, by experience, is the quantity which best suits our customers generally. After the mixing and salting process is over, the butter is put away for twenty-four hours, in the cellar in hot weather, and in the closet in winter, when it is again, the second and *last* time, worked over thoroughly with the paddle; but never, on any account, in *warm* weather with the *hands*; my wife considers that operation a mistake, fatal beyond redemption, as the natural heat of the hands is sufficient to melt some portion of the butter, and thus destroy its fine grain, delicate flavor and aroma.”

My observation leads me to believe, that the force of this last opinion depends very much on the temperature of the hands, which is different in different persons. One of the best butter-makers I have had, worked the butter by hand in the warmest weather, without the least bad result. A good two-handled white-oak paddle is, however, quite as effective as the hands, and

so far as I have yet discovered, it is the best butter-working machine. The notion that it is untidy to work butter with the hands, does not count for much. Any dairywoman who would not make her hands scrupulously clean for this duty, would not be fit to touch butter with a ten-foot pole. Unless she is a cleanly creature *at heart*, she has no business near the dairy.

A sensible farmer in Vermont writes: “You give some very good reasons why ‘gilt-edged butter’ is sold for a gilt-edged price, but you give the great reason only by allusion—that your man advertises ‘Ogden Farm’ butter. That I regard as being the true reason for selling ‘gilt-edged’ anything. The great secret is first, to establish a reputation, and second, to keep it good. How often have I heard men say, ‘That sheep, if such and such a man owned it, would sell for \$500.’ That is, if such a man had such a sheep, and knew that it would prove just what he represented it to be, and if his customer knew that he could depend on him, he would sell it. But on the other hand, if he did not know the sheep to be exactly what he should be (although no living man could tell by its looks) he would sooner take its pelt and bury the carcass in a dunghill, than to sell it and risk his reputation.”

There is no doubt that every breeder, every nurseryman, and every seedsman who has made a permanent success, has adhered to this policy. Whether the motive be honesty or self-interest, the result is the same. A good reputation is established and one sale breeds another. There is nothing more sensitive than the reputation of one whose customers are scattered all over the country, and who have no other means of judging him than by the degree to which his goods conform to his recommendation of them. The drawback is, that in selling an animal, a plant, or a seed, success depends very much on the treatment that is given it by the purchaser. Sufficient allowance is not always made for this, and whoever embarks in the business, however honest he may be, must expect to be considered a swindler by those who ignorantly maltreat that which they buy at a high price.

It is true that there are more buyers of good butter than the market can supply, but not so very many more as yet. Not one person in five thousand ever saw what I consider really good butter, or would consider it good if he did see it. Oleaginous salt is not the article—though it is good enough for those who like it.

Of home topics to write about, I have really none. The engine goes regularly, twice a week, the fodder is cut and moistened and steamed, and the little burr-stone mill grinds all our meal; the windmill runs almost incessantly, and keeps up a good supply of water in the barn and in the milk-tank, and Hinderk, who has grown to be seventeen years old, takes entire charge of the whole machinery like a little man, as he is. But all this has been told before, and as our dictatorial editor cautions me not to write when I have nothing to say, and actually forbids me ever to “preach,” I will stop here, only saying, in response to numerous inquiries, that my ice-house, of which I hoped so much, has proved, as I used it, a dead failure, the ice lasting only until the latter part of July. If I could have procured sawdust to pack with, the result would probably have been better, but I used salt-hay, with the above effect. I find, too, that it cost me as much to fill it as to buy what I need of a dealer near by—so my ice-house will be turned into a storehouse.

An Egg Farm.

BY H. H. STODDARD.—*Eleventh Article.*

In keeping poultry on a large scale, there is no one thing more important, or more difficult to manage, than the chicken department. A failure in the yearly supply of pullets, with which to recruit the stock of layers, would be fatal to the whole plan. It is quite an easy matter to raise nearly every chick of a hardy breed, when there are but a few upon an extensive range, but it is the reverse when we are desirous of rearing several hundreds upon an acre, and there is, practically, no insect forage at all. If there are persons who consider the occupation of a poulterer as “small potatoes,” believing that it needs less thought and skill than to manage a cotton-mill, or mercantile establishment, or horses and cattle even, let them try once to raise chickens by the thousand, without losing money, and find the need of keeping their wits as sharp as in more pretentious kinds of business. Yet, all difficulties may be surmounted by thorough management.

To have strong chickens it is necessary in the first place to avoid, in the main, breeding akin, and to keep the breeding stock in a condition as near to normal as possible, securing for them sun, air, and exercise, and avoiding a pampering diet. The greater the number of eggs produced by a fowl, the less vitality there will be in each, therefore the first only of a laying should be set. Early chickens are the most certain to live, and this is because force is stored up in the parent before laying commences, sufficient to endow the first eggs or chickens with plenty of vigor, while later the abnormal or artificial prolificness impairs the eggs. In spite of the ungenial weather, March-hatched chickens are stronger than those produced in April, and the latter in turn are reared with greater ease than those hatched in May. But after attending to the above considerations, the chickens being hatched and assigned quarters, their lives then depend chiefly upon their diet. Of course, they must be kept clean, dry, free from vermin, and protected from other enemies, quadruped and biped, and be allowed space for exercise in the sun and open air; but all these things will not suffice, unless animal food is artificially provided as a substitute for the insects they would obtain if there were but few chickens on the premises. Butchers' meat, such as calves' and sheep's plucks, are even better than insects, provided they are fed plentifully, yet only a very little at a time, and care is taken to alternate with grain and green vegetable food. Chandlers' greaves may be used for chickens if very nice and sweet—the article varies much in quality. They are very cheap feed, cheaper than the fresh bits from the butcher, but not as good for chickens as the latter. There must be constant vigilance in supplying animal food regularly and systematically. The young of birds in a wild state are given an animal diet, even in cases when, as they reach maturity, they live upon seeds. The young of our domestic birds can not thrive upon grain and vegetables alone, no matter how nicely prepared, because such things can not be digested and assimilated fast enough by them, to meet the great demands for nourishment caused by their rapid growth. Nature has provided that the young of all birds shall mature and become fledged with wonderful rapidity, in order that the period of their helplessness, when they are liable to be preyed upon by numerous enemies, shall be short. The formation of the coat of feathers which succeeds the downy covering with which they emerge from the shell,

demands a quick and certain supply of nutritive materials, and in the case of domesticated species the young are obliged at the same time

hard for a living. The sitters must be fed a stimulating diet in winter and a rather low one in summer, and the fowls of the main laying stock should be crowded all their lives without any intermission by plying them with a diet growing richer and more stimulating, because containing a greater proportion of chandlers' scraps, the older they become. Cayenne pepper is the cheapest and best stimulant, with ground mustard and ginger for a change. Begin with a very little, and increase the quantity gradually.

any change in its shape; and in its operative parts, the teeth, there has been none at all until lately. But within two or three years past an ingenious improvement in the shape of the teeth has been introduced, by which the cutting capacity of the saw is doubled or trebled. This improvement is the invention of Mr. E. M. Boynton, of 80 Beekman street, New York, and has been found of such utility that large num-

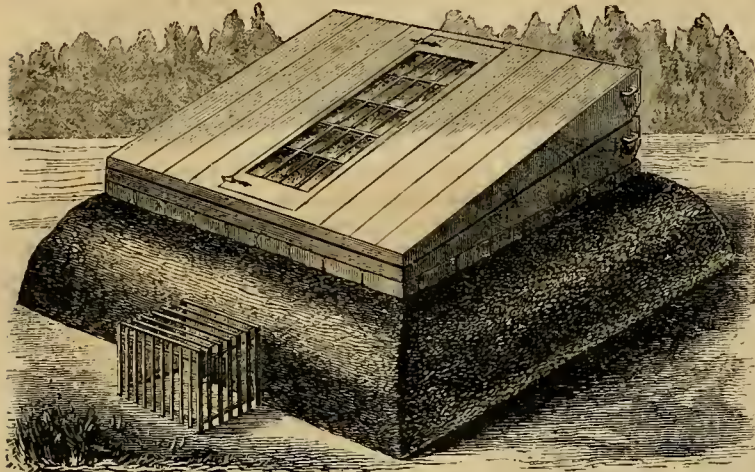


Fig. 1.—QUARTERS FOR EARLY CHICKENS.

to nourish the growth of bodies which, owing to the artificial treatment man has subjected their parents to for many generations, tend to an abnormal size. The fledging period is a critical one, and the feeding from the time of incubation until the wing and tail feathers are

The chickens of the classes of breeders and sitters, which should be reared under the most favorable auspices possible, are housed at scattered stations in the cellars vacated in early spring by the early-hatched pullets (p. 12, fig. 2), and so have the advantage of a wide range.

bers of these improved saws are now in use. These saws possess several great advantages over the old V-tooth saws, among which the most important are speed and ease of cutting, and perfect self-clearing from the sawdust. After an experience of two years in using one of these saws, we can speak confidently of their great value, both in cutting wood for household use, and in the heaviest lumbering. Not only is time saved, but the work is rendered easier, and a saving of wood is gained; and that nuisance



Fig. 1.—FORM OF SAW TEETH.

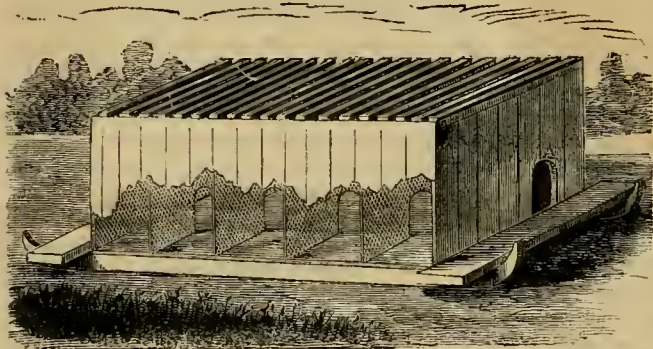


Fig. 2.—PEN FOR MOVING FOWLS.

fairly developed, should all be contrived with a view to assist the digestive organs in changing just as much easily assimilated material as possible, into an abundance of good, rich blood. It will not do to wait until the time of the most rapid feathering, and then begin to allow a generous diet, but the systems of the young chicks must be prepared in advance, by being stored with nutriment in every cell and tissue. For the first few days after incubation feed the yolks of eggs *slightly* cooked by being dropped in hot water, not spoiled by being hard-boiled. Mix these with an equal quantity of the crumbs of corn-cake, made by baking a dough of Indian meal and milk. As soon as the chicks are a week old, begin gradually to substitute boiled plucks and livers, run through a meat-cutter, in place of the egg-yolks, and the Indian meal may be cooked as a thick mush, and to stimulate appetite by variety, add sometimes wheat-bran and ground oats. Also, cracked corn and wheat screenings, raw, may be introduced. All they will eat of tender grass, chopped fine, and boiled potatoes, nicely mashed, should be given. The grass may, of course, be discontinued when the birds are strong enough to pluck it for themselves. Skimmed milk should be the sole drink until the birds are two months old, at least. There is nothing that will so promote thrift. It contains just the elements needed, and in a very available form.

The adult fowls designed for breeders should be fed sparingly, and forced to literally scratch

The cellars are covered by the earth platforms, a glazed sash being temporarily hinged to one, for a door. The platforms are laid two deep, to make sufficient pitch. When the chicks are old enough to run in and out of the underground passage, they are confined at first in a lath pen, until they have learned the way, and afterwards allowed to go where they choose, the hen being confined to the cellar. Figure 2 represents a pen used in moving fowls. When it is put in the place occupied by the feed-room at the end of the passage (see fig. 1, fourth article, and fig. 1, ninth article), the fowls are baited into it, the door *A* corresponding to an opening in the side of the end of the passage. The partitions in the pen separate the flock into squads, to prevent too many fowls huddling together and trampling each other during moving, at which time a covering should exclude the light. Chains may be passed around the ends of the cross-piece at *BB* for draught.

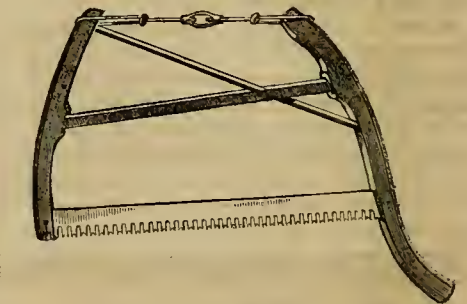


Fig. 2.—IMPROVED BUCK-SAW.

in many a farmer's yard—viz., the pile of chips which accumulates when an ax is used—is rendered unnecessary and impossible.

The form of the teeth in the Boynton saw is such that as much cutting is done in the back stroke as in the forward one; the cutting is more rapid, inasmuch as the cutting face of the tooth is at right angles, or perpendicular to the surface of the wood to be cut, while the old V-tooth is of such a shape that it has a tendency

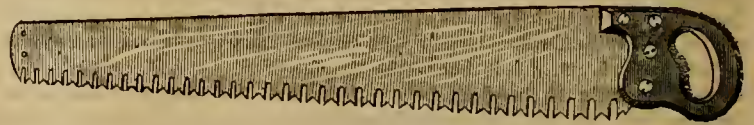


Fig. 3.—SINGLE-HANDED CROSS-CUT SAW.

to rise and jump over it. A log of buttonwood, twelve inches in diameter, has been cut through with one of these saws in *eight seconds*, and two men with one saw, once filed, have cut 26 cords of hard wood—beech, maple, elm, and hickory—in eight hours. The illustrations given show the shape of the teeth (as in fig. 1), and some of the forms in which the improved saws are made. Fig. 2 is the common bucksaw. Fig. 3 is a sin-

Improved Saws.

There is probably no mechanical tool with which we could less easily dispense than the saw. It has been in use from the earliest ages. When we consider the ancient origin of this tool, it is rather surprising that it should not have been long before this greatly improved in form, as it has been in the material of which it is made. With the exception, however, of giving to it a circular form, there has been little if

gle-handed cross-cut, to be worked by one man in cutting down trees or sawing logs; and fig. 4 the ordinary double-handed cross-cut saw.



Fig. 4.—DOUBLE-HANDED CROSS-CUT SAW.

Something about Trapping and Furs.

For the comfort we derive from our furs we are indebted to a class of people whom most persons know little about. Trappers are sup-

a less permanent one of poles which lean against a ridge-pole supported by forked stakes, and are covered with bark. The only furniture needed is the bed of hemlock brush, his ax, gun, traps, and cooking utensils, which consist

him \$500, or, if fortunate, double that sum. These usually simple-minded and honest men are generally natives of the rougher portions of the New England States, as Vermont, Maine, parts of Connecticut or of Massachusetts. To

mainly of a small tin kettle and a tin plate. His provisions are pork, beans, hard-bread, sugar, and tea; the rest the woods provide for him, and his gun or traps secure. The camp is generally pitched on the edge of an extensive beaver meadow, from which, and the banks of the stream passing through it, part of his game is gathered. This consists of beaver, otter,

mink, muskrat, which are all taken near the water, and marten, fisher (which has nothing to do with fish, however), lynx, and fox, which inhabit the uplands. The traps are the New

rob each other's traps or caches (hiding-places for their traps or furs) is considered too mean to be thought of, and is very rarely known to occur. The Indians, however, bring in most of the furs, and their grounds extend to the utmost limits of possible existence towards the North Pole. The Hudson's Bay Company, an English fur-trading company, procures its furs in this way, but a great number of Indians bring in furs to the towns and villages bordering on the unsettled country, and trade them for sugar, tobacco, traps, and whisky with the various backwoods stores. The Canadian Government controls this trade by means of licenses given only to responsible parties, but our Indians are unmercifully fleeced by anybody who likes to undertake the rough life of an Indian trader. The Indians bring their furs from long distances in trains drawn by dogs. The trains are flat pieces of board split from a white-ash tree, and shaved down with great labor until no more than an inch thick. They are about 18 inches broad and six feet long, turned up in front as in figure 4, and are called by them "tobagans." Four or five or more dogs are hitched by rawhide traces to the train, one before the



Fig. 1.—A TRAPPER'S CAMP.

posed to be men who live outside the bounds of civilization, and who pass their lives in a sort of semi-savage, solitary manner. This is true to a very great extent, although settlements are now made far in advance of many still prolific trapping grounds. These tracts, however, being situated in rocky parts of the country or in extensive swamps, will doubtless for some years yet be permitted to remain in a state of nature, and still furnish employment for the trapper. The trapping grounds of the United States and Canada lie either north or west of the great lakes, and are solely peopled by Indians and a few white trappers. The great bulk of furs are taken by Indians, but there are some white men engaged in the business whose camps are often passed by the engineers and surveyors who are the pioneers of settlement into the vast forests and prairies of the great Northwest. Probably few others have an opportunity to visit the camps of the trappers, buried as they mostly are from twenty to a hundred miles away from a regular habitation. The trapper chooses a location for his camp, which is his base of operations, and from which he travels out in all directions, not so far, however, as to



Fig. 3.—MINK TRAP.

York steel-spring trap, and often a hundred of these are used by one trapper in a season. The old wooden trap or deadfall is fast going out of use. The steel trap is surer, and, saving time, enables the trapper to enlarge his operations. Thus situated, the trapper passes from October to March, exposed to all the storms and



Fig. 2.—MUSKRAT HOUSES.



Fig. 4.—INDIANS BRINGING IN FURS.



Fig. 5.—INDIANS AFTER SELLING THEIR FURS.

require him to be absent from home more than a few days at a time. In the center of his game he pitches his camp, which is often, if game is plentiful, a log-hut roofed with bark, which he will occupy two or three successive seasons, or

perils of a lonely life in the woods, and often without seeing a human face until he in the spring packs his furs to the nearest town or village for shipment to "York," when he may very probably have secured enough to return

other; a thong is fastened behind, which is held by the Indian, to hold back by when going down hill, and mounted on his snow-shoes the Indian starts on his long journey with his packs of furs. Generally the party consists of four or five, who

often encamp and hunt as they find occasion on their way. On their arrival at a post the trade occupies several days, as many "pow-wows" occur before it is finally concluded, when, with a few dollars' worth of articles, of which the greater part is whisky, they leave for their nearest camping place, having probably parted with one or two hundred dollars' worth of furs for the value of five or ten dollars. "Lo, the poor Indian!" At their camp, out comes the whisky, and no work is done until it is consumed and the effects slept off, when they return to their wigwams to be supported by their squaws until next trapping season.

The mink, otter, beaver, and muskrat are all trapped on the banks of streams, the bait for beaver being birch twigs, and that for otter and mink, fish. The muskrats, like the beavers, live in houses built of grass or rushes in the shallow parts of lakes or ponds, and colonies of many houses are generally found together. A beaver house is built of sticks covered with mud or earth, generally on the banks of their pond, and the entrance to these houses is below the surface of the water. The skins when stripped are carefully stretched on frames and dried. A piece of cedar board, two feet long and four inches wide or larger, is used to stretch mink, marten, and other skins. The beaver skin is split and stretched over a round hoop; the edges are sewn over the hoop to retain the shape until dry. Notwithstanding the seemingly irregular course of this business, it is permanently established, and several million dollars' worth of skins are taken yearly.

Walks and Talks on the Farm.—No. 99.

A farmer, formerly from Michigan, and now a resident of Henderson Co., Illinois, writes me a very interesting letter. He says: "I have been much interested in reading 'Walks and Talks' in the *Agriculturist*, and often feel that I would like to talk with such a farmer, and see how his farm looks, and how his stock is fed and cared for."

He would probably be disappointed. I have not a "show farm." I do things in a plain, ordinary way, using what little capital I have to improve the farm, and not to make a show. Any one who has plenty of money can put up a handsome house, erect a model barn, and have fences, gates, gravel walks, etc., all in perfect order. But, while no one likes to see a neat, handsome farm-standing better than I do, I have thought it best to first improve the land, and trust to the increased crops to enable me to put up new barns and "fix things up generally" by and by.

Hard as times have been for farmers the past season, I am not discouraged. We have done as well as the majority of those engaged in trade and manufactures. No one need expect to get rich suddenly by farming. If we get a living and our farms are steadily improving, we ought not to complain.

I do not know how my farm would look to my Illinois friend, but to me it looks better than when I bought it. There was not a field then that I could plow straight through in the spring without striking some parts where the water would stand in the furrow. In the summer these baked almost as hard as bricks. No one expected any corn on these "clay spots." All the cultivation expended on them was so much lost labor. By a little judicious draining these clay spots have disappeared, and are now the best and most productive parts of the farm.

Then again, the farm was full of weeds. They say "one year's seeding makes seven years weeding," and my farm had been seeded with weeds for thirty years. My chief object in cultivation has been to get these weed seeds to germinate, and then kill the plants. Nothing pleases me better than to see millions of little weed plants spring up on a summer-fallow when I can get a chance at them. Most of my neighbors take great pains to prevent weeds from growing. I want to make them grow, and then kill them. You can not kill them before they grow. After I have killed a hundred million weeds I believe there are a hundred million fewer weeds in the field. Very few people believe this. And no wonder, for it certainly is a hard matter to make land clean. What I have done in killing weeds has cost me far more than what I have done in the way of under-draining. But it is encouraging to know that stirring the soil not only kills the weeds but develops the plant-food lying latent in the soil, and thus greatly enriches the land. I have found this pre-eminently true in my own case. My land is getting cleaner and richer.

As to how my "stock is fed and cared for," I have only to say that I have not yet gone into any elaborate processes of cutting and steaming food. I have done something in the way of cutting up corn-stalks, straw, and hay by horse-power, but do not think it pays in *my case*. If my buildings were well adapted for the purpose I should certainly chaff all my fodder.

I have one of Prindle's steamers, and have occasionally steamed some damaged hay. The cows and sheep ate it greedily. Without steaming, they would not have eaten it unless compelled by hunger. In such a case, steaming is certainly profitable.

This winter I feed my farm horses on pea and oat straw, cut into chaff, and mixed with a little corn-meal; and they are fed nothing but straw in the racks. Towards spring I shall feed hay.

My Merino sheep are fed corn-stalks and straw, with half a pound of corn per day. This keeps them in extra condition—an essential point when Merino ewes are crossed with a large Cotswold ram. They need extra food and strength to nourish such large lambs. I have had a grade Cotswold lamb, from a common Merino ewe, that weighed 12 lbs. the day it was born. Of course the mother of such a lamb needs something more than straw.

I have now (Jan. 17th) over thirty lambs from Merino ewes. We give the ewes pea and oat-straw and one pound of bran per day, and three or four pounds of mangolds. The lambs are allowed all the bran and corn-meal or oats they will eat, placed in a little trough where the ewes can not get at it. These lambs are intended for the butcher. Whether it will pay or not depends on proximity to market, and on one's ability to find the right purchasers. My *forte* does not lie in this direction. Last year I should have done far better to have kept my lambs, and sold them fat after shearing this spring.

The Cotswold ewes, so far this winter, have run out nearly every day on the rape field. The exercise, the fresh air, and the green food seem to agree with them. They are in high health and capital condition, and I hope for a good crop of lambs. I do not give them a particle of grain or oil-cake, nothing but corn-stalks, pea-straw, and bran. My stalks and pea-straw will be used up in a few days, and then we shall feed wheat straw and clover hay.

This "pea and oat straw" has been a great help to me. You may recollect that I sowed

ten acres of wheat stubble, on which the clover had failed, with three bushels of peas and one bushel of oats per acre. The land was well manured, and I had a splendid crop, getting *eighty loads* from the ten acres. It was well cured, thrashed at the time it was drawn in, or a few days later, and proves most excellent fodder. I have never raised a crop that gave me so much satisfaction, and I propose to grow it more extensively this year.

I feed my cows principally on corn-stalks, as long as they last, and afterwards hay. I allow them two quarts of corn-meal each per day, wet with cold water. We have been making butter all winter. I have two or three farrow cows that I am fattening and milking at the same time.

You see that my methods of feeding are not at all "scientific." I have no doubt that soiling in summer and steaming in winter would enable me to keep a good deal more stock. But I have always contended that it is the food and not the stock that makes the manure. Tell me how much and what kind of wood you burn, and I can tell you pretty closely how much your ashes are worth. I will not ask how many and what kind of *stoves* you use. Tell me how much and what kind of food you have to feed out, and I can tell you how much your manure is worth. I will not ask how many and what kinds of animals you feed it to, or whether you cook it or feed it raw. The only question of any practical importance is whether you save your manure after you have got it.

I feed my breeding sows through the winter on bran soaked for twelve hours in water. They run out every day in the barn-yard, and pick up whatever they can find. I notice them frequently chewing the joints of corn-stalks. They will eat chaffed clover hay soaked for twenty-four hours in water and mixed with a little corn-meal. Corn at present prices is unquestionably the cheapest food for pigs. But in my case I want something to render it more bulky. I want to let the sows have enough to fill their stomachs. Corn alone is too nutritious for breeding sows that have got their full growth. Early cut clover hay, chaffed quite short, and soaked for twelve hours and then steamed and mixed with corn-meal, is readily eaten. But it is a good deal of work, and on the whole I prefer to buy bran. The manure from the bran is worth 75 per cent of the cost.

For the little pigs I cook corn-meal. My men prefer to boil the water in a kettle, and then stir in the meal and boil until it is thoroughly cooked, rather than to use the steamer. We mix more or less bran with the gruel, according to the age and condition of the pigs. Those pigs which are inclined to fatten rather than grow are put into a pen by themselves and fed more bran. The young, growing pigs are allowed cut mangolds, fed raw. They are very fond of them. For fattening pigs, the mangolds ought to be cooked and mashed up with corn-meal.

My Illinois correspondent says he thinks if I would adopt some of their Western customs and implements I could raise corn much cheaper than now. "We raise more corn than you do," he says, "but raise it cheaper because we have better tools to do it with and different modes of doing it, and not because we raise so much more to the acre." He has raised corn in Western New York, and thinks we can adopt the Western method. "I would plow the ground," he says, "with a good steel plow, and fit it thoroughly either before or after planting, ac-

ording to the time and condition of the land. If the ground was very foul, I would mark it off in rows forty inches apart with a two-horse marker. Then plant in hills with a check-planter. But if the land was clean I would drill in the corn; as I believe more corn can be raised per acre in drills than in hills, provided it is well worked and kept clean. If the ground is rich and in good heart, it will raise a stalk of eight-rowed corn every seven inches by forty inches. After the field was planted, if not done before, I would thoroughly harrow the ground, and if I had time I would do it in any case and also roll it. This may be done before the plants are up, or when they are two inches high, and until they get too large. Then I would plow with the best two-horse plow to be had, with which I could keep the ground clear of weeds until it was so large that the corn would break down—and no ordinary weeds would grow after that. I think you have a drill, but I doubt your having a good corn plow, as they have not been introduced in your State."

I have a check corn-planter—and a very good one of its kind—that plants two rows at a time. But I have never yet seen a check-planter that drops the corn so accurately that the rows are perfectly straight, both ways; and for this reason I plant in drills and cultivate only one way. I have a two-horse corn cultivator, which I suppose is the same thing as a two-horse corn-plow. But I have no man skillful enough to run it as close to the corn as we run our one-horse cultivators. It can be used to advantage, in connection with a single cultivator, for stirring the ground in the center of the rows, and then use the one-horse cultivator for killing the weeds close to the plants. If of the right sort, and the rows are absolutely straight, a cultivator may be run within one inch of the plants, and thus leave little for the hand-hoes to do.

Doubtless great improvements are yet to be made in our methods of planting and cultivating corn, and more especially in our modes of harvesting and husking it; but it seems to me that our chief aim at present should be to so enrich the land that we may have a reasonable prospect of getting 80 bushels of shelled corn per acre. In other words, we must aim rather to reduce the labor per bushel than the labor per acre. And this is true of all our crops.

People who let out and those who work farms "on shares" seldom understand this matter clearly. Last year I know a farmer who let out a field of good land that had been in corn the previous year to a man to sow it to barley, and afterwards to wheat on "the halves." Another part of the farm was taken by a man to plant corn and potatoes on similar terms, and another man put in several acres of cabbage, beets, carrots, and onions on halves. It never seemed to occur to either of them that the conditions were unequal. The expense of digging and harvesting the potato crop alone was greater than the whole cost of the barley crop; while, after the barley was off, the land was plowed once, harrowed, and sowed to winter wheat; and nothing more has to be done to it until next harvest. With the garden crops the difference is even still more striking. The labor expended on one acre of onions or carrots would put in and harvest a ten-acre field of barley. If the tenant gets pay for his labor, the landlord would get say \$5 an acre for his barley land and \$50 for his carrot and onion land. I am pretty sure the tenants did not see the matter in this light, nor the farmer either.

Crops which require a large amount of labor

can only be grown on very rich land. Our successful market-gardeners, seed-growers, and nurserymen understand this matter. They must get great crops or they can not pay their labor bill. And the principle is applicable to ordinary farm crops. Some of them require much more labor than others, and should never be grown unless the land is capable of producing a maximum yield per acre, or a close approximation to it. As a rule, the least-paying crops are those which require the least labor per acre. Farmers are afraid to expend the labor. They are wise in this, unless all the conditions are favorable. But when they have land in a high state of cultivation—drained, clean, mellow, and rich—it would usually pay them well to grow crops which require the most labor.

And it should never be forgotten that, as compared with nearly all other countries, our labor is expensive. No matter how cheap our land may be, we can not afford to waste our labor. It is too costly. If men would work for nothing, and board themselves, there are localities where we could perhaps afford to keep sheep that shear two pounds of wool a year; or cows that make 75 lbs. of butter. We might make a profit out of a wheat crop of 8 bushels per acre, or a corn crop of 15 bushels, or a potato crop of 50 bushels. But it can not be done with labor costing from \$1.25 to \$2.50 per day. And I do not believe labor will cost much less in our day. The only thing we can do is to employ it to the best advantage. Machinery will help us to some extent, but I can see no real escape from our difficulties in this matter except to raise larger crops per acre.

I see nothing in the Western plan of raising corn, as described by my correspondent, that differs essentially from my own practice. I plant with a drill, and do nearly all the work of cleaning the crop with the cultivator. The reason the Western farmers can raise corn cheaper than we can is because their land is cheaper, richer, cleaner, and more easily worked. But I imagine that even they find very little profit in growing a crop of corn that does not average 30 bushels per acre. They, like us, must aim to grow larger crops.

In ordinary farming, "larger crops per acre" means fewer acres planted or sown with grain. It means more summer fallow, more grass, clover, peas, mustard, colesseed, roots, and other crops that are consumed on the farm. It means more thorough cultivation. It means clean and rich land. It means husbanding the ammonia and nitric acid, which is brought to the soil, as well as that which is developed from the soil, or which the soil attracts from the atmosphere, and using it to grow a crop every second, third, or fourth year, instead of every year. If a piece of land will grow 25 bushels of corn every year, we should aim to so manage it, that it will grow 50 every other year, or 75 every third year, or, if the climate is capable of doing it, of raising 100 bushels per acre every fourth year.

Theoretically this can be done, and in one of Mr. Lawes's experiments he did it practically in the case of a summer-fallow for wheat, the one crop in two years giving a little more than two crops sown in succession. But on sandy land we should probably lose a portion of the liberated plant-food, unless we grew a crop of some kind every year. And the matter organized in the renovating crop could not be rendered completely available for the next crop. *In the end*, however, we ought to be able to get it with little or no loss. How best to accomplish this result, is one of the most interesting and import-

ant fields for scientific investigation and practical experiment. We know enough, however, to be sure that there is a great advantage in waiting until there is a sufficient accumulation of available plant-food in the soil, to produce a large yield before sowing a crop that requires much labor.

The rape or colesseed alluded to is a new crop with me. I sowed six or seven acres of it at the same time we sowed the mustard, say in July. It is a very common crop on the fen lands in England, and on other soils that are not adapted to turnips. It is a winter crop, and is fed off on the land by sheep. The severest frost does not hurt it. My Cotswold sheep are kept in the yards and sheds at night, but in the morning, after feeding, we open the doors, and, except during a severe storm, the sheep march off to the field of rape and come back again of their own accord in the afternoon, with their stomachs full of succulent food. The Deacen seems much interested in the experiment. The field is near his house, and he says it is curious to see the sheep march to the field so regularly every day, in single file, and then disperse over the field, and pick up the green leaves or stalks from under the snow. After they have got their fill, a few of them will start on their homeward journey, but will wait at the gate (which is left open) until the whole flock is ready to return, when they slowly and in a dignified manner march home in single file along the beaten track.

The crop is now (January 24th) nearly all eaten up, and the winter has been so remarkably free from heavy snows, that I have had no opportunity of judging of the value of the crop for ordinary seasons. At any rate, however, I propose to sow a few acres every year, and run my chance of feeding it off at times when the snow is not too deep for the sheep to walk about the field. Any green crop that will stand our winters is certainly worth trying. It has one great advantage over the turnip, in our climate—it costs very little to grow it, and *nothing* to gather it and feed it out. The only expense about the crop is in preparing the ground. The soil must be made as fine and mellow as for turnips. The plant closely resembles the Swede turnip or ruta-baga, except that it has no bulb. It is grown for its leaves and stalk. Several farmers who were looking at my farm last fall, thought it was a crop of ruta-bagas, sown very thick, and not hoed—and they were disposed to criticise my method of turnip-growing!

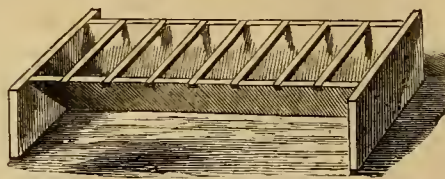
We are feeding our cows nothing but corn-stalks and a little corn-meal; no carrots, no mangolds, no steamed food, and no blooded cows, and yet the butter is as yellow, firm, and fine-flavored as one can desire. We have no trouble about the "butter not coming." It came yesterday in twenty minutes. The farrow cows that I am fattening and milking at the same time, give the richest of milk, and I suppose the yellow butter is due to the corn-meal. It seems to me that if I lived at the West, where corn is cheap, I should engage in winter butter-making. As I understand the matter, good winter butter would sell readily and at good prices in the cities.

How to make Concrete Buildings.

A very substantial and cheap building may be put up with concrete, which is a mixture of hydraulic lime, sand, and coarse gravel or broken stone. Common lime may be used for common farm buildings, or even for dwellings, but as it is not nearly so durable when exposed

to the weather, hydraulic lime should be used for a good building. It has also been found that broken limestone is better than any other stone to use in concretes, a more perfect adhesion being formed between the particles. The proper proportions to be mixed are 20 parts of hydraulic lime mixed to a paste with water, 30 parts of washed sand, and 50 parts of broken stone or gravel. The chips from limestone quarries make the very best material for concrete. No more should be mixed at once than can be used in a day, as it hardens very rapidly. To proceed to build, the foundation must be made, and the courses laid on it in a box or mold, shown in the engraving. This mold is laid in place; the cement already mixed is shoveled in and beaten down with a rammer even with the top of the mold, which is then moved into place for laying the next block. The mold, being open at one end, laps a few inches over the end of the first block, which holds it in place and

though so simple, of great use in this way. The cross-bars (two inches square) should be let



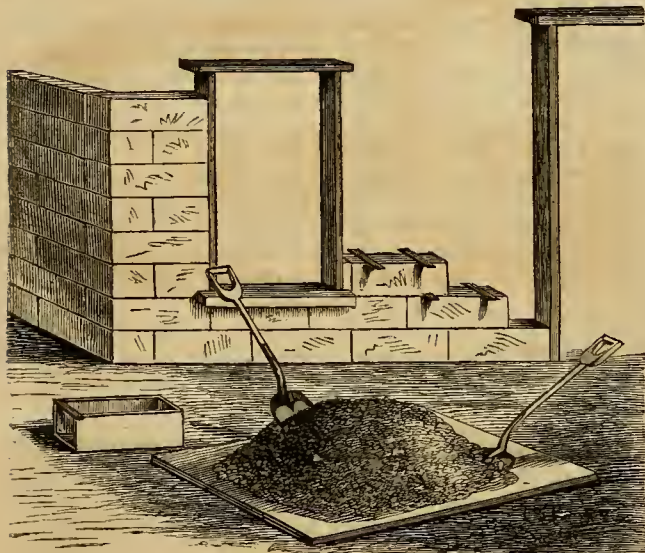
IMPROVED HOG-TROUGH.

down flush with the edge of the trough, when a teupenny nail at each end will hold it.

The Cost of Poor Stock.

Probably few farmers think of what it costs to keep a poor cow or a land-pike hog. They readily understand that a good cow, or a hog that will dress 200 lbs. at ten months old, is profitable stock to keep, but the fact that this gain is really the amount of loss on the poor stock, is rarely considered. If a cow yields 200 lbs. of butter in a year, which brings \$60, and another yields 75 lbs., which brings \$22.50, the loss on the poor cow is just \$37.50. The fact is, it would be a more profitable operation to give her away than to keep her, for she does not pay for her feed. The dairy business of this country is not on a satisfactory footing by any means, and solely on account of the multitude of poor cows, which are kept year after year. This is a matter which should be looked after by the County Agricultural Societies. Every one of these associations should introduce improved stock, by means of thorough-

A Filter for Cisterns.
The engraving here given represents a simple filter which should be attached to every cistern. Generally, the water from a roof has but little solid matter in suspension, but has acquired a dark color and strong taste from the smoke-stained roof, which if of shingles will give in addition a woody flavor. No filtering material but fresh charcoal will perfectly remove this color and taste. The water therefore must be made to pass through a quantity of it. This is best done by affixing at the side of the cistern a box of hemlock, oak, or chestnut planks, or of bricks, in which the pipe discharges through a **L** at the bottom into a layer of coarse gravel. Above the gravel is a layer of coarsely-powdered charcoal, and above that another layer of gravel which holds the charcoal in its place. Above the upper layer of gravel a piece of slate, perforated with a number of holes, may be placed, which will keep these strata in their proper position. The discharge-pipe is curved

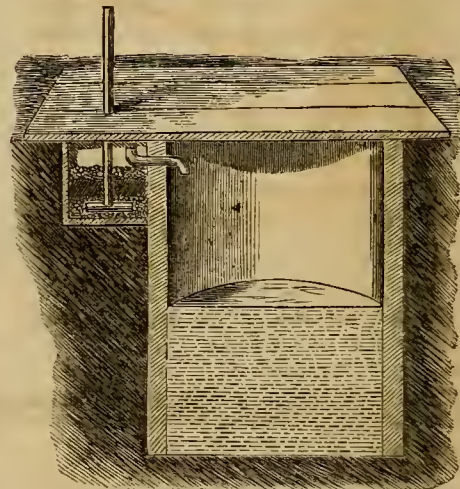


MANNER OF CONSTRUCTING CONCRETE BUILDINGS.

permits a close joint to be made. When the first round is laid, two small sticks are laid across the blocks, and the mold rests on them until filled. These sticks, when the building is completed, are sawn off close to the wall, and if it is desired to nail anything to the wall they will furnish a hold for the nails. As the walls are carried up, the door and window frames are laid in their places. This process is so simple that any intelligent mason is competent to carry it out. The important point is to get the materials of the right sort and mix them properly. The size of the blocks may be as desired, and as the material is very strong and sets very quickly, eight to twelve inches is sufficient thickness for a wall of any ordinary dwelling-house. When common lime is used instead of hydraulic lime, more time must be given for the concrete to set.

AN IMPROVEMENT IN HOG-TROUGHS.—

While we can not cure the propensity of a hog to be hoggish, we can curb it somewhat. The trough here engraved will prevent the strongest animal from pushing his fellows away from the trough, and robbing them of their share. When a little one gets his nose between the cross-bars it is a difficult thing for his big brother to dislodge him, and while he is trying to do it another little brother on the other side of him is busy appropriating all he can get. We have used these troughs in our pens, and found them,



CISTERN WITH FILTER ATTACHED.

upward, which prevents the current from washing any sand or gravel into the cistern. This filter can be taken up at any time and be cleansed and replaced.

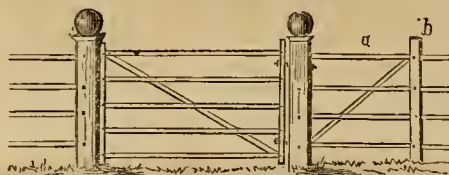
Churning by Means of a Weight.

“S. L. F.,” Rock Bluffs, Nebraska, asks us for a churn power to be moved by a weight. We give a cut of one made by us some years ago, which worked a small churn very well, but which was discarded as the work became too heavy for it. It will churn very well in a dairy of five or six cows, but for double that number requires a larger weight and heavier machinery, besides a regulator, either in the shape of a pendulum or a balance-wheel with an escapement. Without this, when the cream becomes thick, the weight must be increased and must be changed again as the work becomes easier. On this account we could not recommend it except for a small dairy, when it may be made a useful help to lighten the often tedious labor of churning which falls on the housekeeper.

The machine consists of a frame which supports the barrel on which the cord is wound and the clock-work which transfers and increases the motion. This barrel is turned by a crank, and moves on an interior axle, and carries at one end a ratchet-wheel. The interior axle carries a ratchet, which engages with this wheel as soon as the crank is released, and thus communicates the motion of the descending weight to the machinery. By a system of cog-wheels

bred male animals, into their localities. It is a good work to elevate the ideas of farmers and to foster a taste for improvements, but to the great majority of their clients the possession of such stock, or the use of it, is quite unattainable, on account of want of the necessary means. By making this a special branch of their operations, the usefulness of these societies would be much increased, and their importance greatly enhanced.

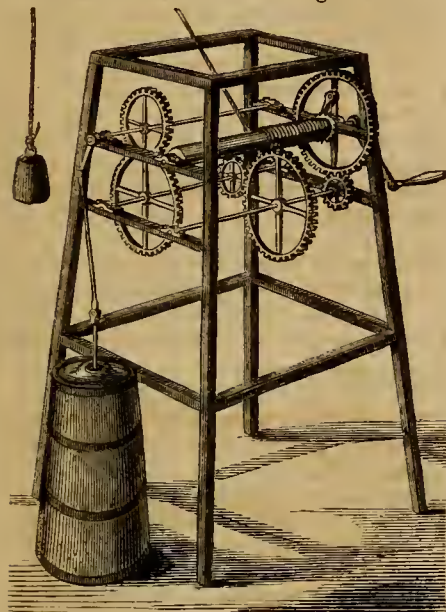
FARM GATE.—“I. M. B.,” Glen Brook, Del.,



FARM GATE THAT WILL NOT SAG.

sends a sketch of an improved farm gate, from which we make an engraving. The improvement consists in the attachment of the panel and brace, seen at *a* in the cut, to the gate-post, by which the gate is prevented from sagging. This is a simple contrivance, and though we have not seen it tested the plan seems very feasible and useful. It is necessary to pin the bars of the panel and the brace into the mortises of the post, at *b*, very firmly, as the strain comes altogether on to them.

the motion is increased until the crank-wheel to which the dasher of the churn is connected makes a hundred revolutions per minute. The dasher of course makes the same number of strokes. The motion depends on the weight attached to the cord, and may be lessened or increased by adding to or taking from that. About twenty-five to thirty pounds will give the requisite motion for a small churning. Some little



CHURNING BY WEIGHT-POWER.

experience is needed in this, but once learned it is easily kept regular. To get a hundred revolutions of the crank-wheel a motion of the weight of two feet per minute is needed, so that if the weight is suspended twenty feet above ground it must be wound up every few minutes. With an increased weight and a regulator, heavier work may be performed. There is no patent on this.

Where can Artesian Wells be made?

Several inquiries have been made in regard to Artesian wells—their cost, character, and the nature of the ground in which they may be sunk. As a reply to all these inquiries we have prepared the illustration here given, which will make plain the nature and mode of operation of these wells. In the great Western plains, as well as on some of the more central prairies, Artesian wells will be found, when practicable, of inestimable value. Not depending at all on the character of the surface, few regions of country



SECTION OF ARTESIAN WELL.

are so barren or arid but water in abundance may possibly be procured from deep-buried underground streams. Such wells have been sunk in the hot, arid deserts of Africa, and water has been brought to the surface and has rendered them habitable. The engraving represents the surface of a tract of country of indefinite extent—it may be ten, fifty, or hundreds of miles without in any way changing the principle on which these wells operate. Several distinct strata of

rock or earth are here represented. The depression in the surface of the highest ground, marked *R*, is supposed to represent the bed of a river, which lies on sandstone or limestone rock or gravel or any other porous material. Beneath this stratum and above it are others of impervious material, such as rock or clay, through which water can not pass. This bed of porous rock or earth is depressed into a valley, and is covered with beds of sand, clay, gravel, or rock, as the case may be, represented by the letters *a, b, c, d*. Thus it will be seen that the water escaping from the river bed or by natural rain-fall into this porous bed will follow it along its course, filling all its interstices, until it can escape in the shape of springs at some natural outlet, wherever that may be. But suppose wells are sunk at the spots marked *W, W*, as soon as they reach the porous stratum through which the water is passing the stream is tapped, and it rises to the surface, and as the surface is lower than the bed of the river or the ground whence the supply is first received, it overflows, or if confined may be carried up in pipes to a height equal to that of the original source. If the source furnishes a sufficient supply, an unlimited number of wells may be sunk

wherever they can reach this porous stratum, and the region capable of furnishing water in this way will be exactly equal in extent to that of the water-filled stratum beneath. Thus, there is needed before such wells can be sunk successfully the following conditions—viz.: Two impervious beds of rock or clay, inclosing between them a bed of gravel, sand, or rock containing pores or fissures, as sandstone or limestone, and a source superior in height to the location of the well. Sometimes also there are beds of gravel or sand above the water through which it would escape unless the well be tubed, but as wells are necessarily tubed, excepting when passing through rock, little difficulty occurs on this account.

The fine Artesian well at Chicago, which pours forth a continuous and very large amount of water, is supposed to derive its supply from the Rock River, over a hundred miles distant, the water passing through a bed of limestone containing extensive fissures or caverns. The town of Fond du Lac, in Wisconsin, called the Fountain City from its numerous flowing wells, also derives its supply of water from a bed of fissured limestone, and very probably from the same river, and in such a well-marked case as this, if the source is really the same, the whole country between these two cities could be depended on as a successful field for the sinking of wells. It will be thus seen that some acquaintance with the geography and geology of a country is necessary before it can be predicted that wells may be sunk with success. In the absence of any such knowledge, large amounts of money have been spent in sinking for water without success, both in the United States and in foreign countries. With proper tools and experience in the work, the cost of these wells

is very moderate—from one to three dollars per foot, as the nature of the earth or rock may cause the sinking to be easy or difficult.

It is probable that this very important question for the inhabitants of the Western plains will soon be completely solved, as Artesian wells are being sunk in many places by the various railroad companies, and a few experiments successfully made will locate the bounds of the water-bearing stratum of rock or gravel so that other parties may bore with some amount of certainty of procuring water.

A Farm Stable.

We present herewith illustrations of a farm

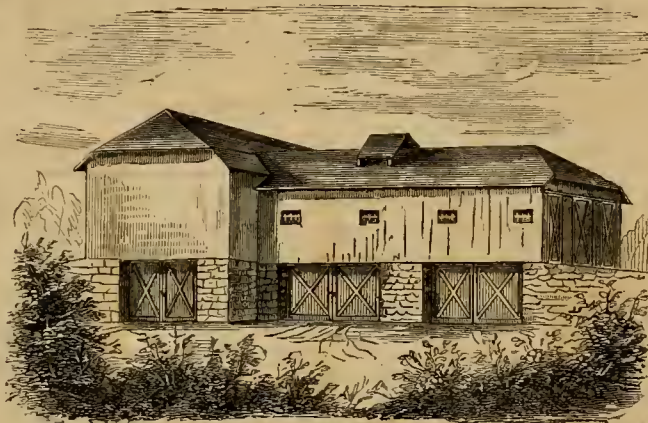


Fig. 1.—PERSPECTIVE VIEW OF BARN.

stable recently built on Dr. C. F. Heyward's farm at Newport, R. I., by our Ogden Farm correspondent, who has charge of the improvement of the estate.

It has stalls for twenty cows, four oxen, and two horses, and will stow about ten tons of hay in the bays, and, in an emergency, five more on the thrashing floor. It is intended to keep the main store of hay in a hay-barn already standing and in Dutch hay covers. On this place, there being a large amount of pasture land, it is not intended to "soil" the stock, and the object has been only to furnish comfortable quarters for the cattle, where they may be conveniently fed and milked with the least expense possible. Everything is built in the plainest manner, and as cheaply as permanent usefulness would

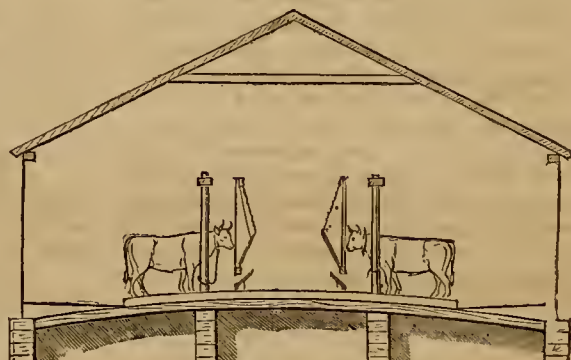


Fig. 2.—SECTION OF BARN.

allow. The cost of the building, including cellar, foundation wall, etc., has been about \$1,250.

The building stands sideways against a gentle slope, the fall being about five feet in the width of the barn (36 feet), a very little artificial grading having brought the cattle floor on one side and the manure cellar on the other, to the ground level. Under the cattle and horse stalls there is one large cellar for manure, with two wide entrances for carts. Under the thrashing

floor there is a root-cellar, and under the principal hay-bay a storage room for plows, harrows, etc. The general arrangement of the cattle floor and hay-room is shown in fig. 3. The ox and horse stables open into a small yard, separated from the cow-yard. The animals have access to the latter through the doors at the end of the building. The feeding passage is not wide enough for a cart, but it is wide

incloses the manger on this side. Eighteen inches in front of it is a board four inches high, nailed to beveled blocks at intervals of three or four feet. These blocks support a shutter, which may be turned back against them for putting in cut feed or meal; or turned up straight and closed with a button against a three-by-four timber which supports the hay-rack. This rack consists of strips of Georgia pine 2½ in. wide and

and she has not the "black points" of which we read so much in the agricultural papers and see so little in the best Jersey cows. She is of "the real old Tainter kind." If handsome is that handsome does, then "Theresa" is a beauty of the first order. She is eleven years old, and had her last calf Mareh 18th, 1871, and is to calve again Mareh 16th, 1872.

The account given below is made up to the last day of 1871—275 days from April 1st (13 days after calving). The family she supplies is a large one, and aside from the milk required for other purposes, much fresh milk is used in cooking. Mr. Perry estimates the value of the milk used in his family at \$50—say 17½ cents per day. Fresh milk and cream were sold to neighbors for \$12. Probably these items represent nearly 1,000 quarts of fresh milk that was not used for butter-making. In spite of this, there were made from this cow alone in the 275 days 301¾ lbs. of as fine butter as I have ever seen, which is sold to a gentleman in Newport for 75 cents per pound. The value of the butter at this price is \$226.31. Value of skimmed milk fed to pigs and poultry, \$20.

The product of butter averaged for May, her best month, 9¼ per week, a yield which many a common cow could beat under the same circumstances; but then she averaged about 7¾ lbs. per week for the whole 39 weeks—a feat that, so far as my information goes, has rarely been equaled.

The regularity of her production is surprising, especially when we remember that she was with calf for more than two thirds of the time, and that in December she was milked but once a day, in the hope of drying her off. She produced in April 38¾ lbs.; May, 44 lbs.; June, (all the milk being sold for three days), 32¾ lbs.; July, 34¼ lbs.; August, 34¾ lbs.; Sept., 35 lbs.; October, 33½ lbs.; November, 28¼ lbs.; December (milked but once a day), 20½ lbs. A better illustration of what is meant when it is said that a good Jersey is the best family cow I do not know where to find.

The total value of the produce of the 288 days after calving, supposing all the butter to have been sold (as it might have been) for 75 cents per pound, and including \$35 for which the calf was sold, was \$343.31—an average of \$1.19 per day. Allowing about \$20 for the remaining 2½ months, she will have produced one dollar per day the year round.

Caponizing.

The object of caponizing is to improve the quality and increase the quantity of the flesh of fowls. A capon will outgrow a cock of the same age, just as an ox will exceed a bull in weight, and for the same reasons, which are that castration makes an animal less restless and quarrelsome, and less of the nutriment it digests is diverted from flesh-forming.

The operation is not difficult, and is so quickly performed after a little practice, that operators earn high wages by caponizing cockerels at \$5 or \$6 per hundred. There are sets of instruments for the purpose, which are advertised by the "Poultry World" in our columns, and we believe are sold by several other parties. To save expense an ordinary pocket-knife and tweezers can be used instead of those made especially for the business, and the remaining instruments, which are illustrated in fig. 1, may be made to order by any jobber in metals. *a* is a tube with the end (*b*) flattened to an oval about one third of an inch in its greatest diameter.

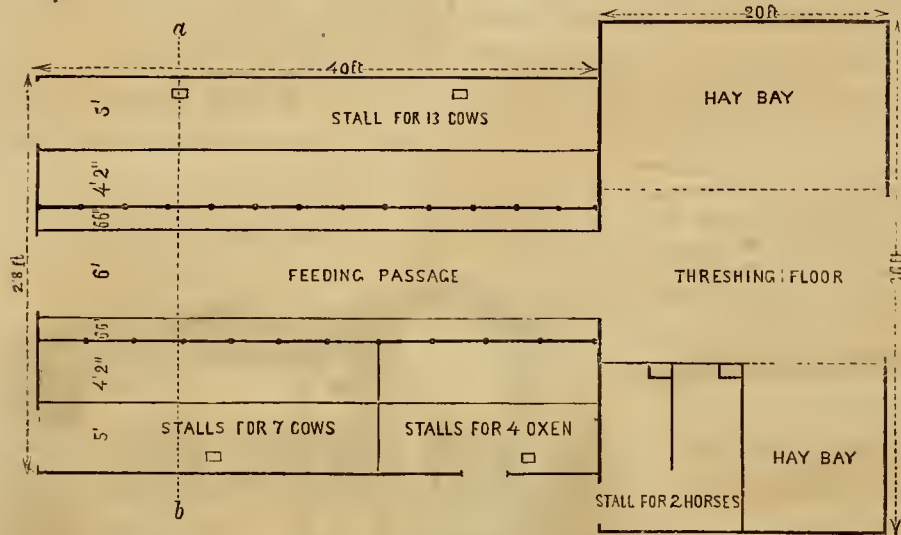


Fig. 3.—PLAN OF FLOOR OF BARN.

enough for a team alone when unhitched from a loaded cart or wagon left standing upon the thrashing floor.

The features of this stable to which we especially wish to call attention, are the arched floor and the arrangements for tying and feeding. The main timbers supporting the floor are 28 ft. long, running across the building. There are two of them, one about one third the distance from either end of the cow-room. These are supported each by two 10-inch chestnut timbers, resting on foundation stones, and standing under the lines of the upright posts to which the cattle are tied. Before these were put in, and after the outside of the building was finished, the cross-timbers were screwed up in the middle as much as they would bear, having a "crown" of about six inches, giving an arch-like form to the floor, the middle of the feeding passage being six inches higher than the outside of the passage behind the cattle. The floor-joists were then notched in to these timbers and to the end sills to a uniform depth as far back as the rear of the floor on which the cattle stand. At this point a drop of four inches is given by spiking a scantling against the floor-joist. From this point the passage floor rises to the side of the building. This gives good drainage, great simplicity, and great strength. The construction of this floor and of the feeding apparatus is shown in fig. 2, the details being more clearly set forth in fig. 4.

There are no partitions between the cattle, save the bars which separate the oxen from the cows. At the left side of each cow's neck, on one side of the barn and at the right side on the other, stands a turned post of chestnut, three inches in diameter at the bottom and two inches at the top. To these the cows are tied, by ropes arranged with a running loop fastened around the posts, and with buttons and eyes to fasten around their necks. A board six inches high

one inch thick. In front of it there is a shutter 3 ft. wide, hinged at the bottom, which may be turned flat against the slats when hay is not being fed, or may be dropped back the length of the chain which supports it when necessary. Fig. 1 is a perspective view of this barn from the down-hill side.

The Story of a Good Cow.

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

She is a Jersey, of course—not that there are not good cows of other breeds, but then I am a Jersey man, and my interest in this breed leads me to learn more of the good qualities of this family than of others. Her sire and dam were imported from the island of Jersey by Col. Goddard, of Providence; and her name is "Theresa." She belongs to Mr. E. B. Perry, of Providence, and I had heard enough of her to induce me to pay her a visit. She lives on a little farm about two miles north of the city,

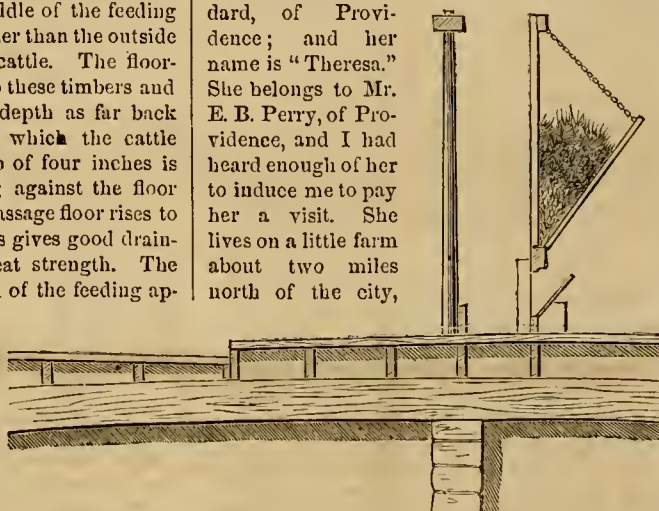


Fig. 4.—SECTION OF STALL.

and has all the care that it is possible for a man who is fond of her to give.

I have seen handsomer cows—indeed, she has few of what are known as "fancy points," being large, raw-boned, crumple-horned, and big-bellied. She is far from being solid-colored,

Through this tube is passed the horse-hair loop (*c*), *d* is a steel-rod with a spoon (*e*) at one end and a pointed hook (*f*) at the other, and *g* is a steel splint 6 inches long with a broad, flat hook (*h*) attached to each end by twine, three quarters of an inch slack being allowed.

The best way to hold the subject is to place a board, 14×24 in., in the lap of the operator, upon which the fowl is to rest upon its right side, while an assistant grasps its wings with one hand and its feet with the other, as represented in fig. 2.

Remove the feathers from a spot as large as a watch at the point *i*. Next pull the skin backwards, so that it may slip forward again after the operation is completed, and with the knife make an incision an inch and a half long, parallel with the last two ribs and between them, until the intestines are visible, taking care to not injure the latter. Now separate the ribs by attaching one of the hooks (*h*, *h*, fig. 1) to each, and allowing the ends of the splint to spread, as they will do when let go. The intestines may be

to the organs removed. The best age for cockerels to be operated upon is two months. In order that the intestines may not be distended, prepare the bird by shutting it up without food or drink for thirty-six hours. Capons continue to grow for a long time, and they should be kept until twenty months old, in order to gain the full advantages of the operation.

The Milk-Mirror in Cows.

A correspondent in Andover, Mass., asks us to explain the meaning of the term "milk-mirror." This is used to describe that portion of the animal's hide on and in the vicinity of the udder, on which the hair grows in the opposite direction from that of the adjoining parts. The line of demarcation between the two is generally quite distinct, and constitutes what is often called a "quirl," the up-growing and down-growing hair meeting sometimes quite abruptly. More often the change of direction is more

with advantage, but we are constantly applying the general principle in the purchase and sale of animals in our own herd. Although the system, applied with our imperfect knowledge, is not absolutely infallible, we would no more think of buying a cow with a very defective escutcheon, or of selling one (unless for an extra price) with a perfect escutcheon, no matter what their other qualities may be, than we would think of breeding from a second-class bull to save a few dollars in the cost of service.

We can not here give the space necessary for even a rough sketch of this method, but a translation of the original work is published at this office, which will be mailed, post-paid, on receipt of the price, 75 cents.

Cooking Food for Stock.

We would be glad to receive statements of the *practical results* of experiments in feeding stock—especially horned cattle—with steamed food. We want facts, *not opinions*. Most of the literature of this subject is made up of the notions of the writers, and of their conclusions, based on their own experience; and these notions and conclusions are hardly worth the paper they are written on, except to the man who forms them and others situated like him.

The hidden character of the processes of animal life, and the degree to which attending circumstances affect the result of any experiment in feeding, make opinions that are based on single experiments exceedingly untrustworthy. The most skillful physiologist would be uncertain as to the true bearing of any effect that he might observe, and surely even the most intelligent farmer is incompetent to give us a reliable theory of the experiment that has, in his case, brought a certain result. All he can do, that will be worthy of the world's attention, is to state the result, and so much as he can of the attending circumstances—that is, the kind of shelter, the amount of exercise, the temperature of the water, the breed, age, and condition of the animals fed, and all else that could in his opinion affect the result. Here he ought to stop, and allow the public to form its own conclusions as to the "why and wherefore," and as to the general applicability of the truths that a majority of the instances reported seem to point out. Should the reports that we ask point very generally in one direction or the other, we might venture to express an opinion as to their force, but we doubt whether the experience of the country is yet sufficient to justify a decision as to the propriety or impropriety of steaming under all circumstances.

We would especially suggest that our correspondents leave out of the consideration the question whether steaming fodder seems to them more or less "natural" than the common practice. Left to a state of nature, our domestic animals would soon cease to exist in a useful condition. They are the product of artificial treatment, and the real question is not what treatment is the most natural, but what artificial deviation from natural conditions promises still further artificial advantages.

Our Native Bats.

When a bat enters a dwelling room of an evening, flitting noiselessly about and searching for some avenue of escape, the whole household is aroused, and with brooms, towels, and other weapons the little creature is beaten to death, unless by some fortunate chance it escapes

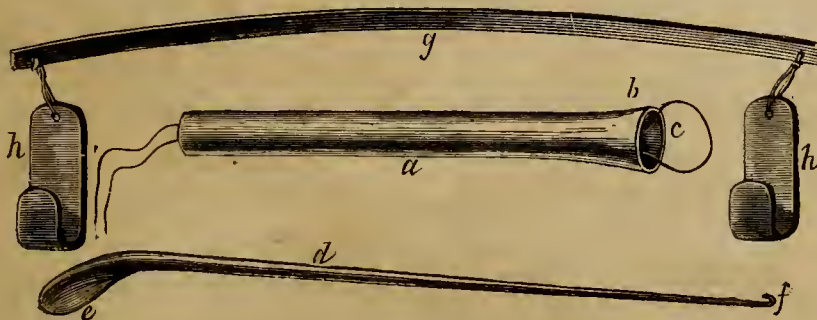


Fig. 1.—INSTRUMENTS FOR CAPONIZING.

pushed away with a tea-spoon handle or other flat, smooth instrument, and when the testicles are found (attached to the back) the tissue which covers them must be held by the tweezers and torn open with the pointed hook (*f*). Next pass the horse-hair loop around one testicle, which cut off by pulling upon the ends of the horse-hair, so as to communicate a *sawing* mo-

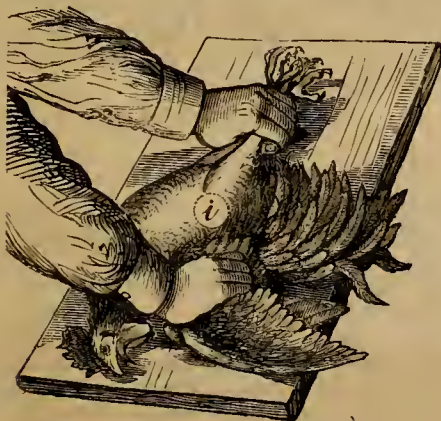


Fig. 2.—HOLDING THE FOWL.

tion to the loop. The spoon (*e*) is now introduced to scoop out from the cavity the severed organ and the blood, when the operation is repeated upon the other testicle, the incision is closed (no sewing being necessary), the skin is allowed to resume its place, and the feathers which were removed are stuck on the outside and left to adhere by means of the blood, forming the only bandage necessary.

There need be no more than 6 or 8 per cent of the birds killed even by an indifferent operator, and as those die by bleeding to death they may be eaten as if they had been butchered in the regular way. To avoid bleeding take care to not rupture the large blood-vessels attached

gradual, but it is always clear enough to be seen at a glance, especially in summer, when the coat is clean and the hair is short. The significance of the mirror was discovered by a French cow-herd, named Guénon, who classified the different forms of mirrors, and established a system by which he claimed that he could tell, from an examination of the mirror alone, how much milk any individual cow would give (supposing her to be of average size and in good health), and what would be the quality of the milk, and how rapidly she would dry off after becoming impregnated again. This discovery was subjected to a very critical examination in 1837, by a committee of the Agricultural Society of Bordeaux. About sixty animals were submitted to Guénon's inspection, and his statement concerning them was recorded and afterwards compared with the statements of the owners of the cattle. They were found to agree in every instance. Other trials, in different parts of France, were equally successful, and high honors have been awarded to Mons. Guénon for his discovery. In other countries the success of the system has been no less marked. That it is a carefully arranged system is shown by the fact that others have attained an equal efficiency with its discoverer in applying its principles to practice, and although the minute classification that has been given by the discoverer may, perhaps, be questioned, there is no longer the least doubt of the fundamental soundness of the idea. In America, as well as in all countries of Europe, it is fast becoming a recognized standard by which to determine the milking qualities of cows, and to foretell the promise of calves and the probable breeding value of bulls.

We are not ourselves sufficiently familiar with the minutest details of Guénon's classification to determine how closely they may be followed



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NORTH AMERICAN BATS.—Drawn by Herrick, and Engraved for the American Agriculturist.

through the open window. We have seen this bat-hunt many a time, and have strongly protested against it, for two reasons: The bat is perfectly harmless, and he is greatly useful. The structure of the bat is so remarkable that it is worthy of a moment's consideration. It belongs to the family of *Cheiroptera*, which is as much as to say, hand-winged animals. The bats are true mammals, producing their young alive and suckling them, but they differ from other mammals in being able to fly. Some Squirrels and Lemurs are called flying, but they are only able to make prolonged leaps by means of an extension of skin between their fore and hind legs. The bats, however, have real wings. Their fingers are much elongated, and by means of a membrane extended from the neck across the arm, fore-arm, and fingers, they can fly with all the rapidity, grace of movement, and sudden change of direction that birds are capable of. The fore-legs, being designed for flight, the animal makes but a poor figure at walking, and it is only able to shuffle about in a rather ludicrous manner. The eyes of bats are very small, and this has led to the saying, "As blind as a bat,"

but being provided with very large ears and wings of great sensitiveness, they do not depend upon their eyes as much as other animals. Some cruel experiments made some years ago in Europe, proved that bats, the eyes of which had been destroyed, could fly about, without striking against any object. The bats are all nocturnal; they remain concealed during the day in caves, old buildings, holes of trees, or other hiding places, and only venture forth at night. In some places, if undisturbed, they accumulate in great numbers. The writer has visited more than one abandoned church in Mexico, where the bats were in such numbers as to form clouds when disturbed, and their droppings formed a deposit upon the floor of two or three feet in thickness. The bats are divided into the fruit-eating and the insect-eating groups. The fruit-eaters are all natives of the East Indies and tropical Africa. If they eat much fruit, it is gratifying to know that they are eaten in return, and are said to be a choice delicacy. The Vampires are insect-eaters, and belong to tropical America. They have curious leaf-like appendages to their noses, and the bad reputation of

sucking blood from man and other animals. This quality of the Vampires has been regarded as a superstition, but late testimony goes to show that they do at least bleed horses. Our North American bats have, however, no appendages to their noses nor stain upon their characters! They all belong to the genus *Vespertilio*, and number a half-dozen or more species. The engraving presents three of these. The upper one is the Hoary Bat, which is over four and a half inches long, and has a spread of wings of over fifteen inches. It is grayish above, with a fawn-colored band at the throat. The one at the right-hand is the Carolina Bat; this is nearly four inches long, spreads twelve inches, and is of a chestnut color. The Little Brown Bat is shown on the wing at the left of the engraving; this is olive-brown above, grayish beneath, and has a spread of nine inches. All our bats are insect-eaters, and when we see them flitting about, we may be sure that they are foraging for night-flying moths and beetles. Instead of destroying the bats, let us preserve them, for they are among the few wild quadrupeds that may be classed as the farmer's friends.

The Balloon-Vine or Heart-Seed.

Among the annuals the Balloon-vine commends itself by its delicacy and the curious character of its fruit, rather than by the showiness of its flowers. The plant is a low climber; in its wild state it runs along the ground and over low bushes, and in cultivation it should

The Balloon-vine stands in the same family with the Bladder-nut, Horse-Chestnut, etc.

The Matrimony-Vine.

In old gardens we sometimes meet with a shrub that was formerly more common than it is at present—the Matrimony-vine. It is the

feet. It is a rapid grower, and is frequently used in Europe to cover walls, the sides of buildings, etc. In some places in this country it has become partly naturalized, and as it throws up a great abundance of suckers it is difficult to eradicate where it is well established. The name Lycium is from Lycia, the native country of one of the species. A native spe-



BALLOON VINE.—(*Cardiospermum Halicacabum*.)



MATRIMONY VINE.—(*Lycium vulgare*.)

have some support about four feet high. The engraving gives a portion of a plant slightly less than the natural size. The leaves, which are thin in texture, are handsomely cut. The flowers are in axillary clusters, very small, and with the parts in fours. Each flower cluster bears hooked tendrils, by means of which the plant climbs. The fruit is a large bladderly capsule, with a single seed in each of its three cells. Each seed is marked (shown in an enlarged seed, *a*, in the engraving) by a heart-shaped spot (*arid*), which suggested the generic name *Cardiospermum*, or Heart-seed. When filled with its curious fruit, the Balloon-vine is an interesting plant, and is sure to be a favorite with the young people, who find much amusement in exploding the inflated pods. It is found growing wild in Florida and Texas, and is widely distributed throughout the warmer portions of the world. It is said that in the Moluccas the foliage is cooked and eaten as a vegetable. Like other tender annuals, it does better if started in a hot-bed. The full name of this little vine is *Cardiospermum Halicacabum*. The meaning of the generic name has already been given. The specific name is the Greek one for another plant, and applied to this one by Linnaeus, for what reason we are unable to say.

Lycium vulgare, though in most botanical works it is called *Lycium Barbarum*, a name which belongs to a different plant. Other common names are Bastard Jasmine, Barbary Box-thorn, and the Duke of Argyll's Tea-tree. The last name was given to it from the fact that a plant of this and one of the true Tea were sent to the Duke of Argyll, and the labels having become exchanged this shrub was cultivated for a while under the belief that it was the Tea-plant. As generally seen, the shrub presents a mass of long, pendent branches, bearing leaves of a grayish green color. The flowers are produced in the axils of the leaves in small clusters, each upon a stalk about an inch long. The corolla has five lobes, and is of a pale greenish purple color. The oval berries are orange-red when ripe, and contain numerous seeds. Though the shrub can not be regarded as a showy one, it presents a neat appearance with its rather modest flowers and abundance of shining berries. It keeps in flower for a long time; as the stems elongate, new blossoms are developed, while the fruit from the earlier ones is already ripe. When left to itself, the shrub seldom grows more than six or eight feet high, but if the branches are trained to a wall or other support it will grow to the height of thirty or forty

feet. It is a rapid grower, and is frequently used in Europe to cover walls, the sides of buildings, etc. In some places in this country it has become partly naturalized, and as it throws up a great abundance of suckers it is difficult to eradicate where it is well established. The name Lycium is from Lycia, the native country of one of the species. A native spe-

Sowing Seeds of Tropical Annuals.

BY PETER HENDERSON.

Our climate is much more favorable than that of England for the growth of annuals of tropical origin. Not only do the plants with us attain a greater height and development, but those that are grown for the color of their foliage acquire a greater brilliancy under our clear sunlight than they do under the dull skies of the British Isles. Notwithstanding all this, the English gardeners and also the amateurs, as a general thing, meet with better success with these plants than do ours. This success is due to beginning properly with the seeds. Our amateurs are ready to buy at a high price all novelties that are offered, but their results are not in proportion to their liberality. Take for illustration the new Amaranth which is figured elsewhere; the seeds of it will be offered this spring in "homœopathic" packets at an "allopathic" price. Of those who purchase, a few

will succeed in raising fine plants, while many will fail, and pronounce the thing a humbug. There is no good reason why every one should not succeed, as all the Amaranths are easily raised from seed—the seeds never failing to germinate if the conditions are right. I will endeavor to state what these conditions should be. First, then, you may procure your seed as soon as you can get it, but don't think it imperative on you to sow it as soon as you get it, as I know is too often done with flower seed.

One half of all seeds purchased by amateurs perish from one or other of the following causes. A seed that should not be covered with more soil than $\frac{1}{16}$ or $\frac{1}{8}$ of an inch is covered often an inch or two in depth, and the delicate plant perishes from being unable to push through this weight of soil. Or a light seed is sown in the open border, at a proper depth perhaps, but a dashing rain sweeps it away, or a dry spell shrivels the delicate life in the tiny seed so that all possibility of germination is gone. But the most common error is to sow too early, for most of our annual flowers are tropical, and if they germinate at all, the chilly nights of April, and often of May in this latitude, are certain to destroy them. So for such seeds as this new *Amaranthus*, and the others named below, the following method is a safe one.

If you have a greenhouse or hot-bed, sow in this latitude (sooner or later, South or North) from the first to the tenth of May, in shallow boxes (two inches deep), covering say $\frac{1}{16}$ part of an inch with some light kind of soil, such as leaf-mold from the woods, sifted through a mosquito netting or a sieve of similar fineness of mesh; water daily with a very fine rose watering-pot, until the seed germinates; or, if you have not a suitable watering-pot, place porous paper so as to cover all the soil where the seeds are sown, pour water gently over the paper, and it will quickly pass through it, distributing itself evenly over the surface of the box without disturbing the seeds. When the seeds are up sufficient to show the rough leaf, which will be in about two weeks after sowing, take them up carefully, and replant in similar boxes and soil, one inch apart. By the first week in June they may be planted out-doors.

To those who have not the convenience of either hot-bed or greenhouse, a window exposed to the south or east in the dwelling-house would answer the purpose nearly as well if the same care in sowing is used. If wanted for exhibition at agricultural fairs in the autumn, it would be best to pot the plants in three or four inch flower-pots, setting the pots in the soil in the open ground level with the rim. As the plants grow, they should be shifted into larger pots, until the final shift, which would probably require a pot or box one foot in diameter. If not wanted for this purpose, plant in the open flower-border, but not in pots.

As this class of annuals is unsurpassed for decorative purposes, a fine effect might be produced by many of your readers at the agricultural fairs held in October. Below is a list of such kinds, in addition to the *Amaranth* already referred to, as can be easily raised from seeds, and would be suitable for this purpose:

<i>Amaranthus, bicolor, ruber.</i>	<i>Browallia alata, blue.</i>
<i>Amaranthus, tricolor (Joseph's Coat).</i>	<i>Globe Amaranthus, purple, yellow, or white.</i>
<i>Amaranthus, tricolor, giganteus.</i>	<i>Sensitive Plant.</i>
<i>Amaranthus sanguineus.</i>	<i>Petunia, striped and blotched.</i>
<i>Coxcombs, yellow and crimson.</i>	<i>Cypress Vine, scarlet or white.</i>
<i>Egg-plant, white and scarlet, fruited.</i>	<i>Lophospermum scandens.</i>
	<i>Thunbergias of sorts.</i>

The first four in the above list have brilliant

and highly ornamental foliage, and well-grown specimens of them are very attractive. A fine specimen of the Sensitive Plant is to most persons a great curiosity. The last three plants named above are climbers, and must be furnished with trellises, or some kind of supports, four to eight feet high. The Globe Amaranth and Cypress-vine germinate more readily if scalded before sowing.

Dwarf Fruits and Small Fruits in Kentucky.

BY HENRY T. HARRIS, LINCOLN CO., KY.

Horticulturists of the South are beginning to "wake up" from a long supineness on the proper culture of dwarf and small fruits in their respective localities. With rare exceptions, they have neglected their culture, and hence but few families, comparatively, have a supply of either, notwithstanding the great adaptability of the climate and soil to their production.

I know of but two or three dwarf fruit orchards in this county; and but few small-fruit gardens. A half-dozen knotty, ill-cared-for pear-trees, and a rod square of strawberry plants overrun with filth and weeds, a hedge-row of unpruned wild-raspberry bushes, make up the sum total of their fruits. Here and there an old standard pear-tree, loaded with luscious fruit, the result of some more thoughtful individual's labor half a century ago, rises up from beside the garden-gate, as if to upbraid the rising generation for their want of forethought, and to convince them that fruit-raising would be a success if they would only plant and tend the trees. Here and there a few time-worn apple-trees and worm-eaten peach-trees dot the landscape in the rear of the tumble-down barns, with weeds and "water-sprouts" contending for the mastery of the situation.

Now and then you will find a beautiful young orchard laden with its wealth of fruits—the Golden Pippin and blushing Ben Davis, the luscious Crawford's Early and Oldmixon Free peaches, the Bartlett and Louise Bonne of Jersey pears, the Green Gage and Jefferson plums, the Black Tartarian and American Amber cherries, and a host of others adapted to our climate and soil. Enter the garden, here we find the Wilson, Triomphe de Gand, Downer, Charles Downing, Green Prolific, and French strawberries, with perhaps a few choice plants of newer kinds on trial, including "President Wilder," in a clean, neat propagating bed. The fence rows are not filled with bushes, but these are planted in a square by themselves. The Doolittle, Thornless, Clarke, Seneca, Philadelphia, and Orange raspberries are neatly trimmed and tied to stakes.

We inquire for the owner, and find almost invariably that he is some "irrepressible Yankee," who, with an eye to business and profit, came amongst us during the unhappy war, and found that our climate and soil were the home of fruits. Let more of them come: we need their aid in rendering our lands fruitful.

But I have somewhat digressed, yet not without reason or aim. We find by our partial experience, that the dwarf fruits, especially the pear, do exceedingly well here. I know one orchard of three hundred trees, now ten years from the nursery, which have yielded splendid crops for six years, having failed only partially one year, and that from an unprecedented drouth, which continued from June first to the last of August. This orchard has ten varieties,

amongst the best and most prolific of which are Bartlett, Winter Nelis, Louise Bonne of Jersey, Vicar of Winkfield, Duchesse d'Angoulême, Bloodgood, and Seckel. Would not other dwarf fruits do as well?

The small fruits of all kinds, strawberries, raspberries, currants, cherries, gooseberries, blackberries, grapes, etc., flourish here with surpassing productiveness, and many of our best varieties of strawberries have had their origin in Kentucky soil. I refer to the Downer, Charles Downing, and Kentucky, the latter kind having, on my grounds this spring, produced a choice crop of superior fruit, after all other varieties had yielded the bulk of their crops.

The White and Crimson Mignonettes.

BY PETER HENDERSON.

Mr. W. C. Strong, of Brighton, Mass., takes me to task in last month's *Agriculturist* for denouncing these Mignonettes as frauds, and thinks I could not possibly have had the varieties genuine, or I would not have done so. That I had the true varieties there is no doubt, and that I did see a difference from the old variety I also acknowledged in my article in December, and a distinction also that I am willing to accept as a variety, and perhaps an improvement; but what I complained of as a fraud was the names "Crimson" and "White," given "the same with intent to deceive."

Mignonette is one of the best known of all cultivated annuals, and valued for its fragrance rather than the color of its flowers, but when it was heralded by hundreds of catalogues throughout the land that we had been blessed with a "Crimson" and a "White," every one interested in the old flower wished to possess the new. Surely Mr. Strong knows that not one in a dozen of those who purchased would be satisfied that they got the value of their money by the difference, and certainly none had credulity enough to believe that they had got either crimson or white. Mr. Strong says possibly the name *White* was an unfortunate one. It is not a "name," it is a "description," and it is worse than unfortunate—it is false.

We know that there are dozens of itinerant scoundrels peddling "blue" and "black" roses in the rural districts every spring and fall, and almost every spring one or more has the impudence to pitch his camp right in the business part of New York City, and unblushingly assure his gullible patrons that he has made them the possessors of these floral wonders.

Now, I claim that it is just as much a fraud to call Parsons's new Mignonette "White," as it would be for Mr. Strong or me to call the famous Tea-rose Bon Silene "blue," and that we would no more deservedly bring down censure on our heads by issuing the one so described than in issuing the other.

I am rather sensitive and suspicious, perhaps, in this matter of startling novelties in color, having once palmed off on my customers a certain yellow Verbena, which I had received in good faith—and with entire faith—from a London house. It was described as the great plant of the season, a bright, yellow-colored Verbena, which they named "Welcome." After many failures, I succeeded in getting a dozen plants alive, which we propagated rapidly, and sold just as rapidly, but without taking the precaution to prove it. One April morning developed the flower of the new Verbena, but to me the sight was far from "welcome," for instead of

bright yellow, it was simply a dubious white. But, worse yet, the plant arrayed in full dress revealed to me an old acquaintance of my boyhood—*Verbena sulphurea*—a half-hardy species cultivated in the botanical collections of Britain for possibly twenty years before. Some "enterprising" florist had come across it, saw in the name *Sulphurea* a "golden" tinge, and set it on its commercial travels, which, I am happy to say, were short, but to me, for one, far from satisfactory, for I have not yet heard the last of that Yellow Verbena, and from that time have been morbidly sensitive and skeptical until I have had evidence of the truth of descriptions. Whenever descriptions are no nearer truth than those of the Crimson and White Mignonettes, I shall not scruple to say they are fraudulent.

Venture a Little Seed.

The writer once lived on the Mexican border, where no crop could be depended upon, unless the land was irrigated. The best planters, after they had sown their crops upon all the land capable of artificial watering, would put in a field of greater or less extent, upon the upland. This they called planting *a Dios* (to God). If the rains came, which they did once in three or five years, a good crop was taken from these high lands; if not, it was only the loss of a little seed and labor. In something the same spirit we have been in the habit of putting in moderate quantities of some seeds just as soon as the frost was out of the ground, without reference to the promise of an early spring, or a late one. Sometimes we have received nothing for our labor, but more frequently we have enjoyed vegetables considerably in advance of the regular crop. We find it worth while to sow a few early peas, radishes, and beets, and plant some early potatoes long before our neighbors have thought of their gardens. The soil is manured and spaded in the fall, and a forking over in spring makes it ready for the seed. These early crops need not be tried in large quantities, and then, if they come up, they can be easily kept from injury, by having some bog hay or other litter to pull over them when frost is expected.

When to Prune.

Being a novice and an enthusiast about things rural, I have so faithfully followed your counsels regarding the study of the best books upon agricultural subjects, that, as my helpmeet truly says, poor Dickens, Thackeray, Irving, and a few lesser lights are being crowded from our shelves, or tumbled into rather familiar companionship with Miss Ingelow, Mrs. Browning, and Miss Mulock upon the library floor.

Whatever useless fiction is not denied shelf-room altogether, is packed ignominiously behind my all-important farm books.

Now, all this may evince an enthusiastic "pursuit of knowledge under difficulties," but I fear the wife doesn't altogether share and appreciate my zeal.

Last evening she inquired where I had put "The Vicar of Wakefield." I told her behind "Harris on the Pig," adding that I couldn't find Johnson's "How Crops Grow."

"Why," said the orderly little lady, "I put that among your poultry books, of course."

I smiled wisely—or rather unwisely—for she continued, somewhat excitedly: "Well, how can I tell where *any* of the books belong, after the changes and confusion you've made?

'Mother's Recompense' is cast aside for 'Dadd's Horse-Doctor,' and you have stuck 'Gregory on Squashes' directly in front of 'Jane Eyre.' 'The Marble Faun' and 'The Snow Image' are tucked away back of 'Youatt and Spooner on the Horse.' 'Agatha's Husband' and 'The Old-Fashioned Girl' are together in the big, gray chair, while 'Little Dorritt' and 'David Elginbrod' are on the floor under 'Bleak House,' with 'The Scarlet Letter.' Because you want to eradicate mosses from an old pasture is no reason why my precious 'Mosses from an Old Mans' should be cast aside."

My helpmeet stopping to take breath, I asked her to please hand me Thomas's "American Fruit Culturist," reminding her of her promise to help me "study up" on pruning.

She said a promise was a promise, and seated herself opposite me at the table, I with paper and pen to make a few notes in aid of a somewhat fickle memory, and she with "Fuller's Forest Tree Culturist," to compare authorities.

"Here it is," I exclaimed, "page 80 of Thomas's book: 'Pruning, after the tree has commenced growth, has a tendency, in nearly every instance, to check its vigor. For this reason . . . the work must be performed before the buds begin to swell.' I'm sure *that* is explicit enough, isn't it?"

"Well, yes," said my better half, "that *is* rather explicit; but hear what Fuller says on page 66: 'For this purpose, there is no better time [to prune] than after the leaves have become fully formed, and the tree has commenced to make a new growth.'"

I am afraid my wife read this extract rather exultantly. She supplemented it with: "There, my dear, now you know exactly what to do!"

What I did was to despondently put my books away, secretly resolving to imitate the Father of his Country, and hack away at my trees whenever my hatchet is sharp.

This is certainly the only correct "principle and practice of pruning," according to "the best authority," as nearly as I can strike an average. F. A. W.

REMARKS.—We publish the pleasant letter of our correspondent, in part because it is pleasant, and in part that it gives us an opportunity to answer a number of inquiries as to—"When shall I prune?" At the risk of incurring the displeasure of his "better half," we would advise our novice to do his own reading in future. Had he done so, he would have found, by reading the next paragraph to the one from which he quoted, that Mr. Fuller, in his *Forest Trees*, says: "Pruning may also be done any time in summer, fall, or early winter, but should not be performed in the latter part of winter or just as the spring approaches, for at this time there is more or less danger of the trees bleeding."

That is all that need to be said upon the time of pruning. There is one thing that our novice says nothing about—why does he prune at all? Some persons think that it is necessary to prune their trees every year, just as the more ignorant Irish think it is necessary to be bled every spring. No branch nor twig should ever be cut away but for some well-understood reason. We have not space to discuss the *why* of pruning; suffice it to say that it is sometimes necessary, though less frequently than is by some supposed. If it is to be done, the above direction as to time is a sufficient guide. The *how* is a matter of no little importance. If our correspondent is intending to "hack" his trees, he has read his books to little purpose. A good pruning saw and a

drawing knife are the most convenient tools. Saw off the branch neatly, taking care that no tearing of the bark takes place from the falling of the limb. Then with the drawing knife, or, if more convenient, a sharp pocket-knife, pare the wound to a smooth, sound, clean surface. If the wound be covered with some protecting material, it makes but little difference what time the pruning is done, though we would always except early spring, when the tissues are turgid with sap. The neatest and at the same time the most expensive material with which to cover the wounds is shellac varnish. Common shellac is covered with alcohol and set in a warm place. If stirred now and then, the solution will take place in a day or less. Thin with more alcohol, if necessary, until the varnish is of the consistence of paint. Keep in a bottle with a mouth wide enough to admit a brush, the handle of which should pass through the stopper, and thus prevent evaporation. For the amateur, nothing can be handier, cleaner, or more efficient than this. A single coat over the wound will in a few moments dry into a firmly-adhering water-proof film. When there is much work, melted grafting-wax may be applied with a brush, or common white-lead paint may be used. If the paint is mixed with a little lamp-black or umber it will be less conspicuous.

Greenhouses attached to Dwellings.

BY PETER HENDERSON.

I omitted to state in the article under this head in February that these greenhouses can be used for all the purposes of a hot-bed. Soil placed to the thickness of four inches on the benches will grow fine plants of all varieties of vegetables if the proper time in sowing the different kinds is attended to—presuming that the greenhouse has no artificial heat other than that produced by the sun's rays which pass through the glass. In this latitude, cabbage, cauliflower, and lettuce had better be sown about middle of March. By attention to ventilating and watering, fine plants may be had in five or six weeks from time of sowing, which will bring them just into the proper season for planting in open ground. Tomatoes, pepper, and egg-plant, and the tenderer kinds of flower seeds, should not be sown much sooner than end of April. True, they would not be as early as if sown a month sooner in a hot-bed and *replanted* into the greenhouse bench in May. But if no hot-bed is at hand, the protection of the greenhouse over these tender plants in May will give satisfactory results if earliness is not particularly wanted.

Shovel and Mole Plows in the Garden.

There are no cultivator teeth of any form that run so easily and do so efficient work in loosening the soil and putting weeds out of

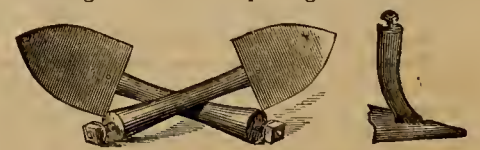


Fig. 1.

Fig. 2.

sight as those called shovel plows at the West and South, and shaped as shown in fig. 1. The plates, when made of steel—as they always should be, and dished and set forward at the right angle—seour bright in any soil, and never clog with weeds unless these are very large.

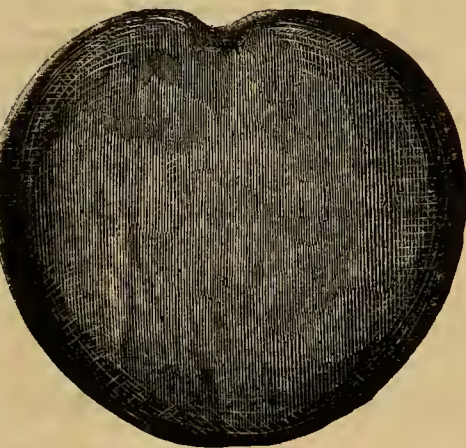
All the corn cultivators used in the Western States for one or two horses, the most expensive and the cheapest, have teeth, with trifling variations, shaped like these. They are used to make single, double, and triple shovel plows for one horse, or with four shovels on wheels, for two horses, to cultivate both sides of the corn rows at once. With the two-horse implement, one man in Illinois tends 75 acres of corn.

The one-horse double-shovel plow is made with two shovels, one set to run deeper than the other, and about ten inches apart. The shorter plow is set about twelve inches forward of the other on the right-hand side, to run next the corn. By having the hind plow run deeper, and going twice between the rows, a handsome slightly-raised hill is made for the corn by leaving a small furrow in the center. A single-

shovel plow has a larger shovel, and runs but once between the rows, and makes a higher hill. The triple plow is made with the two shortest shovels set forward on opposite sides, and the longest shovel in the center in the rear. These plows are but little known in the Eastern States, but will be found to give much satisfaction wherever used on land free from stones.

The mole plow, which figure 2 represents, runs underground, and loosens the soil to let in air and rains to the roots without disturbing the plants. This is essential in heavy soils, or in those compacted by heavy rains. Similar to a subsoil plow, but not running so deep, it is es-

pecially adapted to the culture of rice after the first flooding has been drawn off, when the land is always left very close and heavy.



SEA-BEAN.—(*Entada*.)

pecially adapted to the culture of rice after the first flooding has been drawn off, when the land is always left very close and heavy.

Mole and shovel plows like those figured are made to fit Constock's Hand Cultivator and Onion Weeder, which we offer in our premium list. They are an important addition to that very useful implement. W. G. C.

The Great-flowered Thunbergia.

The Thunbergias are pretty well known through the annual climbing *Thunbergia alata*,



GREAT-FLOWERED THUNBERGIA.—(*Thunbergia grandiflora*.)

which is now much used as an ornamental vine in our gardens. We present here an engraving of a woody species, the Great-flowered Thunbergia—*T. grandiflora*. The leaves and flowers are represented about half the natural size. It makes an excellent climber for a warm greenhouse. The leaves are of a pleasing green, and the flowers, which are freely produced, are of an

Sea-Beans.—Entada.

exceedingly delicate blue color. The plant is a native of Hindostan, and has been in cultivation for many years, though we now seldom see it in collections. It is worthy the attention of those who have greenhouses, but we much doubt if it would succeed in apartments.

In January we gave a description and figures of the seeds of a *Mucuna*, which had been sent us from Florida, under the name of Sea-bean. Now a correspondent writes from Mayport, Fla., that that sea-bean is not the true Sea-bean, one of which he sends. He states that his sea-bean is washed upon the shore with the other, and says: "I am assured by some who ought to know that it is a true marine production." We give a figure of the seed sent by our correspondent; we have specimens from other sources both larger and smaller than the one here represented. The seed is the product of a Mimosa-like vine, the *Entada scandens*, which is found in the tropical portions of both hemispheres. The vine is chiefly remarkable for its large pods and seeds; the pods are often six or eight feet in length, are flat and woody, and divided up into numerous joints, each one of which contains a seed. The inhabitants of places where these seeds are found convert them into various trinkets; perfume-bottles, snuff-boxes, spoons, and other such things are fashioned from them. The exterior is of a fine dark brown or purplish color, very hard and polished. It is said that in some parts of India these seeds are used for weights. In the streets of London the seeds of the Entada are sometimes sold under the name of "West-Indian Filberts," though they are not eatable. The seeds found upon the coast of Florida have been borne there by the sea from other shores. The distance to which these seeds are carried by ocean currents is something remarkable. It is not rare to find them upon the western coast of Scotland, and they have occasionally been carried as far as the Lof-foden Islands, off the coast of Norway.

Turban Squashes.

A gentleman who called at our office some weeks ago mentioned a very fine squash, the seeds of which he obtained at Florence, Italy, from the palace garden of Victor Emanuel. We expressed a wish to see this squash, and sometime after received from Mr. Caywood, of Clarksburgh, W. Va., a specimen raised by him. We give an engraving of the one sent, which seems to be a highly exaggerated Turban squash. In the ordinary Turban variety the projection, at the blossom end is small in proportion to the body of the squash. In this Florentine one the main bulk consists of this projection while the body proper is small. In our specimen the projecting portion is very deeply three-lobed and the skin of a dull cream-color; the body part is dark orange, with green splashes.

We do not find any description that quite agrees with our specimen, though it is like the Turban squash of the French with the projecting portion much larger than ordinary. Mr. Gregory, in his work upon squashes, says in speaking of the French Turban, it is "the most worthless in quality of all the varieties of squash that have come to my notice." This remark certainly can not apply to our squash, as upon trial it proved very fine, and quite equal in quality to those we consider standard varieties. The "Improved Turban" is said by Burr to be probably an acclimated sub-variety of the French Turban, while Greg-



ITALIAN TURBAN SQUASH.

ory claims that the "American Turban," which is the same thing, is the result of hybridizing, owing its form only to the French Turban and all its excellent qualities to the Hubbard or other varieties with which it may have been mixed. In the American Turban the projection before referred to has been by selection so much reduced in size as not to be conspicuous. Perhaps in the squash we have figured the selections have been made with a view of securing the greatest amount of protuberance. At all events here is a squash quite as good as the American Turban, with the shape of the condemned French Turban intensified. We shall look with interest to the progeny of this squash.

THE HOUSEHOLD.

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

Our New Flour-Box.

A correspondent at Buda, Ill., writes: Having recently made a few improvements in our pantry, the best of which is a flour-box, differing from any I have ever seen, and which is admired by all the

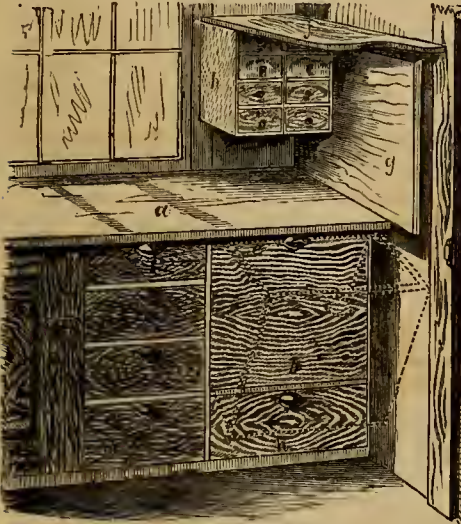


Fig. 1.—FLOUR-BOX AND ACCESSORIES.

ladies who have seen it, I send you a sketch of it. It is easily made, and there is no patent on it. It can be made without the four drawers, closet, and spice drawers, though these are all very handy. The top, *a*, I made of $1\frac{1}{2}$ -inch pine, 22 in. wide. The flour-box, *b*, is 16 in. wide inside at top, and 14 in. at bottom. Depth, 15 in. inside. Length of end boards, 30 in. Width of front, 19 in. Length, 24 in. outside. These dimensions may be varied, but the form of the ends, *c*, fig. 2, should be preserved. They rest on pieces of thick leather, fastened to them and to the floor when finished. A strip (*e*) is screwed under the top, for the box to shut and open against. The back should be screwed on firmly. The spice-drawers are made of tin, 6 in. by 6 in., with black-walnut fronts, 2 to 3 in. deep, and lettered. They set in a case made of $\frac{3}{4}$ -in. white-wood. The molding-board (*g*) is slid behind them when not in use. The drawers (*m* and *n*) are always useful for sugar, Graham or buckwheat, towels, baking tins, and a score of things; the closet (*k*) for syrups, lard, butter, eggs, etc., etc. Three shelves are in the corner, though only one (*j*) is shown. Now, if any husband is coaxed by his better half to get one made for her, he may lay the blame to

J. F. R.

Farmers' Daughters.

The *Agriculturist* is an old friend at our house, and I owe it a thousand thanks for its numberless good suggestions. I feel more regret at seeing in it such an article as that "Can Farming Pay such Taxes?" than if it had been published in another paper. The *Agriculturist* is an authority in many a farmer's home, and probably many a *pater-familias* will point out that very article, and say, "Here, daughter, that's the most sensible thing I've seen this long while;" and next time Mary or Lucy wants those buttoned shoes or that "love of a hat,"

which she has well earned, she will have to go without, or perform more than the usual amount of strategy to get him to open his pocket-book.

Your correspondent takes the position that our daughters are growing idle and extravagant—assertions that are impossible to sustain. I have no daughters, and am obliged to pay \$9 a month for hired help, very uncertain at that. My neighbors, who are more fortunate, do all their work, including all the sewing except the men's best clothes; and the clothes of any one of the young ladies do not cost any more, if as much, as the wages of my hired girl, but with the assistance of the condemned fashion-magazines they are made up at home so tastefully as to rival the dressmakers. The time spent at the machine busily and patiently stitching at those ruffles, or at the ironing table fluting them, is not lost. They deserve praise for their ingenuity.

Nor is this neighborhood isolated in respect to the industry and economy of the girls. My observation is that such is the rule, not the exception, among country lasses; about others I know little. Often, too often, is it that fathers are insensible to what their children are really worth to them in a pecuniary view. They do not note that those willing little feet save them a great many steps, and that those young hands are doing about all they ought. Of course, that reference to our grandmothers is necessary—I observe it always is in articles of this kind. To be sure, the old ladies did not wear chignons, for the reason that they were not yet invented. But they stuffed their hair full of rolls—look at the pictures of Lady Washington, or the fashion plates of that time. They wore high tortoise-shell combs that cost four or five dollars apiece, and gold beads, and scarlet cloaks, and all the other finery of the day. The fact is stubborn, that since the world has stood woman has loved personal adornment, and man has loved to grumble and refer to the past. Time will bring round its revenges, and a century hence the girls so censured now will be held up as patterns.

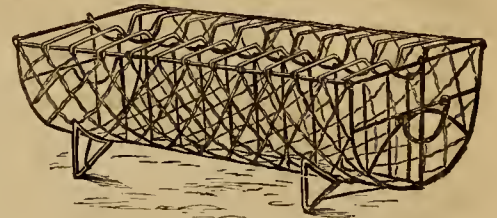
Your correspondent fails to notice the expensive clothing and habits of farmers' sons. Bless the boys! they are welcome to their stove-pipe hats and fine boots—but I protest it is not right to condemn one and not the other. If he has seen girls whose clothes cost as much as a mower and reaper, has he not as often seen boys whose clothes cost as much as a sewing-machine which their patient mothers were doing without? Our children should fairly know their parents' circumstances, and be allowed what can be afforded for their clothing, always being made to understand that something must be put by for the future. Then they will not repine when they are denied, if they feel sure father is not "stingy," but just as well as generous.

H. C. A.

Warm Plates.

A trifling thing can convert what would otherwise be an enjoyable meal into an uncomfortable one. The difference between a warm plate and a cold one often makes the difference between a good dinner and a bad one. During all the cooler weather the plates should be properly warmed. In no case is the necessity for this more strongly shown than when the meat is mutton. The fat of mutton melts at a higher temperature, and consequently solidifies more readily, than that of other meats, and it is exceedingly repulsive to see it harden upon the plate. To warm the plates is an easy matter, and may be accomplished in various ways. When the stove oven is not occupied, the plates may be set within that, or they may be set upon the cooler part of the top of the stove, taking care to change the bottom one before it becomes too warm. Some very fine plate-warmers are made of elegantly ornamented japanned ware. These are like a small closet, open towards the fire, with shelves within, upon which to set the plates. At the opposite side is a door. Warmers of this kind are intended to stand before the open fire of the dining-room. We recently saw in the store of J. H. Baldwin, in Murray street, a very simple plate-warmer, which is here figured.

It is a rack of galvanized iron-wire, which holds the plates and may be set upon a stove, or in front of a fire, or over a hot-air register. This sells at \$2. When one has to warm plates in a hurry, it



WIRE PLATE-WARMER.

may be very quickly done by placing them in the dish-pan and pouring boiling water over them. A few minutes suffice to warm them sufficiently.

Home Topics.

BY FAITH ROCHESTER.

CONVERSING WELL.—Somebody criticises me for not speaking of Conversation under the head of Accomplishments. I know there is a good deal said about the art of conversation, but I have not much relish myself for conversation that is the result of art, however "high and transcendental." It is a good thing to know how to speak one's native tongue correctly, and a good thing to have learned to listen well to our partners in conversation. In short, it is a good thing to be able to communicate our ideas to others without wearying or disgusting them either with ourselves or with our subjects of conversation. But it is a better thing to have good ideas and a kind heart. A few simple words from an honest heart, or looks of brotherly or sisterly sympathy, are far preferable, I think, to any amount of artistic discourse by one who is chiefly concerned about the *manner* of his conversation rather than about its *matter*.

I have no particular right to give advice upon the subject, but if any one should ask me how to go to work to learn to converse well, I should say, Get as good an education as you can, not only at school, but by general reading, and by keeping your eyes and ears open. Above all, keep your heart open, and remember the golden rule. That will make you a good listener when others are speaking. To write your thoughts carefully will help you to express yourself clearly. But try not to worry about yourself and the impression you are making.

Young people but slightly acquainted with each other sometimes have difficulty in finding anything to talk about, and silence seems very awkward to them. It is well enough for Miss Amanda, when invited to ride with Mr. Arthur for the first time, to think beforehand what she will talk about, and to prepare herself somewhat. But conversation which needs much especial preparation is never of the best kind. Out of it may grow, however, something fresh and worthy of the name. When among one's friends there is usually no lack of things to talk about. You may have to jot down beforehand the few very particular things that you *must* talk about, or they will get crowded out by the innumerable minor topics of mutual interest.

WASHING FLANNELS.—Wash white flannels in clean suds. Some washers put them into the "sudsing water," the water in which the suds has been washed from the white clothes after they have been taken from the boiler. This gives them a dingy appearance, quite different from the soft, fleecy whiteness they have when washed in bright clean suds. There is a difference of opinion among housekeepers about the proper temperature of the water in which flannels should be washed and rinsed. Some tell us to have both waters as warm as the hand can bear, or hotter if machines are used for washing and wringing. Others, of equally good authority, say use only cold water. I have been assured that the very nicest way is to soak them over night in cold suds, wash them out of this in the morning, and rinse in cold water. I do not practice this method, but think I would if

obliged to hang flannels where they would freeze before drying. I have tried it, but found it no better than my usual method of washing and rinsing in hot water. Less soap is needed to wash clothes clean with hot suds than with cold. The water used should not be boiling hot. I fancy that the secret of washing flannels without shrinking them is to wash and rinse them without too sudden changes in their temperature. Fullers try the opposite when they wish to full their cloth—from hot to cold, or from cold to hot. Rubbing also tends to "full up" or shrink flannels. The soap used should not be rubbed into the cloth, but made into a suds sufficiently strong to cleanse the garments without much rubbing.

A DANGEROUS PRACTICE.—A guest arrives. He appears well dressed and tidy. He stays over night, and occupies the regular "best chamber," with its clean sheets and pillow-slips. The mistress of the house does all of her own work, or she has a scant supply of bedding, and it seems hard work to enlarge her usual week's washing by those scarcely soiled sheets. So she puts them on the children's beds, thinking they will never know the difference, and it won't hurt them at all. In nine cases out of ten this may be true—but the tenth case! I do not care to mention to "ears polite" the diseases that may be communicated in this way, and sometimes by the most respectable persons, who have been contaminated in the same way perhaps.

SCALDED BREAD.—An excellent breakfast dish is made by pouring boiling water over pieces of stale bread—enough to soak them soft. Better than steamed bread, and preferred to toast by many.

CREAM (OR MILK) GRAVY.—I thought I would say a good word for "white gravy," as children often call it. With them it is a great favorite as a dressing for potato. It is better for them than butter or meat with warm potatoes. Pork fat can not be compared with it at all on the score of healthfulness. Those who use fat pork often make this gravy in the same spider where the pork has just been fried, thus seasoning it with pork. We make it of milk, thickened with flour, and seasoned with butter and salt. For a pint of gravy you want a large spoonful of flour, stirred smoothly into half a teacup of the cold milk. Let the milk be boiling when this is added, and kept constantly stirring, or the gravy will be lumpy. If cream is used instead of milk no butter is necessary. The milk should be stirred while coming to the boil to keep it from burning. It is less likely to burn if a little butter is melted in the spider before pouring in the milk.

RED STRINGS tied on tools used by children aid one to keep track of these implements. For instance, here is a small hammer with a string of scarlet cord through its handle. An old case-knife hangs by a string of red braid put through a gimlet hole in the handle. Two lead-pencils have red cord tied around one end. A knot of scarlet braid on one bow of the scissors makes it no difficult task to find them when lost. Children need "a place for everything," in order to learn to keep things in their places.

Cooking the Egg-Plant.

In the season of egg-plants we have numerous inquiries about cooking them. These usually come so late, that before the answer can reach our readers the season is over. To be in time we give the following, and housekeepers can just "stick a pin" in their memories to remind them to refer to this article when the proper season comes round. It will interest our housekeepers to know how wide their circle is. This letter comes from a very distant member, Mrs. H. C. Phillips, at Santipore, in India. We are always glad to hear from these far-away friends, and so we are sure are those housekeepers who live nearer to us. Mrs. P. writes:

I notice an inquiry as to the best method for cooking the Egg-plant—or *Bijou*, as it is called here. The *Bijou* should be used while the seeds

are quite tender and the vegetable will readily yield under the pressure of the fingers. Throughout this part of India, no vegetable is more highly prized or more generally used by all classes than the *Bijou*. It is served up in a variety of ways, some of which would not suit a Western palate.

The best way is to cut them in slices a half an inch thick, spread them on a plate, strew a little salt over them, and allow them to stand ten minutes for the sap to escape. Turn them over in a well-beaten egg, and then in flour, and fry them in very hot butter or lard, as you would fresh fish, which they resemble when thus cooked.

Another way: Roast them as our mothers used to roast potatoes, though it does not require half the time. Remove the skin while hot, mash, and season with butter, pepper, and salt. Many here, instead of butter, use mustard oil, and add uncooked onions, leeks, and cayenne peppers chopped fine, also a little roasted fish pounded fine.

Still another method: Cut the vegetable, stem and all, into halves. Boil them, and when quite soft, carefully scrape the inside from the skin; season to suit the taste, and return to the skins, filling them even full. Arrange them on a plate with the stem extending over the edge, then strew them with some nicely toasted bread-crumbs. The *Bijou* is also cut into pieces the size of an egg and put into curries.

Table Etiquette.

The following comes from a correspondent in Massachusetts, who signs herself "W.":

How often do we see a hostess overstep the bounds of true courtesy as she presides at her table by urging her food upon her guests! "Now do take a piece, it is very simple, it will not harm you in the least." "Why do you not eat?" "Isn't that good?" "You do not eat anything!" This latter remark is not unfrequently made when a visitor has eaten as much or even more than others, but as she does not choose to partake of all that is placed before her, the hostess seems to consider it incumbent on her to urge, and question her reasons, which oftentimes places the guest in a very unpleasant position. Now, are not visitors supposed to have common-sense? They are often treated as though they lacked all knowledge of their own appetites and desires. This continuous urging and discussing of food implies either that, or that they distrust the willingness of the hostess to have her food partaken of. This would be a decidedly uncomplimentary opinion for the visitor to possess, consequently very uncourteous in the hostess to insinuate the existence of such by her excessive importuning.

The food denominated very simple and harmless is frequently compounded of the most deleterious ingredients. Not that prevarication is intended, but there is often an unconscious ignorance of its harmful qualities, and the guest must either run the risk of being made uncomfortable for several hours, by giving her stomach food for which it is not capable of caring, or incur the evident displeasure of the hostess. This is no imagination or exaggeration, but fact. Even if it be a simple dish, who can tell better than ourselves whether we can eat it with impunity or whether we desire it? The questions "Is it not good?" and "Why do you not eat?" are such that if truthfully answered might sometimes occasion embarrassment to the visitor and deep mortification to the hostess. Supposing the visitor refuses food for sanitary reasons, she does not wish to solicit the commiseration of those around her by making a parade of her weaknesses. On the other hand, imagine the feelings of the hostess if the visitor replies to her questions, "Is it not good?" and "Do you not like it?": "No, I do not like the molasses sweetening in your pie; I prefer to eat this cookie instead;" or, "Your cake is not well baked, consequently is not palatable to me." Now, does the lady of the house expect or wish her visitors to criticise the food, or cavil to this or that because it does not

happen to suit their taste? If so, a more discretionary way would be to avoid the publicity of the table. If she desires praise, would it not be much pleasanter for her guests and more creditable to herself to dispense with her questions, and await the option of the guests for compliments? If desiring, they will generally be given by actions, if not in words. Not that the visitor should flatter, but when circumstances will admit, compliments may be bestowed, which will give a happy gratification to the hostess, and add not a little to her ease—for deserving praise helps wonderfully. Simply passing food, with a single invitation to partake, ought to be sufficient, without any urging. Of course, if one knows her visitor's peculiar taste, she will endeavor to cater to it; and if not, to ascertain it in the most delicate manner possible, and not because her food is refused demand an explanation, or express surprise by looks and exclamations if she discovers a palate that does not coincide with her own. Doubtless, a frequent cause of the many queries is an earnest desire to please, and out of it has grown this thoughtless habit. But it is one which should be overcome, for in the adherence to it a hostess can never become an adept in the presidency of her table; for she defeats her aims, torturing instead of entertaining. It should be the aim of the host and hostess to make each gathering at the table pleasant, that the mind may be diverted and digestion assisted. Do not make the current prices of the market the subject of your conversation, or find fault with the oven or the cook. If the result of your teachings or your own personal efforts does not equal your desires, resolve to try again; but defer until away from the table all conversation that may be necessary to effect the desired change. An excuse may sometimes be needful; if so, make it in the briefest and most pleasant manner possible, after which avoid further allusions to the subject. Avoid all unpleasant topics; choose those in which all can participate or be interested, and then make merry, tempering your solicitude for your friends' appetite by a little reasonable judgment—remembering the maxim, "Every one to his taste."

The Cost of Bones and of Cooking.

Somebody in England has been making a calculation of the wastes of meat as we usually buy it and cook it. He weighed a leg of mutton before cooking, 9 lbs. 10 oz. Then he roasted it and weighed it again, 6 lbs. 12 oz. Then he took out the bone and weighed it again, 4 lbs. 13 oz. This was the net result—exactly one half waste. The Warren Cooker would have saved much of the loss shown at the first weighing, but the bone is "a hard nut to crack," and makes the cost of a meat diet more than we at first suppose. By the above showing, a leg of mutton, at 25 cents per lb., gives us clear meat (including fat) at a cost of 50 cents per lb. This, when a pound of wheat flour, containing more nutriment, costs less than 4 cents.

Samp or Hominy.

"Thorson" writes as follows: "The names samp and hominy are differently applied in different localities. Both terms are given to a sort of coarse Indian meal or cracked corn, and to whole corn with the hull removed. This whole corn is the kind I refer to. It retains the shape of the grain, but the thin hull has been removed by beating. It has one great fault—it is cheap! It costs me by the bag six cents a pound, and I do not know where else the same amount of food can be had for the money. The samp is soaked for a day, and then cooked in a farina-boiler for some hours, or until quite soft. Served hot, dressed with butter, etc., like potatoes, it is fine at breakfast or dinner. Put when hot into a bowl or other mold, and allowed to cool, it may be turned out like blanc-mange, and like that eaten with sugar and cream. If it were only fifty cents a pound, how popular it would be!"

BOYS & GIRLS' COLUMNS.

The Map Prizes.

About two hundred and fifty pairs of eyes will look for this column with great interest. They will not see the award of prizes here, and will be much disappointed. To put your little minds at ease, I will tell you that the names of those who are to receive the prizes, are given in the "Basket" pages—which one I don't know, but you can find out by looking in the table of contents on the second page. After you have satisfied yourselves about that, turn back here, and I will tell you all about it. Such a lot of plans! within a few of two hundred and fifty; they filled a large basket. I did not open them until February 3d, in order to give a fair chance for all to get in, and as this page must be made up on the 5th, I shall have to put a part of the story on some page that is made up later. Most of the parcels have been opened, but the selection of those for the prizes has not been made at the time I write. What a nice lot of maps there are! I am glad that I thought of them for prizes, as it has done every one who has drawn a map quite as much good as if he or she had taken a premium. A large share of the



Fig. 1.—SEARCHING FOR THE KEY-HOLE.

senders say that this is their first attempt at drawing. Good! Go on and try again. It is a capital plan to learn to put things on paper, and you will find it useful all your life. If an Indian wishes to show you the way to a place, he smooths off a space on the ground and draws a map with his finger. Civilized boys and girls ought to be able to make a good map with pencil and paper.

Some funny things have turned up in this map business. One boy wrote to the office that he had sent money for his subscription and had not received his paper, and that the money was inclosed to "the Doctor." As I put away the letters as fast as they came and did not open any until the time was up, no wonder the young man's money was missing. Another youth addresses me as "Dear Aunt Sue." Now that is a little too much. It has been supposed that Aunt Sue was a man, but I was never before taken to be a woman. Aunt Sue and the Doctor are not the same, not by any means, though if I were to be a woman, I should like to be just such a one as Aunt Sue. Whether Aunt Sue can return the compliment I can not say. Some young men of 18 and 19 have sent in drawings, thinking that they can compete with "boys and girls." Just think of a young gentleman of nineteen—no doubt with whiskers and mustache—entering into competition with my youngsters of 12 and 14! No, all males over 16 are young gentlemen, and all females over that age are young ladies. I did not in the offer make this distinction, but everybody knows that "boys and girls" means—little folks. In some cases I have been puzzled to know whether the writer was a boy or a girl. If a letter is signed J. Smith, I can not tell whether it is Miss Jane Smith or Master John Smith. This in future correspondence should be avoided. One young man expresses his doubt if there is any such person as "the Doctor." If that incredulous youth will call at 245 Broadway any day, from 11 A.M. to 3 P.M., and ask the first person he meets, from the smallest shop-boy to Mr. Judd himself, to show him the

Doctor, he can be convinced that there is such a person, and that said person will be very glad to see him. Well, children, we have all had a good time over this trial, you in working at the maps, and I in studying them. I wish I could give every blessed one of you something, but as I can not, I have used my best judgment, with the help of the "young Doctor," as the neighbors call him. Those who have not been successful in one thing, may be more fortunate in another, and I am intending to have more trials during the year. There is one proposed in another place in this paper. Try again, children. You all have the best wishes of

THE DOCTOR.

Trying to Find the Key-Hole.

Here is a chance for fun, if you only know how to make it. We have seen an evening party made wild with laughter at seeing this little trick well done. Like many other things, its success depends upon the individual. The fewer there are in the secret, the greater will be the enjoyment. To do the thing properly, requires two boys. Let these go out quietly, so as not to attract notice. One of the boys is to be dressed, and the other boy is to dress him. Any common or even discarded clothing will do. A long skirt should be fastened around the neck, with the slit in front, to allow the hands to be used, or a cloak will serve all the better.

We might as well say here, that the trick, game, or performance, as we choose to term it, is called the "Old Woman finding her Key-hole." Well, the boy with the skirt or cloak around him is the foundation of the old woman. To complete her, we want a broom, a sun-bonnet, and another cloak, or a very large shawl. The bonnet is to be put upon the broom, adding a veil to hide the face; then the cloak or shawl is to be pinned or otherwise attached to the broom, beneath the bonnet, so as to look as much like the real thing as possible. The boy must now hold the broom so that the bonnet will appear as if upon his head, and the attached shawl or cloak will fall over him and the garment he already has on. The position of the boy in the clothing is shown by the light lines in fig. 1. When this "old woman" is properly rigged and understands her or his part, the other boy goes into the room where the company are, and contrives to draw them to one side, so as to leave a door free for the operations of the old woman. This he can do by mentioning an unfortunate old woman that he has just seen, who seems to be lost. At the proper time he lets the old woman into the room, who immediately turns her back to the company and begins to search for the key-hole. The boy who plays the old woman should make her as short as possible, by stooping and keeping the broom as low as he can.

The old lady looks from one side of the door to the other, and not finding the key-hole she looks a little higher, and keeps on higher and higher—the boy, of course, all the while lifting the broom, until she presents the ludicrous figure seen in fig. 2. As if disgusted with not finding what she is in search of, at the top of the door, she suddenly

tracting. A boy who enters into the spirit of the thing can make it exceedingly funny. It must be so arranged that the upper garment, or shawl, attached to the broom,



Fig. 2.—THE KEY-HOLE CAN'T BE SO HIGH.

shall not be lifted above the top of the lower one, and thus disclose the hidden boy and the simple "machinery."

Aunt Sue's Puzzle-Box.

NUMERICAL ENIGMAS.

- 1. I am composed of 39 letters.
 - My 4, 16, 6, 11, is used by soldiers.
 - My 10, 9, 7, is used by men for one purpose, and by ladies for another.
 - My 18, 14, 20, is a body of water.
 - My 13, 27, 15, 19, is an herb.
 - My 17, 24, 12, 28, 29, 22, is a girl.
 - My 23, 26, 14, 25, 5, 30, is worn on the head; so is my 1, 2, 8, 18.
 - My 3, 2, 21, 22, is a season.
 - My whole is a proverb. BAYARD W. PURCELL.

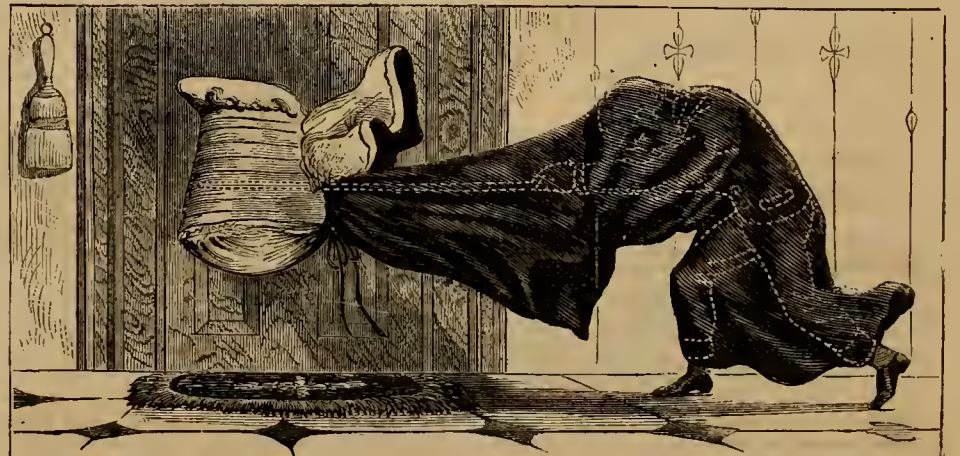


Fig. 3.—HAS THAT KEY-HOLE DROPPED UPON THE FLOOR?

shrinks—boy drops the broom—to the original stature of fig. 1, and begins the hunt again. After trying awhile the old lady thinks that the key-hole may have fallen to the floor, and she suddenly elongates herself in that direction, giving a sweeping glance as in fig. 3, and as quickly con-

- 2. I am composed of 19 letters.
 - My 16, 6, 7, 14, 4, is a river in Indiana.
 - My 3, 15, 10, 18, 2, 13, is a town in North Carolina.
 - My 9, 18, 13, 4, 8, is a bay in North America.
 - My 12, 17, 18, 19, is a town and a kind of bark.

My 19, 11, 10, 9, 1, 5, 15, 8, is a town in Tennessee.
My whole is something nice to work.

SHOE FLY.

BLANKS.

(Fill the following blanks with words pronounced alike but spelled differently.)

3. He _____ of them.
 4. Ask _____ to _____ that tree.
 5. An _____ man made an _____ of his cigar.
 6. The _____ did not lose a _____ of grain.
- THE ITALIAN BOY.

SQUARE WORD.

M O T H
O L I O
T I L L
H O L D

GRAMMATICAL ENIGMA.—A verb agrees with its nominative in person and number.

Cross-word.—Dromedary.

ANAGRAMS. — 1. Inapplicable. 2. Countenances. 3. Tyrannical. 4. Unpretentious. 5. Industrious. 6. Distinguishes. 7. Inappropriate. 8. Germinal. 9. Eunsconced. 10. Accomplishments.

Boys' and Girls' Pictures—More Prizes.

It is very pleasant to think that a great many of the *Agriculturist's* boys and girls are at work upon the same thing. We had a grand time over the map prizes, and we wish to "keep the ball a-rolling." So I make some more propositions. Here are two pictures, one of which I call the Boys' Picture, and the other the Girls' Picture. Each picture tells a story. It may say one thing to you, and another to me. Let us see what stories we can get out of these pictures. Premiums for excellence will be offered below. Write out some little story that you think



THE BOYS' PICTURE.



THE GIRLS' PICTURE.

ALPHABETICAL ARITHMETIC.

7. W C E) I D S O W (E O C
D I C

N I O O
N F N H

N C O W
N W D I

I O

L. S. C.

ANAGRAMS.

- | | |
|-----------------------|------------------------|
| 8. Rat's tea-urn. | 13. Red in rage. |
| 9. Push Emmie. | 14. Made paste ring. |
| 10. I stir cart Gaul. | 15. Fist aside. |
| 11. At mince pie. | 16. No lunatic. |
| 12. Neat pride. | 17. Nan's boiled rice. |

CROSS-WORD.

18. My first is in *thaw*, but not in freeze.
My next is in *bread*, but not in cheese.
My third is in *Tom*, but not in Bill.
My fourth is in *pint*, but not in gill.
My fifth is in *night*, but not in day.
My sixth is in *June*, but not in May.
And now, if the letters right you take,
The name of a little girl they'll make.

GEORGE M. BABCOCK.

PI.

19. Ahtw's hot sue fo yawsal trefingt
Ts het salirt ew balls difn
Vere tsrwne golna aro hatp-yaw?
Kolo hadea ! dan verne dimn.

E. G. B.

SQUARE WORD.

20. Square the word "SOAK."

H. E. O.

ANSWERS TO PUZZLES IN THE JANUARY NUMBER.

CHARADE.—Turnkey.
OMISSIONS.—Boston.

PL.—Sloggards cause their own misfortunes.
REBUS.—Who aims by industrious efforts to live,
May make a character no one can give.
CATS.—Catalogue. Cat-o-nine-tails. Catacomb. Cat-echism.

AUNT SUE'S NOTICES TO CORRESPONDENTS.

JERE PLUMER. You are head of the class this month with your good long list of answers.

E. R. JACKMAN. Of course, I "like to get answers to the puzzles." How else should I know that my friends "enjoyed solving them"?

HARRY M. D. It is scarcely fair to make *pi* of "schmeacase" and "baughnaagbclaoghber;" our folks are not all insnred.

MARK W. You can write on both sides of your paper, as I re-write everything sent to the PUZZLE BOX. For rebuses it is only necessary to write the characters thus — Tooth hat B rye T world witch nose nose eye on fan C swings eye (long) 2 fly.

"To that bright world which knows no sigh,
On fancy's wings I long to fly."

Our artist will dress it up for you *secundum artem*. If your "straight line" be horizontal, where is the difficulty with the "perpendicular"?

J. M. S. The same "Aunt Sue," but not there now.

JESSIE D. You can get both *Hearth and Home* and *Agriculturist* for four dollars a year.

NOTICE.

Once more I must request puzzlers to refrain from sending enigmas constructed upon the names of our papers, or of any of the editors. Also, let me assure them, that as a groundwork for a puzzle of any kind "Honesty is the best policy" is entirely used up.

Glad to hear from Henry Mulford, F. W. Hall, Horace H., Mrs. H. J. N., O. A. G., E. R. J., Mary W. C., Ellie F. M., Sam J. F., and Collie.

Thanks for puzzles, etc., from Harry M. D., N. G. D., C. H. R., W. S. H., H. S., F. W. R.

the picture illustrates. Do it all yourself, the best you can, and do not let the story be longer than four pages of note paper, or two pages of letter paper. It may be as much shorter as you please. Let us see how many story-writers we have among our Boys and Girls. If I think any of them are so good that the rest of "the family" would like to read them, they will be published. Here are the premiums:

THE BOYS' PICTURE.

Boys of 12 and not over 16.

First Prize—Miltum-in-Parvo Knife.

Second Prize—A Book.

Third Prize—A Book.

Boys under 12.

Three prizes, each of a book.

THE GIRLS' PICTURE.

Girls of 12 and not over 16.

First Prize—Gold Pen.

Second Prize—A Book.

Third Prize—A Book.

Girls under 12.

Three prizes, a book each.

The premium articles will all be of the first quality. The knife and gold pen sell at \$3.50 each. The books shall be new, useful, and interesting, just such as any wide-awake boy or girl will be glad to have. *Mind these conditions:* It is not expected that the boys will write about the "Girls' Picture," nor the girls about the "Boys' Picture." This trial is to be boys against boys, and girls against girls. In the map trial it was an open field without regard to sex. The stories must be written upon one side of the paper only, and in black ink. I can not spend time in making out rubbed pencil-marks, and young folks should avoid the folly of red and other fancy inks. They must reach me on or before May 1st. They must be directed to "The Doctor," 245 Broadway, and not to Orange Judd & Co., or to any one else. Each one must give his or her full name and age. There! The publishers allow me to make these very generous offers, and now let us have a fine lot of responses.

THE DOCTOR.

American Organs!

THE SMITH AMERICAN ORGAN CO. have now completed their TWENTY-FIRST year of business, with a constant and still increasing growth. As the manufactory is one of the oldest, it also ranks among the highest in the country. During the long experience of the manufacturers, they have steadily added to the capacity of their instruments, and have availed themselves of every method to improve the quality of tone, and to increase the mechanical facilities for the performer. And though they expect to continue the course of improvement, they are abundantly satisfied with what has been done, and with the estimation in which their instruments are held by good judges of music.

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WILL NOT EXPLODE, even if a lighted lamp be upset and broken! SAFEST and PUREST OIL KNOWN. Fire test guaranteed over 150°. Used in 100,000 families. For sale everywhere. Dealers address DENSLAW & BUSH, 130 Maiden Lane, N. Y.; 40 India St., Boston; 34 S. Calvert St., Baltimore; or 473 S. Canal St., Chicago.

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Letter Received from Levi Shaw, Trustee of the United Society of Shakers.

MT. LEBANON, N. Y., Sept. 27th, 1871.

RESPECTED FRIENDS: In reply to your inquiry as to what we think of the Averill Chemical Paint, we have used in our Society at Mount Lebanon some 1,000 gallons. We are very much pleased with it, and until we are convinced that there is something better, shall give it the preference of all other paints. We have used heretofore the (—), (—), and most all other brands of white lead, neither of which have given us perfect satisfaction. Most of it would chalk off after being on some two or three years. This, after three years' experience, we do not find to be the case with the Averill Pure White Chemical Paint. Indeed, it appears just as well as when first put on. I will write you again on the subject when I am not in quite so much of a hurry.

Sample card of beautiful colors, and recommendations from owners of the finest residences in the country, furnished free by the

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P. S.—The superiority of these Paints has already brought numerous worthless imitations in the market. We caution the public against using them.

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\$250 a Month, with Stencil and Key-Check Dies. Don't fail to secure Circular and Samples, free. S. M. SPENCER, Brattleboro, Vt.

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is growing by about 3,000 per week, and, at the usual reckoning, gives advertisers the benefit of more than

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"We believe the improved machine has no superior. The 'help' use it, and like it."—*American Agriculturist*. (See premium-list description, Feb. number, page 74.)

METROPOLITAN WASHING MACHINE CO., 32 Cortlandt st., New York.

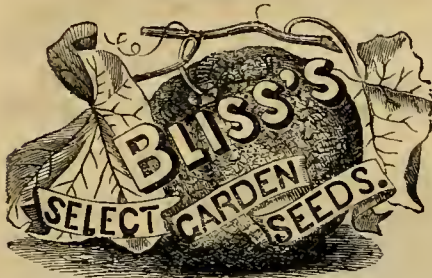
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Hear our Side and know on Trial the best Four-Ton Hay Scale, made at \$75. Free Price-List. THE JONES SCALE WORKS, Binghamton, N. Y.

\$290 For 1st-class Pianos. No commission—no Agents Address U. S. PIANO CO., 865 Broadway, N. Y.

Rare and Beautiful Flowers and Choice Vegetables

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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.

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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
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No. 7 contains 20 varieties, 1.00

For a list of the contents of each Collection, see the Eighteenth Annual Edition of their celebrated Seed Catalogue and Amateur's Guide to the Flower and Kitchen Garden, just published, which will be mailed to all applicants upon receipt of 25 cts.

This is without exception the largest and best Catalogue ever published in this or any other country. It contains 146 pages closely printed matter, besides several hundred finely executed engravings of favorite flowers and vegetables, and a beautifully colored Chromo of a group of twenty of the most popular flowers in cultivation.

We will send a packet of choice Flower Seeds gratis to persons sending us orders, if they will state the name of the paper in which they saw this advertisement.

Address B. K. BLISS & SONS, P. O. Box 5,712, New York City.

Genuine Wethersfield Onion Seed.

We have just received a fine stock of the above from one of the most reliable growers in Wethersfield, which we offer at prices greatly reduced from last year.

Table with 4 columns: Variety, Price per lb., Price per 1/2 lb., Price per 1/4 lb. Includes Extra Early Red, Wethersfield Large Red, Large Red Oval or Globe, Yellow Danvers (True), White Portugal, White Globe, and Early Cracker.

The above will be sent, post-paid, to any address upon receipt of price. Address B. K. BLISS & SONS, 23 Park Place, and 20 Murray St., New York.

The Best Cucumber for Forcing. GENERAL 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.

Moore's Early Concord Sweet Corn. Another year's trial has proved this to be the best Sweet Corn in cultivation.

Selected ears, 25c. each; packet, 25c.; quart, by mail, 90c. Address B. K. BLISS & SONS, P. O. Box 5712, New York.

LATE ROSE POTATO.

This valuable Potato, which is now for the first time offered for sale, differs from all other varieties so far introduced, inasmuch as it is not claimed to be a new seedling, but a sub-variety or sport of the well-known Early Rose, which it strongly resembles in quality, color, and form—but is three weeks later, hardier, and more productive, having yielded the past season 250 to 300 bushels to the acre.

Our Illustrated Potato Catalogue will be mailed to all applicants. Address B. K. BLISS & SONS, 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. For preparing a Lawn, and subsequent management, see our Seed Catalogue.

B. K. BLISS & SONS, Nos. 23 Park Place and 20 Murray St., New York.

PEERLESS POTATO.

Another season's trial confirms more fully than ever all that has been said heretofore in favor of this wonderful Potato. We have favorable reports from customers in every section of the country, whose crops have averaged from 100 to 150 BARRELS TO THE ACRE.

By mail, post-paid, four pounds for \$1. By express or otherwise, \$1 per peck; \$2 per bushel; \$5 per bbl.; 6 bbls., \$25. Early Rose, Climax, Early Goodrich, and others at market prices. For sale by

B. K. BLISS & SONS, P. O. Box 5,712, 23 Park Place and 20 Murray St., N. Y.



Lane's Improved IMPERIAL SUGAR BEET.

This superb variety is the result of a careful selection for several years past of the French Imperial Sugar Beet, by Mr. Henry Lane, an experienced farmer of Cornwall, Vt. After a satisfactory trial, we can recommend it with the greatest confidence, as being harder, more productive, and containing a greater percentage of sugar than the ordinary variety, and much better adapted for cultivation in this country, either for stock or the manufacture of sugar.

Four pounds is the amount usually required for one acre.

See remarks respecting this variety in the February No. of the Am. Agriculturist.

We have purchased the entire stock of Mr. Lane.

Price, 15 cents per ounce; 40 cents four ounces; \$1.25 per pound.

B. K. BLISS & SONS, No. 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.

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BRESEE'S Peerless Potatoes.

For sale by the originator. Excellent in quality, shape, and color, and a very large yielder. \$4 per barrel, delivered at R.R. depot.

Early Rose and Prolific at same price. ALBERT BRESEE, Hortonville, Vt.

Cabbage, Onion, Squashes.

I have written three works on the cultivation of each of these vegetables. They abound in engravings, and go into all the minute details so exceedingly valuable to a beginner. Each book 20 cents. Sent by mail. JAMES J. H. GREGORY, Marblehead, Mass.

The Premium Sanford Corn.



FIVE REASONS WHY it is superior to all other varieties: 1st, It ripens early—often from two to three weeks in advance of other kinds. 2d, Tested in many States in same field with other noted varieties having the same chance, it has produced from one third to double the quantity per acre. 3d, It has a small cob, deep, broad grain, capping over the ends. 4th, It will do better on all soils than any other. 5th, The great superiority in the quantity and quality of fodder it produces, North, South, East, and West, testifies to its great superiority.

SEED POTATOES.—Peerless.—The potato for the million. In size and productiveness unequalled, in quality not excelled. Four lbs., post-paid, \$1; bush., by ex., \$1.50; bbl., \$3.50; five or more, \$3 per bbl. Late Rose.—1 lbs., post-paid, \$1; peck, by ex., \$1.50; bush., \$3.50; bbl., \$8. Early Rose.—\$3 per bbl.; five or more, \$2.50 per bbl.

FREE SEEDS.—SEED OATS. White Probstier, Yellow Latharian, Excelsior, and White Schonen, the best from ten varieties, tested for two seasons. Samples sent by mail for two stamps, to post payment.

I make the growing of Farm Seeds a specialty. Farmers, save money! Buy your seeds from the grower. Get the best and the genuine. Send stamp for Circular, giving full description of choice Farm and Garden Seeds. Address S. B. FANNING, Jamesport, N. Y.

"FRESH, TRUE, RELIABLE."

Garden, Field, and Flower Seeds, "SMALL FRUITS," Fruit, Ornamental, and Shade Trees, Shrubs, Roses, Flowering and Bedding Plants (excellent stock), Tuberoses, Gladioli, etc., etc. Use true first-quality seeds and plants for first-quality vegetables, fruits, etc. Our seeds and plants are of such a character that all may sow and plant with confidence that they will produce true, first-class crops.

Seeds! Seeds! Seeds!

For the Vegetable Garden and the Farm. Complete assortment. Stock warranted pure, fresh, and true to name. Orders by mail receive prompt attention. Almanacs, English and German, mailed free to all applicants.

THORNBURN'S LATE ROSE POTATOES. Secure the genuine article by ordering them now. Per barrel, \$10; per bushel, \$6; per peck, \$2; or five pounds by mail for \$2.

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

ALL FOR \$1.00.

Sent post-paid, by mail. 10 pkts. Choice Annual Flowers, worth \$50 cts. 1 Choice Gladioli Bulb, 30 cts. 1 Lilium Auratum Bulb, 30 cts. 2 Double Tuberoses Bulbs, 30 cts.

Catalogue of Flower Seeds sent free. W. B. DIMON, JR., & CO., Brooklyn, N. Y.

WHITE ROSE POTATOES.

Best for main crop. \$4 per bush., \$9 per bbl. Delivered to express. Circulars of new and choice vegetable seeds, FREE. W. H. RATHBONE, Seed Grower, Uncaasville, Ct.

WHITE PROBSTIER OATS

were introduced by me in 1870, and the past season have yielded 104 bushels per acre. Straw strong—not liable to lodge. Grains large; hulls very thin. Weight, 58 lbs. per bushel. Price, \$1.50 per bushel. Also EXCELSIOR OATS at same price. Send two stamps for samples and circular, giving full particulars and prices of SEED CORN, PEERLESS POTATOES, and GARDEN SEEDS. WM. NEWTON, Henrietta, N. Y.

HERSTINE RASPBERRIES, Imperial Asparagus Roots,

Seth Boyden Strawberries, Dorchester Blackberries, and all the best hardy fruits, covering 100 acres. Send for Catalogues. WM. PARLEY, Cinnaminson, N. J.

Your Money's Worth Guaranteed. New and Valuable Garden Seeds.

SENT, POSTAGE PAID, ON RECEIPT OF PRICE.

Colossal Asparagus, 20c. oz., 10c. pkt., \$2 lb. Giant Wax Concord, Scarlet Runners, Large White Lima, and Speckled Lima Pole Beans, each 10c. per pkt.; New Egyptian Beet, 10c. pkt., 25c. oz.; Early Dutch, Jersey Wakefield, Drumhead, Marblehead Mammoth, Fottler's Brunswick, Tr'm F't D'ch, Imp. Am. Savoy, and Red Cabbage, each 10c. pkt.; Early Wyman, 20c. pkt.; Early Morn and Long Orange Carrot, 15c. oz., 5c. pkt.; Cauliflower, 10c. pkt.; Celery, various kinds, 10c. pkt.; Crosby, Darling, Red Cob, 8 Low Sugar Corn, Judson's Prolific, each 45c. qt., 10c. pkt.; Moore's Early Concord, Red Mexican, Silver Lace Parthing, each 65c. qt., 10c. pkt.; varieties of Cucumbers, 15c. oz., 5c. pkt.; Large India Lettuce, 10c. pkt.; Malta, Simpson, Boston Curled, and other varieties Lettuce, 5c. pkt., 3c. oz.; White Japan, Jenoy Lind, Large Mexican, New Valparaiso, and Ward's Nectar Musk Melon, 5c. and 10c. pkt., 25c. oz.; Hackensack Musk Melon (Extra Large, 15 have filled a bin), 30c. oz., 10c. pkt.; Joe Johnson, Phinney's, and Gypsey, best of all (one weighed 50 lbs. last season), each 10c. pkt.; E'ly Red, L'ge Red With'd, Yellow Dutch Onion Seed, 20c. oz.; Y'l Danvers, Oval or Globe Red, Silver-Skin, 25c. oz., each 10c. pkt.; Harsnip, 10c. oz.; Pens, Little Gem, Tom Thumb, each 65c. qt.; Phin. Ex; Early and Carter's First Crop, each 55c. qt.; Champion of Eng., 60c. qt.; Blue Imp' 45c. qt., 10c. a pkt.; Laxton's Prolific Long Pod, 75c. qt., 15c. pkt.; Ex. Large Mammoth Pumpkin, 10 seeds, 10c.; Radish seed, various kinds, 10c. and 15c. per oz., 5c. pkt.; Hubbard Squash, 25c. oz., 10c. pkt.; Mammoth Chili Squash, 10 seeds, 10c.; Trophy Tomato, from selected fruit, 10c. pkt., 75c. oz., many other kinds, 5c. pkt.; Currant Tomato, 10c. pkt.; various kinds of Turnip, 10c. oz., 5c. pkt.

All the seed I sell I warrant fresh and reliable, and to reach the purchaser in good order. For a postage-stamp, I will send to any plain address my

NEW DESCRIPTIVE CATALOGUE.

and flower seeds worthy of cultivation, and the seeds are offered at very favorable rates.

Seed in pkts. amounting to \$1.15 for \$1.00, and \$2.35 for \$2.00.

Read my advertisement in Jan. and Feb. Nos. Am. Agriculturist, pages 50 and 71.

Or, for 20 cents, my Catalogue and 20c. worth of Seeds, free by mail. It contains about all the varieties of vegetable and flower seeds worthy of cultivation, and the seeds are offered at very favorable rates. Seed in pkts. amounting to \$1.15 for \$1.00, and \$2.35 for \$2.00. Address H. E. ACKER, Seed Grower, Woodbridge, N. J.

Head-Quarters Mammoth Dent Corn.



This corn having proved superior to other varieties in the following respects, we think every farmer should have it. It is the largest early field variety in the country. It will yield more, shell more, weigh more, fill better at both ends of the ear, has greater depth of grain, and will do better on all kinds of soil, than any other variety.

Price of selected ears, by mail, 50 cents each. Two pounds, 75 cents; four pounds, \$1.00. One peck, by express, \$1.75; half-bushel, \$2.50; one bushel, \$4.00; two bushels, \$7.00; five bushels, \$15.00.

No corn sent C. O. D. Send stamp for circular. Address

ISAAC N. BALTHIS, Box 59, Corydon, Ind.

Choice Onion Seed

Every old onion-raiser knows that the difference in value of a crop of onions raised from seed of average quality, and one raised from onions that have been most carefully hand-picked each year for a long series of years, is from fifty to a hundred dollars. The seed I offer is of my own growing, and has had its reliability of yielding choice onions, free from scullions, as fully proved as are the traits in any of the purest bred animals. My catalogue has recommendations from twenty farmers who have used my seed, and so know all about it. Catalogues sent free to all.

JAMES J. H. GREGORY, Marblehead, Mass.

Peach Tomato.—New, and the handsomest and best shaped grown. 100 seeds, 25c. Eugene Winter Squash.—Said to be a variety of the Valparaiso. Very sweet and rich flavored. Pkt., 15c. Silver Maple Seed.—The best quick-growing tree for fuel, shade, or ornament. Oz., 10c.; lb., \$1. All by mail, post-paid. Send for descriptive circular to J. M. BENTHALL, Quasqueton, Iowa.

SEED POTATOES.

I will deliver Peerless, Early Rose, Prolific, or Climax Potatoes at the R.R. depot, as soon as the weather will admit, in the spring, for \$3 per bbl.; five bbls. or more, \$2.50 per bbl. All warranted genuine. FRANK QUA, North Granville, Washington Co., N. Y.

EARLY ROSE and Early Mohawk Potatoes, \$1 per bush. Peerless, \$1.25 per bush. Charles Downing Strawberry plants, \$2.50 per 1,000. Boyden's No. 30 and Kentucky, \$4 per 1,000. Albany Seedling, \$3 per 1,000. SAMUEL C. DE COU, Recklesstown, Burlington Co., N. J.

FOR SALE, 40 bbls. Peerless Potatoes, \$1 per bbl.; 20 bbls. King of Earlies, \$5 per bbl.; 100 bbls. Early Rose, \$3. S. L. FREY, Palatine Bridge, N. Y.

NANSEMOND SWEET POTATOES for seed! \$2 for 1/2 bushel—bottom prices on large lots. Plants in May \$2 per 1,000. Send for "Directions for Sprouting," etc. W. W. RATHBONE, Marietta, Ohio.

HOP PLANTS.—A specialty. For Circular and price, address E. FRANCE, Cobleskill, N. Y.



BOSTON MARKET MELON.

ASPARAGUS, Moore's Premium. This variety is now well known in Boston and vicinity as the largest and finest in every respect, without exception, in cultivation. Cant. Moore has taken first prizes for his celebrated Asparagus every season for the past ten years, at the Exhibition of the Massachusetts Horticultural Society. Per oz., 50c.; per pkt., 25c.

BEETS, Egyptian. Very fine. Per pkt., 10c.

Hatch's Early Extra Blood-Turnip. This is an improved variety, both in earliness, smoothness, and fine quality, for table use, and is a favorite with the growers of fine early vegetables for the Boston market. The seed we offer is from the stock which received the first premium awarded. Per lb., \$1.50; per oz., 20c.; per pkt., 10c.

Dewing's Early Turnip. This is a new and superior blood-beet, recently introduced. The roots are of a fine globular shape, uniformly smooth, with long, slender tap-root. Skin dark purplish black; flesh deep blood-red; very fine grained, tender, and sugary; very early. Excellent for the table. Per lb., \$1.50; per oz., 15c.; per pkt., 10c.

New Chilian (for decorative purposes). This striking novelty is specially adapted for bedding purposes, the foliage presenting a variety of color, from bright orange to purplish crimson; used extensively at the Battersea and other Metropolitan Parks. Per pkt., 25c.

Carter's Perfection Salad. Small-sized, short-top variety, of delicate texture, and sweet flavor, even growth, and dark foliage. The best variety for salad purposes. Per pkt., 25c.

BEANS, Australian Runners. This variety, introduced by Mr. Jos. Tully, has proved remarkably productive, and given the best of satisfaction. The pods are from nine to twelve inches in length, and about one inch in breadth. Very early, coming in with the early Six Weeks, stringless, and when cooked very delicious. Price per pkt., 25c.; per qt., \$1.

CAULIFLOWER, Boston Market. Very early. Produces uniformly large and fine solid flowers, or heads, of snowy whiteness and excellent flavor. Weight of specimen, seven and a half pounds; diameter, ten and a half inches; circumference, thirty-one inches; length of foliage, twenty-nine and a half inches. Per oz., \$1.50; per pkt., 25c.

CELERY, Boston Market. A favorite variety in the Boston market; remarkable for its tender, crisp, and excellent stems, and its peculiarly mild flavor. It is extensively cultivated by the market-gardeners around Boston, and surpasses any other variety for its great excellence. Per pkt., 10c.; per oz., 50c.

CORN, Moore's Early Concord. SILVER MEDAL AWARDED. This valuable variety of Corn, which we had the pleasure last season of introducing, we now bring before the public with renewed confidence. It has proved all and more than we recommended. We have received hundreds of testimonials, which will be found in a circular, to be had on application. Per pkt., 25c.; selected ears, 25c.

KALE, Acme. A very dwarf curled Kale, growing close on the ground, with glaucous green leaves intersected by a scarlet mid-rib. Really a superb thing, and combines every desideratum, being very hardy, very early, prolific, tender, mild, and a brilliant green when boiled. It is a hybrid between Dwarf Green Curled Borecole and Sea Kale. Per pkt., 25c.

LETTUCE, Bunney's Incomparable Hardy Green Cos. The raiser of this says: "I have tried it with all the leading kinds of lettuces; but none are equal to it. You may grow it for any time of the year, as it is very hardy, and has stood the drouth of the last season when other sorts 'bolted.'" A compact, large-growing, crisp variety, of fine flavor. Per pkt., 25c.

MELON, Boston Market. Persons wishing a fine melon will find this superior to any other in all respects, either for family or market purposes. Fruit nearly round, but flattened slightly at the ends; deeply, and very regularly ribbed; size medium; skin green, and thickly netted. When fully mature, the green becomes more soft and mellow, or of a yellowish shade. Flesh thick, very juicy, and of the richest and most sugary flavor. It is an abundant bearer, quite hardy, and remarkably uniform in its quality. Per oz., 50c.; per pkt., 15c.

SMILAX. A beautiful winter climbing plant, adapted alike to the greenhouse and conservatory. Nothing can excel this plant in beauty of foliage and orange fragrance of the flowers. It is extensively used for bouquets and floral decorations of every description. Large sized bulbs, 50c. each. Extra sized bulbs, \$1 each. Seed, per pkt., 25c.

NOTE.—This plant is grown and used most extensively as a decorative vine by every florist in the vicinity of Boston. No lady dressed for a party feels her toilet complete (if natural flowers are worn) without a spray of Smilax appended to her hair.

For further descriptions, see

AMATEUR CULTIVATOR'S GUIDE TO THE FLOWER AND KITCHEN GARDEN.

We are pleased to announce that the 26th Annual Edition of this well-known work is now ready, enlarged and improved, and containing a magnificent new colored Lithograph, besides hundreds of Engravings, in addition to its full descriptive Price-list of 3,000 varieties of choice Flower and Vegetable Seeds, Rare Gladiolus, Lilies, Tuberoses, etc., with full directions for their culture. This is, without doubt, the most perfect work of the kind before the public. Sent free to applicants upon receipt of two stamps. Address

WASHBURN & CO., Boston, Mass.

To Farmers and Gardeners.

I invite all who have been in the habit of buying their garden seed from boxes left at the stores to give my seed a trial, side by side, and mark the difference to their germination, and in the purity and quality of the vegetables raised from them. I have made it my mission for several years past to drive bad seed from the market, and so save farmers and gardeners the immense loss they annually suffer from the purchase of it.

The public have well appreciated my efforts, and I have now fifty thousand customers in the United States and Canada. I sell no seed I do not warrant, and what is the real pith of the matter I stand by my warranty. To enable me to do this I grow myself a large proportion of the seed I sell. Catalogues sent free to any applicant.

JAMES J. H. GREGORY, Marblehead, Mass.

GEN. GRANT CUCUMBER.—Grows from 25 to 30 inches long; enormous bearer; unsurpassed for table use or pickles; 20c. per packet. SANFORD COIN.—Yields 150 bushels per acre; 1 qt., 50c.; 4 qts., \$1.50, post free. PEERLESS POTATOES—1 lb., 60c., post free. G. W. WILSON, Auburn, Ohio.

CONOVER'S COLOSSAL ASPARAGUS Seed for sale. Warranted genuine. From 1 lb. to 500 at \$1 per lb. J. Henry Vanderveer, Freehold, N. J.

SEED POTATOES.—Excelsior and Bresee's Prolific, \$2.50 per bbl. Early Rose and Peerless, \$1.50 per bu., \$3 per bbl., by rail or express. Address G. B. TALCOTT, Owego, Tioga Co., N. Y.

NEW AND RARE VARIETIES OF VEGETABLE SEEDS.

WASHBURN & CO., 100 Tremont Street, Boston, Mass.,

Take pleasure in offering, post-paid, by mail, on receipt of prices annexed, the following choice varieties:



"CORN IS KING!"

COOLEY'S EARLY WHITE FIELD CORN!

The Earliest Large Corn in America! Corn planted in Ohio May 3d—crop gathered and ground into meal August 9th, only fourteen weeks from planting! In Minnesota, in thirteen weeks. Will yield as much per acre as the celebrated Chester County Corn (which is said to be the most productive corn in the U. S.), while it is two months earlier! thus escaping the drouth and early fall frosts. Send stamp for circular, giving testimonials from some of the best farmers in the Union. This Corn (shelled) weighs 62 lbs. per bushel.

PRICES.—One peck, by express or freight, \$2; one quart, by express or freight, 50c.; one quart, by mail, post-paid, 75c.

Address all orders to C. C. COOLEY, P. O. Box 95, Manchester, Adams Co., Ohio.

VAN SICKLEN COLOSSAL ASPARAGUS. THE LARGEST AND BEST.

Plants, \$1.50 per 100; \$10.00 per 1,000. Seed, \$4.00 per lb. For sale by JAMES THORNTON, Byberry, Philadelphia, Pa.

GARDENING MADE EASY FOR THE MILLION.

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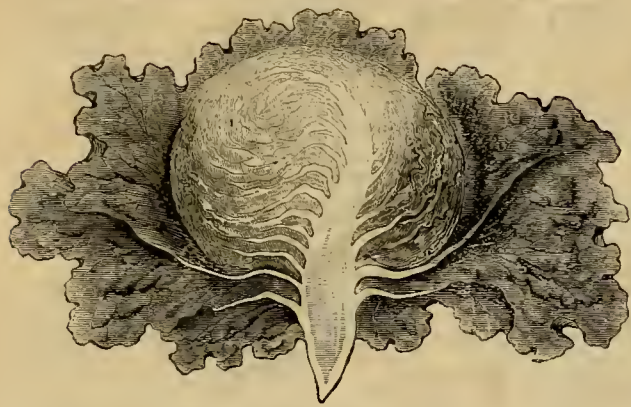
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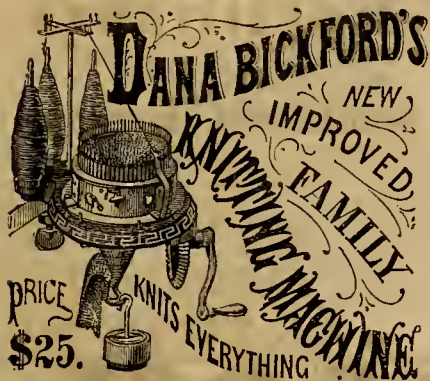
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N. B.—In all Premium Clubs for either paper, **TWO** copies of *American Agriculturist* at \$1.50 each, and **ONE** copy of *Hearth and Home* at \$3.00, will count exactly the same. So also **TWO** copies of *American Agriculturist* at \$1 each, and **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 2nd and 4th columns, or from the 3d and 5th, or wholly from the 6th column.

Table of Premiums and Terms,
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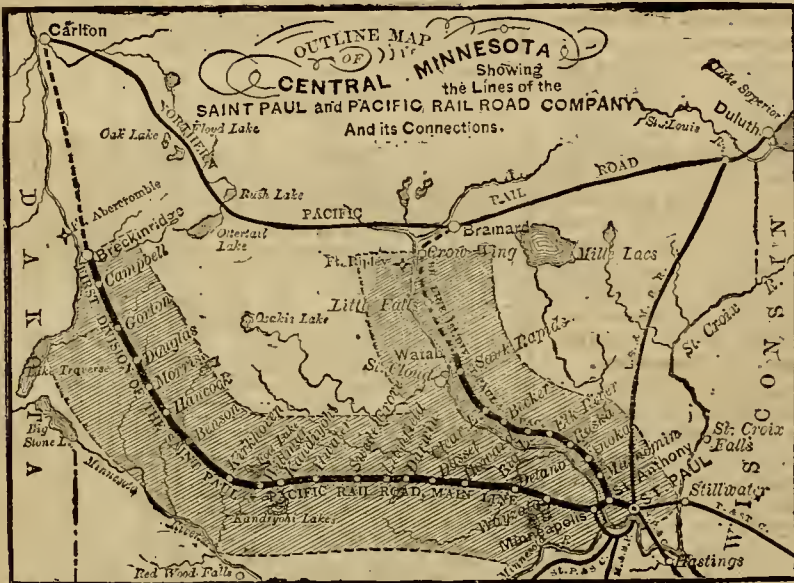
No.	Names of Premium Articles.	Price of Premiums.		(1) Or (3)	(2) Or (3)	(4) Or (5)	Or (6)
		at \$1.50	at \$3.00				
1	Knives and Forks (Paterson Bros.)	\$11.00	21	70	11	35	13
2	Knives and Forks (do.)	\$18.00	27	90	14	46	16
3	Knives and Forks (do.)	\$22.00	33	110	17	55	19
4	Knives and Forks (do.)	\$25.00	30	124	20	62	22
5	Carver and Fork (do.)	\$5.00	12	37	7	19	8
6	Plated Steel (do.)	\$2.50	6	25	3	13	4
7	French Cook's Knife, For and Steel	\$3.00	8	30	4	15	5
8	Pocket Knife (Smith & Clark)	\$1.50	5	12	3	11	4
9	Pocket Knife (do.)	\$2.00	5	12	3	11	4
10	Pocket Knife (do.)	\$2.50	6	25	3	13	4
11	Ladies' Pocket Knife (do.)	\$2.00	5	22	3	11	4
12	Multum in Parvo Knife (do.)	\$3.50	8	30	4	15	5
13	Curie Basket Lucius Hart Man'y Co.	\$12.00	19	65	10	33	11
14	One Dozen Tablespoons (do.)	\$30.00	44	146	22	70	25
15	Revolving Butter Cooler (do.)	\$3.00	16	52	8	26	9
16	Card Receiver (do.)	\$7.00	15	49	8	26	9
17	Nut-picks and Crackers (do.)	\$12.00	19	65	10	33	11
18	Half Dozen Napkin Rings (do.)	\$6.00	15	45	8	28	9
19	One Dozen Teaspoons (do.)	\$6.00	15	45	8	28	9
20	One Dozen Tablespoons (do.)	\$12.00	19	65	10	33	11
21	One Dozen Table Forks (do.)	\$12.00	19	65	10	33	11
22	Child's Cup (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.)	\$5.00	12	37	6	19	7
25	Gold Pen, Handle gold-tipped (do.)	\$6.00	13	37	7	19	7
26	Ladies' Gold Pen and Rubber Case (do.)	\$6.00	13	37	7	19	7
27	Ludden's Patent Revolving Pencil	\$1.50	6	24	3	12	4
28	Ludden's Patent Revolving Pencil	\$3.50	8	30	4	15	5
29	Amulette	\$6.00	13	37	7	19	7
30	Baby's Chair (L. O. Colrin)	\$4.00	9	32	5	16	6
31	Parlor Kaleidoscope	\$7.00	16	52	8	26	9
32	Moore's Floral Set (Moore Man'y 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	6
35	Flower Seeds for a Family (100 kinds)	\$5.00	12	33	6	17	6
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 (Gyver & Baker)	\$55.00	60	240	30	120	35
39	Sewing Machine (Florence)	\$65.00	74	285	37	145	43
40	Sewing Machine (Gyver & Baker)	\$60.00	68	260	33	130	40
41	Bickford Family Knitting Machine	\$25.00	38	120	19	60	21
42	Washing Machine (Doly's)	\$15.00	21	70	11	35	13
43	Clothes Winger (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. Vance & Co.)	\$67.00	78	285	39	145	43
46	Crater and Gun (Coopey & Co.)	\$48.00	58	208	30	120	37
47	Piano, Splendid 7-oct. (Steinway & Sons)	\$65.00	690	1550	500	175	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	360	55	175	61
50	Breech Loading Pocket Rifle	\$16.00	24	80	12	40	14
51	Crater and Gun (Coopey & Co.)	\$50.00	46	150	25	75	28
52	Tool Chest (Patterson Bros)	\$45.00	68	180	30	120	37
53	Charles Pratt's Astral Oil (1 can, 5 Gal.)	\$10.00	9	22	5	16	6
54	Barometer (Woodruff's Mercurial)	\$4.00	18	58	9	29	10
55	Barometer (Woodruff's Mercurial)	\$15.00	22	75	11	38	13
56	Backey Harvester Mower	\$125.00	150	450	75	225	83
57	Patent Cylinder Plow (R. H. Allen & Co.)	\$13.00	27	90	14	45	16
58	Crater and Gun (Coopey & Co.)	\$25.00	38	120	19	60	21
59	Hand Cultivator and Weeder (Cushman)	\$9.00	17	54	9	29	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	7
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 Lantern (One Burner)	\$9.00	17	54	9	29	10
66	New American Cyclopaedia (Appleton's)	\$80.00	96	325	48	163	53
67	Worcester's Great Illustrated Dictionary	\$10.00	18	58	9	29	10
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80	Any Four do. do.	\$9.00	60	186	30	104	36
81	Any Five do. do.	\$11.25	72	222	36	124	42
82	Any Six do. do.	\$13.50	84	258	42	144	48
83	Any Seven do. do.	\$15.75	96	294	48	164	54
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88	Farmer's Boy's Library	\$8.25	16	52	8	26	9
89	Farmer's Boy's Library	\$11.50	20	68	10	32	11
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91	Farmer's Boy's Library	\$18.00	30	102	15	51	17
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97	A \$25 Library do.	\$25.00	38	125	19	63	25
98	A \$30 Library do.	\$30.00	45	144	22	72	28
99	A \$35 Library do.	\$35.00	52	162	25	81	31
100	A \$40 Library do.	\$40.00	60	180	30	90	34
101	A \$45 Library do.	\$45.00	67	198	33	99	37
102	A \$50 Library do.	\$50.00	75	225	36	108	40
103	A \$60 Library do.	\$60.00	90	270	42	126	44
104	A \$75 Library do.	\$75.00	105	315	49	147	50
105	A \$90 Library do.	\$90.00	120	360	54	162	

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27th Annual Report OF THE NEW YORK LIFE INSURANCE CO.,

OFFICE: Nos. 346 & 348 BROADWAY. January 1, 1872.

Amount of Net Cash Assets, January 1, 1871. **\$13,676,097.90**

RECEIPTS:
 Premium and Annuities, \$6,061,679.32
 Interest received and accrued, including premium on gold, etc. 1,149,116.57—1,131,295.89
\$7,202,795.86

DISBURSEMENTS:
 Losses by death, \$1,313,458.08
 Purchased, surrendered, and canceled policies, 1,105,854.64
 Life annuities, matured payments, and reinsurance, 33,820.33
 Dividends to policy-holders, \$49,673.43
 Commissions, brokerages, and agency expenses, 603,807.73
 Advertising and physicians' fees, 59,567.35
 Taxes, office and law expenses, salaries, printing, revenue stamps, etc. 253,899.91—4,167,616.19
\$18,699,747.36

ASSETS:
 Cash in Trust Co., in bank, and on hand, \$1,845,002.15
 Invested in United States, New York State, and other stocks (market value \$4,731,182.83) cost, 4,616,762.43
 Invested in New York City Bank Stock (market value \$46,425) cost, 41,549.00
 Real Estate in the City of New York 1,768,174.14
 Bonds and Mortgages (secured by real estate) valued at \$30,000,000; buildings thereon insured for over \$3,000,000, and the policies assigned to the company as additional collateral security, \$344,820.00
 Loans on existing policies. (The reserve held by the company on these same policies amounts to \$3,887,930.21) 956,636.99
 Quarterly and semi-annual premiums, due subsequent to January 1, 1872, 690,761.17
 Premiums on existing policies in hands of agents and in course of transmission, 330,255.73
 Amounts due from agents, 49,829.61
 Interest accrued to January 1, 1872, 77,048.12—13,639,747.36
 Add—
 Excess of market value of securities over cost, 114,021.40

Cash assets, January 1, 1872, **\$18,803,768.76**

APPROPRIATED AS FOLLOWS:
 Amount of Adjusted Losses due subsequent to January 1, 1872, \$212,890.60
 Amount of Reported Losses awaiting proof, etc., 127,000.60
 Amount reserved for Reinsurance on existing Policies, insuring \$112,150,075.80, participating insurance (at 3 per cent. Carlisle net premium) \$1,061,733.67, non-participating (at 5 per cent. Carlisle net premium) 1,16,841,177.21
 Balance of return Premium, 1871, payable during the year 1872, 133,667.12—17,615,684.33

Divisible Surplus, \$1,488,134.43

During the year 8,908 Policies have been issued, insuring \$24,603,305.51.

From the undivided surplus of **\$1,488,134.43** the Board of Trustees have declared a **DIVIDEND**, available on settlement of next annual premium to each participating policy proportioned to its contribution to surplus. Dividends not used in settlement of premium will be added to the policy.

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WILLIAM H. BEERS, Vice-Prest & Actuary.
THEODORE M. BANTA, Cashier.
D. O'DELL, Superintendent of Agencies.
CORNELIUS R. BOGERT, M.D., Medical Examiners,
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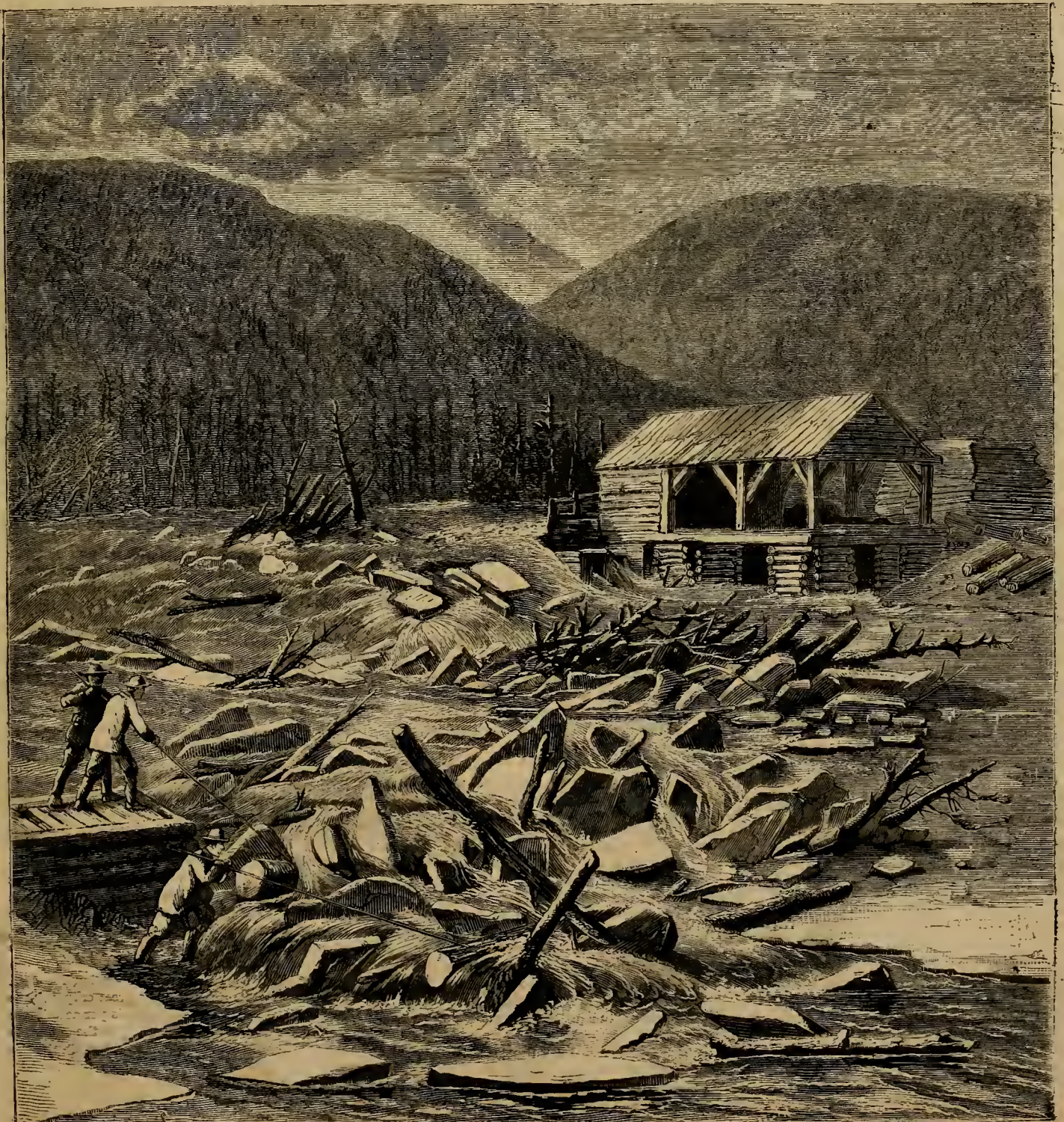
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VOLUME XXXI.—No. 4.

NEW YORK, APRIL, 1872.

NEW SERIES—No. 303.



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THE BREAKING UP OF THE ICE.—Drawn and Engraved for the American Agriculturist.—(See page 127.)

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Calendar for April.

Table with columns for Day of Month, Day of Week, and Moon phases for Boston, N.Y., Wash'n., and Chicago. Includes sunrise, sunset, and moonrise data.

PHASES OF THE MOON. Table with columns for MOON, BOSTON, N. YORK, WASH'N., CHICAGO. Includes New Moon, 1st Quart., Full., 3d Quart. data.

AMERICAN AGRICULTURIST. NEW YORK, APRIL, 1872.

At the present writing, it is impossible to form any definite opinion as to the condition of the winter wheat crop. So far as our observations extend, the indications are generally unfavorable. Throughout a large extent of our country the soil last autumn was remarkably dry, and when winter set in the wheat looked small and thin on the ground. We are disposed to think, however, that the wheat had made a good root growth, and that the plants on good land were healthy, hardy, and vigorous. On our own farm the wheat is apparently uninjured. The weather-wise people are telling us to look out for a wet summer. Of course they know nothing about it. But we will unite with them in advising the farmer readers of the American Agriculturist to look out for wet weather—and prepare for it. We do not base this advice on the fact that we have had and are still having a great drouth, and therefore that it is reasonable to expect a great rain. There is something in this; but we urge our readers to prepare for wet weather simply because we know that farmers suffer much loss every spring from falling to expect and prepare for rainy days, muddy roads, and wet fields.

We fear this advice will not do much good. Good, prompt, energetic, thinking, sensible farmers prepare for all kinds of weather and for all emergencies; but there are thousands who are constitutionally indisposed to do anything to-day that can be put off until to-morrow. They never clean the leaves or other impediments from the gutters on the roof of the house until it rains; never plow until they are ready to plant, and never get or clean up the seed until the field is prepared and waiting for it. Such farmers rarely get a new plow-point until the old one is worn out, and never get the teeth of the harrows sharpened until the day they want to use them. But why multiply illustrations? Nothing that we can say will rouse such men. All that we can hope for is to persuade young farmers to cultivate the habit of promptness—of doing things at the best time, and especially of disciplining themselves to do first those things which they like to do least. Indolent people often busy themselves in doing something that they specially like to do. We have known a farmer's son too weak to sort potatoes or milk a cow, but quite strong enough to break a colt or feed a thrashing machine.

Hints about Work.

Start the Plow the moment the ground is dry enough, but not before; and where it can be done, harrow and sow as fast as you plow. Do not wait to finish the field. We know there is some loss of time in changing work so often, but it is nothing compared with the extra time and labor required to prepare plowed land that has been exposed to heavy rains, and then had to lie for several days until the surface was crusted over before it was dry enough to harrow. Our springs are so short, and the weather so uncertain, that our rule should be never to leave the field until all the land that has been plowed is harrowed and sown.

Sod Land can be plowed after a soaking rain earlier than fall-plowed or stubbles. And a steel plow will make a clean furrow slice where a cast-iron plow will clog. But it is doubtful whether it is or is not advisable to avail ourselves of these facts. Sod land is just as wet as the stubble land, and if one would be injured by plowing it is not easy to understand why the sod land would not be injured also. It is one of those points, however, on which we need more light. Our own practice is based on the practical fact that we have a good deal of plowing to do and little time to do it in, rather than on any theoretical considerations as to what is the absolutely best condition for the soil to be in when it is plowed. A farmer must not be a "one-idea" man. He has many things to take into consideration, and has need of experience and good judgment. A safe rule is to avoid running to extremes.

Barley is with us the first crop that we aim to sow in the spring. We say "aim," because, in point of fact, it not infrequently happens that we are able to plow a clover sod, and drill in peas or oats, before we can plow a corn-stubble and prepare it for barley. But when the weather is favorable we should get in the barley at the earliest time possible. So good a farmer as John Johnston, however, differs with us on this point. With him, later sown barley has frequently proved a heavier crop than that sown earlier. And in our own experience we have sown part of a field of barley the last day of March, and the remainder of the field a week or ten days later, and the one was as good as the other. But in this case both were "sown early." We have had two crops of barley in different years, one of which was over 50 bushels per acre, and the other 49 bushels, and one was sown two or three weeks earlier than the other; but both were sown as early as possible. We have never had a good crop of barley that was not sown early.

Oats can be sown on a great range of soils, from a black muck to the heaviest clays. Of all the small grains they will stand the greatest neglect, but will repay good cultivation. They are often sown on new plowed sod land, and occasionally do well enough to induce farmers to continue the practice, notwithstanding the fact that in nine cases out of ten the result is anything but satisfactory. Better plant corn on the sod land, and sow oats after the corn. We have seen great crops raised where the land is rich by fall-plowing a corn-stubble, and then sowing as early as the land could be harrowed in the spring, and when the frost was not sufficiently out of the ground to plow. Sod land plowed late in the fall may be got into fair condition for oats by the use of a Shares or Nishwitz harrow, when the sod is not sufficiently rotted in the spring to admit of cross-plowing. When the sod was plowed early, say in August or September, and the land was what we call "fall-fallowed," the sod should be well-rotted, and when plowed in the spring would be in excellent condition for oats, and if the land is rich enough a great crop may be expected. From 2 1/2 to 3 1/2 bushels per acre is the proper quantity of seed, according to the condition and fertility of the soil—the richer the soil, the less seed is required. As a rule, we do not sow oats thick enough, or make the soil sufficiently fine and mellow. When sown with a drill, which is by far the better plan, harrow the land thoroughly, and then roll before drilling, and if there are still any clods roll again after the drill.

Peas in many sections are so much affected by

the pea-beetle, or what is improperly called "the bug," that their culture is almost entirely abandoned. There is at present no known remedy. Getting seed entirely free from bugs, or dipping the seed for a minute in boiling water, are popular remedies, but are not based on any satisfactory reason. Late sowing is to a certain extent a remedy, but the crop is almost invariably a poor one. Better sow as early as possible, and try to raise a great crop, and feed out the crop to pigs before the bug eats out much of the substance of the peas. This is killing the bugs and converting them into pork at the same time. If generally adopted, and our seed obtained from sections free from this insect, we should in time get rid of the trouble. We drill in the peas at the rate of 3 bushels per acre, or $2\frac{1}{2}$ of peas and $1\frac{1}{2}$ bushel of oats. See Hints for March.

Potatoes with the writer do better on a rich clover sod than on stubble land. It is time we paid more attention to enriching the soil for this crop. The labor of digging an acre yielding only 90 bushels, is nearly or quite as great as digging an acre that will yield 280 bushels, and if the soil is in good condition, the latter yield can safely be calculated on, with a good variety, and good cultivation. At average prices, few farm crops pay better than potatoes, provided a maximum yield is obtained. Manure, if thoroughly rotted and well worked into the soil, does not increase the disease. Planting in hills, three feet apart each way, saves seed and labor in planting, hoeing, and digging, and where land is cheap, is undoubtedly the better plan; but planting in drills, three feet one way, and sets dropped from 12 to 15 inches in the row, will, provided the land is rich enough, produce a greater crop per acre.

Clover Seed on winter wheat should be sown early. But we have sown it as late as the middle of May, and had a good catch. Much depends on the season and the condition of the land. We prefer to delay sowing until the ground is dry enough to harrow. A Thomas smoothing harrow is best for harrowing the wheat immediately after the seed is sown, but an ordinary heavy harrow may safely be used to break the crust on the soil before the seed is sown. The most thorough harrowing with a common forty-tooth harrow, early in the spring, provided the soil is dry, will not pull up the wheat to any injurious extent. Such a harrow may be used before sowing the seed, and a Thomas harrow after sowing, with excellent effect.

Grass and Clover Seeds should not be covered more than half an inch deep. Far more seed is lost from covering too deep than from being left wholly exposed on the surface. A fine mellow soil is the great essential condition.

The *Roller* is not used as much as it should be in the spring, though it is sometimes used where it does more harm than good. It is easier to break clods when wet than when dry, but if you can break them when dry, the pulverizing effect is far greater. Clayey land rolled when wet, forms a hard crust. Sandy soil that needs compression, may be rolled when quite moist. No amount of rolling will injuriously pack or consolidate a perfectly dry soil.

See *Hints for last Month*.—We hope every reader of the *American Agriculturist* preserves the numbers. Many of the hints given last month may be found useful now.

Horses, after their winter's rest, should be worked only moderately at first. Look to their shoulders, and wash them frequently with cold water. Poor-fitting collars are the chief source of galls.

Working-Oxen should be well carded every day, and be liberally fed. They have a much larger stomach than a horse, and do not need as concentrated food, but they require more time to eat. Cut the hay into chaff, moisten it, and mix a little corn-meal with it—say one quart of meal to a bushel of chaff. Horses may have two quarts (and at noon three quarts) of meal to a bushel.

Cows need much care and extra feed this month. They are longing for green grass, and he is a fortunate farmer who has plenty of mangolds for them. But bran and good hay, with a good card-

ing every day, to keep open the pores, will keep a milch-cow in good condition, and prepare her for giving a large mess of milk when grass comes.

Raise your own Calves, and let them have good care, nutritious food, and plenty of it, with the kindest treatment. Cows will be high again in a year or two. Good cows are always scarce.

Poultry.—Clean the house, sprinkle with crude carbolic acid and water. Carbolic soap, rubbed on to the roosts, finds its way on to the feathers, and kills the lice. Whitewash all the woodwork, and if a little carbolic acid is added, so much the better. Absolute cleanliness is one great secret of success in keeping poultry. At this season of the year farmers should see that their fowls are regularly fed. There is not much for them to pick up, and it is impossible for them to furnish an abundant supply of eggs without food enough to manufacture them. When the ground is frozen, so that they can not get worms, they should have fresh meat, bones, etc. See that they have plenty of fresh water.

Sheep.—See Hints for last month. Nothing is better for sheep than clover hay. Let the breeding ewes have all they can eat. And those with their lambs at their side should have a pound of bran each per day, in addition, and a few roots, if they can be spared. Make a small pen in the yard, with slats about ten inches apart, or just wide enough to allow the lambs to go through, and put in a few small troughs, and keep the lambs supplied with oats, corn-meal, bran, and sliced roots. This is one secret of raising good lambs. See that the ewes and lambs also have an abundant supply of fresh water. The ewes will drink nearly twice as much water when giving milk as before lambing.

Pigs.—Last fall's pigs should have a liberal allowance of corn-meal and mangolds, to keep them growing rapidly till they can get clover. Breeding sows should be kept in good thriving condition. Succulent food, and bran or fine middlings, are better than corn. It is desirable to keep the bowels somewhat relaxed. Daily exercise is very desirable. The young pigs should be taught to eat from a small trough, separate from the sow, as early as possible, or at any rate when three weeks old.

Rainy Days are usually numerous this month, and there is also abundance of work to be done indoors, such as oiling harness, picking over potatoes, painting implements, machines, wagons, etc.

Clean out the Cellar.—As health is the greatest of earthly blessings, cleaning the cellar from all decaying vegetables and other impurities is the most important work to be done in the spring. Give not sleep to your eyelids until it is done.

Whitewash the cellar walls, pig-pens, sheep-sheds, horse and cow stables.

Pick up the old Iron.—There has been a great advance in the price of iron, and it is a good time to dispose of all the old plow-points, horseshoes, etc.

Make the whole Premises clean.—We have "house-cleaning" every spring; let us have stable, barn, and barn-yard cleaning also. Leave not a particle of manure scattered about the yards. Either apply it to the land at once, or pile it in a heap.

Work in the Horticultural Departments.

In most of the Northern States April will be the earliest month for out-door work, and all gardeners will find plenty to do in preparing the soil and sowing seeds for early crops. If seeds and tools have been provided and everything prepared for early work, no delay need occur. Work should always be planned before actual operations commence, so that if a rainy day comes once or twice a week, the work need not be behindhand. Some in-door labor should be arranged for the workmen during rainy days, such as mending tools, making labels, etc. Procure tools of the best description, as men take more interest in their work when provided with suitable tools. A stock of duplicate handles for hoes, rakes, etc., will often save trouble when work presses, and every gardener ought to have a supply of these ready for an emergency.

Orchard and Nursery.

We will take it for granted that the ground has been properly plowed and prepared for early spring planting, and that trees have been ordered in time.

Planting can be performed as soon as the trees arrive, but if this is not done at once, see that the roots are properly protected from winds and sun. When the trees are set, trim the mutilated roots, shorten the branches, and remove all useless ones. Take care not to plant the trees too deep, but make a broad opening and spread the roots in a natural position, then cover with fine soil, well pressed down. When trees arrive in poor order, resulting from improper packing, and the bark appears shriveled, bury entirely in the soil, and in a few days they will look fresh and plump if not too far gone. Trees that have started into growth during their journey must be cut back severely.

Grafting.—As soon as the buds commence to swell grafting may be done, but do not commence too early.

Cions.—Cut at any time before the buds start, and preserve in sawdust or earth until needed.

Root-grafts.—Plant in nursery rows as soon as the ground is in proper order.

Seeds of fruit and ornamental trees may be planted in nursery rows or in beds, but it is better to wait until next month before planting any tree seeds, except nuts, peach-stones, etc., which were buried last fall.

Insects.—Continue to destroy all injurious insects wherever found, both in the egg and larva or grub state. If the trees have not been washed with soapsuds, they should be gone over with a moderately stiff brush as soon as convenient.

Transplanting.—Transplant trees from the nursery rows and set where they are to grow, or else make them into rows where they will have sufficient room to grow for several years.

Fruit Garden.

Almonds.—In some parts of the country considerable attention is being paid to the cultivation of this fruit, and it will thrive wherever the peach will, and the culture is the same.

Figs.—This fruit is not cultivated profitably in the open ground north of Maryland, but a few trees may be grown for the sake of variety, and during the winter may be taken up and stored in the cellar, or laid down and covered with earth.

Quinces.—Most persons fail to secure a good form for their quince-bushes, and instead of a handsome pyramid is usually seen a long-branched, unshapely tree, which is far from being ornamental. If properly pruned, they may be trained into very handsome pyramids.

Currants.—A good supply of currant-bushes ought to be found in every fruit garden, and if given proper care, they may be made to yield large crops of fine fruit. The Versailles and White Grape are the best varieties. Cuttings ought to be planted in rows two feet apart, and the cuttings six inches in the row, and in two or three years these will produce bearing bushes.

Gooseberries.—Houghton and American Seedling are two valuable varieties, and are quite free from mildew. Give thorough cultivation and plenty of manure between the rows.

Grapes.—Plant one-year-old vines in well-drained soil, enriched by ashes and bones; heating manures are not proper for a vineyard. A good selection of varieties, combining the early and late sorts, should be set out for home use.

Raspberries and Blackberries.—Set out new plants of these valuable fruits, allowing four feet each way for raspberries and six by eight feet for the blackberries.

Strawberries.—Set out new beds as soon as the ground will allow and give the rows a good mulch. Hill culture is the neatest, and the plants ought to be set out in rows eighteen inches apart, and the rows two feet apart. No fruit should be allowed to set the season the vines are planted.

Kitchen Garden.

Some of the hints given last month will answer for this in many parts of the North. Hot-beds will need constant attention to prevent the young plants suffering from the want of water or air.

Asparagus.—Remove the coarse litter and fork in the fine manure. Make new beds.

Beans.—A few rows of Snaps and Bush beans may be planted for early use, but pole beans and Limas should be left until the soil is well warmed.

Beets.—Sow early sorts in drills 15 inches apart.

Cabbages and Cauliflowers.—Plants may be set out from the cold-frame in rows twenty-four by twenty-eight, and lettuces planted between. Sow seeds for second early in open ground, and gradually harden off the hot-bed plants.

Carrots.—Sow a few rows for early use in fifteen-inch drills, taking care to use plenty of seed to insure a good start.

Celery.—Plant in a seed-bed, in drills eight inches apart, and cover lightly with fine soil.

Chives.—Make new plantings by taking up the old clumps, and after dividing, set in rows six inches apart.

Cress.—Sow in one-foot rows every week.

Cucumbers do better if not planted until next month, though a few may be started on inverted sods in a hot-bed for early use.

Egg-Plants.—Sow in hot-bed and give plenty of heat; do not let the young plants get chilled.

Garlic.—Break up the bulbs into sets, and plant six inches apart, in rows twelve inches apart.

Horseradish.—Plant the sets which were saved last fall at digging, and plant in well-manured rows two feet apart and fifteen inches in the row.

Herbs.—Have a good supply of sweet or pot herbs for flavoring soups, stews, etc. Thyme, Sage, Summer Savory, and Sweet Marjoram are the ones usually planted. Sow in rows four inches apart; keep free of weeds until ready to transplant.

Leeks.—Plant early in fifteen-inch rows, and when up thin to six inches in the row.

Lettuce.—Set out plants from the cold-frame and hot-bed. Seeds may be sown in the open ground in drills eight inches apart.

Onions.—Plant out sets and top and potato onions as early as the ground is suitable. Seeds should be sown early, in rows fifteen inches apart, and if a few radish seeds are mixed with them they will serve as a guide to show where the rows are.

Parsley.—Sow seeds in hot-bed or open ground. Parsnips need to be sown early in very deep, rich soil, to get a good start; sow in fifteen-inch rows.

Peas.—The earlier these can be planted after the frost is out of the ground the better, as they will bear cold weather very well. Sow the dwarfs in rows a foot apart and the taller sorts two or three feet apart.

Peppers.—Treat the same as egg-plants.

Potatoes.—Plant in well-manured soil in rows three feet apart. Cut the potatoes into sets and plant these one foot apart in the rows. The sprouts may be started earlier if the potatoes are placed in a warm room for a week or ten days before cutting.

Radishes.—Sow in hot-bed and in open ground once a week for a succession.

Salsify and Scorzoneria are both excellent vegetables, and need the same culture as carrots.

Spinach.—Hoe over the beds sown last fall, and sow seeds in drills fifteen inches apart.

Seeds.—Set out roots, bulbs, etc., for producing seeds, selecting only the finest specimens.

Tomatoes.—Sow seeds under glass, and transplant those already up into pots or boxes where they will have plenty of room, and so that the plants can be turned out without injuring the roots.

Turnips.—Sow a few rows for early use, and as soon as up dust with plaster, to prevent insects.

Flower-Garden and Lawn.

Ornamental Trees.—Use as much care in planting these as in setting fruit-trees. In ornamenting a lawn do not plant the trees and shrubs in regular

order, but endeavor to give it a natural appearance. Trees that have been bent by winds during the winter should be righted or reset.

Hedges.—Where a protection is needed near the house, a living fence of Arbor Vitae or Norway Spruce is quite ornamental.

Climbers.—Plant a good variety of climbers for covering trellises, arbors, etc. Clematises, Wistarias, Honeysuckles, etc., are all very handsome and rapid growers.

Herbaceous Perennials that have been set several years, ought to be taken up and divided before they have started into growth.

Biennials, such as Hollyhocks and Sweet Williams, should be transplanted to the border.

Annuals.—The hardy sorts may be sown as early as the frost leaves the ground. Sow tender varieties in a hot-bed or in window-boxes.

Bulbs.—Hardy bulbs should be uncovered and the ground kept free of weeds.

Greenhouses and Window-Boxes.

As the time for bedding out plants is so near at hand, proper care should be taken to give them plenty of air, so that the change will not be sudden. This may be done by opening the ventilators, shutting off most of the fire heat, and on warm, pleasant days by opening the doors.

Camellias.—As they are making their growth they should have plenty of water and a little more heat. Keep clear of insects.

Pelargoniums coming into flower will need plenty of water and light.

Propagating.—Continue to propagate bedding-plants as fast as possible, in order that a large stock may be prepared for sale or planting out.

Seeds of annuals that are small ought to be planted in boxes or pans, and instead of covering with earth, press the seeds into the soil and then sprinkle from a fine-rose watering-pot.

Dahlias.—Bring the tubers into a warm place where they will sprout.

Cannas.—Start in the greenhouse, and set out in the open ground when warm.

Tuberoses do best if started in the greenhouse and then turned into the open ground next month.

Window-Boxes.—The plants ought not to be allowed to become drawn, but should have plenty of light and air, and free exposure on mild days.

New York Live-Stock Markets.

WEEK ENDING	Beaves.	Cotes.	Calves.	Sheep.	Swine.	Tot'l.
February 19th.....	7,189	130	816	30,502	35,367	74,001
February 26th.....	6,508	205	795	16,564	27,850	51,922
March 4th.....	6,259	126	880	18,015	25,577	41,657
March 11th.....	7,866	182	878	18,733	25,265	53,496
Total in 4 Weeks.....	27,843	643	3,369	83,866	115,859	231,079
do. for prev. 4 Weeks.....	30,564	428	3,325	100,091	127,856	261,764

	Beaves.	Cotes.	Calves.	Sheep.	Swine.
Average per Week.....	6,835	161	842	20,966	25,965
do. do. last Month.....	7,641	107	831	23,923	31,859
do. do. prev's Month.....	6,033	109	954	20,585	26,188
Average per Week, 1871.....	7,187	88	2,201	25,132	25,177

Beef Cattle.—Receipts are usually lighter at this season of the year, farmers arranging to increase their stock for grazing. Besides this, it is evident that so many cattle perished at the West during the unusually severe winter, we shall have a light run this spring, and it is feared the stock will be poor. Trade has been somewhat uniform during the past month, the market closing at a trifling decline. There is a great falling off in arrivals of Texans, only 494 coming forward during the past month. At the last general market there were 130 carloads of cattle on sale at Communipaw, 95 cars at Hunderdth Street, and 40 at Weehavken, all these places comprising the New York market. Good cattle commanded 12c. $\frac{7}{8}$ b., and were in fair demand, though the opening of the shed season, with abundance of cheap eggs, and veals coming in freely, somewhat lessen the demand for beef.

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

Feb. 19th, ranged 9 @ 13 c.	Large sales 10 $\frac{1}{2}$ @ 12 c.	Av. 11 $\frac{1}{2}$
Feb. 26th, do. 9 @ 12 $\frac{1}{2}$ c.	do. do. 10 $\frac{1}{2}$ @ 11 $\frac{1}{2}$ c.	do. 11 $\frac{1}{2}$
March 4th, do. 8 $\frac{1}{2}$ @ 12 $\frac{1}{2}$ c.	do. do. 10 $\frac{1}{2}$ @ 11 $\frac{1}{2}$ c.	do. 11 $\frac{1}{2}$
March 11th, do. 9 $\frac{1}{2}$ @ 13 c.	do. do. 11 @ 12 c.	do. 11 $\frac{1}{2}$

Milk Cows.—The spring of the year is always looked upon as the best time in which to sell cows. The present time proves an exception, made so by the large

numbers of milkers sent here for sale. Poor quality has also contributed to the general dullness. So ghted have our markets been with hard lots of old cows, that they were sold at \$25 @ \$30 each by the car-load. Recent sales of two cars rather ordinary cows were made at \$55 each. The decline for the month is about \$10 per head. Very many of those now sent here for sale are springers. Fresh cows vary from \$30 to \$50 each for poor, \$55 to \$70 for medium to good, with a few choice at \$75 to \$80.....

Calves.—The figures show only a moderate increase in numbers, but the markets to-day are perfectly glutted with dressed veals, and overstocked with live. Trade is slow, and prices much lower. There are fully three times as many dead calves sent in as are reported above among the live-stock. It now takes a fat calf to bring 10c. $\frac{7}{8}$ b., alive, or over 13c., dressed. Good to prime milk-fed live calves are worth 9c. @ 10c. $\frac{7}{8}$ b.; common to fair sell at 7c. @ 8 $\frac{1}{2}$ c.; mixed lots, at 5c. @ 6 $\frac{1}{2}$ c. Hog-dressed are worth 10c. @ 14c. for milk-fed, and 6c. @ 9c. for grassers.

.....**Sheep and Lambs.**—These show quite a falling off in arrivals, the approach of shearing time and the season of spring lambs inducing farmers to keep stock back. Already we have a few spring lambs, which sell too high to be taken as regular quotations, for they will rapidly decline. By the pound they are worth about 20c., though some of 41 lbs. each went at 22c. Sheep have advanced a full cent $\frac{7}{8}$ b. during the month. Three cars fine-wool Ohio, 115 lbs. average, just sold at 10 $\frac{1}{2}$ c. $\frac{7}{8}$ b. Poor to medium sheep are quoted at 7 $\frac{1}{2}$ c. @ 8 $\frac{1}{2}$ c. $\frac{7}{8}$ b.; fair to good at 8 $\frac{1}{2}$ c. @ 9 $\frac{1}{2}$ c.; and prime to best selections at 10c. @ 10 $\frac{1}{2}$ c.**Swine.**—In addition to the live hogs reported above there were 39,232 dressed received during the month. Prices are scarcely as firm as they were four weeks ago, the packing season approaching its close, while receipts are still quite liberal. Live are worth 5 $\frac{1}{2}$ c. @ 5 $\frac{3}{4}$ c.; city-dressed Western, 6 $\frac{1}{2}$ c. @ 6 $\frac{3}{4}$ c.; Western dressed, 5 $\frac{1}{2}$ c. @ 5 $\frac{3}{4}$ c.



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 Volume Thirty are now ready. 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.

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.

Our Basket.—We try to answer each month as many questions as possible, but we find that we usually have many items for which room can not be made. Notwithstanding the many answered in the paper each month, and as many or more answered by mail, we find it difficult to keep up with this department. We regard "The Basket" as one of the most important parts of the paper, and there is none upon which more care is bestowed. The longer articles often answer many correspondents at once; for instance, those in this issue upon Irrigation and upon Cattle Stanchions serve as a reply to a score or two of letters. With every desire to make the contents of the paper meet all wants, we must ask the patience of some who are unanswered. We will try to get to them in time.

Useless Letters.—Some persons ask us questions which are beyond the power of any one to answer. We have letters asking: How much will a given sum return if invested in stock, market-garden, or orchard? It is as impossible to reply to these as to tell what kind of cake a woman whom we never saw will make, provided she has plenty of flour, sugar, etc. The probable success in enterprises of this kind depends upon many local considerations, not the least of which is the character of the man who undertakes them.

To numbers of Eastern people who have written to ask our advice as to whether they had better go West, we say, No! The person who in such a matter will seek and act upon the advice of a total stranger is not of the kind needed to populate the West. He will be much safer if he remains where he is.

Moreover, we must repeat that we can not procure places on farms, in the city or elsewhere, for any one. If we wished to find a place for our own brother we should advertise, and we advise all others to do the same.

Manure Advertisement.—"L. A. W.," Woonsocket, R. I. The advertisement you send about "chemicalizing manure" is a humbug shown up several years ago in our columns. The advertiser threatened to prosecute us, but we have not yet been called into court.

O Dear!—In the Western Pomologist and Gardener is an article by F. R. Elliott, of Cleveland, Ohio, in which he says: "Not a single journal emanating from New York City, to-day, has in it, aside from its Western correspondence, a single writer whose brains can grasp our great country, or who can see aught of value outside of the New York, Boston, or Philadelphia market." Mr. Elliott was employed on a New York paper, is not now, hence the rest of us catch it in the extract above quoted.

The Northern Pacific R.R.—Those who are seeking for chances to invest will not overlook the 7.30s of the Northern Pacific, a road which is making satisfactory progress. We learn that during the month of February over a million of the bonds were sold, and a million and a half were taken during January.

Barry's Fruit Garden.—Those who have been long looking for the appearance of this work, will be glad to know that it is now ready for delivery. It contains nearly 500 pages, is printed on heavy paper, abundantly and handsomely illustrated, and bound in beveled boards. Sent by mail for \$2.50—not \$2.00, as was inadvertently stated in a notice last month.

Non-explosive Lamps.—S. M. Herr, Lancaster Co., Pa. We know of no lamp that will make it safe to burn bad oil, and do not believe one can be made. The danger is not altogether in the lamp. It is not safe to have very volatile oils in the house, at any rate. No safety lamp will guard against accidents in filling and at other times. Get oil that will not flash at a lower heat than 110°, and you may use any lamp you please. Those who do not choose to buy good oil, should use candles or go to bed at dark. As you value your own life and that of others, use no cheap oil in any lamp whatever.

See the "Items."—This month we have adopted a plan of giving matters of news and of general interest in a very condensed form, which will be placed wherever we happen to find room for it. In the present issue it is upon page 158, and though not as full as we intend to make it, will give an idea of our plan. This will give us more room in the "Basket" proper, to answer our increasing number of correspondents.

Inverted Cuttings.—"C. B. S.," Excelsior, Minn., writes that he has seen it stated that if fruits, as apples, grapes, currants, etc., are grown from grafts and cuttings that are inserted in the stocks or in the ground with the small or top end down, they will have few or no seeds or cores. Is there any truth in this statement?—[None, please.—Ed.]

Raspberry Leaves Scalding.—"I. F.," Floyd Co., Ind. The cause of your raspberry and strawberry leaves scalding and dropping off may be the lack of a mulch around the roots, to prevent the too rapid evaporation of moisture from the soil. It may be rust. It is impossible to tell without seeing them.

Chinese Yam.—"A. M.," Erie Co., Pa. The Chinese Yam is usually raised from small tubers, which are planted in the spring in a rich soil, in rows two and one half feet apart, and plants one foot apart in the rows. Small tubers may be had of most of the seedsmen at about 25 cents per dozen. Your compost of ½ sods and earth, ¼ leached ashes, and ¼ hen manure should be thoroughly mixed, and when the sods are well

rotted, the compost may be applied to corn; a handful around each hill is sufficient.

Liquorice.—"W. S. K.," Washington, D. C. This root will probably succeed south of latitude 32°, though we do not know of any experiments made with it in the Southern States. It requires a rich, loamy soil, and should be planted early in spring in rows three feet apart, and eighteen inches in the row. The sets are made from the small roots thrown off by the main root, and cut into lengths of 5 or 6 inches. All weeds must be kept down, and the field top-dressed in the fall, and three years after planting the roots will be fit to dig. We do not know where sets for planting can be procured.

Chinese Yam for Stock.—W. A. Moore, Iowa. We do not believe that any one ever dug enough Chinese Yams to be able to try their value as food for stock. We have no doubt that they would be as valuable, at least, as potatoes; they are perfectly hardy, but they run so far towards the center of the Earth, that one has to dig a small well in order to get out a root.

Ash-leaved Maple, or Box Elder.—"A. G.," Monticello, Wis. The seeds of this tree ripen at the end of summer or in early autumn. A tree upon our lawn was last year filled with seeds, but upon long examination we failed to find one with a perfect germ. In gathering seed examine them carefully. Sow in shallow drills as early as the ground can be prepared, and thin to about four inches. Thornburn & Co., New York, keep a large assortment of tree seeds, as does Thomas Meehan, Germantown, Pa.

Euclavian Grape.—"A.," Newbury, Vt. The quality of this grape is most excellent. It has the fault of not making handsome bunches, but this may disappear as the vines get older. We can not advise you about planting more. If in your place, we should wait and ascertain how those you already have turn out. Every fruit does not suit all localities.

Insect on House Plants.—Mrs. H. F. B., Brooklyn, N. Y. Thrips, one of the worst pests to exterminate of all that infest house plants. The air and soil have probably been too dry. Remove the affected plants from those that are free from the trouble. Give frequent syringings with tobacco-water over the foliage, washing it off after a while with clean water.

Plowden Peach.—C. Norris, Mich. We have seen nothing about this peach of late. It has been claimed as a distinct and early variety, while others assert it to be only Hale's Early. Write to John Saal, Washington, D. C., who will know all about it.

Vineyard.—"F. M.," Seabrook, Me. We advise you to go and see for yourself, and not trust the advertisements of this or any other similar enterprise.

Gooseberries.—Geo. Chivers, Alleghany Co., Pa., had the foliage of 3,000 Houghton Gooseberry plants destroyed by "some unseen enemy," and wishes to know what to do. How can we at this distance see the "unseen enemy"? Look more closely. If worms, they will be found on the under side of the leaves. Sprinkle White Hellebore. If mildew, there will be white patches. Dust with sulphur. If neither, send us some leaves for examination. It is difficult to prescribe without seeing the patient.

Honey.—"A. C.," Orleans, Ontario. Honey in the comb has a higher market value than strained honey. The retail price of honey in the comb varies from 20 to 40 cents per pound, according to the season and quality, and the wholesale price is about two thirds of this.

Gouk's Patent Earth-Closet.—We wish to call attention to this very useful application of the dry-earth system. It combines a tub or receptacle for the earth, and a mold with which a basin is formed. Six inches of earth is thrown into the tub, to form the bottom, the mold is placed on it, and earth placed around the mold and packed firmly, so as to retain the shape when the mold is withdrawn. There is then a basin of absorbent earth as a receptacle, into which the deposit is received, and an immediate covering of dry earth or other deodorizer effectually prevents any unpleasant consequences. When the basin becomes filled, the tub is emptied of its contents into a covered shed, where the matter is allowed to accumulate until it is needed as a fertilizer. As such its value is very great, and although we know many farmers have an objection to using night-soil on vegetables or grains, yet, if they can not overcome the objection to use it in this way, it will be found a most excellent application to grass or clover crops. The great convenience of this method makes it very desirable for

all those who have material on hand to use with it. Dry sifted coal ashes would make a good substitute for earth, in towns and cities, where it can not easily be procured, and powdered coppers makes an excellent deodorizer. The absolute necessity for disposing of our waste matter in a manner which is not prejudicial to health, make it imperative to use a dry-earth closet in some shape, and this one has many advantages to recommend it.

Hog Swindler.—"T. J.," La Crosse Co., Wis., wants to know all about hog swindlers, and whether they will prevent rooting. No method of cutting the snout short of cutting it off will prevent hogs rooting as soon as the wound is healed. The old-fashioned ring is the best thing yet. A horse-shoe nail passed through the "rooter," with the point twisted around the head, makes a good ring.

Bones, Hen-Manure, and Ashes.—"A. J.," Baltimore Co., asks the oft-repeated question whether it is injurious to mix ashes with manures containing ammonia. It is, except when the compost is to be used immediately, and then plaster or fine dry earth should be mixed; if the materials are perfectly dry, and kept so, very little ammonia will then escape.

Tiles, where procured.—"T.," Bangor, Wis., wants to know where he can procure drain-tiles. Doubtless in Milwaukee; certainly in Chicago.

What to Do with Cloverseed Straw.—"P.," Lodi, Wis., writes: "I have 140 acres of straw and corn-stalks, and that is about as much as I can work into manure. My clover straw is out in the field where it was thrashed. Would it be of any service to spread it on the land as it is, and plow it under without being converted into manure?"—Certainly, it would. A ton of clover straw is worth at least twice as much for manure as a ton of wheat straw. Spread it out on the land, and let it be exposed to the rain as much and as long as possible before plowing under. It will rot all the sooner, and have a greater effect on the first crop. Or it may be spread on a pasture. It will act as a mulch, and as manure also, and increase the growth of grass.

SUNDRY HUMBUGS.

We can not possibly find time to answer by letter the multitude of individual inquiries about this and that humbug, or the merits or demerits of advertisements, medicines, doctors, instruments, etc., etc. All doctors advertising positive cures are humbugs; no reputable, reliable, regular physician ever advertises thus; the rules of all reputable medical associations forbid it. No man can safely give medical advice to a patient upon his own written description of his case, or without seeing him. So much depends upon individual peculiarities, condition, and local circumstances, that, in fact, what is one person's meat (or medicine) is another's poison. There is no getting around this, and it sweeps away at one brush the whole class of patent or specific medicines. There is but one "medical specific," good in all cases for the same difficulty, and that is "Sulphur for the Itch." Some important suggestions on this subject were brought out during our recent libel suit, noticed elsewhere. . . . All cases of general swindling that we get hold of are exposed in these columns as early as we can collect proofs sufficient to warrant us in doing so. The unsupported statement by letter of one person, not personally known to us, that he has been cheated, is not enough to warrant us in publicly denouncing a party. Swindling parties have themselves often tried to entrap us by giving false statements concerning themselves, sent from distant localities under assumed names, written apparently by some of our own subscribers. After following up swindlers for a score of years, we have become somewhat skillful in their arts and wiles, yet we are surprised at not having been caught napping in a single instance in all these years. We are glad to hear from all our readers in regard to swindling operations, for a number of single well-authenticated cases from different individuals, pointing in any one direction, generally serve to bring to light the nefarious operations of parties previously supposed to be trustworthy. We invite all to promptly forward to us all suspicious circulars, advertisements, and the like. . . . An Advertiser informs us that he received a letter from a Boston party offering him a list of good names for addressing with business circulars. He forwarded \$3 for the list, and received a letter saying the list would soon come. After waiting a month, and writing for information, a letter came from (apparently) another person of the same name, saying there was some mistake, for he had never received any money or asked any for any such purpose, and he could find no one else of the same name in the Boston Directory. This looks like a "sell." Have any of our other advertisers had a similar experience? . . . The Albany "Dr. Andrews,"

or some other nuisance using the real or assumed name of "Dr. Andrews," is now sending out circulars, "Good Samaritans," etc., from 360 Lexington avenue, New York, promising impossibilities, and offering a great variety of medicines, instruments, books, etc. A person must be very ignorant and very foolish to patronize such a charlatan, yet there must be such persons, or he would not spend so much in printing and mailing these numerous advertisements. . . . Humbug seeds and plants are in order at this season, and it is well to be on the lookout for fraud. A Ciacianati chap has a marvelous corn from "Hungaria" (where's that?), of which he received three seeds two years ago, planted them in a garden corner, got 3 stalks and 13 ears "as large as can be found," planted it on less than an acre, and with only ordinary culture got 290 bushels! half of which he wants to sell *pro bono publico* at \$123 a bushel (\$2 a pint), but won't sell over five pints in a county. The absurdity of the claims ought to prevent farmers investing in this corn seed. . . . We have often cautioned our readers respecting sundry advertisements emanating from Maine, offering great wages to agents, and other brilliant business promises. Two of these were from Saco, Me., and Alfred, Me. We are glad to find the Young Men's Christian Association of Portland taking up the subject and exposing the swindlers. We suggest that other branches of this noble association, both in Maine and elsewhere, can do a good work by following the example of the Portland young men. There are local swindles, specially directed to young men, in various parts of the country, which need like attention. Some of the religious papers unwittingly or carelessly (and therefore criminally) help on the swindlers by inserting their advertisements. (Some other Maine swindlers are under special investigation.) . . . D— & Co., to be addressed at Malden, Mass., send out circulars offering a vilely attractive book, according to their own description. Any party willing to debauch morals and steal one's chastity would steal money, and if we wanted such a book we should not trust our money to such a fellow. The Malden postmaster or other good citizens of Malden should see to it that their post-office be not used by swindlers or vendors of obscene books. . . . "Sunlight Oil," so often shown up by us, is still offered to agents by Michigan operators. We suppose, therefore, that customers and victims are still found in dark corners where the sunlight of this journal does not penetrate. . . . What! not dead yet? Pardee & Co.'s Prize Sale of Watches, etc., etc., at Binghamton, N. Y.! Can it be that there are fools enough alive to keep this concern going, with its promises of \$250 gold watches for \$2.24? . . . A wonderful magnetic comb for curling the hair is advertised out West. Every editor who advertises this small swindle ought to have his hair combed with a flax-hatchel, and be made to pay \$1.21 to each of his readers who has lost that amount by patronizing the advertisement. . . . The Merchants and Bankers Association—great daily distribution of cash gifts—is a pure swindle; ditto the "National Exchange Co.," 107 Fourth ave. . . . James Stewart & Co. is the assumed name of some swindler who seems to be professedly operating in "fancy" cattle, sheep, swine, etc., ostensibly at Kennett Square, West Chester, Coatesville, Downingtown, Lancaster, and other places in Pennsylvania. Any one hearing of him under the above or any other name should report him promptly (privately) to H. M. Worth & Co., publishers of the *Weekly Leader*, at Kennett Square, Pa. . . . We have circulars of W. H. Chichester, and many other humbages already shown up. . . . The "Queer," or pretended counterfeit-money operators, still practice their swindles upon other would-be swindlers. A fellow at 16 South 5th avenue, New York, works under all the following names: Geo. Parker, *alias* S. S. Flint, *alias* J. T. Wildman, *alias* Dr. Thos. Walkins, *alias* Geo. W. Bates, *alias* E. D. Robinson, *alias* Edwin Carter, etc., etc. Wonder if the letters of his real name would spell E-I-I-a-s? Then we have Geo. Harrington, 173 Broadway; Chas. W. Lawson, 81 Canal st.; J. T. Spencer & Co., 10 S. st., Philadelphia; Amos Wainwright, Trenton, N. J.; John Hood, Jr., Wilmington, Del., and New York City, etc. . . . We began investigations upon the "Great Bankrupt Watch Sale" at 763 Broadway, but the Tribune and Post are giving a brisk ventilation of the concern, and save us the trouble. We will only add, that we recently spent some time in Geneva, Switzerland, visited the various watch manufacturers, and we are sure there was no "Great Geneva Watch Company" known there.

Variegated Japanese Honey-suckle.—"R. Z. S.," Laclede, Mo. This is perfectly hardy and is a capital climber. It is also a very useful plant for edgings to flower-beds.

Plaster on Oak Openings.—"R.," Woodworth, Wis., asks if plaster will benefit tame meadow on what are called "burr oak openings." Yes. We have seen one barrel per acre applied on such land with the best effects, though in other places a less quantity is

generally used. It should be sown early in May, when the dew is on the grass, or immediately after a shower. It is of little benefit to spring wheat.

Sanerkrant.—"W. M.," Battle Ground, wishes to know if kraut can be made of cabbages that mature in August. In our vicinity it is only prepared from hard, late-heading cabbages in cold, frosty weather. Who can tell him about summer making?

Catching Owls.—W. Emery, Champaign Co., Ohio, plants a ten foot 4x4 scantling "near the trees the chickens roost on," and on the top of this puts a wolf-trap, which catches the marauding owls. Query: Would it not be quite as easy to build a chicken-house?

Wood-eating Cattle.—E. Everett, Auburn, Me., wants a remedy to prevent his cattle eating their stanchions and boards off the barn, and any other wood they can reach. Give them some bones, burnt and powdered, with some wood ashes and salt, to lick; when they have enough, they will eat no more boards.

Spaying Cows.—"C.," Dale, Ky., wishes to spay an Alderney cow, if the operation will not injure her for producing milk. Cows, when spayed, continue to give a somewhat reduced quantity of richer milk for some years, when they gradually fatten and dry up.

Draining by Subsoil Plow.—"Farmer," Dane Co., Wis., has a piece of land with clay subsoil, which he can not afford to underdrain, and asks if there is any subsoil plow by which the clay can be opened sufficiently to permit the water to pass off, and how far apart under ground the furrows should be made. The best plow for this purpose is the Miner subsoil plow, made by R. H. Allen & Co., Water street, New York. It can be drawn by two horses, at a depth of fourteen inches beneath the surface, and costs \$8. It leaves what is called a mole track, and at twelve to twenty-four inches apart these tracks permit the water to escape.

To Tan Buckskin for Mittens.—"M. P. B.," Minnesota. The best method is the Indian mode. Remove the hair by means of a lye of ashes, and then rub them with brains and smoke them. We have forgotten the details of the process, but probably some of our Western readers can give it to us in full. Indian-tanned skins do not harden after being wetted.

Blue Lice.—"W. D.," Sevasapol, Ia., wants a remedy against blue lice on cattle. See *Hints about Work* for February, page 43. If crude petroleum can not be got, a mixture of lard and kerosene oil will answer as a substitute. Kerosene alone is too strong. If carbolic acid can not be got, sulphur, ground up with the lard, will answer, but not so well.

Feed for Calves and Colts.—"N. W.," Pottstown, Pa., asks what is the best feed for young calves after weaning, and should yearling colts be fed grain?—The best calves we have raised were fed on early-cut clover, hay cut, wetted, and sprinkled with a handful of coarse middlings or mill-stuff and some oil-cake meal to each feed. They also got the skimmed milk until six months old. Yearling colts should have a quart of bruised oats per day—it is well repaid.

Kansas.—"H. R.," Alleghany Co., Md., with some friends, are going to Kansas, to take up homestead lands, and wants a book which gives information about farming there. The Kansas Immigration Society, Leavenworth, Kansas, will give all information respecting lands and locations of homesteads. The methods of farming there are not much different from those elsewhere, and will soon become plain and easy to any smart man.

Esparecette, or Saintfoin.—"P. D.," Atlantic Co., N. J., asks where Saintfoin seed can be purchased. At almost any of the seed-stores in New York, at 50 cents per pound (see advertisements). The best grass for a "mucky" soil is Red-top.

Jerusalem Artichoke.—A. Meyer, Dubuque Co., Iowa. Plant as early in spring as the ground can be worked, the same as potatoes, in rows far enough apart to cultivate between them. The tubers may be dug in fall, or be wintered in the ground and fed in spring.

Spurry.—A. Richardson, Wilmington, Del., wants to know all about Spurry. Spurry is a small annual plant, and useful only on poor, sandy soils, where no other forage plant will grow. If there are such poor, sandy soils in Delaware or Maryland, Spurry may be grown on them as a commencement for improvement by sowing twenty-four pounds of seed per acre in March, again in May and July, thus growing and plowing under

three crops in one year; afterwards it may be sown and eaten off, the ground plowed, sowed, and eaten again, until the soil is sufficiently strengthened to grow clover. Spurry is said, in the Agricultural Department report of 1864, to be a native of this country, which is incorrect. It has been introduced from Europe, and has become sparingly naturalized in some States.

The Best Oil for Harness.—A. Jones, Smyrna, Tenn., wants the best oil for harness and other leather. A non-drying oil is needed. Tanner's oil is the best. Fish oils are non-drying oils. A mixture of bees-wax, lamp-black, and tallow is a good application, well rubbed into the leather when damp.

Fruit Trees.—"J. T. B.," West Redding, Ct. It does not make any difference whether you procure your trees from a nursery near home or far away, provided the trees are well grown and the wood properly ripened.

Hay-Caps.—"R. P.," wants a composition to make hay-caps water-tight. Two coats of lincseed oil will do it, but when dry, the cloth is apt to crack. A good quality of sheeting will turn water for 21 hours, without any coating, if the hay-cock is made pointed at the top.

Humbugged.—"H.," Ashley, Mass., has bought a right to use a secret method of chemicalizing manure for \$5, and fears he has been humbugged. His fears are well founded, doubtless. A mixture of salt, plaster, lime, and ashes, in itself, is of very doubtful value to mix with manure, to treble its fertilizing properties, and \$5 is too much to pay for the knowledge. As an honorable man he will respect the obligation he has voluntarily entered into, but \$5 would pay for the *Agriculturist* for four years, and one can learn more than five dollars' worth from its pages in less than that time.

Spring-Wheat Sections.—W. F. Atkinson, Boon Hill, N. C., referring to the advice in February *Agriculturist* to farmers in "spring-wheat sections" to sow largely, asks what are spring-wheat sections, and if North Carolina is one. It is not. Spring wheat succeeds best in colder climates, as Northern Illinois, Iowa, Wisconsin, and Minnesota. It should be sowed as early as possible in the spring.

Heeling in.—G. C. Brown. This is a gardener's term for laying plants in a trench and covering the roots with earth. In the case of Osage Orange, the year-old seedlings, if left in the seed-bed, will get badly drawn by the frost. If taken up in the fall and heeled in, they may be kept in safety.

Cranberries on Hills.—C. Blakeslee. The berries you saw upon the hills in Labrador were the Cowberry (*Vaccinium Vitis-Idaea*), a close relative of the true Cranberry, and common in the northern parts of both hemispheres. They are much liked by Norwegians and other natives of Northern Europe, but they are too bitter to be popular. It would probably grow on any not over-rich upland, and we have grown it in common garden soil.

The U. S. Signal Service.—The Farmers' Club of Middlesex Co., N. J., recently passed a resolution of confidence in the Signal Service Bureau, and approving "of the efforts made by that Bureau to benefit the agriculture of the country in a practical manner." Everybody will agree with the Middlesex Club; the Bureau is so well established in popular favor that it hardly seems to need resolutions in its favor any more than does the law of gravitation.

Cranberries.—"W. H. B.," Plainfield, Ct. We can not give a treatise on Cranberry culture in a basket item. If you intend to engage in the business on either a large or a small scale, the very best investment you can make will be to put \$1.25 in White's Cranberry Culturist.

Cure for Ringbone.—Baxter White, Sherborn, Mass.—Poment with warm water for half an hour, and then apply a blister of ointment of biniodide of mercury or lead; which must be repeated until an active blistering is effected. Another remedy is firing, but this should not be attempted but by a skillful veterinary surgeon. An old ringbone is incurable, and a better left alone and rest given to the horse.

New Corn.—"W. A. S.," Will Co., Ill., sends us a circular of a new corn, and asks what we think of it. As the circular says that the corn in ordinary culture produced 300 bushels to the acre, we think it very fishy. If you touch it at all, do it gently. Do not spend any money on this corn unless you can afford to lose it. A small investment will enable you to test the truth of the statement, and give you seed enough for another year.

How many Horses make a Team?

—Two or more. It is generally understood that a farm "team" means two horses, and if more is intended, it is so stated, as a "three-horse team," etc.

Colorado.—S. & T. write: "G. E. S." can learn about the soil, climate, etc., of Colorado by writing to A. K. Baker, Secretary Chicago Colorado Colony, Longmont, Col. The Colony lands are at the foot of "Long Peak."

Deep Cans for Creaming.—"P. S. D.,"

of Saratoga Co., N. Y., says that when their cheese factory shut up for the winter, he procured some deep cans, and fixed up an old box so that it would hold water, and commenced a trial of the new system as described in our *Ogden Farm Papers*. After four months' trial in cold weather, his success has been "highly gratifying." He has had "less work, better butter and more of it." He asks: 1. How to keep the cans from rusting along the seams? 2. Must the caps be covered? 3. Are the covers to be kept on at all seasons? 4. Should the animal heat be withdrawn before the covers are put on? 5. Are cans eight inches in diameter better than those eleven inches in diameter?—To which we answer: 1. Have the seams well covered with solder. 2. The covers are an advantage as excluding dust, and lessening the drying of the surface of the cream. They have each a one-inch hole in the middle, which allows sufficient ventilation. 3. We use the covers at all seasons, as a protection against the changing temperature of the air. 4. No; put the covers on at once, and set the cans in the cold water, which will soon withdraw the heat. 5. The colder the water, the larger the cans may be. No rule can be given; probably eight inches would be best for a temperature of from 58° to 60°, and eleven inches would do as well at 52° or less.

Grapes in Michigan.—A. W. Ingraham,

Lamont, writes: I have been testing several varieties of grapes. The Iona bids fair to prove a failure. The most of the fruit is attacked with black rot, and the three years that it has borne, it has ripened but once (in 1871). The Israella is of poor quality, the Adirondack nearly worthless, the Creveling extra good and very early, the Eumelan not yet fruited but a rapid grower, the Delaware unexceptionable.

Spring Wheat.—We have received a great

many inquiries as to the possibility of growing spring wheat in the Middle and Southern States, to all of which we reply that this crop can not be profitably grown in Pennsylvania or in the States south of it, nor in the southern part of Ohio and Illinois. It is suited to localities further north than those mentioned.

Berkshires.—Mr. F. H. Hall, of Aurora, Ill.,

asks, "Is a small white spot on the side of a Berkshire an indication of impurity?"—Such a spot would suggest an impurity, but it would not prove it. It would be better not to breed from the animal, for although in a composite breed like the Berkshire the color of remote ancestors will sometimes crop out without any apparent cause, there is a so much simpler way for the spot to have been produced, that it is best to keep on the safe side.

Spawn of Trout and other Fish.—

"I. A. S.," Buena Vista, S. C. The spawn of trout and of all the Salmonidae can be sent to any part of the country, where there are express offices, without much danger of loss, if they have fair treatment. But it is of little use to attempt to raise them in the extreme Southern States, unless the supply of spring-water is copious. They would not thrive in the common brooks. The spawn of the black bass is not yet in the market, and probably never will be. The best way to stock ponds is, to introduce yearling fish. These can be sent by messenger to any part of the country. The Northern black bass (*Grystes nigricans*) does well in Pennsylvania and in all the northern States, and probably would flourish in any part of the South, as it is a very hardy fish. We are not aware that it has gone south of Philadelphia. The Southern black bass (*Grystes salmoides*) is already distributed in the South and in the Mississippi Valley. There is much more demand for the Northern fish, and probably there is a foundation for this in its superior excellence. There are now some 250 trout-hatching establishments in the country, from whom spawn may be obtained.

Corn Fodder.—We have a number of letters

asking full directions for the preparation of the ground for this crop and for the planting, cultivation, harvesting, curing, and storing. To answer all these questions would take a longer article than our readers would enjoy, and we propose to take up one point at a time, keeping in advance of the dates when the work need be done. To begin with, then, it is now late to begin the preparation of the soil. This had better have been done in the autumn,

but if still to be undertaken, no time should be lost, and no other work except the getting in of the oat crop should be allowed to interfere with it. All the preparation needed until just before planting time in May, is to be done with the manure-cart and dung-fork. The result, under any fair treatment, will be in proportion to the amount of manure that is used. Make the land rich, doubly rich, trebly rich, if you would succeed and would realize the real profit of growing corn-fodder. If you have enough manure to make an acre of land produce fifty bushels of shelled corn, put it on a half-acre, or even on less; you can not make it too rich, and within reasonable limits, the richer you make it, the greater will be the profit realized. Of course, the land should be good, well drained (naturally or artificially), and in a good state of cultivation—what we know as "good corn land." If you have such a soil, especially if now in grass, so that the manure can be applied to a good sod, you can ask nothing more—except more manure.

Ashes Wanted.—A good example for farmers is shown by the Agricultural Association of Roanoke, N. Y., which buys guano and similar manures in large quantities for its members at a great reduction on retail prices. H. W. Young, the Secretary (address, Roanoke, N. Y.), now wants 40,000 bushels of ashes.

Onion Sets—Correction.—In Mr. Henderson's article on page 143, it is stated that the seed should be covered with two inches of sand. It should be one inch.

To Prevent Milk from Souring.—

A "Subscriber," Saginaw City, Mich., wants to keep his milk sweet for twenty-four hours or more in some perfectly harmless way. The most harmless way we know is to scald and wash perfectly clean all the pails and pans used in milking and setting milk, and to use tin ones. By doing this, milk may be kept sweet for twenty-four hours at any time in the year in any clean, cool cellar.

Hollow-Horn.—"T. G. C." Because the

horns are cold it is not safe to conclude that hollow-horn is what's the matter with your cow. It is often the case that the circulation may become torpid temporarily, or otherwise deranged by constipation or bilious disturbance, and the horns will then be cold. If a warm bran mash, given for a few days, does not improve the cow, and her eyes are yellow, give half a pound of glauber-salts. The oil-cake you have been feeding has made her bilious probably.

Packing Hams in Ashes.—Tetzell,

Greenwood, Miss., asks if it is safe to pack smoked hams in ashes during summer. If the ashes are kept perfectly dry it will be safe enough, but we would prefer clean wheat bran, which is just as good.

Grade Durhams as Milkers.—"J. C.,"

Pine Grove, Ohio, purchased some grade Durham calves, which he fed well and allowed to come in at three years old, but he is disappointed in their milking qualities. Will they improve?—It is most likely they will, with their second calf, but such a disappointment is not rare with this stock; they are eminently beef cattle, and not often excellent dairy stock.

Grubs in Horses.—"G.,"

Granville Co., N. C., asks if, when warm from work, his horse turns his head to his side, it is a sign of grubs. We suppose he means what are called bots. No; it is a sign doubtless that he feels some discomfort, probably colic. The remedy in this case is not to feed or water him when warm or exhausted with work. Give some ginger and powdered gentian root in his feed, and some wood-ashes occasionally to lick.

Sal-Soda.—C. J. List, Richland, O., asks what

is the soda mentioned in the article on utilizing bones, page 457, 1871. Sal-soda is the common washing-soda, sold at every grocery store in the country. It is sold in coarse lumps, not in a powder.

To Destroy Wild Onions.—J. W.,

Pickering, Norfolk Co., Va., says he has succeeded in destroying this pest by putting the field in a hoed crop, and about June, just before the onions go to seed, turning in and pulling them and destroying them. Thoroughness in this process alone is effectual.

Scab in Sheep.—G. Claxton, Andrew Co.,

Mo., has some sheep infected with scab and wants a remedy. Take one pound of plug tobacco, boil it in four gallons of water, and add to it four gallons of the clear water in which some lime has been slaked, and a pint of spirits of turpentine. With this wash the parts affected daily for a few days. Keep affected sheep by themselves.

Rats and Mice.—A correspondent at Annapolis, Md., gives the following: I have tried, in vain, for weeks to catch some mice that were undermining the bricks in the hearth. The little fellows were shy of the trap, eating the bait up to the very door, but the most tempting morsel of roasted cheese could not tempt them to venture under the fatal spring. After revolving the matter over in my mind, I hit upon a plan which proved a perfect success. I took a wooden box about a foot and a half high, and two feet long (any size would do) and placed it over the trap, which could only catch one at a time, but in four days I had caught nine—all there were in the hole. The philosophy of the box is, that it gives the mice a feeling of security while they are taking the bait. Rats will frequently enter a wire trap and eat up all the bait on the bottom without touching that on the hook. I have frequently outwitted them by putting, in addition to the bait on the hook, a piece of cheese on the bottom, and connecting it with the hook by a piece of black thread. Traps should frequently be shifted from one part of the house to the other, as seldom more than one or perhaps two rats are caught in the same place within a short time.

Jersey Cow.—Mr. Hall, Aurora, Ill., makes

the following statement: "I have one full-blood Jersey cow and two high grades. In December we churned the cream from (37) thirty-seven (heer) quarts of the milk of these three cows, and had therefrom (8¼) eight and three quarter pounds of butter." This is less than 4¼ quarts of milk to the pound of butter. The statement is remarkable, but by no means incredible, relating to Jersey cows in the winter season, and at a time when they were probably nearly dry—the milk being always much richer at such time.

The Breaking up of the Ice.

While we are all glad to know that the ice is breaking up and the winter is gone, yet there are some people to whom this gladness comes mingled with apprehension for the safety of their property. Such an occasion is represented by our artist on the first page of our present number. Here is represented the breaking up of the ice in the lumbering country, where all through the winter which has just passed, logs have been cut and drawn either on the ice or on the roads along the banks of the stream. Much waste necessarily accumulates in the shape of refuse logs and tops of trees, which, when the ice breaks up, comes down the stream with the fragments, and often forms "jams," which cause the water to back up and sometimes overflow the bank, and wash away mills, logs, and lumber altogether. Such seems to be the fear of the men shown in the picture, who are striving with "pike-poles" to break the jam and allow the accumulated ice to float away, and so save their mill.

Special Notice.

The Book of the Season—"Farm-Gardening and Seed-Raising."—A few years ago we made a revolution in horticultural literature by bringing out "Gardening for Profit," by Peter Henderson. This practical book, by a practical man, stands as the authority in its department. We now announce a work which we predict will make quite as much stir among farmers as did Mr. Henderson's among gardeners. There are thousands of farms near cities where land is too valuable for the raising of grain and for grazing, which the owners wish to make the most of. They can only make cultivation pay by following farm-gardening, which is half-way between market-gardening and regular farming. It is that kind of farming that will pay wherever manure can be bought, and such crops as potatoes, onions, carrots, etc., will sell. Market-gardening proper deals with perishable articles, that must be rushed into market at once; farm-gardening raises such crops as will bear transportation by the ordinary channels. The work, the title of which is given above, is by Francis Brill, a practical cultivator of long experience in raising such crops, and as a seed grower. In the present work he gives full directions for raising and caring for all kinds of seeds. It contains information to be found in no other work, and although the seed-growing is made a sub-title it is not the least important part of it. The work is of about 150 pages, and in order to put it within the reach of all, it is put at the low price of \$1, post-paid. It is a book that every farmer will want. We feel no little pride in being able to present three standard works covering the whole field of farming and gardening—namely: Allen's *American Farm-Book*, Brill's *Farm-Gardening and Seed-Raising*, and Henderson's *Gardening for Profit*. These form a library in themselves for every cultivator of much or little soil.

To Measure Corn in the Crib.

W. F. Mallow, New Holland, Ohio, wants a rule for measuring corn in the crib. Add the width of the bottom of the crib in inches to the width across the corn in the upper part, also in inches; divide the sum by two, and multiply it by the height and length of the corn in the crib, also in inches, and divide the product by 2,750. The result will give the heaped bushels of ears, two of which will make a bushel of shelled corn. By multiplying the average width, height, and length, in inches, together, the cubic contents in inches is found, and 2,750 cubic inches make a heaped bushel.

Green Crops for Manure.

John Iseman, Armstrong Co., Pa., wants to grow two green crops to plow under for manure before next September—what shall he sow? Probably peas would make the best crop for this purpose. First plow and spread some lime—as peas need lime—and harrow; then sow three bushels of peas (an early sort) in April, plow them in with a light furrow with one horse; in June they may be plowed under and another crop sown, which will be ready to turn under by 1st September.

Canada Thistles.

“O. K.,” East Smithfield, Is in trouble. His tenant harvested a large patch of Canada thistles, drew them to the barn with the grain crop, and thrashed all together, so that the seed is mixed through the manure. What shall he do?—This oversight will cost years of annoyance, without doubt. There is no remedy but to watch for the thistles, and pull them while young. As a warning, good may however result.

Analyzing Soils.

A reader sends us an advertisement of a man who offers to analyze for a certain sum the “soil of a farm,” and asks what we think of it. We think it a fraud; and even though a correct analysis of a soil be made, it is good only for that particular sample, and no criterion to judge accurately of a farm. Money had better be spent in adding manure to the land, rather than in paying for a chemical analysis, however perfect it might be.

Tonzelle Wheat.

D. B. Alexander, Culpeper, Va., sends us a sample of Tonzelle white wheat, which he says last year yielded with him 50 bushels per acre, weighing 66 pounds per bushel. Sowed 25th September, it was ripe on the 1st June. It stands the winter well, is stiff in the straw, and stools thickly. He has no seed for sale. He would like to hear the experience of others with this variety.

How to Churn.

—A “raw hand at the business” asks how to churn, how rapid a motion of the dasher is needed, should the dasher be lifted out of the cream, and the proper temperature of the cream. The cream should be sour, but not bitter; temperature about sixty degrees; the dasher should be lifted out of the cream at each stroke, and make about 100 strokes per minute. The rotary churns, such as the Blanchard, are quicker in operation than the upright dash.

Manure for Grass on Drained Swamp-Lands.

—“A Reader,” Potsdam Junction, N. Y., has raised a crop of oats on newly cleared and drained swamp-land, and has it now well stocked with timothy and red-top. What manure would keep the grass in good condition? A dressing of 25 or 30 bushels per acre of finely-slaked fresh lime would no doubt be of good service for a few years, and would bring in clover. An occasional dressing of three or four bushels of salt or 200 pounds of bone-flour or Peruvian guano per acre would keep the meadow in good heart, but timothy has a tendency to run out on such land, and fresh seed would be needed when this occurs.

Western Interests.

—“H. M. M.” wants “more practical hints on Western farming, and not so much about peat, bone-dust, etc.” We do not lose sight of our Western friends: in a few years peat, bone-dust, etc., will be as interesting to them as to anybody.

Hollow-Horn.

—“M. T. P.,” Abingdon, Va., has an ailing cow, which his neighbors say has hollow-horn. What is this disease, and the remedy?—The symptoms of what is called hollow-horn, are, eyes dull and sunken, horns cold, eyes and head swollen, the animal standing with the head low down against the barn or fence, staring coat, and sometimes bloody urine. It is the result of exposure to cold and low condition, and affects the sinuses of the head at the base of the horns. Turpentine rubbed on the top of the head and around the horns, and warm fomentations, with hot wet cloths wrapped around the horns, are useful. Carbonate of ammonia, with warm stimulating drinks, should be given, and nourishing food, and the patient should be kept warm.

3

MONTHS

3 MONTHS

Three Months

THREE MONTHS

THREE MONTHS

THREE MONTHS

yet remain, during which any person, anywhere, who desires one or more of the 106 most excellent articles catalogued on page 157 can easily get them **without money**. This is no idle or deceptive statement. Nearly 14,000 persons have tried it with success and great satisfaction. Letters are constantly coming from all parts of the country for these articles, saying, “I found it much easier to raise a club than I anticipated. It really cost me but little time when I set about it in earnest.”..... One says:

“.....I took your papers, read them through so as to be posted, and then went to my neighbors, evenings, and talked plainly about the many useful things found in them, showed the pictures, and explained that half a cent for each week day would pay for the *Agriculturist*, or one cent a day for *HEARTH AND HOME*, and less than one and a half cent a day would give them and their families the entire reading of BOTH of these journals, and I found very few who, when they really looked into the matter, did not see how greatly it would benefit them, and they soon contrived a way to save the small amount required. For some who had not the money on hand I have advanced it. So here are your subscribers, some for one paper, some for the other, and some for both, as you find them marked on the list. These entitle me to Premium 40.”

A Clergyman writes:

“I needed the American Cyclopaedia for my library, and told my people so. On going around among them I found them quite ready to help me (and I know the paper will greatly benefit them), and it took only four days to get the enclosed club for the Cyclopaedia.”

Another Clergyman writes:

“Our Sunday-School wanted a Melodeon very much. Seeing your Premium List, I set children and teachers to work, and helped them, and we found no difficulty in speedily getting subscribers enough to secure it. Many outside of the church took the paper to help on the object, and I know they have killed two birds with one stone; for, besides helping the school, they will get many times their money's worth in reading the papers.”

A Merchant writes:

“I opened a list at my store for your papers, and we soon made up the enclosed club for the Premium Watch, which I intend to present to a faithful clerk.”

Another Merchant writes:

“They were discussing the case of a poor soldier's Widow at my store last week, and some one proposed a subscription to buy her a sewing machine. Another (one of your subscribers) proposed a premium club for your papers, and all agreed to help. The list was opened at my store, and on Saturday night we had the full list of names brought in. Please send Premium No. 38,” etc.

Many Boys and Girls, and especially many **Post-office Clerks**, and others, forward us Premium Clubs for various articles, with interesting letters, but we have no room for more.

The New \$10 Sewing Machine, offered last month, is awakening great attention, and hundreds are getting it.

Well, what the above persons have done, can be done just as well by thousands of others in all parts of the country. Human nature, human wants, and human capabilities are about the same everywhere. We invite **all** our subscribers to take a hand in the enterprise, and secure one or more of these Premium Articles this month. Full descriptions of the Premiums will be sent whenever desired, and specimen copies of both papers when needed.

See Page 157.**The Proposed Cattle Show at**

Boston.—The trustees of the Massachusetts Society for promoting Agriculture propose to hold in Boston, in September next, a four-days exhibition of thorough-bred stock and dairy produce, with prizes amounting to \$14,000. From the circular received they evidently mean what they say. Their intention is clearly to work for the “promotion of agriculture,” for of the very large amount appropriated for premiums only \$925 in all is applied to other horses than stallions and mares for strictly agricultural purposes. When we remember that it is to these trustees, or their predecessors, that we owe the introduction of the Percheron horse, and very largely that of Jersey cattle as well, we are justified in expecting a really thorough and honest effort to organize the most extensive and the most useful exhibition of live-stock ever held in this country. The trustees ask the cordial co-operation of all breeders in the United States and in Canada; and we are glad of an opportunity of saying, from our own knowledge of the men, that the personal character of the committee charged with the management of this exhibition is such as to insure thorough fairness in the awards, and the most impartial treatment of all exhibitors. It is a case in which, if ever, the best man will win. Circulars, giving full information, will be sent to any address, on application to Mr. Charles S. Sargent, Brookline, Mass.

Woolly Taste in Mutton.

—Rev. D. Mills, Hamonton, N. J., says this flavor called woolly is owing to the absorption of gases from the stomach and intestines, consequent on the cooling of the carcass. If the sheep is cleaned rapidly, it is prevented. But he further says, if the sheep is not killed at all, it would be better, for animal food is improper. He does not say what we should do with the old sheep, when they accumulate on our hands.

Peaches and Frost.

—“East Tennessee Farmer.” Fires in the orchards are not expected to keep off the frost by the heat they give out, but by means of the smoke, which prevents radiation, just as a cloud does. The fires should be made of material that will produce the heaviest smoke, and in such places as the direction of the wind may require. To both the other questions—Probably not.

Apple-Tree Borers.

—A correspondent in Pa. writes: “Dig the sod away from the tree, and put sulphate of iron or dust from anvils about it. This will save the tree every time.”—We give this as one of the singular remedies proposed for borers; such absurd notions could not prevail, if the habits of the borer were understood. Let our friend go through his orchard and repeat the multiplication table backwards. It will not be half the trouble and quite as efficacious as his remedy.

Egg-Plants.

—“Aunt Aggie,” Latrobe, Pa., raises egg plants in the following manner: “We raise the plants in a box in the house. Plant out in the garden in May, as soon as the ground is warm enough. If there be danger of frost, cover with boards, supported at the ends with bricks; let the air pass under the boards. As soon as the plants begin to grow, or get the least start, we wet the ground around them with liquid manure, keeping a vessel with it in the garden, by putting manure in the vessel and filling it with water. We water with it every evening until the plants are large. By this treatment we have raised as fine egg-plants here in Western Pennsylvania, as I ever saw in an Eastern market. The Long Purple is most productive, but the Improved New York Purple is decidedly the best.”

What Beets to Raise.

—J. P. Landen, Harrison Co., Ind., wishes to know what beets to raise for cattle. His soil is a shallow upland, in which no beet will do its best. It must be deepened and enriched as much as practicable. On such soil the best beet for common cultivation is the Long Red Mangel. The Orange Globe is very good but does not yield quite so largely; it grows mainly above ground, but there must be a good range for feeding roots, whatever sort is grown. Lane's Sugar Beet is better than any Mangel, but the seed is not yet in the general market.

Norway Oats.

—A correspondent in Minn. thinks he has a good joke on our friend Gregory, the eminent seedsman of Marblehead, Mass. “Speaking of Ramsdell's Norway Oats, Gregory, in his catalogue for 1871, p. 27, says: ‘These oats in some localities have yielded over one hundred varieties to the acre.’ This statement, so much nearer the truth than seedsmen usually get, entitles him to credit. Send James to the head; let it be recorded.” Having “recorded” this typographical error, we add that one of the best farmers in N. Y. State informs us that he prefers the Norway Oats to all others, provided the grain is ground before feeding.

Our Great Libel Suit.

**End of a Four-Year Litigation—
Patent Medicines, Quack Nos-
trums, Doctors, and our Hum-
bug Columns, in Court—Import-
ant Legal Opinion by Judge
Brady, of the Supreme Court—
Manufacturers and Venders of
Patent or Specific Medicines
responsible for the Positive and
Negative Results of their Use—
Interesting to all Physicians,
to Lawyers, to Newspapers, to
Dealers in Medicines, and to
Buyers and Users of Medicines.**

The *American Agriculturist* has for many years published exposures of various humbugs, and warned its readers against the operations of a great multitude of ingenious swindlers. While this has been of great benefit to the country, and saved millions of dollars from going into the pockets of sharpers, it has cost a world of work and investigation, and much legal expense. Libel suits have been frequently begun for intimidation, or to obtain notoriety. Our readers well know how little the intimidation has benefited the operators, and the silence we have maintained about the lawsuits has deprived them of the notoriety they thus sought. Though preparation for defense has been expensive, in no case has a cent been awarded against us for damages or costs, as we have always been ready to prove our charges, and, with a single exception, every suit has been dropped before final trial, and this, too, without a word of concession or taking back on our part. We have been ready to "face the music," every time.

The exception referred to is the libel suit begun against us by Dr. M. L. Byrn, in the spring of 1868, which has been in Court ever since, and has recently occupied a week and a half before Judge Brady, of the Supreme Court, and a jury—ending in a complete verdict in our favor. We depart from our usual course of silence, in this case, because the legal opinions brought out and the testimony introduced, are of very general interest. Though this suit has been a long one, and taking into account our own expenses for legal fees, analyses, investigations, interruption to business, loss of time, etc., it has cost us more than Two Thousand Dollars, we think the sum would have been well expended, had it only brought out the authoritative opinions of the court, and the testimony given by the highest medical authority. During some of the interlocutory proceedings Judge Brady gave an opinion, which will be hereafter quoted as authority, that in effect makes the manufacturers and venders of nearly all advertised medicines responsible in damages, not only for any direct ill effects produced by their use, but also for the indirect injury resulting from delay in the use of proper medicines by those who trust to the claims put forth for these nostrums.

There were many other interesting points brought out, of general interest. We regret not having space in this journal to give a full report. (We can not insert extra pages without increasing the weight beyond $\frac{1}{4}$ lb., and doubling the cost of postage for the entire paper.) We have decided, however, to use several pages in our weekly journal, *Hearth and Home*, and give a pretty full report of the more important features, rulings, and testimony.

This will be given in the number of *Hearth and Home* for April 20th (Vol. IV, No. 16), which will be ready by Friday, April 12. It can be had for a dime of any newsdealer. Those remote from newsmen can have a copy forwarded post-paid by sending 10 cents to this office, giving their post-office address plainly. We hope every reader will manage to see a copy of that number and read the account of the trial. *The information should be read by every person in the country.* It will be a favor to every Physician, Surgeon, and Druggist, to call their special attention to it.

Draining a Flat on High Land.—Mr. J. H. Cook, of Knox Co., Ill., says he has read the *American Agriculturist* till he has caught the draining fever. He wishes "to lay a drain on land that has a fall of about one foot in sixteen for half or two thirds the distance, and the rest of the way is quite flat and wet." "Will it do," he asks, "to lay the tiles according to the lay of the land, or must I dig down where the flat and sloping lands meet, so as to make a uniform grade from end to end of the drain?"—This is not at all necessary. The writer has drained just such a piece of land on his own farm. The only point to be observed is that the drain is cut deep enough through the brow of the hill to afford sufficient fall to drain the flat perfectly. As the flat is wet, there will be sufficient water in the drains to enable you to level by. If the water runs off freely in the drains before the tiles are laid, and the tiles are laid properly, you may be sure you are all right. A little practice in laying the tiles will teach you more than a long article. If you meet with any difficulty, write us, and we will reply immediately.

Measurement of Poland-China Hogs.—J. M. Tubbs, of Ohio, sends us the dimensions, but not the weight, of a pair of Poland-China or Magie hogs. Boar, nine months old, measures from snout to root of tail 5 feet 5 $\frac{1}{2}$ inches, and girth, just back of the shoulder, 4 feet 1 inch. Sow, one week older, 5 feet 1 inch in length, and girth 4 feet 4 inches.

Essex or Berkshire Pigs.—Lewis Owen writes: "I have the White Chester hogs. Wish to cross with Essex or Berkshire. Which would you prefer? Where can I get a genuine 4 or 6 months old pig, and at what price? I am willing to pay for what I get, but do not always get what I pay for, except in grass and clover seed, then I get more than I want—weed seed."—We must refer you to our advertising columns. Either the Essex or Berkshire, if pure, will refine the ordinary Chester Whites. You should read "Harris on the Pig," where this subject is fully and fairly discussed.

Roup or Cholera?—A correspondent in Onarga, Ill., says: "I am losing about two fowls per day out of a flock of sixty Light Brahmas. The discharges become yellow and watery, the chicken droops and soon dies, and just before or soon after death a large quantity of a yellow fluid is discharged from the beak. What is the matter?"—Ans. The description is not sufficiently full to enable us to determine whether the disease is roup or chicken cholera, but the latter is probable. Our object in mentioning the case is to show the importance of thoroughness and minuteness when ailments of live-stock are described by mail. Some symptoms are common to several disorders, and it will not do to base judgment upon a few facts only.

Berkshire and Essex Pigs.—"J. G. B., of Wisconsin, asks: "Do you regard the Essex a good breed to cross with Berkshire, Chester, and Poland-China sows for fattening, and are the Essex enough better than the Berkshire, to make them preferable for a farmer to raise?"—The most distinguishing characteristic of the Essex, when well-bred, is its remarkable docility of disposition. It is also highly refined. Some of the modern Berkshires approximate closely to it in the latter respect, and are in every way a very superior breed. But we think, as a general rule, the Berkshires are, as compared with the Essex, much more active and restless. If a farmer intends to keep a pure-bred race of pigs for raising pork, we think the Berkshire better than the Essex, as they are not so refined, and can stand rough treatment with less injury. But for crossing with common sows, or with Chesters, or China-Polands, we prefer the Essex. You will get a most marked and decided improvement at once. But recollect, that no breed will afford good satisfaction without good care. The better the breed, the better must be the treatment. For some farmers the worst breed is the best.

City Boys that Want to Learn Farming.—We are constantly in receipt of letters from boys who want to go on to a farm, to study agriculture and work at the same time. In England, farmers advertise to take boys and teach them farming, but expect from \$500 to \$1,000 a year with them. Occasionally, there are farmers in this country who do the same thing. But this is not what our American boys want. They very properly expect to work and pay their way. There is work enough for such boys on the farm, if they could only find the right kind of farmers. As a rule the better plan for such boys is to go to some of their relatives or friends who are farmers, rather than to strangers. They will learn more and fare better with some plain farmer, who feels an interest in them, than with that class of farmers whose names frequently appear in the papers.

A New Story Coming.

EDWARD EGGLESTON'S story of the "Hoosier School-Master," first published in *Hearth and Home*, has achieved an extraordinary success. The leading journals and magazines have devoted whole columns to reviewing it, and are almost unanimously enthusiastic in their praises of it, several of them pronouncing it one of the most remarkable American stories ever written. The Pittsburgh Christian Advocate says:

"Since Unele Tom's Cabin, we have seen no tale that so entirely absorbed us.... It is American throughout, and full of quaint humor and most delightful character sketches. The author (Dr. Eggleston) is a superior limner of character, and makes all his sketches with a flowing pen." The *New York Independent*, in a column review, says: "This story shows the author to be a keen observer, a hearty lover of the things that are true and honest, and a skillful story-teller.... Indeed, we have rarely read any story whose truthfulness as a picture of life was more apparent." The *N. Y. Tribune* devotes over a column to "Hoosier School-Master," awarding it a very high meed of praise; and the same may be said of the press generally, including those of all shades of opinion.

Though copied more widely by the press of this country than any previous story, the demand for it has been so great that it has been issued in book form, and is having an immense sale. It is also republished in London, and is meeting with the most commendatory notices from the English press.

We take pleasure in announcing that Mr. EGGLESTON has nearly completed another Story, which will excite even more interest than the "Hoosier School-Master." It is entitled

"The End of the World,"

A LOVE STORY,

and will be illustrative of *Life in the West* thirty years ago. "THE END OF THE WORLD" will begin to appear in *Hearth and Home* the middle of April.

This Story will alone be worth far more than the subscription price of the paper, but *Hearth and Home* contains besides a large amount of excellent reading matter, articles, editorial and contributed, on the greatest variety of topics, and from the best pens of the country. One of the most eminent of American critics pronounces it, as it is now, "Number I among the weeklies." It has an admirable Household Department, and a Children's Department, profusely illustrated, of surpassing interest both to the little people and to children of a larger growth. The News Department gives a full and capital digest of current events throughout the world, enabling busy men and women to keep up with the times—to be intelligent, without having to wade through a large amount of printed matter.

Very great improvements have been recently made in *Hearth and Home*, and it is now doubtless the best *Illustrated Home Journal* in the world. Though each weekly number contains 20 pages as large as the largest illustrated weeklies, and averaging over \$500 worth of fine Engravings per week, *Hearth and Home* is supplied to subscribers for only \$3 a year, or with the *American Agriculturist* for \$4 a year. Subscriptions may begin with any week.

Special.—*Hearth and Home* will be sent from the beginning of Mr. Eggleston's new story to the end of 1872 (over eight months) for \$2, but only to those who order it during April.

Mr. Bresee and S. J. Parker, M.D.—In the Western Pomologist and Gardener for February, Mr. S. J. Parker, M.D., has an article on the Peerless Potato, in which he says: "One of the most remarkable seed-balls of the potato plant was that which has given the Early Rose and the Peerless. I have requested Mr. Bresee, who lives in New England, to give a full account of how that potato ball was had by him. He has been so *unkind* as to never reply to my request. This silence of any originator casts in my own mind a great doubt over all the early history of a plant, as on more than one occasion I have found a letter or two unanswered on a grape or plant, covered facts that would not bear investigation. We can only say that our letters to Mr. Bresee are unanswered, which is very ungentlemanly in him, and we therefore can not rouch for anything connected with him."—Here is a case in which a private gentleman, not choosing to answer the demands of an unknown correspondent, is most unwarrantably arraigned in a public print, and an attempt is made (which no editor should have published) to throw doubts upon his reputation for honesty. We will not stop to inquire who this S. J. Parker, M.D., is, who thus takes upon him the office of censor, the quotation we have given from his published article being sufficient testimony as to what he is. Having the pleasure of knowing Mr. Bresee, we are able to say that he is one of the most modest gentlemen we have ever met. Though he has in the introduction of his potatoes placed the whole country under great obligations, he shrinks from all notoriety, and has a strong dislike to appearing in print. These are qualities that S. J. Parker, M.D., may not be able to appreciate, but there are others who can. As to the case in point, the "remarkable seed-ball" that produced both the Early Rose and the Peerless potato, Mr. Bresee has never withheld anything concerning it. There is very little to tell, but what little there is should be known to any one who attempts to write upon the potato. We will relieve the anxious Parker's mind to the extent of stating "how that potato ball was had by him" (Mr. Bresee). It was had honestly.

Potato Sports—Late Roses.—The question of the permanence of sports in potatoes is just now of interest. One of our friends thinks us to blame for publishing Mr. Campbell's *opinion* that sports are not likely to be permanent. Where a point is a mere matter of opinion, the fair way would seem to be to hear different opinions, and then judge which carries the most weight with it. We published Mr. Campbell's view of the matter without indorsing it—indeed, we quite dissent from it; still, that is no reason why Mr. C. should not have a hearing, or that we are right. We base our opinion that the varieties of potatoes obtained as sports will be permanent upon the fact that sports in other plants are generally so. Sports, producing leaves, flowers, and fruit, differing in a marked degree from the typical plant, are well known to horticulturists. Indeed, some of our most valued varieties were obtained in this way. The sporting branch, severed from its parent and propagated, may continue the peculiarity indefinitely. The potato is an underground branch, and subject to the same laws of growth as a branch growing above ground; and there seems to us to be no reason for believing that a well-marked sport of a tuber may not be as permanent as any other sport. So far from a sport indicating a degeneracy of the original stock, we should sooner expect great vigor of growth to result in departures from the typical form than we should look for it in a degenerate stock.

Sulphur to Kill Vermin in Nests.

Now that the season has arrived for raising chickens, it is well to know that the powdered sulphur of the druggists is the cheapest, handiest, and best thing yet discovered for killing parasites that infest sitting hens, and find their way to fresh pastures upon the chickens as soon as the latter are hatched. Many times people complain that when their chickens are a week or two old, they droop and die from the attacks of large lice, which literally cover the heads of the birds. If examination is made earlier, it will be found that the insects have taken up their abode upon the chickens' heads while still in the nest, for they forsake the hen, preferring the chickens. It is bad business to have to catch the chickens and hen for treatment after they have left the nest, when the remedy can be applied with so little trouble before hatching begins. A week or so after the hen has been given her clutch of eggs, sprinkle them and the whole of the nest and the straw for a little distance around it, with the sulphur when the hen is off. The night following attend to the hen herself, by lantern-light. Disturb her just enough to make her bristle her feathers, and then dust sulphur well down to their roots. Go over her whole body thoroughly, excepting the parts in contact with the nest, and lift each wing and scatter a pinch, and attend to head, neck, and tail. It will not injure the hen in the

least, nor the chickens when they are hatched. We repeat the operation at an interval of a week (though perhaps one application is sufficient), and have never found the slightest trace of vermin upon hen or chicks afterwards. Use two small handfuls. It costs little either in money or trouble. Tobacco, snuff, grease, carbolic powder, etc., are not to be compared with sulphur for this particular purpose, and the best dust-bath privileges for the hen are not to be relied upon alone.

Bee Notes for April.—By M. Quinby.

This month is a good time to take the first lessons in bee culture. One of the most important things is to learn how to avoid stings. The greatest difficulty in bee culture is the fear of being stung. Among the higher animals it is believed that qualities resulting from education and training are transmitted to the offspring. When we see how much the Italians are in advance of the black bees, we may suppose bees are also capable of improvement. The Italians will allow us to take liberties with them, that the black bees would highly resent. They have become accustomed to our presence, and seem to consider it a matter of course. The black bees have never been approached, except for pillage and murder, and they seem to fully comprehend it. They are either indignant at the first familiarity, or yield with the most abject submission. To educate or train the bees, and ourselves as well, in order to feel absolutely certain that we shall not be troubled with stings, we want a good veil. To readily detect anything wrong in the interior of the hive, we must become familiar with its condition when everything is right. To do this we must frequently have access to the interior for observation, and do not want the annoyance of fear, to make us forget any important item. The bees are quieted when irritable, by means of some mild smoke. That made by hard wood just rotten enough to hold together, when sawed or split into pieces two inches square, is good enough. The veil, that important appendage, consists of about a yard of tarlatan or millinet, sewed together like a bag, open at both ends; one end is gathered on a string, that will allow it to slip down over the crown of the hat, which should be of a light color. In the part that comes before the face, insert a piece of fine wire cloth, 6 x 8 inches square. Opposite the mouth put in a pipe, ten or twelve inches long, to be held by the teeth. When ready to operate, light one end of the rotten stick, adjust the veil on the hat, and go to the hive—it is movable comb, of course—and take off the top. There are different methods of removing this, according to the skill of the operator. One will get hold of the top that, if in cold weather, is firmly held by bee-glue, and with a sudden jerk bring it off with a snap, that will be but little less than thunder to the bees. These will sometimes come out to reconnoiter, before the smoke can be brought to bear. Another will use something to raise the top more moderately; a chisel or heavy jack-knife will be slipped under, to pry it loose, often without a jar, and sometimes without alarming a bee. Before removing the top, after it is loose, and raised just a little, he will listen to the notes within. If a sharp, angry buzzing is heard, instead of letting the top fall to crush and pinch a few, and make all still more angry, he simply holds it still, and holds the smoking wood as near as possible, and with the pipe held by the teeth directs smoke exactly among the bees. Almost immediately they will go down among the combs. By raising the top gradually, any bees not yet down, may be seen and smoke directed to them specially, until all retreat. In the same easy way the frames are loosened, and some are separated until one can be lifted out, without crushing a single bee. Any angry demonstrations should be quieted at once with smoke. When a comb is once lifted out, and bees exposed to open day, the greatest danger is over. The bees seem to be so astonished at the change, that they forget about resenting any insult. The gloves that are often called for, are not often needed. The anger of the bees ought not to be allowed to rise until they will sting a person's hands. Shall I say that any wanting gloves for their hands, are not yet thoroughly skilled in bee management? Some of us have not stopped here, but have looked a little further, and found as we became acquainted, that under some conditions we can do much more. In a warm day, when the bees are bringing stores, the propolis that holds everything fast, is softened and comes off without a jar or snap, the bees engaged in work do not notice what is being done. We can often open the hive, look over the combs, and empty out the honey if we wish to, and return them to the hive, without having an angry bee. This is because we do it at the right time and in the right way. There is the value of two millions of dollars in this State wasted annually—20,000,000 lbs. of honey. The people must be educated to save it. This dreadful fear of stings must be overcome. When we come to find it can be avoided—and if a sting does happen, it would not be so very bad, had we not been taught to

so regard it—we shall have advanced some. Let us begin now to educate our bees, and ourselves as well.

The Report of the Department of Agriculture.

Dear Mr. Editor—I think it is hardly quite fair in you to complain of the U. S. Commissioner of Agriculture for "doing over" some bits of his old reports. Take for instance those parallel extracts, which you have paraded in your February number. Don't you see that Judge Watts wished to improve a good opportunity of qualifying some statements which he had rather rashly advanced in 1864, and to render others more perspicuous?

For instance, in the report for 1864 Judge Watts states as the result of his experience and that of his fellow-trustees, that a farmer's son, educated in college, is thereby "actually driven by his education into the necessity of resorting to some neighboring town, in pursuance of a learned profession, where he forms habits of idleness and intemperance," etc. Now, upon reflection it has evidently occurred to the Commissioner's mind, that a goodly proportion of the ministers, lawyers, and physicians of the country, and even the most eminent of them, have been farmers' sons, and that a fair share of them have led reputable and moral lives. So he now qualifies his original sweeping assertion, with a "perhaps" to be led into the haunts of intemperance and vice; and you must allow that the qualification was called for.

In the Report of 1871, I see that he still gives a deplorable account of the prospects of a farmer's son who has had the ill fortune to receive a college education; insisting, that "he is driven to the nearest country town, to prepare himself to make a poor figure in professional life." But here perhaps the judge is speaking only for himself. The experience of others might be different. And I really do not see why a farmer's son is more likely to fall into intemperance and vice, or to make a poor figure in professional life, than any one else's son, nor why a professional career should not be as freely open to him as to others.

Moreover, in the original report the contemplated "result is, that the father not only loses the expenses of his education, but the son himself." Certainly not a perspicuous sentence, as it leaves us in doubt whether it is the son who also loses the expenses of his education, or whether it is the father who loses his son. Now, you perceive that this riddle is solved in the amended edition of 1871. It is the father, who "realizes the loss of the son himself."

In his next Report, perhaps, the Commissioner will try his hand upon a short paragraph of his, which has lately attracted attention: "If science and learning be useful at all, where can it tell with so potent an influence as where it deals with the operations of a farm, which embrace a great number of mechanical and chemical forces, and involve the necessity for searching after philosophical truth?"

If "it" refers to "science and learning," all is so far more intelligible than grammatical: but the "operations," "which embrace mechanical and chemical forces and involve the necessity for searching after philosophical truth," involve an all-embracing obscurity of statement, which needs some elucidation, in order to be quite clear to the simple apprehension of your humble correspondent.

A FARMER'S SON.

Ogden Farm Papers.—No. 27.

I suppose that suspicion is a necessary consequence of publicity, and, while I trust I shall not seem discourteous, I beg to say, in my own behalf, that I really have not the time—even if I had the inclination—to write personal letters in vindication of my truthfulness. My statements must rest on the simple fact of their being made. If they are disbelieved by some of my readers, I am sorry for it, but not so sorry as to induce me to take steps to verify them. If any of the readers of these papers desire practical information that can be given in few words, I shall always try to find a moment to give it, but even this is a severe tax on a busy man's time, and I certainly shall not add the further labor of insisting that I tell the truth in what I write. Those who doubt whether I sell my butter for 75c. per lb., or whether Mr. Sargent sells his for \$1.15, must apply elsewhere for the proof. I have made the statement, and there I rest my

case. I am led to make this personal explanation to save the doubting Thomases the trouble of writing letters which it costs me valuable time to read.

I have lately revived my old lecturing experience, in an afternoon talk to a farmers' meeting at Ogdensburg, N. Y., and I was surprised to note the change that has come over such meetings during the seventeen years that have passed since lecturing to farmers was my business. Then, in no matter what part of the country, an average farmer, no matter how intelligent and liberal in other things, came to such a meeting with very much the air with which a dog puts his nose to a hornet's nest, doubting, but curious; afraid of what he shall find; and very conscious as to the impression he makes on those who are watching him. Every statement was received with suspicion, and if, by good fortune, the new idea—that science has something to do with agriculture—began to dawn upon him, it was received with the greatest slowness and distrust. If he were of the other sort—an enthusiastic believer of new things—he came to the meeting almost by stealth, and evidently dreaded the gibes and jeers of the neighbors to whom he should return. Even so short a time ago as that of which I write, there were but few agricultural papers, and they were struggling for a feeble subsistence. It was rare to find in any country neighborhood two men who took a purely agricultural paper. The *Agriculturist* has hundreds of subscribers now to one that it had then, and it was already an old and well-known paper. I was never treated with rudeness or incivility, but I was generally looked upon with undisguised pity—the sort of pity that is not far removed from contempt. But for the handful of enthusiasts who were ready to believe all I had to say, and more, the position would have been almost unbearable. No one who has not had such experience, would realize the change that has now taken place. During all these years the press has been doing its constant work, and I believe that in the better farming communities it would now be as rare to find an intelligent farmer who does not take or read a paper that is wholly or partly agricultural, as it then was to find one who did. It is not easy to describe the change that the spirit of the recent meeting indicated. It is precisely the change that has come over the better class of farmers in their conversations with each other. Without becoming less conservative they have lost their "old fogysm," and have begun to realize that the truly conservative course is that which allows no opportunity for valuable improvement to escape. Men who have seen the mowing machine drive to the wall the old slow-going, back-breaking scythe, with its gang of hungry mowers and their jug of sun-warmed grog, and who have witnessed within a few years a greater revolution in the work of the harvest than has been effected within the same time in any other branch of human industry, have become eager for still further advances in their art. As a consequence, we had a meeting that it was a real satisfaction to attend. In the course of a two-hours talk, matters were intelligently discussed, which in the old times would hardly have found place in the minds of those present. The subject of underdraining engaged more attention than would have been thought possible, and the treatment of manure and other branches of farm economy attracted an earnest consideration, that showed how real an advance had been made. Indeed, we may congratulate

ourselves that the wedge is fairly entered; that the minds of farmers are awakened to the importance of an improvement in their practices, and that the chief remaining obstacle to the rapid improvement of American agriculture lies less with the indifference of farmers than with the extravagance, the ill-considered advice, and the want of judgment of those whose business it is to spread a knowledge of agricultural improvement. This throws a weighty responsibility upon agricultural writers, who should have a constant watch over the soundness of their teachings and the avoidance of false premises. A better audience could not be asked than that which is addressed by the agricultural press, and if its instruction is well considered and wisely given, the greatest good will flow from its influence, while unsound advice and the encouragement of mistaken practices will seriously weaken its effect.

In my northern journey (in February), I have had occasion to see several herds of Ayrshire cattle, notably those of Mr. Morgan, of Ogdensburg, and of Mr. Irving, of Montreal, from whom Mr. Morgan obtained his foundation stock. The more I see and hear of them, the better I like them. They are evidently no competitors of the Jerseys for the butter dairy, either in quality, or, as compared with the amount of food consumed, in quantity. But for all other purely agricultural uses they are evidently better. Their milk seems richer in caseine, and during the flush of their milking their flow is much larger. They are docile, intelligent, and motherly, and when they cease milking they take on fat very readily. In short, for all purposes, except butter-making, I believe they are the best farmer's cows. It filled me with envy to see these herds so bountifully bedded in clean straw, and to think of my own, in a country where the little straw that is grown is held at enormous prices for the bedding of carriage-horses, obliged to content themselves with beach sand, which, so far as comfort goes, is a poor substitute, good as it undoubtedly is as a manure for our heavy land.

Mr. Irving, buried in the snow of a Canadian winter, is no less impressive as a good farmer than when his ground was open for fall work. His large stock is comfortably housed and cared for, and the accumulation of manure which was being hauled to the fields, ready for spring work, showed that he unlocks his success with a very large key. In some respects I thought that his stock showed a tendency to run too much to "big things." I am not prepared to say, though I suspect it, that his enormous Clydesdale horses are less economical for work than our animals of more medium size; but he had an amount of pork on four legs that I should much prefer, if it were my own case, to put upon eight. It has a bountiful look to see the large Yorkshires rolling up fat to the tune of 700 lbs. dressed weight, but three natty Essex shoats, weighing 230 lbs. apiece, would be more to my fancy. However, it would probably be modest in me to confine my criticisms to men who have less to show than Irving has for their work and their wits.

A farmer in Asliby, Mass., writes that he got a tin pan large enough to hold one milking from ten cows, but got less butter from it than he did from the same amount of milk in smaller pans. He asks whether he should have set the pan in water, the temperature of the air being 63° to 65°. Certainly he should have done so. The great secret of successful dairying, or one of the

great secrets, is to withdraw the animal heat from the milk as soon as possible. A *pan*, such as is described, seems to me much less suitable for the purpose than a deep and narrow can, set to its neck in the water. The latter is more conveniently skimmed and more easily handled, cools more rapidly, and exposes a larger proportion of the milk to the influence of the water and less to that of the air; this is better, as the temperature of the water is uniform. To answer further questions of the same correspondent: We let our milk stand 24 hours (all the time in the water); and we prefer to keep it lower than 62°. I fancy that 50° would be better, if so cold a spring could be had, and Mr. Swartz in Sweden uses ice-water, at about 40°. The colder the water, the larger the diameter of the can may be. If the water stands at 60°, then a diameter of 8 inches is large enough. The point is to have the mass of milk cooled as soon as practicable. If it were first passed through a cooler, then the can might be of any size that would not expose too much surface to the air.

We hear a great deal about the "animal heat" of milk, and we do not always stop to think that animal heat is exactly the same as any other heat. It is produced by the combustion of a different fuel in a different sort of stove, but as heat it is the same as though it came from an anthracite fire. Fresh, cooled milk, raised again to blood-heat, by being set over a fire, would be as badly off as though it still retained its "animal" heat.

An Egg Farm.

BY H. H. STODDARD.—*Concluding Article.*

Two buildings remain to be described. Fig. 1 represents a hospital, that is, a building that can be used as such in an emergency. It is 14 feet wide, 60 feet long, and 8 feet high at the peak. There is a passage 2½ feet wide, running its whole length the north side, which communicates with the twelve rooms into which the building is divided by wire partitions. The glazed roof is upon the south side. There is an outside door (not shown in the figure) in the north wall, opposite the chimney, for convenience in attending the fire. The building is warmed by coal, a fire-chamber of brick, and a boiler and hot-water pipes being used. It is injurious to animals to breathe the fumes that will escape when it is attempted to warm a room by passing a smoke-pipe through it, leading from a coal-fire, unless the chimney is quite high, causing a strong draft, which is one reason for preferring hot water, and another is that the risk of overheating is not so great (for water can not be heated above a certain temperature), and a third reason is that less fuel is needed with hot water than without. The original cost of hot-water fixtures is double, it is true, but they are kept in repair with hardly the expense of a cent, and cause a saving of full half the fuel. The ventilator at the top of the building has immovable blinds at its sides; and horizontal doors at its bottom, opening upwards, and closing by their own weight, moved by means of cords and pulleys, regulate the egress of air. At the north side of the building are a number of small windows, covered with ordinary adjustable blinds, for the admission of fresh air, and in summer the doors at both ends of the structure may be opened, as in the illustration, and the windows in the roof should be partly curtained. This building is used for early chickens and numerous other purposes, it not being expected to have much occasion to take care of sick fowls, for the

true plan is to prevent disease by inducing constant exercise by scratching, by allowing sun, air, good food, and breeding from vigorous stock.

The office and "watch-house" (fig. 2) contains a room below for a business desk, and above are sleeping apartments. Lights should be kept burning all night, to show thieves that vigilance is maintained. Dogs, small and great (in-doors and out), are valuable aids (accounting for the kennels in the figure), but in the day time they should be yarded in a strong inclosure made on purpose, or chained where they can not frighten the fowls. The eggs designed for hatching are kept in a closet on the first floor, so situated with respect to the fire (maintained day and night in a small base-burner coal stove

during cold weather), as to be kept at a constant and even temperature of about 50 degrees.

[NOTE.—In the January article, p. 12, the types made us say 10° instead of 20° as the difference between the inside and outside temperature of our fowl-houses.—In the description of the house for sitters in our fifth article it should have been mentioned that about one third of the south roof is glazed, the windows being partially darkened as warm weather approaches.—In the eighth article, fig. 1 should be denominated "Nests for Sitters," not "House for Sitters."]

A tract of land, 100 × 100 rods = 62½ acres, will contain ten rows of houses for the laying stock, arranged on the quincunx plan, ten in a row, as stated in the initial article. These one hundred buildings will each contain 50 birds, or 5,000 in all. In addition there must be 500 of the sitting stock, and 500 at the breeding and experimental yards, or a total of 6,000. The 5,000 layers comprise 3,000 yearlings, and the rest are two-year-olds. To replenish the laying stock, there must be raised 7,500 chickens yearly (for three out of five are cocks and inferior pullets to be rejected). To replenish the sitters and also the breeders—in the latter class much "weeding out" being necessary—2,500 chickens more must be raised. That is, about 10,000 chickens must be reared annually.

Now, when fowls are kept under the ordinary system pursued by the family living in a village—by which we mean that there is a fowl-house and yard to accommodate a flock, and then, if the number is to be increased, another yard is made, and so on—one man can take care of 600 fowls without the aid of a team. He can take off all the produce in the cars, and distribute to his city customers from a basket carried upon his arm; can spade up the ground in the yards, keep the fowls out of mischief by setting them at work scratching, clean the houses regularly, prepare the food, build a fire, and cook for his charge every day, giving a variety, meat, vegetables, pounded shells, etc., and keep his stock young by raising enough chickens, so as to have on hand 400 pullets every autumn, after killing the supernumerary cocks and inferior pullets. But one man can not take care of more than this, and do it well, under the ordinary domestic or small-scale plan. If he attempt to manage

1,000 or 1,500, market their produce, raise the needful number of chickens, etc., he will slight the work, and so sure as it is slighted, there will be loss. He can keep 600 adult fowls, and make \$600, and no more. If he is not skillful, vigilant, patient, and persevering, he will not make that. We mean reckoning ordinary market

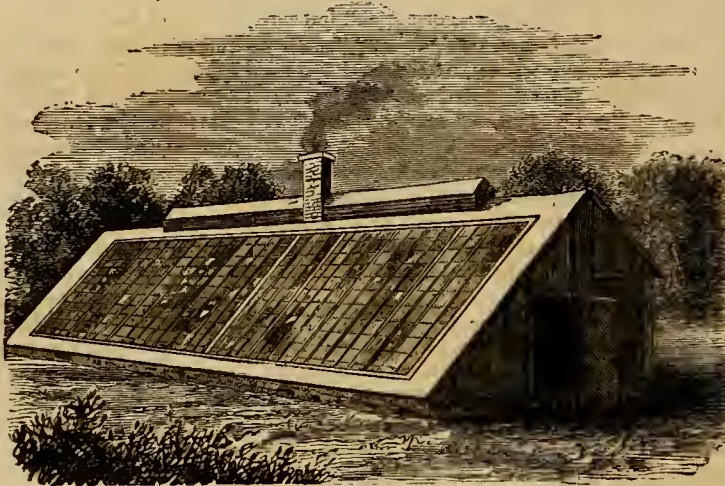


Fig. 1.—HOSPITAL FOR EGG FARM.

rates for produce (not selling live fowls, or eggs for hatching, at high rates, and supposing that he raises some early chickens, but only as many as may be while distributing his labor evenly throughout the year, and allowing the value of the manure to exactly offset the interest upon the land and buildings, and the repairs and depreciation in value of the latter.

We have kept accurate accounts for five years, and though we have in one year cleared \$2 per head on an average, and sometimes on single flocks as high as \$2.75 per head, yet it is unsafe to count on more than \$1 per head profit upon each adult fowl, all losses and expenses considered. Now let it be remembered that the skill and incessant care and industry necessary to clear \$600 in the case supposed above would, employed at some other business, earn \$800 or \$900, for a bungler can not keep fowls as a business, and we see why it is that during the past fifteen years so many persons who have tried to enlarge their poultry business on the ordinary "family fowl-house and yard" plan have failed and quit in disgust. What is needed is the reduction of the amount of labor. This must be accomplished by employing a team in every operation where it can be done, and by using movable buildings. The movable houses and no yards (necessitating the system of indirect feeding) are the central features relied upon in our "egg-farming" to crowd down labor to the minimum. All the other features are subordinate.

Five hands (with two horses) can attend to the whole establishment of 6,000 adult fowls, and the excess of produce over feed will be \$5,000 for the laying stock of 5,000 birds. Nothing is said about any income from the breeders and sitters, they are supposed to be as much a necessary evil as anything; or about income from crops or manure, that being an offset, and a fair offset, as our experience and laborious accounts show, against the interest on land and buildings. The help can come of it be of the cheaper sort—boys of fifteen, if intelligent and steady. One hand worth \$800 at the top of the scale (there's no use in reckoning a princely salary at any rural occupation), the "right-hand man" at \$700, No. 3 at \$600, and two apprentices at \$350 each, and there is \$2,800 for labor, to which \$400 must be added

for the maintenance of team, including wear and tear of vehicles and harness, and sundries. As our eggs are only partly hatched, we can't count all the chickens, but our readers have a right to figures enough to get a fair understanding of our enterprise.

There are only three systems of fowl-keeping possible. There are many modifications of these, it is true, but to one genus or another of the three following they may all be referred.

One is the highly artificial or bird-cage plan of Mr. Geyelin as detailed in his "Poultry-Keeping in a Commercial Point of View," a book which is, after all, one of the most valuable repositories of information for fowl-keepers ever written. But the cage plan fails, because there is not enough exercise for the birds, and altogether too much for the attendant.

Another is the ordinary plan of the villager or the fancier, given in poultry books and agricultural papers in endless variations of one tune, and that tune a "house and yard adjoining." A good plan for the family who make no account of the labor involved, and who have odd bits to spare from their table, or for those expecting to sell blooded fowls or early chickens at high prices (minor branches in which a few can and do make fortunes), and a good plan too for getting a start in operations on a large scale, but a money-losing plan if it is attempted to supply city markets with table fowls and eggs at ordinary market rates.

The remaining one is that pursued by nature before fowls were domesticated, and the one under which they have been mainly kept since, during a period antedating history and continuing to the present; by giving them their freedom in the daytime and a shelter by night. Nature gave a thicket for a roost; the farmer, from the barbarian down, gave a shed—that is about all the difference. Spite of neglect, the farmer's poultry at large is more free from disease than that kept yarded under average management. As the wild fowls need no attendant at all, so by arrangements as near like theirs as possible the least labor is demanded. Fend off storms and wind and the summer sun by the simplest shelter that can be made, dodge the labor of house-cleaning by plowing and moving buildings, and make the mutual antagonisms of neighboring flocks take the

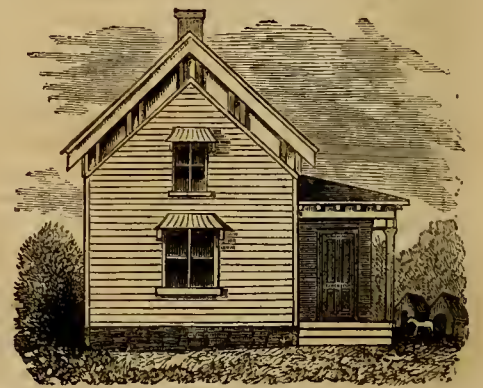


Fig. 2.—OFFICE AND WATCH-HOUSE.

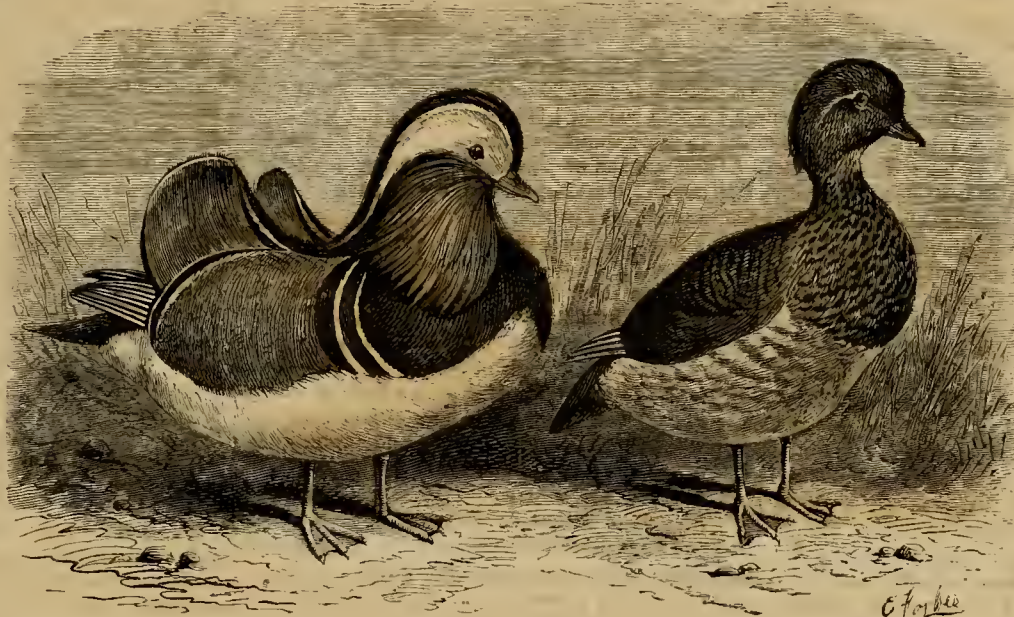
place of yard fences just as among wild jungle fowls, and the maximum of thrift and the minimum of labor and expense will be secured.

Our ambition has been and is to demonstrate, not how to raise blooded fowls nor mainly early chickens, capons, or any other article with a view to high prices, but to change one staple, grain, into another, eggs, by the most economical method possible. The industrial problems which concern the masses are the most important.

The Mandarin Duck.

Almost any one upon seeing the Mandarin Duck, or rather the Drake, would guess that it was a native of China. There is an oddity about many of the animal and vegetable productions of that country, not less striking than that presented by its people. Our artist was afforded a rare opportunity of sketching these birds from life, by the Hon. Caleb Lyon, formerly Governor of Montana. Mr. L. has at Rossmere, his residence on Staten Island, N. Y., a pond in which he has many rare and interesting aquatic birds, but none more beautiful than the Mandarin Ducks. These birds are known in China as Li-chi-ki, and highly prized by the wealthy Chinese, who are quite unwilling that they should be allowed to leave the country. An Englishman wrote some years ago to a correspondent to send him a pair of these birds. The reply came that it would be easier to send a pair of Mandarins than it would a pair of Mandarin Ducks. The first pair that was imported into the United States cost, in England, \$375. The drake is quaint in appearance and gorgeous in plumage, while the duck is modest in her dress and makes but little show. One of the striking features of the Drake is its wing-fans, which stand erect and look much like the wings of a butterfly; these are of a chestnut color, edged with the deepest green. The crest is varied green and purple upon the top of the head, the long crest-feathers being chestnut and green. From the eye to the beak is a warm fawn color, and a stripe of cream-color extends from the eye to the back of the neck. The sides of the neck are bright russet, and the front and breast a rich, shining purple. Upon the shoulders are two bands of black and two of white, alternating. The lower part of the bird is white. The bill is crimson and the legs are pink. The plumage of the female is a mottled brown. The drake wears his fine clothing only a portion of the year. In May he lays aside his crest and wing-fans and takes on the brown color of the female, and remains in this inconspicuous clothing until August.

The birds are able to perch, and are very fond of sitting upon branches overhanging the water. Though very attentive to his mate and a model husband, the drake has the reputation of being very quarrelsome, and will tyrannize over much larger and more peaceable birds.



MANDARIN DUCKS.

Silver-spangled Polish Fowls.

There are a number of varieties of Polish fowls, all of which possess the characteristic crests, or top-knots, and U-shaped combs, suggesting a deer's antlers, and prominent nostrils. The principal breeds are the black, with white crests, and two others, named from their respective markings of gold or silver spangles upon a black ground color. The relationship of all these to each other is indicated in the fact, that by culling from the last two mentioned, birds with but faint markings of yellow bay (gold)

Polish fowls possess some economic merits; they are plump, small-boned, and moderate eaters, lay freely when their constitution has not been excessively weakened by repeated in-breeding (as is too often the case with a breed that is represented by only comparatively few stocks), and they are quite as hardy as any other fine-bred fowls, the Asiatic races excepted, so long as they are kept out of the rain. The reason why they can not endure wet is, that the crest absorbs so much water, and the bones of the skull are so thin, and spread apart on account of the development of a fleshy knob, serving as the base of the crest, that the head is exposed to cold. Their strong points are however not so much utility as good looks and an attractive disposition. They are about the

most graceful in outline and carriage and showy in plumage of any fowls we have, and they are naturally as tame as the Leghorns are wild.

Walks and Talks on the Farm.—No. 100.

I do not know of anything that has pleased me more than the numerous letters that have come to me from farmers, fruit-growers, and nurserymen in all parts of the country asking for more information in regard to my experiment with white mustard. Let no one call farmers "clod-hopping old fogies;" for while as a class we are somewhat suspicious of new things, and are inclined to hold on to that which is good, it is very evident that there are thousands and tens of thousands of active, intelligent, enterprising men engaged in agricultural pursuits who are studying everything pertaining to their business. I have sometimes felt annoyed at the disposition manifested by some of my neighbors to criticise unjustly



SILVER-SPANGLED POLAND FOWLS.

and white (silver), and breeding in this way for some generations, a black breed with white crests may be formed, from which, by reversing the process, and seizing upon pied variations or "sports" in the progeny of black fowls, beautiful gold or silver strains may be again produced.

my own farming operations. I have thought they were rather pleased than otherwise when any of my experiments failed. But, on the whole, I believe I have judged them unjustly. At any rate, they seem interested and pleased whenever I get a large crop or raise a good animal. At first, they

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seemed to think that I intended to "show them how to farm," and they very properly resented such an assumption. Of course I had no such idea. I have devoted my life to the study and practice of agriculture. I have a great love for country life. Few things give me greater pleasure than to see good crops and clean land. I like to see good animals. I like to be among them. I do not find farm life dull, stupid, monotonous, and lonely. And yet there is not one farmer in a thousand that is more isolated. Perhaps it is this very isolation that makes me feel such an interest in the letters I receive from my brother farmers in all parts of the land. Their letters are always friendly and sensible, and are well calculated to give one a high estimate of the enterprise, good feeling, and intelligence of American agriculturists.

In regard to white mustard, it should be understood that I have tried it only one season, and of course I am only warranted in saying that it "promises well." I shall sow it more largely this year, and at different times. Last year I sowed three acres, July 26th. The land was an oat stubble that was seeded down the previous year and failed to catch. We plowed the land three times. But, to please an English friend, the land was neither harrowed, cultivated, nor rolled, until after the last plowing. I think this was a mistake in our climate. If the soil had been thoroughly harrowed and rolled after the first plowing, and then cultivated occasionally to kill the weeds, and then plowed just before sowing the seed, I think the fallow would have been in better condition, and the soil finer and moister. As it was, the clay spots were quite rough, and the seed failed to germinate. No plaster or other manure was sown on the mustard. This was also a mistake. Still, on nine tenths of the land, where the soil was fine and moist, the seed germinated, and the crop grew finely, and gave us a large quantity of succulent food. The crop will do to turn on to in from six to eight weeks after sowing. By the first of October the plants on the average were about two feet high; and on the moist, alluvial land it grew from four to five feet high. I estimated the yield on this rich alluvial land at 20 tons per acre, and on the whole field at 12 tons per acre.

The composition of white mustard in the green state, according to Dr. Voelcker, is as follows:

Composition of white mustard in its fresh state, as compared with clover, Swede turnip leaves, rape, cabbage, and red clover.

	Mustard.	Swede turnip leaves.	Rape or cole-seed.	Cabbage.	Red clover.	Green-corn fodder.
Nitrogenous compounds, albumen, etc.	2.87	2.08	3.13	1.50	3.30	0.90
Non-nitrogenous matter, gum, sugar, etc.,	4.40	1.61	4.65	6.70	8.40	9.30
Non-nitrogenous matter, vegetable fiber, etc.,	4.39	5.64	3.56	2.90	4.50	5.00
Ash or mineral matter,	2.04	2.29	1.61	1.20	1.50	1.10
Water,	86.30	83.37	87.05	89.00	83.00	84.30

It will be seen that mustard is rich in nitrogen and mineral matter. It is wonderful how a plant can take up and organize such a large amount of these important substances in so short a time. Prof. Johnson, in his masterly and invaluable work on "How Crops Grow," gives a figure of a seedling mustard plant, showing its root to be thickly covered with an innumerable number of minute hairs. "These root-hairs," he says, "consist always of tubular

elongations of the external root-cells, and through them the actual root-surface exposed to the soil becomes something almost incalculable."

A crop of winter wheat yielding 40 bushels per acre organizes in grain and straw 353 lbs. of nitrogenous matter per acre. And the plants are in the ground about ten months.

A crop of mustard, on land rich enough to produce 40 bushels of wheat per acre, would probably yield 20 tons of green food; and this would contain 1,148 lbs. of nitrogenous matter. In other words, an acre of mustard plants can take up and organize from the soil in about two months more than three times as much nitrogen as an acre of wheat.

Now, we know that on the greater number of our wheat-growing soils the element of manure that we most need to give us a large crop of wheat is available nitrogen. All our approved processes in agriculture tend to this one object of furnishing available nitrogen for wheat and other grain crops. If I have a field of wheat sown on the dry upland portions of my farm without manure, that will yield 15 bushels per acre, I should expect that 100 lbs. of available nitrogen per acre would cause it to produce from 35 to 40 bushels per acre.

This is precisely what we want. We are now getting about 15 bushels of wheat per acre, and other crops in proportion. We want 35 bushels; and if our climate will give us 40, 45, and 50 bushels, we want such crops. We have to pay so much for labor, implements, etc., that we must have large crops if we are to obtain a fair compensation for our capital, care, and labor.

That we can make our land rich enough to produce from 30 to 50 bushels of wheat per acre, according to the season, is unquestionable. We must make our land dry and clean, and at the same time accumulate in the soil from 150 to 200 lbs. of available nitrogen per acre, and other plant-food in proportion. And we can not get this nitrogen from natural sources without at the same time getting a full sufficiency of all other elements of plant-food.

All our so-called renovating crops are rich in nitrogen. It will be seen from the above table that clover, rape, and mustard all contain more than three times as much nitrogen as Indian corn. All the cereals, such as wheat, barley, oats, rye, Indian corn, and the grasses proper, such as timothy, red-top, etc., are comparatively poor in nitrogen. The cereals contain but a comparatively small proportion of nitrogen, and their roots are not provided with the power or means of taking it up in large quantity from weak solutions of nitrogen in the soil. Clover, peas, beans, vetches, turnips, rape, mustard, and other renovating plants contain, as compared with other ingredients, a large proportion of nitrogen, and are provided with the means of taking it up from a soil relatively poor in nitrogen. I do not know that I make my meaning clear. But I am very anxious that the matter should be understood. I do not believe that clover and other renovating plants take nitrogen from the atmosphere through their leaves. There is no proof of it. The facts all point the other way. And yet these plants do get a large amount of nitrogen from a soil that will only produce 15 bushels of wheat per acre; and from a soil that when supplied with 75 to 100 lbs. more nitrogen per acre will produce, without any other additional plant-food, 35 to 50 bushels of wheat per acre.

Whatever the scientific explanation of these facts may be, one thing is clear: If we want to raise large crops of wheat, barley, oats, rye, Indian corn, and timothy hay, we must devote

a considerable area of our farms to the growth of clover and other renovating crops. And, contrary to the teaching of some writers, for whom I have great respect, I say emphatically, these renovating crops must be retained on the farm. We must not sell a pound of them. Sell the cereals; sell timothy hay if need be; sell straw if you must; sell anything rather than clover and other renovating crops. The object of raising these crops is to take up the nitrogen that is diffused through the soil, and concentrate it sufficiently for wheat and other cereals to get hold of it. It is as poor economy to grow wheat and other cereals without rotating them with clover and other renovating crops, as it would be to gather a light crop of hay with nothing but a fork. We first concentrate the hay into windrows with a steel-toothed rake, and then use the fork for putting the hay on to the wagon. Clover is the steel-toothed rake. It does not create the hay, nor fetch it from another field; it merely gathers it into heaps for the fork—or, in other words, for the wheat. The nitrogen is in the ground, but the wheat can not get hold of a good forkful until the clover has gathered it into heaps.

But to return to the mustard. It is a far inferior crop to clover. Red clover is and always will be the grand renovating crop of American agriculture in all sections and soils where it flourishes as well as it does in Western New York, Pennsylvania, Michigan, Ohio, Indiana, Wisconsin, Minnesota, and other wheat-growing sections. But this is no reason why we should not grow other renovating crops when convenient. There is no danger of our growing too much of them, no danger of getting our farms too rich to grow mangolds and Indian corn.

Until we get hurdles or a good portable fence, and adopt the system of folding sheep on land, mustard will not be extensively grown here except for plowing under as manure. For the latter purpose its composition shows it excellent. A medium crop of say 10 tons per acre would contain about 90 lbs. of nitrogen gathered from the soil, and when plowed under it would be more or less available for the next crop. On sandy soils, that are not specially enriched by summer-fallowing, mustard could undoubtedly be used to advantage as a green manure for winter wheat or for Indian corn the next spring. For wheat, I would plow the land in the spring, cultivate, harrow, and roll, until it was as fine as possible, and sow four or five quarts of mustard broadcast per acre the middle of June. By the last of August it would be ready to plow under.

I fear my readers will be tired of the subject, and I will conclude with a few extracts from an English writer in Morton's Cyclopaedia: "Mustard is considered obnoxious to the wire-worms. . . . We know that an abundant crop of mustard if plowed into the ground when just coming into blossom is an excellent preparation for barley or oats. The mustard is best plowed in during the month of October or November. The land gets the winter's frost, and may be worked into excellent tilth in the spring, merely by the use of the scarifier."

The experience of the heavy-land farmers of Suffolk is in favor of sowing about a peck of white mustard on the long fallows in August or early in September, and plowing in the herbage about six or eight weeks from the time of sowing. The effect upon the barley crop is considered by practical farmers as equal to half a coat of farm-yard dung, obtained at a cost of

2s. 6d. for the seed, and the additional trouble of sowing and harrowing in the seed.

Mr. Kimball, of Buxhall, gives the following as his experience upon a clay loam: "The mustard being sown after peas, and plowed in for wheat, the difference in the crop was visible to the eye at a considerable distance from the field. At harvest, the wheat where the mustard had been plowed in was six inches higher, and ripened ten days sooner than wheat on adjoining lands where no mustard had been sown, but otherwise treated in a similar manner."

This is a remarkable case. Winter wheat in England is sown much later than with us, and there was time after a crop of peas had been harvested to grow a crop of mustard to turn under for the wheat. In Maryland, Virginia, and further South, the same thing might be done in this country. In fact, I am inclined to think mustard and rape will prove more generally useful in the Southern States than with us. The Charleston phosphates when treated with sulphuric acid would make a manure well adapted for these crops, and when the mustard and rape are consumed on the land or plowed under, a considerable amount of available plant-food would be provided for cotton, corn, wheat, or whatever crop it is thought best to raise. Superphosphate has seldom any direct effect on wheat, but will greatly stimulate the growth of mustard, rape, and turnips, and the manure left from the consumption of these crops is precisely what wheat and other cereals need.

One of my neighbors has just sold twenty acres of his farm to a German for over \$200 per acre. The land is on a cross-road, seven miles from the center of the city, and has been so much neglected that it will cost at least fifty dollars an acre and two years' time to get it clean and in good condition. The farmer who sold this land does not make three per cent on \$100 an acre from his farm, and if the German can make it pay at \$250 per acre it will be another illustration of what industry, thrift, and enterprise can accomplish. It seems to me, however, that such a man would have done better to have gone West. He certainly would if he intends to raise ordinary farm crops. But these thrifty Germans seem to have a knack of paying for land, and bid fair to become the principal land-owners in the older portions of the country. Their great forte is saving. I have a German neighbor, a well-to-do farmer, who always has money in the bank. But if he owes you anything, he never thinks of giving you a check—not he. He knows a trick worth two of that. He sells something from the farm. After he has done his day's work, in the evening, he picks up a few apples, or potatoes, or squashes, or a few heads of cabbage, a basket of eggs, and a little butter or lard, or perhaps a bushel or two of nice hand-picked beans. These he puts in a spring-wagon, and the next morning before I am up he is half-way to the city, and by the time I am through breakfast he is back with the money. It is far easier to give a check on the bank. But that man would run in debt for a hundred-acre farm at \$150 an acre and pay for it. I couldn't. I can raise as good crops as he does—perhaps better—and the receipts from my farm per acre are larger than his, but he and his family do all their own work, and when one of his bright, active boys wants to get married, there is money in the bank to make the first payment on a small farm and give him a start in life.

He is withal a capital farmer, keeps his land clean, and works it thoroughly. He is a good

neighbor—not inclined to borrow, and willing to lend; and if he *does* borrow anything for a few hours he returns it promptly. He is as cheerful as the day, minds his own business, and is always beforehand with his work. He keeps a good span of rather gay young horses that he bred himself, and which are always well groomed and full of spirit; a nice carriage that is always clean, and a good harness that is in perfect repair and well oiled and blackened, and he drives to church every Sunday in a style that many a German baron might envy. That man commenced life with nothing but good health, good habits, a pair of good hands, and a good head, with indomitable energy and perseverance. There are thousands of such cases, and in view of them it seems unnecessary to ask the question, "Does farming pay?"

The only question that such farmers as you and I, who depend a good deal on hired help, need ask is, "Can we compete with such men as this German and his family?" If we can get our men to do as much work for the same pay as he gets, less the interest on his capital, we can. If not, no. Our profit or loss depends a good deal on the kind of men we hire, and on our ability to plan work and to see that it is executed without loss of time and labor. Whether we had better take hold with our own hands depends a good deal on the character of the work and on the number of men employed. A farmer who knows how to do all kinds of farm-work, and knows what a good day's work is, if he has a large farm to manage will seldom find it profitable to take a team and plow all day or follow the harrows. He will do better to attend to the little details of the work and keep an eye on everything that is going on. He should be able to detect the weak spot and lend a hand there. For instance, if you are drawing manure with three teams, there will be one wagon at the heap with a man besides the driver to fill, another wagon unloading in the field, and one going back and forth. The rapidity of the whole work will be determined at one point, just as the strength of a whole chain is determined by the weakest link. If you see that the empty wagon gets to the heap before the other is loaded, take hold and help to fill a load, and put a little spirit in the men. If, on the other hand, the load is ready before the wagon returns, the weak spot is in the field. Take hold and help to pull off a load or two. In drawing hay or grain with three wagons, I have doubled the speed of the whole force by getting on to the wagon and helping to unload. We unloaded in half the time, and yet the next wagon-load was there in time for us. Sometimes it will be the pitcher that can not keep up—then help him. You will accomplish far more by looking out for the weak spots than by doing steady work. If a man has a hard row to hoe, none of the others will help him. They will keep up with him, or if they should by any mischance go ahead, will wait for him at the end. That row is the weak spot. Take hold and help. And so with every operation on the farm. We must study how to economize labor.

Railroad men are studying how to lessen the "dead-weight" on their roads—in other words, how they can reduce the weight of their cars in proportion to the load they have to carry. American plows, harness, wagons, and implements, and machines generally, are the lightest in the world. So much we have accomplished. Still there is too much "dead-weight" on the farm. Look at that man weighing 160 pounds carrying a pail of water. He has to move 160 pounds

of dead weight to carry 25 pounds of water, or, seeing that he has to go empty one way, he moves 320 pounds of dead-weight to carry 25 pounds. A sensible man who has much water to carry would either put in a pipe and save the labor of carrying, or he would get pails holding forty pounds and carry a pail in each hand.

I have never before been able to carry my stock through the winter on so little hay, and never had them do better. The season was so favorable for curing corn-stalks that they are eaten greedily by the cows and sheep. My corn was on low land, and knowing that if we should have a heavy rain it would be a difficult matter to harvest it, I cut it early and drew it in as soon as it was thoroughly cured, without stopping to husk it. We tied it in bundles and stowed it away in the barn and sheds. We did not get through husking the whole of it until the middle of February. The ears were damp, but soon dried out in the corn-house, and the stalks were never so good.

It may be, as some say, that corn-stalks are not injured by being left out in the field until wanted in the winter. But I do not believe it. They may be better than stalks left out during weeks of rainy weather in the fall, and then drawn in just before winter, and put in the barn with mud and snow attached to them. But if cut early and drawn in when well cured, with not a drop of external moisture on them, it is clear to my mind that they must be sweeter and more nutritious than when exposed to our heavy fall rains. Hereafter I mean to raise more corn, and take pains in curing and preserving the stalks.

I have sold some timothy hay this winter, and propose to do so whenever the price suits. But some of my neighbors, who do not hesitate to sell their own hay, think I ought not to do so, because I "write for the papers"! It ought to satisfy them to know that I bring back 30 cwt. of bran for every ton of hay I sell. My rule is to sell nothing but wheat, barley, beans, potatoes, clover-seed, apples, wool, mutton, beef, pork, and butter. Everything else is consumed on the farm—corn, peas, oats, mustard, rape, mangolds, clover, straw, stalks, etc. Let us make a rough estimate of how much is sold and how much retained on a hundred-acre farm, leaving out the potatoes, beans, and live-stock. We have say:

Sold.	
15 acres wheat, @ 40 bus. per acre.....	18 tons.
5 " " barley, @ 50 " " " " " "	6 " "
15 " " clover seed, @ 4 bus. per acre.....	1½ ton.
Total sold..... 25½ tons.	
Retained on the farm.	
15 acres corn, @ 80 bus. per acre.....	33½ tons.
Corn stalks from do.....	40 " "
5 acres barley straw.....	8 " "
10 " " oats and peas equal, 80 bus. oats.....	12½ " "
Straw from do.....	20 " "
15 acres wheat-straw.....	25 " "
15 " " clover hay.....	25 " "
Clover seed straw.....	10 " "
15 acres pasture and meadow equal 40 tons hay	40 " "
5 acres mustard, equal 10 tons hay.....	10 " "
5 " " rape.....	10 " "
5 " " mangolds, 25 tons per acre, equal to 3 tons dry.....	15 " "
Leaves from do.....	3 " "
Total retained on the farm..... 252¼ tons.	

It would take a good many years to exhaust any ordinary soil by such a course of cropping. Except perhaps the sandy knolls, I think there is not an acre on my farm that would be exhausted in ten thousand years, and as some portions of the low alluvial soil will grow crops without manure, there will be an opportunity to give the poor, sandy knolls more than their share of plant-food. In this way, notwithstanding the

fact that we sell produce and bring nothing back, I believe the whole farm will gradually increase in productiveness. The plant-food annually rendered available from the decomposition and disintegration of the inert organic and mineral matter in the soil will be more than equal to that exported from the farm. If the soil becomes deficient in anything, it is likely that it will be in phosphates, and a little superphosphate or bone-dust might at any rate be profitably used on the rape, mustard, and turnips.

The point in good farming is to develop from the latent stores in the soil and to accumulate enough available plant-food for the production of the largest possible yield of those crops which we sell. In other words, we want enough available plant-food in the soil to grow 40 bushels of wheat and 50 bushels of barley. I think the farmer who raises 10 tons for every ton he sells

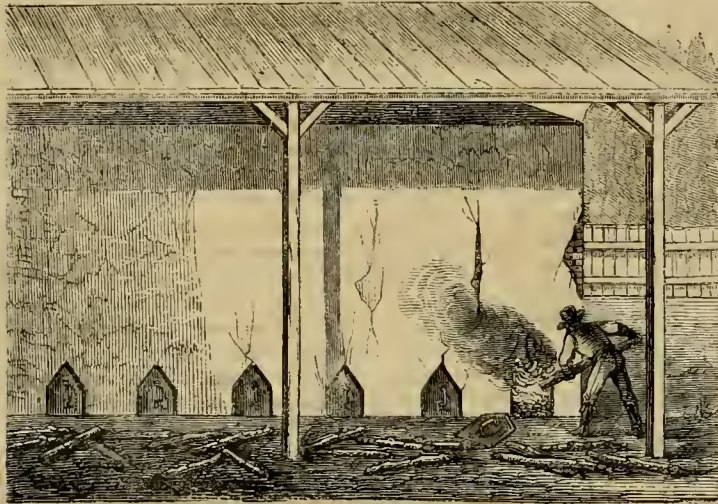


Fig. 1.—BURNING A KILN OF BRICKS.

will soon reach this point, and when once reached it is easy to maintain this degree of fertility.

Brick-Making.

When bricks have been molded, they are carried by boys from the molding-table in the molds to the drying-floor. This is a floor of clay and sand, beaten hard with rammers, and made perfectly level and smooth. It is dusted with fine sand, and the bricks, in their soft state, are turned carefully out of the mold on to it (see fig. 2), and allowed to remain for a few days

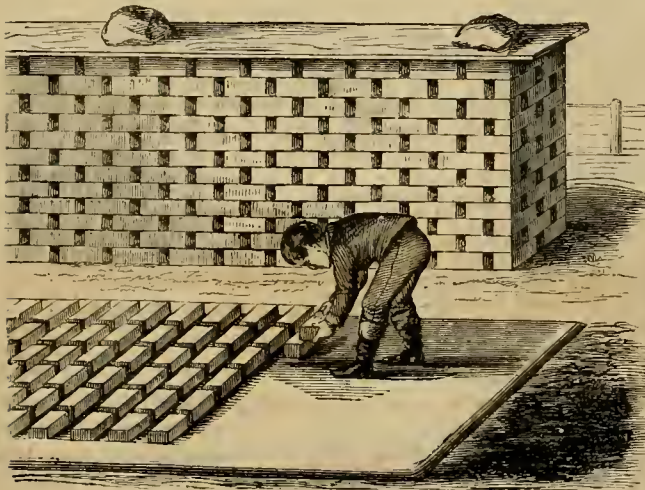


Fig. 2.—STACKING BRICKS IN THE DRYING YARD.

until they are partially dry and can be handled safely. As soon as this happens, they are removed and piled up into long narrow heaps, similar to low walls (see fig. 2), open spaces be-

ing left between the bricks to admit the air and permit rapid drying. When nearly dry, those

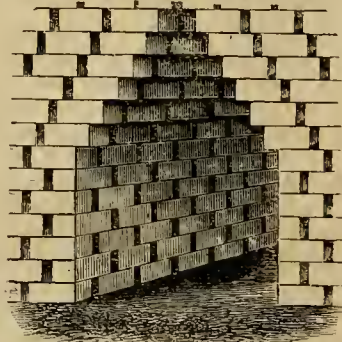


Fig. 3.—ARCHED FLUE OF BRICKS.

intended for pressed brick are selected and carried to the press, which is a machine operated generally by one man; sometimes, in large manufactories, the press is worked by steam. The brick is received on a table, the bottom of which is of polished metal; polished metal sides also surround it. The table is carried beneath a die, also of polished metal. The table is brought upwards by means of a cam or eccentric, or a combined lever acting with great force, and the inclosed brick pressed until the remaining water is squeezed from the partially dried clay, and it is compressed so much that even the sides take a smooth face from the polished surfaces brought into contact with it, and the edges are rendered sharp and perfectly square. These bricks when burned are known as Philadelphia fronts, or pressed brick, and bear a much higher price on account of their improved appearance. The common bricks undergo no process further than drying until they are ready for burning. They are then piled into a kiln, which is a large square heap, holding generally a hundred thousand or even three or four times that quantity, piled up loosely, so that the heat from the flues can pass through the interstices and burn the bricks evenly and thoroughly. It is important that the flues be built up properly. Fig. 3 shows the method of building the flues, which pass through the kiln from side to side, and in which the fires are placed. When the kiln is finished, it is plastered over with clay to retain the heat, and is generally covered over with a

rough shed, as a protection against the weather. This mode of building is adapted for burning with wood, forty cords of which, generally dry yellow pine or hemlock, is needed for a kiln of a

hundred thousand. If coal is used, the flues are mere draft-holes, sufficient to hold only enough wood to kindle the kiln, and fine slack coal is spread in layers between the bricks, and sometimes mixed in the clay of which the bricks are made. Three weeks' constant burning is needed to complete the bricks, when they are ready for use. Bricks may be made for from four to six dollars per thousand, if in a quantity not less than a hundred thousand, and we have known of farmers who, intending to build, have made a kiln of brick, and sold the residue after supplying their own wants for as much as the cost of the whole. Of course, the services of an experienced brick-maker will have to be secured.

A Wooden Bridge.

Country bridges are always useful, but rarely ornamental. Designed for strength, appearance is sacrificed to utility. It is often the case, however, that the ornamental may be combined with the useful with advantage. In bridges of a certain character this is essentially the case. A simple timber laid across a stream as a foundation for a bridge, although the simplest and plainest form of structure, is far from being the strongest. The truss of lighter materials is stronger than a single heavy beam, while the arch may be made lighter yet than the truss, with a still further gain in strength. We give a cut of a wooden arch, to be made of boards fastened together with nails and bolts, which may be built readily of materials always at hand, and needs no piece longer than twelve feet, even for an arch of forty feet span or over. Nor is it necessary even to lay a center on which to build this arch. It may be built up on the ground, a foundation of stakes or posts being made on a level place on which to commence; or it may be built on a barn-floor, if of sufficient size, and when complete moved to its place and set up.



BRIDGE WITH WOODEN ARCHES.

The mode of proceeding is as follows: We will suppose a bridge of twenty-four feet span is needed. The first necessity is to make the foundations for the arches. These should be built firmly of stone or timber, and well backed, and steps made to receive the feet of the arches. If the bridge is to be twelve feet wide, three arches will be necessary. These are made of spruce boards, preferable as being elastic and tough, or, wanting them, pine or hemlock will answer, and twelve inches wide and one inch thick. The form of the arch is laid out on say the barn-floor, and a scantling tacked down for the base, with studs reaching from it to the line of the arch. A board is then tacked to the end of the scantling, and bent round on to the ends of the studs, and tacked to them to hold it into its place; another board is put to the end of this, until the other end of the scantling is reached, and the figure of the arch is complete. Other boards are then placed over the first ones, and wrought-nails driven through and clinched. The joints must in all cases be broken. Boards are nailed on in succession until a sufficient thickness is secured—twelve to twenty inches, as may be needed for a bridge

to bear less or greater weight. Nails must be plentifully used, to make the arch solid, and when complete a few screw-bolts should be put

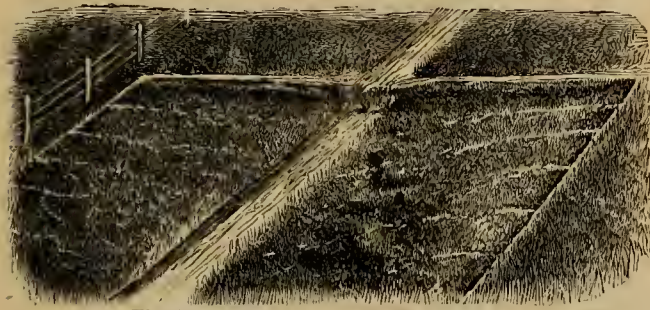


Fig. 1.—IRRIGATING BY MEANS OF A DAM.

through, and the nuts, protected with broad washers, screwed up tight. There will then be a solid rigid arch of timber, twelve inches wide, and as thick as may be. Three or four of these are made and set up on the foundation, and stayed with cross-stays. Cross-beams are placed on them, on which the roadway is built. These arched beams are much stronger than straight ones, and are of much more desirable form. For an ornamental bridge they are especially desirable, as they are susceptible of any amount of improvement in shape that may be wished. Where long, heavy timbers are difficult to procure, these arches will be found much cheaper, as the materials are at hand everywhere. A coating of hot tar to each board before the next one is laid on, and then an extra coating over all when finished, will help to preserve the timber for many years.

Irrigating Meadows.

The practice of irrigating or watering meadows is one of great antiquity. In Europe meadows are to be seen, in which the banks and ditches are several centuries old. For all



Fig. 2.—IRRIGATING A HILL-SIDE.

this long space of time these fields have been yielding large crops of grass, and those we have seen certainly show no symptoms of wearing out, but are as prolific as ever. Streams of considerable size and smaller brooks and creeks are embanked or dammed, and in time of freshet the water is permitted to flow over the fields, carrying much suspended matter, which is soon deposited and forms a rich dressing of fertilizing material; or the water flowed back by the dams is led in channels around the meadow, and permitted to run through sluices over the grass. By this last method there is no necessity for waiting for a natural rise of the stream, and a watering can be given whenever desired. It is necessary that the field should be flat and somewhat level, with a small and gradual rise from the banks of the stream. The space overflowed, of course, depends on the amount of this rise, as it is not practicable, without much expense, to dam the water to a greater height than two or three feet. Where the ground has

but a very small declivity, or is very nearly level, the water may be backed up and made to overflow as much as possible, and a succession of dams and low embankments will then form a succession of meadows down the stream. Where the ground has a greater slope, the stream is dammed and the water led around the meadow (as in fig. 1), and discharged in sluices as it may be desired. The ditches are made only deep enough to carry the water, and the earth thrown out forms the bank of the canal. A suc-

cession of these may be made down the stream, more or less in number, as the slope of the ground may necessitate. Another and very common mode in use in many parts of this country where springs are plentiful, is shown in fig. 2, and is well adapted to flowing hillsides as well as level ground, in the absence of a stream. A spring is led by a small ditch, often a mere furrow made by the plow, in as level a direction as possible across the field, when it is turned at a sharp angle (the angle should be protected by a large stone, to prevent wearing of the bank by the current), and brought back at a lower level until it is exhausted, or the field has been passed over. This little stream is tapped here and there, and the water distributed where it is wanted and as it is needed, until the whole field is watered as far as possible. Before cutting

for hay, the water is diverted from the channels, so that the ground may become quite dry. After the hay is removed, the water is let on again, and a good watering given. To keep a meadow in good order, it is necessary to keep all stock from it (pasturing is completely destructive), and to occasionally scatter seed, where the desired grasses run out, with

a little guano, wood-ashes, plaster, or other fertilizer, and avoid watering during the winter.

By judicious and careful treatment a meadow may be kept in timothy, red-top, and clover for several years, without re-seeding. It is necessary, in this case, to give waterings of short duration, and only at times when the rains are not sufficiently copious. Meadows of red-top and common meadow-grasses may have the water running during the season. A good water-meadow, well cared for, may be depended on for two cuttings equal to three or four tons of hay per acre in the season. Such crops will pay good interest on the

outlay, which in favorable localities is but trifling, if properly directed.

Stanchions and Stalls.

We have many inquiries from readers desirous of building stables about inside arrangements of stalls and fastenings for the stock. Fig. 1 shows an arrangement for an ordinary cow-stable in which stanchions are used. The stalls may be made single or double, or the stable may be without stalls. But this latter mode permits the cows too much lateral movement, and tends to keep the stable dirty. Stalls are to be recommended if only for the purpose of cleanliness, to keep the cows in their proper position so that the droppings may fall into the gutter behind them. A double stall should be six feet wide, a single one four feet, and eight

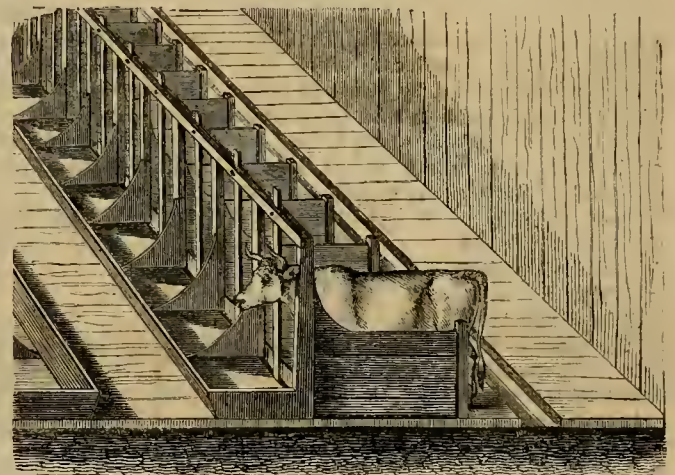


Fig. 1.—CATTLE STANCHIONS.

feet is about the proper depth. These proportions will vary according to the kind of stock kept, whether large or small.

The stanchions are a row of posts, every alternate one being movable, so that the top may be thrown sideways (as shown by the dotted lines in fig. 3), and when the animal's head is placed between them, brought back and secured by a pin (a). The cow has no motion allowed to her head, except up and down, and she is kept from moving backwards or forwards. Thus stanchions, while they are or may be uncomfortable for the cow, are very convenient for her owner, and the stable and the animals themselves may be kept very neat and clean.

Fig. 2 shows another stall in which the cows are fastened by chain ties, which slide up and down on the rod (b). The feed-trough is ap-

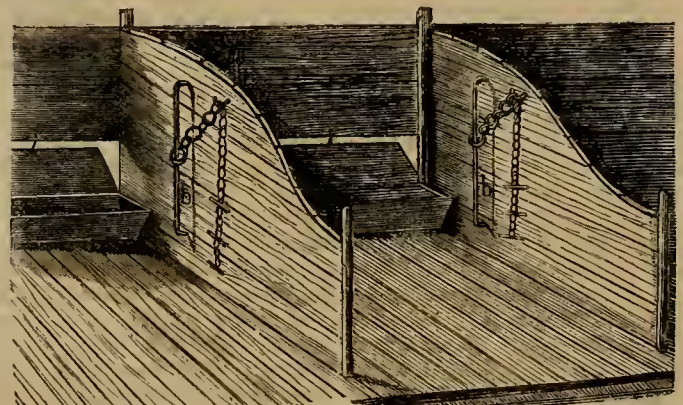


Fig. 2.—STALLS FOR CATTLE.

proached by the feeder from a passage-way at the front of the stall, where a drop-door is fixed

through which the feed is placed in the trough. A cord prevents the door from opening further than needed, and a button holds it in place when closed. The advantages of this stall and

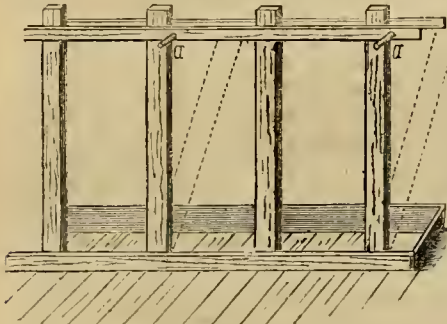


Fig. 3.—STANCHIONS.

mode of fastening are, greater freedom of movement for the cattle, and a closer and warmer arrangement of the stable. The disadvantage is want of cleanliness, which may be to some extent obviated by plenty of litter.

It is often very desirable to have a close stall, in which an animal such as a bull, feeding ox, or an incoming cow or sick animal may be loosely confined without any fastening. Such a one is shown in fig. 4. It is built similarly

to fig. 2, but has no chains, or if it should have they are not needed. A door is made to close the passage-way, and shut each stall from the next, if more than one is needed. This door may be swung round so as to close in the stall, and then the passage-way is open. Thus the passage-way may be made a part of each stall if desired. The trough, shown by dotted lines, may be divided for water and feed. A fattening animal may remain in its stall for weeks or months. Kept thus solitary, it will feed better and fatten more readily than if at liberty. Plentiful littering will keep the animal clean, and as the manure (and straw) accumulates it is trodden down hard and tight, and does not need removal until the animal is taken away.

The New Rules of the American Jersey Cattle Club.

After an experience of three years with the pedigrees of Jersey cattle, the above-named association (which now numbers about one hundred, including most of the best and most reliable breeders in the country) has adopted the following rules for the admission of pedigrees into its Herd Register:

1. All animals imported from the Island of Jersey up to the date of the last meeting of the Club (January 24th, 1871) are eligible for entry.
2. No animals imported after the above date will be admitted to entry, unless they—or their sires and dams—are already entered in the Herd Book of the Royal Jersey Agricultural Society.
3. No animals imported after the above date by a dealer will under any circumstances be admitted to entry, whether reputed to be pedigree stock or not.
4. Until the end of the year 1872, the execu-

tive committee of the association will be allowed to admit to entry animals bred in this country whose record may not be entirely complete, but which there is every reason to believe pure. Such entries must be accompanied by an explanatory note, stating the precise character of the defect in the record.

The third rule bears rather harshly on those who have made a lucrative business of the importation of Jerseys, but after a full discussion it was decided that the true interests of the breed could not be faithfully guarded, except by such an absolute prohibition. The Executive Committee is to decide whether any individual importer is to be considered a dealer. The second rule is of the utmost importance. The rage for Jerseys has been so great, that there was danger that, under the high prices now ruling, all the poor cheap animals on the Island of Jersey would find their way to this country. The entry in the Herd-Book of the Island Society is based on an examination of each animal, and if we take only such as have passed this examination, we shall stand a fair chance of improving our stock instead of debasing it.

Applications for entry should be made to Col. Geo. E. Waring, Jr., of Ogden Farm, Newport, R. I., who is the Secretary of the Club, and the editor of its Herd-Register, who will furnish the

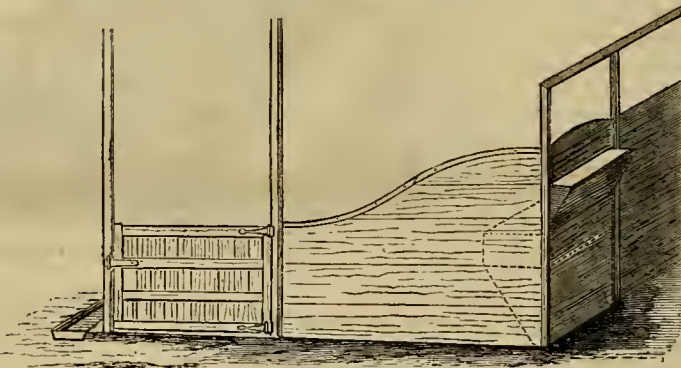


Fig. 4.—BOX-STALL.

requisite information to those who wish to have pedigrees recorded.

Our Forests—Great Waste.

The annual products drawn by the people of the United States from the forests exceed one thousand millions of dollars, or eight times the interest on the national debt! This being the case, the preservation of our forests, and the right method of cutting timber, is a matter of general interest and of national importance.

To save our timber, we must not only cut no more than is necessary, but cut it in a proper and economical manner. We must stop the merciless waste and primitive method of chopping with axes, and use saws scientifically. The forests of Europe are protected by law, and the removal of their timber is carefully and economically performed.

Not to speak of the decrease of moisture and other climatic changes superinduced by removing trees, let us look at the matter in a lower aspect, and compute the profit and loss.

Probably not less than thirty millions of the people of America are warmed by wood fuel, consuming more than one hundred million cords per annum, as any one knowing the prodigal use in our newer timber districts, will certify. If mills, railroads, and steamboats consume one third as much, reckoning the cost at \$3 per cord, we have four hundred million dollars annually

for fuel alone. An equal consumption of timber for fencing, and a like amount for wooden buildings of all kinds, give the enormous aggregate of one thousand two hundred millions of dollars annually, produced by our forests for consumption.

When we consider the fencing and farm-buildings required by our more than four million farms, if reckoned at one hundred and fifty dollars, *annually*, to each farm, making six hundred millions of dollars, and when all the uses of wood are considered, few men who have traveled widely, and observed and estimated closely, will deny that more than one thousand million dollars in products is derived from our forests annually—five times the value of our largest cotton crop, ten times the production of our pig-iron, twelve times our production of gold and silver, and four times our wheat crop. Indeed, few single interests exceed in value the enormous production of our forests.

How to cut timber with saws scientifically may be treated of in another article, and I will only at this time point out some of the advantages over the wasteful and primitive ax. First, saw the trees down; they can be cut closer and with greater economy than by chopping, and by the use of wedges felled in any desired direction. They can be cut with less labor, if the operator knows how, and uses the most improved saw. If the tree be designed for fuel, the saving by sawing it the length desired on the ground in the forest is manifest. If for stove-wood, the blocks may be carted without splitting, and when thus sawed, trees that any chopper would leave to rot in the forest, become instantly available; for who does not know that a one-foot block may be split easier than one of four feet, besides saving the immense waste of a chip a foot in width? From one third to one quarter of the trees in many forests are what woodmen regard as "culls," and tough timber; this, added to the saving of the chips, makes fully one third of the forests available for fuel that might otherwise be wasted and remain an obstruction and incumbrance. Those who, like the writer, are conversant with this matter, will appreciate this statement, made from actual experience.

Saw-logs and dimension-timber, fencing, posts, etc., in the Northern States are now usually sawed, but in a recent trip through all the Southern States (except Texas) I noticed in mill and lumber-yards the splintered ends of saw-logs cut with axes; indeed, this is the general method of country mills there, but improved methods will soon prevail everywhere in all wood-cutting.

Now let us consider the time and labor saved by sawing, instead of chopping. To cut one hundred million cords of wood with the ax requires as many days' labor, and as many dollars; if the use of hand cross-cut saws be substituted, and only one half the labor be saved, the fifty millions now thrown away are gained, besides the immense waste of fuel, making in the two items an annual saving of an amount equal to the interest of the national debt. B.

Raising Hay for Market.

"A. J.," Smyrna, Tenn., writes us that he intends to try and raise hay for market, and wants information as to manures, implements, presses, best modes of storing the hay, etc., etc.

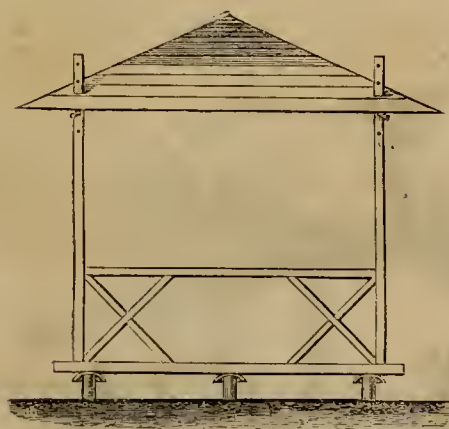
First, as to manures for the land. It is not absolutely necessary to keep stock to raise hay, as it has been abundantly demonstrated that commercial manures, with occasional dressings

of lime and swamp-muck, will make a substitute. To get a good stand, the ground should be well plowed as deeply as possible without injury, reduced to a fine tilth, and sown to whatever grass is most suitable, directly, without the intervention of a grain crop. Bone-dust, guano, and plaster, alternately every two or three years, may be used as fertilizers, at the rate of two hundred pounds of the former and one hundred pounds of the last per acre. Only one crop should be cut, and the aftermath should be encouraged to grow and allowed to fall down and rot. No pasturing should be permitted.

SECOND, as to implements. The mowing machine, hay-tedder, and horse-rake in the field, and the horse-fork at the sheds, are all that can be profitably used at present. Of the mowers, there are a great variety. We have a preference for the Buckeye, and we have cut ten acres per day with it without trouble or weariness. At the same time, there are other machines which others prize as much as we do this. The tedder is not adapted to clover hay, but for timothy, blue grass, or red-top is a labor-saver. The spring-tooth hay-rake is an absolute necessity in the hay-field, and as there are several very much alike in construction, there is not much choice between well-made ones by different makers. Hay-loaders are not yet brought to that perfection which makes them desirable, as there are many contingencies which interfere with their successful operation.

THIRD, as to pressing and baling. Hay-presses are made which, worked by two-horse power with two men, will bale ten tons per day. It is not at all difficult to construct one with which two men can bale four tons in a day, by means of a screw. With such a press, costing about twenty dollars, the writer at one time prepared 100 tons of hay for shipment. Our bales weighed about 200 pounds, were what is called loose pressed, and were tied with three bands of coarse hempen cord. There were no corner laths used, and consequently no tare was deducted when the bales were sold.

FOURTH, as to storage. It will be found more economical to erect cheap sheds or barracks than to stack the hay. The amount lost by stacking will in five years pay for a shed, which if built properly and taken care of, may last forty



BARRACK FOR HAY OR GRAIN.

years. We give a sketch of a hay barrack we have used, which answered equally well for hay, grain, or corn-stalks. Built of hemlock timber, and boards tongued and grooved for the roof, the cost is about forty to fifty dollars for one sixteen feet square and sixteen feet high, holding five tons of loose hay. It is much more economical to build them larger than this one. Twenty-four feet square and sixteen feet high

may be built for one third more, and will contain over twice as much. On a large scale, one long shed would be found more economical in cost, but the smaller ones may be scattered about, and thus be found more convenient. When these barracks are to be used for grain or stalks, they should have caps over the foundation posts, to render them rat-proof, as shown in the engraving. Very cheap hay-sheds may be made by setting four posts in the ground and covering with a roof of straw thatch, but they are not durable.

JERSEY COWS FOR BUTTER. — "Thirteen cows and heifers made in January 282 lbs. 12 oz. of butter—all sold at 75 cents per lb." So writes Mr. J. Milton Mackie, of Great Barrington, Mass., of his herd of pure Jerseys. Perhaps somebody's "natives," or somebody's "grades" can beat this; if so, we would be very glad to know it. \$16.30 per month as the average product of thirteen animals, not forced in any way—only kept in good breeding condition—and in mid-winter, is a product with which any farmer might be satisfied. Of course, at this season some of the cows were nearly dry, and some were two-year-olds with their first calves, yet the average weekly yield of butter was nearly 5 lbs. per week all around. The "moral" is that Jersey cows are good to have on a butter-maker's farm, and the natural inference is that if you can not afford thorough-breds, you will do well to breed to pure Jersey bulls, and raise a herd in which there shall be a strong and a constantly increasing infusion of Jersey blood.

The Uneven Pulling of Teams.

We have received many communications on the subject of the uneven pulling of horses, and it seems not to be well understood. It appears to be a general idea that when one horse of a team is pulling ahead of the other, either one or the other (some say one and some the other) is pulling a greater share of the load. Now, it is a matter of fact that however uneven the double-tree may be, if the whipple-trees are free from entanglement with any part of the wagon, the draft is not in any way changed; each horse is exerting exactly the same power on the load—if the bolt is exactly in the middle of the double-tree, as it should be—as it would if the double-tree were exactly level. This is to be proved by a simple problem in mechanics. The double-tree is a lever, the fulcrum of which is the bolt by which it is attached to the wagon tongue. If the arms of the lever are of the same length, the power expended on each of them in drawing the wagon is necessarily the same. Now, however far from level the double-tree may get, the lengths of the arms or the distances from each hook to the center bolt remains the same, and straight lines drawn from the bolt to other straight lines parallel to the tongue drawn from each hook will be equal. The dotted lines in the engraving are intended to show this more plainly. The distance between the points *a a* is exactly divided by the line *A* which passes through the draw-bolt, and the draft from these points is equal on either side. These distances, which alone can change the amount of force exerted, remaining the same, the force exerted is the same.

There is no relation between a double-tree and a balance or the beam of a scale, which is apposed by one correspondent. If a greater weight is placed in one scale than in the other, the beam oscillates, and it will not stop until

one weight is completely suspended by the other, or the beam rests against something which stops the motion. So if one horse pulls more than the other he will draw him back until the whipple-tree comes against the wagon and presses against it, when the amount of

pressure will be exactly equal to the excess of force, exerted by one horse. But while there is no pressure against the wagon and the whipple-tree is free each horse draws equally. But it must not be understood that we do not deprecate the practice. It is un-

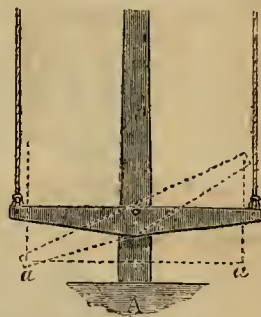


DIAGRAM OF PULLING.

pleasant to see, unworkmanlike, and slovenly, and a farmer that permits it can not be looked upon as a neat farmer. To prevent it, take a strap with a buckle at one end and a snap-hook at the other; buckle one end to the check-rein of the quick horse, and hook the other to the inside trace-chain of the other horse so far back as to prevent his mate from getting ahead of him. They can then be kept even.

GATE HINGE.—David Ruble, Eula, Oregon, sends us a drawing of a new gate-hinge, which is calculated to obviate the inconvenience of splitting of the post when the timber is bored for the insertion of the bolt of the ordinary heavy gate-hinge. It is made of strap iron, $1\frac{1}{4} \times \frac{1}{4}$ in., and requires a bar about 15 inches in length. The extremities of the bar are fashioned into screws, which pass through holes in the back strap, and are fastened with nuts, which enable the gate-post to be firmly clasped. An eye is formed to receive the other part of the hinge, which is of ordinary construction, or may be made on the same principle as this. The illustration here given will explain the peculiar construction of this improved hinge.



HINGE.

Rack for Shoeing Unruly Animals.

The rack of which we give an engraving is one suited to use for shoeing vicious animals. It is often found necessary in shoeing a vicious mule to have the aid of several men with ropes. With this rack the operation can be done with much greater ease. The animal is led into the frame, and secured by hooking the harness to the hooks. A forefoot is taken up and secured by the strap to the post seen at the front. Bars, with bands passing beneath the horse, are placed on each side, which may be elevated until the beast is lifted off its feet and rendered perfectly helpless, if needed. The hind-feet may be fastened to the hind-posts by straps, in case of a very vicious animal, and the shoes nailed on while the blacksmith is protected against any attempts at kicking, and the beast can not throw himself, being supported by the frame and belly-bands. The rack should be made with stout sills and posts, about 4 inches square, or sufficiently strong to resist the struggling of any animal that may be put into it, and mortised into them. The size of the frame should be adapted to the animals for which it is provided—about 8 ft. in length and 2 ft. in width.

Sheep Washing and Shearing.

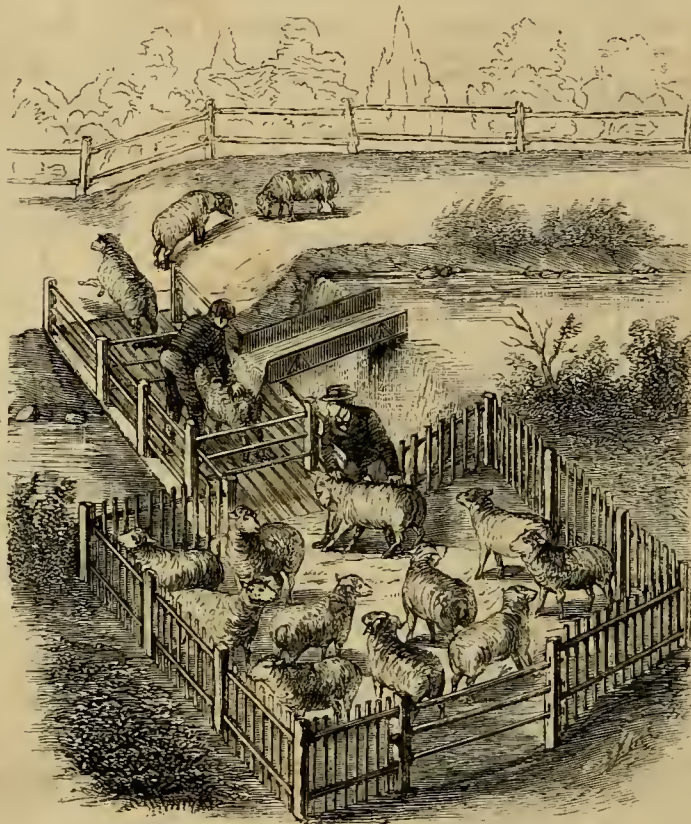
Washing and shearing sheep may be made easy or troublesome, as more or less attention and skill are applied to the business. All the discomfords sometimes attendant on it, may be avoided by proper preparation and judicious management. Where there is no stream, washing may be done in a tank, into which water may be pumped with a force-pump and hose. If a stream is at hand which affords three feet of fall, a spout may be arranged as in figure 1. By either method there is no necessity for the operator to enter the water. If not more than a dozen or twenty sheep are to be washed, a sufficiently large tank is not a costly affair, and the water left after the washing will in the shape of liquid manure pay for the trouble of making it. The water in which sheep have been washed contains much potash, and, if possible, should be scattered over a meadow. Where a large flock is to be handled, it will pay to make a dam in a stream, and use the apparatus shown in fig. 1. It consists of a spout from the edge of the dam, which conveys a stream of water under which the sheep are washed. A floor of planks laid loosely to permit the water to escape between them, is placed across the stream, and a pen to confine the waiting sheep is built near it. The sheep, having been previously tagged and freed from all lumps of adhering dirt, are brought one by one beneath the spout, and the fleece well washed. It is a great help to the washing, if the sheep can be exposed the day previously to a warm rain, which will loosen and soften the dirt on the wool. When the fleece is washed, the excess of water is squeezed out of the wool and the sheep permitted to escape at the opposite side of the stream, if possible into a clean pasture-field or meadow. It is better to have

by a pair of rubber boots, and a rubber apron will protect the body from splashes of water.

When all is ready for shearing, the sheep should be put into a clean and well-littered barn-yard; the barn-floor, or the floor of a shed specially provided, should be swept perfectly

restrain its motion. Then the side of the sheep is shorn completely, the clipping always being in lines from the belly towards the back. When the left side is completed, the fleece is gathered up closely towards the sheep's back, and the animal is turned over on to the shorn side, the

head being still kept quiet by one foot resting on the neck. The right side is then shorn similarly to the left, and the sheep is released. Before allowing it to go, however, the cuts, which will in all cases be made more or less, should be dressed with a mixture of tar, hog's-lard, and a few drops of turpentine, to prevent flies from depositing their eggs, which would in a very short time, if neglected, hatch and seriously injure the sheep. The fleece should now be cared for. It should be taken up and spread on a table (see fig. 2), or on a clean part of the floor, all dirt picked off from it, any loose tags placed in the center, and the sides folded towards the middle, when it may be rolled up into a compact bundle twelve to sixteen inches in length, and secured by two strings of twine tied tightly around at equal distances from the end. We think it hardly necessary to caution farmers against the practice of putting soiled tag-locks into their fleeces. It is sometimes done however, but really such a caution should be as unnecessary as one against stealing. A farmer should never be ashamed to look a wool-buyer in the face after selling his fleeces to him. When the fleeces are tied up, they had better



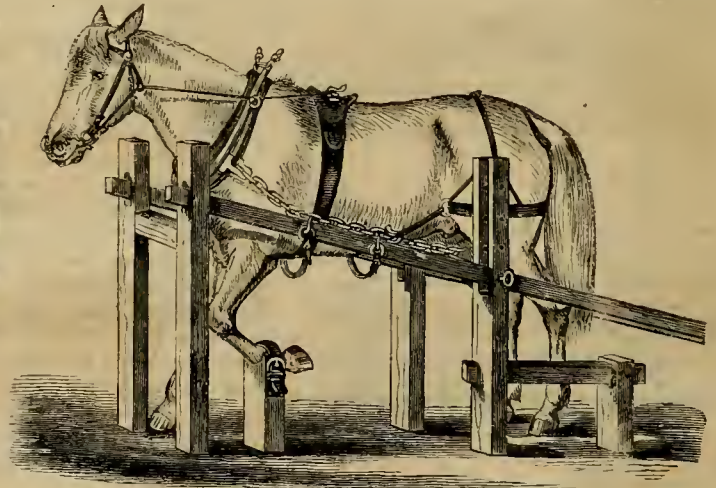
PLATFORM AND SPOUT FOR WASHING SHEEP.

clean, and kept so during the operation. As the sheep are brought in one at a time, the animal to be shorn is placed on its rump, with its side against the operator's knees, and its back towards his left hand as he stands in an upright position. Stooping slightly, he is able with the shears to cut the wool from the sheep's neck all round, down as low as the shoulders, by turning the sheep a little now and then. Then stoop-

be bagged at once and kept in a dark room, neither dry nor damp, until sold. If very dry, the wool becomes harsh; if damp, the first touch reveals the fact, and a lower bid is the consequence. A moderate dampness is no injury, and gives softness to the wool. Proper preparation for market and neatness in packing always pays with all sorts of produce, by securing an advanced price or a readier sale. Finally, it is economy



FOLDING FLEECES.



RACK FOR SHOEING HORSES.—(See preceding page.)

them kept a few days in such a clean pasture before shearing, to permit the fleece to recover the natural softness which results from the oil or grease absorbed from the skin. By this plan of washing there is no necessity of wetting even the operator's feet, which may be kept quite dry

ing, he is able to cut half-way down its body, in lines from the belly towards the back, from which the wool is cut as far as the back-bone. The sheep is then permitted to fall gently on its right side, and the shearer, kneeling on one knee, holds his other on the sheep's neck, lightly, to

to shear close—the wool near the skin being heavier, because it contains a greater portion of yolk. If the buyer complains of the uneven strength or texture of the wool, it is due to want of care or neglect in feeding, which has affected the growth or health of the sheep.

The White Lady's-Slipper.

Among our wild-flowers, none are more attractive than those belonging to the Orchis Family. The singular structure of their flowers, and the beauty of their coloring in most



WHITE LADY'S-SLIPPER.

species, are sure to attract attention, and the rarity and very local character of many of them make them great favorites with plant collectors. The Lady's-Slippers, as the species of *Cypripedium* are popularly called, are among the most noticeable of our native orchids. There are six species in the Northern States, one of the rarest of which is the White Lady's-Slipper, *Cypripedium candidum*, which we have figured of the natural size. The lip, which is the conspicuous portion of the flower, is of a pure white, the rest of the flower being greenish. This rare little plant is found in bogs from Central New York westward.

All the *Cypripediums* are worthy of cultivation, but they can only be grown successfully by imitating their natural conditions. They require a peaty, sandy soil and a shady situation, and under these circumstances their cultivation is not difficult. They are all perfectly hardy as far as enduring cold is concerned, but they will soon die if continually exposed to a hot sun. The finest of our species is *C. spectabile*, which has a large white and crimson flower, is quite common in some of the Western States, and is justly prized in Europe as one of the most beautiful of herbaceous plants.

The Wild-Yam.—(*Dioscorea villosa*.)

One of our commonest climbers, the Wild-Yam, seems to be among the least noticed and the least known, as we very frequently have

specimens sent to us for determination. Our plant belongs to the same genus with the edible Yam of tropical countries, and the more northern Chinese Yam (*Dioscorea Batatas*). The root of these is very large, fleshy, and edible, while that of our wild plant is knotty and medicinal, rather than nutritious. The stems of the Wild-Yam are slender and herbaceous, and climb to the height of eight feet or more. The shape of the leaves is given in the engraving, which is about half the natural size. The staminate and pistillate flowers are borne upon different plants, the staminate ones being in loose clusters, as shown in the engraving. A small raceme of pistillate flowers is shown at the right-hand side of the engraving. These are quite different in appearance from the staminate ones. The fruit is a dry, three-winged capsule, which is conspicuous in winter when the foliage is gone. A single fruit is given in the engraving. This yam grows nearly all over the United States, being much more abundant southward. It makes a very good and quick-growing climber for covering low screens and trellises, and is sometimes cultivated for that purpose.

The botanical name of our species is *Dioscorea villosa*; the specific name is not a descriptive one, as the plant is far from being villose (having long hairs), but the leaves are nearly smooth, or at most downy on the lower surface. The generic name was given in honor of the Greek Dioscorides.

Flower-Garden Plans.

BY AL FRESCO.

In a late issue of your paper, I noticed a plan for flower-beds by a contributor; and as I am opposed to beds of complicated forms and nu-



PLAN OF FLOWER-BEDS CUT IN A LAWN.

merous angles, I inclose a simple arrangement of beds which has given me much pleasure. In planting, numerous angles present difficul-

ties; and when the owner of a garden prides himself upon a well-kept lawn, he should so design his beds as to enable him to use the



WILD-YAM.—(*Dioscorea villosa*.)

mowing machine or grass-hook to advantage. Nothing, in my opinion, is so attractive as well-defined masses of color in appropriate beds surrounded by luxuriant and well-kept turf.

The accompanying plan is cut out of my lawn in front of my library window, and the effect from both the house and street is satisfactory. The center bed is four feet in diameter; then there are two feet six inches of grass, beyond which are outside beds three feet wide. At present the beds are filled with Hyacinths, and as soon as these can be removed they will be planted as follows: No. 1. Scarlet Geranium. No. 2. Variegated-leaved Geranium "Bijou." No. 3. Achyrantes Lindenii. No. 4. Colens. No. 5. Striped Petunia. No. 6. Phlox Drummondii. No. 7. Tropæolum Tom Thumb.

Some of your readers will exclaim: "Oh! what nonsense! I can not afford to purchase such expensive plants." For the benefit of such persons, we will point out what can be accomplished by the expenditure of fifty cents—an amount that can be spared by any one who is desirous to make home cheerful and attractive. To such I would say: Prepare the ground by deep digging and pulverizing, and send to a responsible seedsman for the seeds referred to below—costing from five to ten cents per packet. At the proper time plant them as follows:

- No. 1. Crimson Petunia. No. 2. White Phlox Drummondii. No. 3. Crimson Phlox Drummondii. No. 4. Tropæolum Tom Thumb. No. 5. Petunia, Countess of Ellesmere. No. 6.

White or Striped Petunia—latter preferred. No. 7. Dwarf Convolvulus.

Sow the seeds in rows, and when large enough thin out to about eight inches to one foot apart. These inexpensive plants will continue in bloom until destroyed by frosts, and will present a marked feature in any garden. The plants recommended are free growers, constant bloomers, easily cultivated, and produce a fine effect when planted in masses. The primary expenditure of fifty cents will prove the last outlay, for the cultivator can secure an ample supply of seed for the next season.

Grafting the Chestnut.

[A correspondent, "D. A.," at Washington, D. C., gives the following valuable experience in grafting the Chestnut. Some time ago we stated that grafting at or below the surface had been found successful with hickories, and suggested that it be tried with the Chestnut. We are glad to learn that the method had already been tried, and with good results.—Ed.]

In the spring of '56 I engrafted near Annapolis, Md., some 200 trees with grafts imported, and in excellent condition, from Leroy, of Angers, France.

I placed the grafts, as they do in France, on young, thrifty stocks of from one to three inches in diameter, at a height of four feet from the ground, when the peach-trees blossomed. Perhaps 130 grew satisfactorily; the following spring I found nine tenths of these killed, and, as I had afterwards reason to believe, they died from the different expansion on freezing of the stock and the growth on the graft, the one being comparatively solid and fibrous, the other sappy.

I had a compulsory absence for three years; on my return I engrafted in the spring of '60 about 1,000 trees, half of them growing satisfactorily; they died out as before.

The civil war again absented me. On its conclusion I engrafted a number on a level with the ground, with the usual success as to growth. In November, the earth was heaped up around them, a foot or more, to prevent their freezing. It was effective; a few of them, that were passed over or neglected in covering, died out as before.

There was a difference in the growth of the ten varieties employed, the "Black Prince" the least satisfactory, and the "Lyons Marrow" as good as any. The culture of the European Chestnuts in this manner is quite practicable, as far north at least as Philadelphia.

Thorburn's Late Rose Potato.

BY EDWARD L. COY, WEST HEBRON, N. Y.

In the autumn of 1869, when digging a large field of Early Rose, which had been entirely ripe for several weeks, a few hills were discovered, the stalks of which were green, and the yield of tubers enormous—in fact, outyielding the neighboring hills of Early Rose at least three to one. At first I supposed some fertilizer or some other local cause had forced an unnatural growth and kept the stalks green. But a closer examination proved that such was not the case. The tubers were a lighter red at the seed-end than the Early Rose, and the stalks more "stocky" and more upright in growth. The leaves were also thicker and more pointed, but narrower. The next spring these potatoes were cut in pieces of one eye each, and planted one piece in a hill; making three rows through

the center of a large field of Early Rose. They did not come up quite as quick, but made a far larger growth than the Early Rose, although the latter had two to three eyes planted in each hill. The difference in growth was so marked that it could be seen at a great distance. When the tops of the Early Rose were entirely dead and ripe, these were as green and thrifty as ever. They ripened about with the Jackson White, thus having nearly the whole season to grow in. When dug, the three rows yielded more than nine rows of the others.

I had now enough to test their keeping qualities, which I find are unsurpassed. In the same cellar, at planting time, when the Early Rose were so badly sprouted and wilted as to be totally unfit for table use, these had not started, and were as crisp and solid as when first dug. A few that were reserved for the purpose of testing them, kept in good condition for cooking until the new crop of Early Rose came upon the table.

Last season I planted $4\frac{3}{4}$ acres on a piece of ordinary clay-loam soil. It was on a side-hill, so steep that it had to be plowed with a side-hill plow. It was lightly manured, before plowing, with barn-yard manure. No other fertilizer was used, except a light top-dressing of plaster, when they first came up. The field was finished out with Early Rose. The Late Rose maintained the same marked difference in growth, time of ripening, and yield, as before. I harvested on that field 1,280 bushels. On the same soil, and under the same treatment, the Early Rose yielded only 80 bushels per acre. In table quality they are not surpassed by any. They cook very dry and mealy, and have a peculiar rich and delicate flavor. They grew very compactly in the hill, making them easy to dig.

The valuable characteristics of this Late Rose are so distinctly marked, and have proved of so permanent a character for three years, that I do not hesitate to pronounce them positive and fixed. It is not, as Mr. Campbell has asserted, "a sport of a single season whereof the producer can give no history or support as to its reliable permanency." But it is a thoroughly tested and invaluable variety of the Early Rose. I had a few of them planted last year in different sections, and in every case with the same result. I have no Late Rose to sell. One of the seed firm of J. M. Thorburn & Co., 15 John st., New York, made me a visit about the 1st of last October, and after thoroughly testing their table quality, and examining them on my grounds, bought all the potatoes I had to spare. I would here earnestly caution the public against purchasing Late Rose from irresponsible parties. They are being offered under that name of all colors, shapes, and sizes. The comparatively low price at which the Messrs. Thorburn & Co. offer them, places this variety within the reach of all.

Thomas Wier's Apple-Worm Trap.

BY C. V. RILEY.

Mr. Thomas Wier, of Lacon, Ill., has hit upon a very simple device for alluring apple-worms, which is destined to play an important role in counterworking their injuries.

In conjunction with his cousin, Mr. D. B. Wier, he has patented the trap, and though I do not think that the patenting of such simple devices is quite in accordance with a progressive horticultural spirit, or that the patentees will

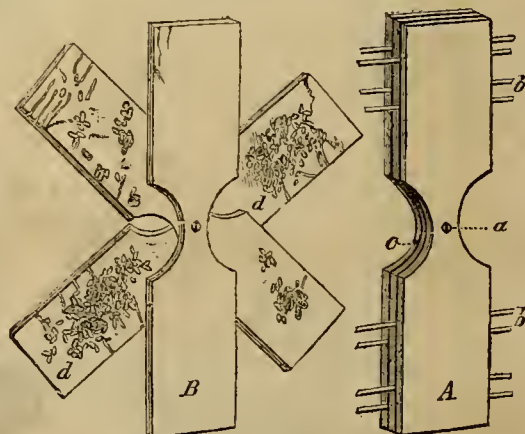
find it a very profitable undertaking, they have a perfect right to think otherwise.

It was too late in the season when the trap was brought to my notice to give it a thorough trial, but I was at once favorably impressed with its usefulness, and what little I have seen of its work has not altered that impression.

The trap (see figure—A closed, B open) consists of two, three, or more thin pieces of board, 12 to 20 inches in length, and 2 to 4 inches wide, with a screw (a) through their center. The screw must be long enough to be firmly driven into the trunk of the tree, so as to hold the boards in position. The boards are cut out on each side of the screw, as at c, to facilitate their separation when fastened together by the silken threads of the worms, and to better expose the latter when the trap is opened.

The advantages of this trap so far outbalance the disadvantages that it may be considered the best we yet have. These advantages may be stated as follows: It is cheap, accessible to all, easily placed on the tree and removed again; wood forms, perhaps, the most natural covert for the worms; the traps may be collected with little trouble, by the barrowful, submitted to a killing heat, in one way or another, and replaced again; they may be used on the ground as well as on the tree. Its disadvantages are few. One it has, in common with all other snares or traps for this insect, namely, that it can never exterminate the Codling-moth, for many reasons that will suggest themselves to all who have any acquaintance with the insect. Another is, that where one trap only is used it can be attached to but one side of the tree, and in this single respect, notwithstanding all the theories of my friend Wier, it must always be inferior to any trap that encircles the tree.

The worms will spin their cocoons between the inner shingle and the tree as freely as between the shingles themselves, and I suspect that it will be found less tedious and cheaper to detach the traps and kill the worms by wholesale, than to open them on the tree. Those who prefer



WIER'S APPLE-WORM TRAP.

the latter method, will be pleased to learn of the means described by Mr. Wier, who says: "The quickest and best way to do this is to have a large tin pan bent in on one side, so as to fit closely to the trunk of the tree. When you reach the tree, drop upon your knees, place the depression in the pan against the trunk of the tree, hold it there by pressing your body against it, and you have both hands free to open the trap. When opening it, many of the pupæ or chrysalids will fall into the pan, and some of the worms. Kill the rest or scrape them into the pan. The trap must be turned clear around, as many will be found between it and the bark

of the tree. A person will open and kill the worms in from 400 to 800 traps in a day." I have known one of these traps to be so thoroughly torn to pieces by the Downy Woodpecker, that if they are to be preserved from year to year, it would be dangerous to leave them on the tree during winter.

The inventor informed me that he believes his trap is more apt to come into general use by being patented, than if offered without price to the public. If, in his hope to realize a fortune from it, he sends out agents among the fruit-growers of the country, I am not sure but he is correct; especially if such agents are enabled, by proper circulars, giving a true and condensed history of the Codling-moth, to disseminate important information. But the danger is, that patentees are sure to claim too much for their pet creations. This fact is well exemplified in the present instance, for the label pasted on such of the traps as have been so far sent out, commences as follows:

THOMAS WIER'S
APPLE-WORM
AND
CURCULIO TRAP;

Which catches Apple-Worms, Curculio, and every Species of Insects infesting Fruit. [!!!]

The love of gain obscures the light of truth; and this wonderful power of a pair of shingles to catch "every species of insect infesting fruit" is altogether too much like Mr. Quackenbosh's patent universal, never-failing Elixir, which cures all diseases that possess mankind! It would not deceive the well-informed, but the glittering of its panaceal power may lure the ignorant.

Other evils will likewise result from the sale of this trap under such spurious claims, and without some explanation of the insects' habits. One of them may be illustrated by the following dialogue, which is not altogether imaginary, but is founded on an actual occurrence. Agent Gaingreedy—his desire to sell rights being stronger than his love of accuracy—meets farmer Glauball, and straightway expatiates upon the merits of the patent trap. He shows how the worms gnaw their way in between the shingles, and how easily they may be destroyed. "Ach!" cries the credulous German, "und is it true das de worm rader eat de schindel dan de apfel?" "O yes!" says Gaingreedy, "screw one of the traps on to this tree, and in a week I will come back, and we will examine it." At the expiration of the week the trap is opened, and upon viewing with wonder the worms that have secreted in it, Glauball rapturously exclaims, "Ist es möglich? das ist debest ting I yet see," and purchases the right to use much quicker than he would if he knew that the worms had already been in his apples.

It may be claimed that so long as men can be induced to use the trap, and kill the worms regularly, it matters little whether or not they understand the philosophy of its use; but barring the principle at stake, the spread of error can never be fraught with any continued good; and when, by carelessness or oversight, some of the very priests of horticulture spread through the columns of prominent journals the absurd idea that the moth deposits her eggs between the "face of the trap," it becomes patent that it is not the credulous German alone who needs correct rather than bogus information.

I have thus indicated the mischief that may be done by overestimating the value of this trap, in order that the patentees may strip it of all

appearance of sham, and present it to the fruit-grower for what it is—a very useful and important device—and not extol it as a sure Codling-moth exterminator.

Onion Sets—A New Plan of Raising.

BY PETER HENDERSON.

Mr. Wm. C. Pelham, of Maysville, Ky., writes requesting me to try his method of raising onion sets the coming season, and give the result of the experiment to the readers of the *Agriculturist*. But his method is so simple, so valuable, and so certain to be successful, that I deem it advisable to give it to the readers of the *Agriculturist* at once, so that many may avail themselves of it the present season.

Mr. Pelham says that his method for the past three years has been to select a level and dry piece of ground. His ground is rich alluvial loam, but the character of the soil is of no special importance. Beds are formed two feet wide, with a path of one foot between. The "beds" are excavated to the depth of two inches—or, in other words, the path or alley between is two inches higher than the beds; the bottom of the beds is nicely smoothed with the back of a spade, so as to present a level surface whereon to sow the seed. The seed is sown so that from fifteen to twenty seeds will cover a square inch. If the surface of the beds was sprinkled with plaster or white sand, the seeds, which are black, could be sown more evenly. After sowing, the seeds are covered with two inches of pure clean sand, which brings the beds and paths to the same level. The whole is then rolled with a light roller or patted down with a spade. The advantages of this plan are, that there being no seeds of weeds in the sand, the labor of weeding is entirely saved, and the sets when matured are far more easily harvested from the clean, soft sand than from the hard-baked surface which most soils present after a season's rains and sun on a surface that can not be stirred.

I consider this plan of raising onion sets most valuable to the market-gardener, as a very little space devoted to this purpose will save him a heavy expense in the purchasing of onion sets. Few market-gardeners can grow them in the ordinary manner, unless at an expense greater than they can be purchased for from those who make a business of growing them. But the price paid for sets the past six or eight years has been so high that many market-gardeners have abandoned growing them. Last year I paid about \$150 for sets sufficient to plant an acre. By Mr. Pelham's method, I think the same quantity may be grown at an expense of from \$30 to \$50.

Every now and then we find practical gardeners and farmers grumbling that there is nothing new for them to learn from our agricultural papers. True, they may not learn something valuable from every number, but there are very few who will carefully read the columns of the *Agriculturist* for a year without gaining some information. I consider that this simple plan of Mr. Pelham's is alone worth twenty years' subscription to any market-gardener cultivating five acres of land, and who makes onion sets one item of his crop.

HOT-BEDS are more likely to suffer this month than at an earlier time. Though the weather may be cold, the sun has now great power, and a short neglect of the tender plants in the beds may ruin them past recovery. Give air before

the sun gets too hot in the morning, and cover early in the afternoon. Be prepared with mats or shutters for a cold night. The sudden changes must be watched, and their ill effects provided against.

Hints about Tree-Planting.

BY AN ILLINOIS CORRESPONDENT.

There is a prevalent idea, that trees if grown from seed in any particular locality, will be especially adapted to its soil and climate. I regard this as all humbug. It can not be expected or looked for any more than that an elephant born at the North Pole should be adapted to the climate and food of the white bear.

Many men buy apple and pear seed, and plant them with the expectation that the trees will be adapted to their climate and soil, which is no more apt to be the case than were they grown in any other country. It will be a hard matter to find two trees in one thousand that are exactly alike.

The first thing for any man to do, if he wants to plant an orchard, is to make a survey of his own town and county, investigate the different orchards, varieties, and locations, no matter what he may have seen away from home, or how well he may like certain varieties. All that he has observed elsewhere is of but little use until he determines its adaptability to his own locality.

Could we have things done as they should be, there would not be such a loss in apple, pear, and cherry trees, in the West and South-west. We plant so many trees that are not adapted to soil and climate, and our management is so bad, that we lose thousands of trees yearly by what is called by some of our wise men "root-rot." A thorough investigation of the matter proved to me that there was no such complaint or disease among trees, notwithstanding it is kept before the people, like many other humbugs, not for the utility of the theory, but for want of something better.

The cause of this complaint is banking trees above the collar. In the months of July and August a canker sets in just below the surface, and continues until it eats the bark to the wood; then the trees die immediately.

The only way to avoid this is to keep the crown of the tree exposed to the weather all summer, or by double-working the tree. It has been claimed by some that root-grafting was the cause, but experience has shown different. Take any sort that will throw out new roots when the tree is too deeply set, and you may root-graft all you please, without any bad results, except an overgrowth of some varieties. Then you can top-graft, and you have the whole thing, and just such a thing as you want, without any interference of soil or climate.

The best time to plant trees is in the spring. If we take trees from New York to a colder climate in the fall, and set them out in the field, the chances are that many sorts will die. But if set in spring, they have a chance to become acclimated, and will stand the succeeding winter far better. I am very much opposed to planting trees in the fall for that reason. If trees are grown in crowded nursery rows, the bark and wood are tender, and if taken to the cold bleak fields, many will die, and, especially where the ground freezes and thaws, the roots will be injured. If planted in spring, the trees take root and become acclimated. Always keep one thing in view—do not set trees *too deep*; let the collar be above the ground; then, with decent cultivation, the tree will grow and do well.

ZACK.

Chinese Primroses.

There is no plant that will give more satisfaction in window culture than the Chinese Primrose in its different varieties. If we go to the florists in December, and purchase plants

with the buds ready formed and just about to open, the chances are that we shall not get a flower. The change from the atmosphere of the greenhouse to that of our living rooms is too great, and the buds will blast. If we procure the plants in September or October, and let their change from open air to our closed dwellings be gradual, they will succeed finely. There are now many varieties of the Chinese Primrose, double and single, and of colors varying from pure white to deep crimson. Besides, there is a great difference in the foliage, and the flowers of some are beautifully crimped or fringed. The Double White variety is now quite common, and is one of the most prized plants by those who grow flowers for the bouquet-makers. The double sorts bloom less freely than the single ones in house culture, but if the atmosphere of the room is not "killing dry," they will give very satisfactory returns. The double colored sorts were a few years ago more rare than the white

ones, but of late several very fine varieties have appeared. We have seen nothing finer in the way of Primroses than one sent us by John Saul, the well-known florist of Washington, D. C. We present an engraving of a small plant of this, the *Grandiflora rubra*. Of course, an uncolored engraving can only give form, and we are obliged to leave its rich crimson to the imagination. These choice varieties can only be perpetuated by cuttings. The plants, after flowering, throw up offsets from the base, which are removed and treated like other cuttings. If one wishes fine double Primroses, he must obtain them from the florists. Still, the single ones are very fine, and can be readily raised

from the seed, provided that be fresh; and if the seed be of a "good strain," as the florists say, there is a chance of obtaining some very handsome varieties. The seeds should be sown in June or July in a box or pan of very light soil, in a shady place. When the plants are

It may seem untimely to bring window plants to notice at this season, but the chief cause of ill-success with house plants is in not beginning far enough ahead. Most people do not think of house plants until frost comes, while we ought to be preparing them all summer.

We can not have plants bloom satisfactorily in the house unless they have had proper treatment beforehand.

Strawberries in Missouri.

A correspondent in Audrain Co., Mo., writes: "I planted in my garden the Mexican Ever-bearing Strawberry, the *Agriculturist*, the *Jucunda*, and a seedling I had raised from Longworth's Prolific; they all grew well. The Mexican Ever-bearing bloomed and bore fruit until the ground was covered with snow, but the berries were small and tasteless, and I could get about two a week. I suppose if I had planted an acre, I could never have gathered a saucerful at a time, so I cut up the vines and threw them over the fence. My seedling was a strong, thrifty plant, and the fruit was fine, but it was not abundant, so it followed the Mexican humbug over the fence. The *Agriculturist* and the *Jucunda* are all the varieties that I want. These far surpass all others that I have raised or tasted, and they



DOUBLE CHINESE PRIMROSE.—(*Primula Sincensis*—var. *Grandiflora rubra*.)

large enough to handle, they may be transplanted to another box, and when still larger, put in the pots in which they are to bloom. The roots are very fine, and the soil should be rich, open, and light. A mixture of peaty soil, cow-dung, and sand suits them best. Seedling plants will bloom the next winter. They should at the approach of cold weather be taken in-doors, placed in a room without fire, and given air every mild day. By gradually inuring them to house culture they will go on and bloom abundantly. Plants that have bloomed in-doors should be set out in a shady place for the summer, and kept properly watered; if they show flower-buds, pinch them off.

are not few. The *Agriculturist* is a remarkably hardy and thrifty plant, and it yields abundantly; it is sweet and of good flavor, and of large size. The *Jucunda* is more tender, and does not stand the long dry summers nor the cold of winter so well as the *Agriculturist*. I measured some berries of the *Jucunda*, which were from five to six inches in circumference, and they had had no extra cultivation. We did not require a third as much sugar for the *Jucunda* and *Agriculturist* as for the *Wilson's Albany*. I would not cultivate the *Wilson's Albany* for my own use, it is too sour." Our correspondent's experience with the "Mexican Everbearing" is similar to our own.

THE HOUSEHOLD.

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

Hints on House-Cleaning.

BY "NOMAD."

A house-cleaning of the most thorough character at least once a year, is very essential, in a sanitary point of view, for the accumulated dust beneath the carpets and with which everything becomes in time interpenetrated, is not the innocent thing



A SAFE STEP-LADDER.

some consider it. Dust is a curious compound of minute fragments of almost everything in creation, mixed with spores and germs of vegetable and animal life, which need only favoring circumstances to bring them into activity, and they may produce effects injurious or destructive to human life. Therefore the first necessity in house-cleaning is not to raise a dust, but to gather it together in such a manner that it can be quietly removed and got rid of. Before the carpets are taken up, they should be sprinkled with a good coating of dampened material. The old-fashioned tea-leaves are good in their way, but can seldom be had in sufficient quantities. Clean sawdust, chaff, finely-cut hay or straw, or coarse bran washed free from flour and dust, are all good substitutes for the tea-leaves. A liberal coating of such matter, well dampened, but not wet, spread upon a carpet and brushed smartly over it, will keep dust from rising, and at any time will improve its appearance. The water used to dampen this material would be made a disinfectant by dissolving in it a small quantity of carbolic acid; one part in two or three hundred is sufficient. The damp material may, when used for the carpets, be swept into one corner and afterwards spread over the bare floor, more water being sprinkled over it, and used to gather the thick dust generally found beneath the carpets.

House-cleaning should commence at the top of the house and work downwards. In this case it may be undertaken by spells, with intervening rests.

After the floors are cleared, the walls and ceilings claim attention. If no special cleaning is needed, a brush of soft hair is the best to use on them to remove dust. Here I will describe an improvement on the common step-ladder. This is usually made with legs of equal length, and therefore a person, when using a long one, can not get quite so close to the wall as may be desired, and is obliged to reach over and run the risk of falling. A step-ladder should be made with the back legs shorter than the front ones, so that the back will stand almost perpendicularly, as shown in the engraving. It may then be placed as close to a wall as may be desired. Any step-ladder may be altered by sawing off an inch or two of the back legs. A ladder should never be mounted unless the iron hook or cord to keep it from spreading is used.

A very beautiful whitening for walls and ceilings may be made by slaking the best lime in hot water, covering up to keep in the steam, and straining the milk of lime through a fine sieve; add to a pailful half a pound of common alum, two pounds of

sugar, three pints of rice-flour made into a thin, well-boiled paste, and one pound of white glue dissolved slowly over the fire. It should be applied with a paint-brush when warm.

Paint should be cleaned by using only a little water at a time and changing often; a soft flannel cloth or sponge is better than cotton or a brush; a piece of pine wood with a sharp point should be used for the corners. Where the paint is stained with smoke, some ashes or potash-lyc may be used. A soft linen towel should be used for wiping dry. Glass should not be cleaned with soap; a little paste of whiting and water should be rubbed over, and with another cloth it should be rinsed off, and the glass polished with a soft linen or old silk handkerchief. Alcohol or benzine is a good thing to clean glass, and clean paper is probably better than any cloth, sponge, or towel; dry paper leaves an excellent polish. Marble may be cleaned with a mixture of two parts of common soda, one part of pumice-stone, and one of chalk, finely powdered, and tied up in a fine muslin rag; the marble is wetted with water, the powder shaken over it, and it is rubbed with a soft cloth until clean, then washed in clean water and dried with a soft linen or silk handkerchief. No soap or potash should be allowed on marble. A good furniture polish is made by melting two ounces of beeswax, one ounce of turpentine, and one dram of powdered rosin together, with a gentle heat, and rubbing on when cold, with a soft flannel cloth, and polishing with a soft linen or silk cloth. If for mahogany, a little Indian-red may be mixed in. Cracks in furniture may be filled with putty, mixed with Indian-red or burnt umber, to get the desired shade. When dry it will take an equal polish with the wood.

How to Paper a Room.

Old paper may be removed by wetting thoroughly with water, and when soaked, it will easily strip off. If lime-wash has been used on a wall on which it is desired to paper, the paper may be made to stick by washing the wall with vinegar, or water which has

thin, creamy liquid is made; it should then be boiled, when it will thicken; if too thick, it may be thinned by adding boiling water. A little carbolic acid in the paste will keep it sweet and prevent mold. The paper should be cut to proper lengths, sufficient in quantity to finish the room, before pasting is commenced. Enough spare paper should be



Fig. 1.—PASTE-PAIL AND BRUSH.

left at top or bottom, to match the pattern evenly. These lengths should be laid evenly one over another, and the bench should be a little longer than the lengths of paper. The paste should be applied with a broad brush similar to the white-wash brushes, and should be laid on quickly, or the paper will soon become tender. If a piece of tin be fastened to the brush it can be hooked to the side of the pail and prevent much "mussing" with the paste (see figs. 1 and 2.) The cheap sorts of wall paper should be avoided, if possible. They contain generally twenty-five to forty per cent of clay, and a very common material for the pulp is cow-dung; only a very small proportion consists of fiber of rope, matting, or other coarse material of any strength, and in putting it on a wall it will often fall to pieces in the hands. Two persons are required to lay

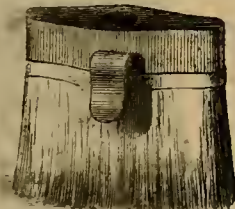


Fig. 2.—PASTE-BRUSH.

on paper with rapidity, one to paste and one to apply the paper. When the paper is pasted it should be handed to the person on the ladder, who holds it about a foot from the top end,



Fig. 3.—PASTING AND PUTTING ON WALL-PAPER.

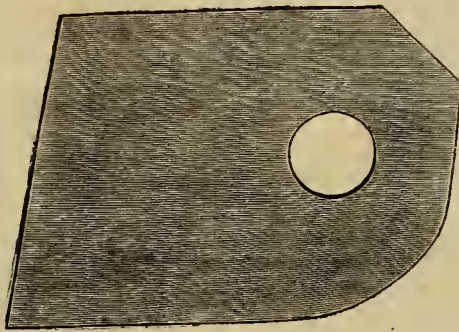
been made sour by the admixture of sulphuric acid (oil of vitriol). Papering is very easily done by making a bench on which to paste, of boards placed on two empty flour-barrels. Common flour-paste is made by mixing smoothly in cold water wheat or rye flour (rye makes the strongest paste) until a

and lays it evenly against the wall at the top, allowing the upper end to hang over on the backs of the hands (fig. 3). By looking down the wall it may be seen when it matches the previously-laid length, and should then be brought gently to the wall, the backs of the hands then pressed against the wall

and passed upwards towards the ceiling, spreading them out towards the corners of the length of paper. The scissors are then run along at the junction of the wall and ceiling, making a mark which can be easily seen, when the top of the paper is removed for a little distance, and it is cut off even and replaced. Then a soft cloth is gently passed downwards and the paper pressed against the wall to the bottom, where it is cut off as at the top. After a few lengths are laid, the operation will become easy, and if a room where the work is not very particular is commenced with, the best rooms may be attacked next.

A Pot, Pan, and Kettle Scraper.

A curious thing came by mail. It was a piece of galvanized iron, of about the size shown in the engraving, and had attached to it a label which read: "Pot, Pan, and Kettle Scraper. Please accept, with the compliments of the season, from John Furbish, dealer in kitchen furnishing goods, stoves, etc., Main street, Brunswick, Me. Decem-



POT AND PAN SCRAPER.

ber 25th, 1871." It seems that the John aforesaid did not, as many stupid people do, go and patent a simple thing. He had tried the little scraper, found it good, had a lot made, and gave one to every holiday customer. The piece of sheet-iron is so shaped that it will meet all possible angles, and save no end of knives and spoons. If John does not scrape himself into the good graces of the people of Brunswick, it will not be his fault. Any one can make this scraper, and the lady who directs the kitchen destinies of the writer hereof says: "First-rate; I wish I had had it before."

Home Topics.

BY FAITH ROCHESTER.

"A HOUSEFUL OF GIRLS WHO COST SO VERY MUCH MORE THAN THEY COME TO."—My text may be found in the February number of the *Agriculturist*, at the end of an article entitled, "Can Farming Pay such Taxes?" Girls of the description given in that article do not read the Household columns of this paper, I suppose. So we (sensible ones) may talk the matter over among ourselves.

It is doubtful whether the silly girls are most to blame for their general good-for-nothingness. They never deliberately consented to be born and bred to such a disgraceful state of things. They have been unfortunate indeed in their inheritance of mental and moral traits, and in their bringing up, if, having reached adult years, reasonable persuasion will not induce them to be reasonable in their conduct. Perhaps they are unfortunate in being born and brought up before general society—of which you and I are members—has grown sensible in its opinions and practices.

I don't profess to know what taxes *farming* can afford; but I think we can none of us afford to have the complaint about the extravagance and indolence of the "girl of the period" kept up much longer. What can we do toward putting an end to it?

Our children, of both sexes, should be diligently trained to take care of themselves, and to make themselves useful to others. Taking care of themselves means earning their own living, and it means

more. It means a practical acquaintance with household labor, and the ability to take care of one's own clothing. It is absurd for each person in a family to do the cooking, washing, and sewing for herself or himself apart from the general cooking and washing. A division of labor is best for pleasure and for profit; but no boy or girl gets a complete outfit for life who does not get some good domestic training. Such knowledge may prove very useful in an emergency, though not made of daily use by the circumstances of one's life.

More important than any actual knowledge of the details of labor, is the *habit of industry, and a disposition to be of use*. So all that we do to encourage healthy activity and kind regard for others in our children, tends to prevent their growing up to be idle spendthrifts. Let the little girls be active as children, if you would have them become active women. Play as well as work—and sometimes more than work—tends to this end. Anything but to make children "keep still" long at a time.

Our boys and girls should be ashamed to be dependent upon their parents after they are able to support themselves. But it is our duty, as their guardians, to give them as thorough and broad an education as we can; and this should include a knowledge of some business which may serve, in an emergency, as a plank between themselves and starvation. It is not the duty of every able-bodied person to earn money, but every one should find some way of being so useful to others as to gain right to the bread and butter that person eats.

If little girls are dressed for show rather than for comfort, will they not be likely to grow up vain? If their mothers sit up late to tuck and braid their little frocks, why should they not continue to toil early and late in order that their grown-up daughters may "shine"?

Let fathers take the whole family into their confidence as far as possible, and then the daughters will know the comparative value to the whole family of a silk dress with "two hundred and twenty-five yards of trimming" for one of the girls, or a mowing machine for the father. Fathers who only draw their purse-strings tight and growl when asked for money, with no kind explanations of their motives for refusal, get the name of being "stingy" and "unkind."

It is idle to talk about our grandmothers, for we do not live in their day. It is natural enough for our girls to wish to wear such garments as seem to them the most admired. So here comes in our duty as members of society, whether we have daughters or not, to use our influence toward making simplicity and common sense fashionable.

STOVE-CLOTHS.—I read a "premium essay" on housekeeping the other day, and then I went straight and made me some stove-cloths. Common holders have never given me much satisfaction for use about the stove and its furniture. These stove-cloths are long enough to reach from one end of the gas-pans to the other. "My aunt's" were made of an old grain bag, and were finished with lems and loops or rings. As soon as one was soiled so as to be uncleanly to the touch, it was put with the dirty clothes, and a clean one put in its place. Such a cloth, hung conveniently near the stove, saves the cook's apron some scorching and soiling, also some desecration of the dish-towels.

A TERRESTRIAL GLOBE.—The jolly St. Nick did a good thing by our family last Christmas. The wish for a good globe for the sake of the bairns had been breathed by the "united head" of this family, more than once, but we did not know as our wish had been overheard, and we were utterly surprised when one of Schoedler's beautiful twelve-inch terrestrial globes actually found its way into our family circle in holiday week. With all our wishing we had never dreamed what a treasure it would really be. I believe we old folks have learned more geography since that globe came than we ever learned before. As for the little ones, they have probably learned more than they would in many months of study of geography in the old memorizing way, and their first ideas will not be so erroneous as mine were. I had been almost through

Peter Parley's First Geography, when I learned, to my astonishment, that I lived on the *outside* of the round world pictured in the book, and not shut up in the inside. I wonder what proportion of the readers of this page have a clear idea of the motions of the earth; and their effects.

The globe is full of suggestions for stories of the most profitable kind, and it provokes one to historical and scientific reading. The children's most natural questions lead one on indefinitely— all about Columbus, the mariner's compass. But it's of no use to begin enumerating the topics suggested by the globe, for they seem endless.

It is a beautiful ornament, too, and it strikes me that no parlor-library is quite furnished without one. Such globes should be used in all our common schools. There is no other method of teaching the most important part of geography with success. The maps are excellent, and of course they are much more correct in their proportions than any flat representation of the earth can be.

Butter Molds and Stamps.

H. M. Taylor, Kansas, asks whether there are any molds made by which butter may be put up in pound or half-pound cakes for the market. We give on this page cuts of the usual forms of molds for this purpose. They are made of soft wood, as white-ash or soft maple, and are generally kept for sale at all country stores where willow-ware is sold.

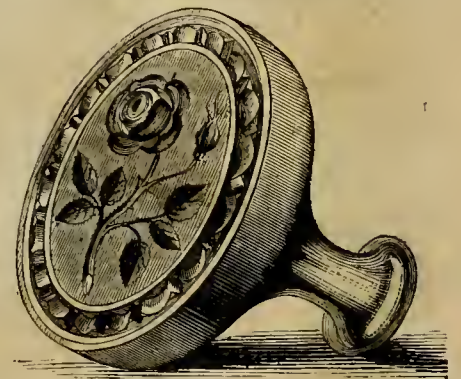


Fig. 1.—BUTTER-STAMP.

The manner of using them is as follows: When the butter is ready for making up, it is weighed out into the proper quantities, and each piece is worked in the butter-dish with the ladle into flat round cakes. These cakes are either pressed with the mold shown in fig. 1, or are made to go into the cup of the mold shown at fig. 2. Inside of the cup (fig. 2) is a mold with a handle which works through a hole in the upper part of

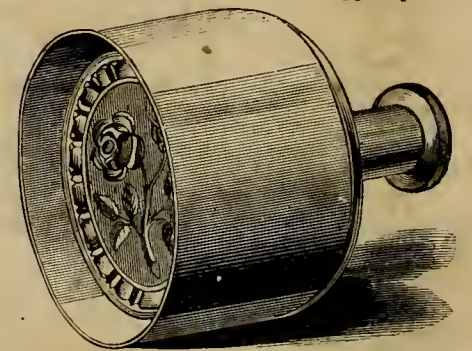


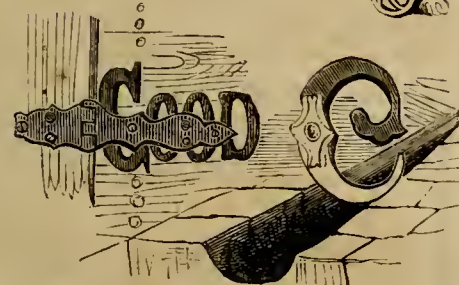
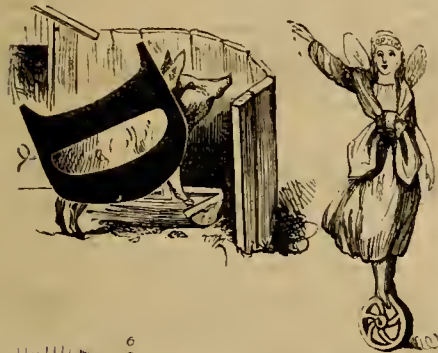
Fig. 2.—BUTTER-MOLD.

the cup. The cup is inverted on to the table, and when this handle is pressed down it forces the mold on to the butter, which is squeezed into a very neat ornamented cake. By pushing the handle and lifting the cup, the cake of butter is pushed out of the mold. This makes a very favorite mode of putting up fine butter for market, and is also well adapted for preparing butter for the table in houses where neatness of appearance is studied. The molds when in use should be kept wetted in cold water to prevent the butter from sticking.

BOYS & GIRLS' COLUMNS.

Something about Rebuses.

Aunt Sue has full control of the Puzzle-Box, and all things thereunto belonging, and though she has supplied us with a plenty of rebuses (not *rebi*, miss who is just beginning her Latin), we have been so crowded with other things that we have not been able to give them room. We like rebuses, for they call for ingenuity in those who make them, and demand a corresponding amount of the same quality in those who make them out. As they are mostly furnished by boys and girls, and are always guessed by boys and girls, there is a good deal of ingenuity exercised somewhere. So let us have answers



424—Illustrated rebus, which gives, as usual, good mystical advice.



425—Illustrated Rebus.—A true saying, whoever made it.



426—Geographical Rebus.—A cape.

to these, and let our ingenious youngsters make new ones. And mind this—send them all to Aunt Sue, Box 111, Brooklyn, N. Y. Nowhere else. Aunt Sue is as well known at the Brooklyn P. O. as—well, better than the Postmaster-General, for she brings more business there.

About those Picture Stories.

All our boys and girls have read about the prizes which the publishers offered last month through "The Doctor." We learn that he has already received a goodly number. The time for closing was put off until May first, in order to allow the far-off youngsters in California, Oregon, and all those distant parts to have a chance. Now send on the stories, you who compete for prizes, and recollect that on the first day of May—slap—the door will be shut, and none come in after that time. Please note the conditions carefully. Some have already sent in stories without giving their ages and names in full. We can not always guess from the handwriting whether it is that of a boy or girl, and where initials only are given the matter becomes puzzling. Tell your story first, and if you have any remarks to make put them on a separate paper, and do not mix the two. It is not necessary to make any apologies for bad writing, as we presume every one does the best he or she can. We do not expect our little folks to be perfect penmen; indeed, we have known some old people whose handwriting might be improved. We have other things to bring on after this contest is settled, and if we mistake not, this is going to be a pretty lively year with our large and growing *Agriculturist* family.

What shall we Learn?—For our Older Boys and Girls.

The question at the head of this article does not refer to what we shall learn at school. All buildings, whether small or large, have pretty much the same kind of foundations, and all that we learn at school is but the foundation of our real education, and we all need to learn, as far as school goes, very much the same things. One of the most important things for a boy (or girl either) to learn is how much and how little they can do, to be convinced that "you can't put a quart into a pint measure," or, to put it in other words, "you can not lift yourself by pulling at your boot-straps." These sayings have passed into proverbs, and like many proverbs, which old people are very fond of repeating and which young ones are very apt to dislike, they contain much common-sense. It is a brief and rude way of telling one that he must learn something about things, about his relations to the objects around him, about his own possibilities. There is an education that every boy and girl gets outside of the school-house. It begins when we are very young, and teaches that hot iron will burn, and that we can't have the moon, no matter how loudly we may cry for it, and continues or should continue to the end of life. "Pshaw!" says some bright boy, "I'll never be such a gooney as to try to lift myself by my boot-straps." But many men have spent fortunes in doing the same thing. Some day you may read the history of the attempts at producing perpetual motion, which is just the same thing as lifting one's self by the boot-straps. Many people who did not understand simple principles have hopelessly tried to devise means to increase power by multiplying machinery. The history of inventions is full of people who have failed in, so to speak, endeavoring to lift themselves by their boot-straps.

"But about the quart in the pint measure?" you will say. "No one can be so foolish as that." It is only another caution against believing in impossibilities. Good Father S. puts it in another way, "Out of nothing nothing comes. When you see an advertisement of watches worth \$25, sold for \$5, before you try to raise that \$5 to send for a watch, just recollect that "you can't put a quart into a pint measure." In other words, that the person making the offer can not perform an impossibility, and that there is a wrong somewhere. Either the man will cheat you in the watch, or he has stolen the watches that he sells. When some one offers to sell a secret for a dollar, by which you can readily make a large sum of money, just stop and think of the nature of the offer. If this secret is so valuable, why don't the man use it and get rich himself? A great many of our older boys are attracted by these tempting offers, and we get frequent letters from them, concerning this or that project. When grown-up men and women are caught by such chaff, we think they learn a lesson that is worth what it cost them. Young people are enthusiastic, and do not stop to consider that no result is to be gained without expending force, whether in throwing a stone or moving a steamer; that there is no honest gain in money to be made without expending something; it may be labor, time, talent, or learning, but something must be given for whatever we honestly receive. When tempted by these offers of great returns from little outlay, remember that "Out of nothing nothing comes"—"You can't put a quart into a pint measure"—"You can't lift yourself by pulling at your boot-straps."

Aunt Sue's Puzzle-Box.

Well, we have had a glorious time with the arithmorems from "grandfather" down to "little Jimmy," and I am very glad you have enjoyed them so much. Now, let's

have some fun with "square words." You will be surprised to find how many words there are, of four letters, in the dictionary, that you never dreamed of. A. B. Leach sends the word "CARE" squared thirteen times, but in one square he has an obsolete word ("reit"), and in three others he has proper names ("Adam," "Ella" and "Etta"). Now, who will send me the greatest number of squares on the word "CARE," using no obsolete nor foreign word, and no names of persons nor places ("Eden" excepted)?

PUZZLE.

Bird, beast, and man, my whole—for food—
Will use, and count it very good:
Take off my head, and yours may be
Uncomfortable made by me.
I can not always thus remain,
So please put on a head again;
Oh! dear, how stupid you would be,
If you were now bereft of me.
Behold me twice, and then is shown
What Scottish laddies claim *their own*.
If I again beheld be
A preposition you will see;
Now change my head and turn me round
A much-used Latin word I'm found.

A. H.

ANAGRAMS.

- 1. Nat's score.
- 2. See her cars.
- 3. Eden contract.
- 4. Electing line.
- 5. I scent rue.
- 6. Cram a cut soul.
- 7. Enchain serf.
- 8. Slender pence.
- 9. Oh! idle surf.
- 10. Sit erect, Dr.

CROSS-WORD ENIGMAS.

- 1. My first is in ounce but not in dram.
My next is in Harry but not in Sam.
My third is in ant but not in bee.
My fourth is in ocean but not in sea.
My fifth is in young but not in old.
My sixth is in silver but not in gold.
And now my whole I prithee tell—
'Tis a tropical fruit, you know it well.
- 2. My first is in spectacles, not in eyes.
My second in owl but not in wise.
My third is in picture, not in sketch.
My fourth is in villain, not in wretch.
My fifth is in entry, not in hall.
My sixth is in cricket, not in ball.
My seventh is in you but not in thee.
My whole is a place where some like to be.

CYRUS R. II.

AGNES LEE.

SQUARE WORDS.

- 1. Square the word "PLOW."
- 2. 1 A boy's name. 2 A disease. 3 Rough. 4 To retain.

PL.

Fo' lal sadsite, dusty rony serpent donitonic.

ARITHMOREMS.

- 1. 550020019008.
- 2. 5500801250160150.
- 3. 400805009001160250.
- 4. 5001100160500160080.
- 5. 500502501017.

BELLE.
ALPHA.
JERRY.
JAMES T. F.
JOHN BRIGHT.

ANSWERS TO PUZZLES IN THE FEBRUARY NUMBER.

ARITHMOREMS.

- 1. Poniard.
- 2. Tennessee.
- 3. Oneida.
- 4. Shorten.
- 5. Iowa.
- 6. Tend.
- 7. Benign.
- 8. Tone.

ANAGRAMS.

- 1. Confidental.
- 2. Sentinel.
- 3. Parquette.
- 4. Reminiscence.
- 5. Pharmacy.
- 6. Military.
- 7. Monastery.
- 8. Admiral.
- 9. Inchoate.
- 10. Rascality.

OPPOSITES.—1. Larkspur. 2. Bluebell. 3. Bachelor's Buttons. 4. Dog's-tooth. 5. Sweet-William. 6. Chinese Pink. 7. Lily. 8. Morning-glory. 9. Butter-cup. 10. Forget-me-not.

DECAPITATIONS.—1. Bowl, owl. 2. Panther, anther. 3. Bark, ark. 4. Stone, tone. 5. Bass, ass. 6. Hat, at.

SQUARE WORD.

CARE
AWAY
RAKE
EYES

TRIANGULAR PUZZLE.

ROMULUS
FINCH
ADD
E
ARC
ARGIL
COLONEL

NUMERICAL ENIGMA.—Whippoorwill.

NUMERICAL ENIGMA.

I am composed of 22 letters.
 My 16, 17, 18, 10, is an article of clothing.
 My 19, 8, 9, 13, is a number.
 My 14, 15, 12, is a boy's nickname.
 My 3, 11, 21, 22, is a spike.
 My 7, 20, 2, 5, is an interjection.
 My 12, 1, 6, 17 is much used in cooking.
 My 4, 5, is a pronoun.
 My whole is a well-known proverb.

B. W. PURCELL.

AUNT SUE'S NOTICES TO CORRESPONDENTS.

ADDIE L. B. It grieves me to be unable to reply personally to hundreds of just such charming letters as yours, but I feel none the less grateful for such kind interest, and can not have "too many correspondents."

Glad to hear from O. A. Gage, M. M. L., James McA., F. W. H., Cora F. B., Chs. De L., A. B. Leach, M. F. D., and S. L. Y.

Thanks for puzzles, etc., to Gustavus M., Harry H. D., O. O. Y. S., Clayton C., St. Johns, "Scientific," M. L. E., and John Bright.

In sending contributions for the puzzle department, please specify whether they are intended for the *Agriculturist*, or for *Hearth and Home*.

How Came He to Pull her Nose?

A SENSATIONAL STORY BY "THE DOCTOR."

The characters in my story are three, and I might as well introduce them to you at once. They are Will, Nell, and little Caoutchouc. To save the trouble of de-



HOW CAME HE TO PULL HER NOSE?

F. L. S.—Is the "trick" you send, original? Is it not already published in the books on "parlor magic"?

O. O. Y. S. ("One of your Subscribers").—If "the boys come in from their sledding" "to puzzle over the arithmorems," my mission is surely fulfilled.

DAISY.—As you have numbered your questions, I may reply briefly. 1. No. 2. The value depends entirely upon the merit of the article, or the fame of the author. 3. A *nom de plume* is sufficient.

M. L. E.—No, thank you; I have more "cross-word" and "numerical enigmas" now on hand than I ever expect to use during my natural life, and I belong to a long-lived race.

scribing them, I refer you to the picture. Caoutchouc is not such a very pretty name, particularly when you pronounce it ko-chuk. If you look in the dictionary, you will find that Caoutchouc is an Indian name for India-rubber, and before we go on with our story I wish to ask, What do you boys and girls know about India-rubber? For that matter, what do the old folks? "What has this got to do with it?"—Didn't I say this was a sensational story, and you never can tell how these stories will come out. Well! I am not a very old fellow—at least I didn't think so until the other day, when I entered a crowded street-car, and a bright-looking youth got up and said, "Take my seat, old gentleman." How an India-rubber story does stretch, to be sure! To get back! I am not

a very old fellow, but I can recollect many things that you can not. When I was a youngster like you—never mind the date—I had a great fancy for learning to draw. I had the run of a fine large library, and you may be sure that I hunted up all the books that told anything about drawing. There was one book, I have forgotten the name of it now, that I liked very much. It said that no false marks should be made upon the paper, but if any were made, they could be taken out by carefully rubbing them with a piece of stale bread. Just here in the book was an *, which referred to a foot-note, where it was stated that the author had seen a peculiar substance, brought from the Indies, and went on to describe it so that any one might know it was India-rubber, and stated where and at what price a small piece could be bought for rubbing out pencil-marks. Now, how different! We wipe our feet upon an India-rubber mat, and dress our hair with an India-rubber comb. To enumerate all the forms in which we are familiar with this article, would require a long catalogue. So far from being a rarity, a curiosa thing with which to rub out pencil-marks, it has become one of the necessary things of our lives. . . . How did I first become acquainted with it?—In my first pair of India-rubber shoes—Philadelphians used to call them "gums," and people who wished to be very elegant in their speech, used to call them "elastics." We matter-of-fact people called them India-rubber over-shoes, and if we were in a hurry and wished to be very economical, we would abbreviate to "rubbers," but never "gums" nor "elastics." But before I tell you about my first "rubbers," let me say something about rubber in general. There are several trees in tropical countries that have a milky juice, and this juice, when dried, is the very thing we are talking about—India-rubber. If I were to tell you that an Euphorbiaceous plant, *Siphonia Elastica*, produces the most and the best, I don't think you would be much the wiser for it. So we will content ourselves with the fact, that a South American tree, which grows in the greatest abundance, is always ready to yield its juice, if properly treated. A notch is hacked in the trunk of the tree, and below this cut a little basin of clay is molded. You will say that "hacking" is not the best way to make a tree "give down," but the tree does, and lets at least a teacupful of milk run into the little clay basin each day. If you were to dip a stick into this milk, and let it dry, you would find a thin film of India-rubber on your stick—and that is the whole story of India-rubber making, only the natives, while they follow the principle, put in many variations. "Milk?" you say.—Yes, it looks like milk, and tastes not so very unlike it, for I have seen and tasted it. Some one discovered that if a little ammonia (which you perhaps know as hartshorn) be added to the milky juice of this tree, it can be kept for a long time without change. Some one sent a lot of this preserved milk to Boston (Boston, you know, children, is "the hub," where everything that is worth knowing is to be found), and there is where I saw this wonderful liquid. The South American Indians make molds of clay, dip them in the milk of the India-rubber tree, and then hold the mold over a fire to dry it; then they dip again, dry again, and thus the mold gets covered with rubber as thick as they please. When the coat is thick enough, they break the clay mold, shake out the broken clay, and have a bottle, a bird, or a shoe, of just the shape of the mold.

This brings me to my first rubber shoes. They were made in this way. Clay molds were gradually coated with the milk, and dried, and the rude shoes sent to market. The shoes had no particular shape, but they were wonderfully elastic, and would adapt themselves to the boot or shoe over which they were worn. You would be puzzled to find now a pair of rubbers like my first ones, and, as I believe I told you before, I am not such a very old fellow, either. Just look at our "Aretics" now! How unlike the shoes of — years ago! This change all comes of an inquisitive American by the name of Goodyear. He found that in cold weather our rubbers would be as hard as iron. If put in a warm place, they would become sticky. He wished to have a rubber that would be soft in the coldest weather, and not be too soft with any moderate amount of heat. So he began to ask the rubber questions. . . . "Questions?"—Yes, all experimenting is asking questions. So he mixed a little of this thing with the rubber, and said, "How now?"—then he put some of that thing with it, and said, "How now?" again. Then he used "other thing" and cooked the rubber, and when he said "How now?" this time, the rubber yielded and said, "All right! Sulphur and cooking did it, and all our nice rubber things are based on that discovery. Now we have rubber that will make boots to go to the North Pole, or water-bags to go to the Equator, and it is not changed by heat or cold. We have our splendid shoes, our capes, elastic material of all sorts, our balloons, our dolls and other toys, and even our jewellery, made out of that curious substance that was first used to remove pencil-marks from paper. I began this as a sensational story, entitled "How came he to pull her nose?" The introduction has been so long, that I am obliged to make the story very short—Because it was an India-rubber doll!

It has been stated that

40,000 ORGANS

(presumably "Cabinet Organs") are sold annually—some where; which we think is nearly the whole number of all sorts of reed organs made in the United States. But over

40,000 AMERICAN ORGANS

are in use, and we are constantly extending our facilities for manufacture. THE SMITH AMERICAN ORGAN CO. is the oldest among New England makers, having been in business over twenty-one years. Our organs are distributed over the civilized world, and are everywhere recognized as

The Leading Instruments.

English manufacturers, wishing to commend their wares, advertise them in large type as

AMERICAN ORGANS!

While we believe in BRAINS, MUSICAL FEELING, and CULTIVATED TASTE, and think that such a combination will not be beaten, in the production of artistic works, by any quantity of planers, borers, and jig-saws, we nevertheless avail ourselves of every practical expedient to save labor, by employing machinery to do such work as does not require intellect for its perfection. There is no establishment that uses so many

INGENIOUS LABOR-SAVING MACHINES.

Our large capital—equal in amount to that of any competing company—enables us to purchase ample supplies of

THE BEST MATERIALS,

and to give thorough workmanship and completeness to every part of our instruments. And for this end we mean to secure the most

Intelligent Supervision

in every department, and especially to produce the most

BRILLIANT AND MELODIOUS TONE.

Our prices are as low as those of any instruments that pretend to a comparison in quality.

We shall be glad to send our new

RED-LINE CATALOGUE

to any address upon application.

The Smith American Organ Co.,

Tremont st., opp. Waltham st.,

BOSTON.

ARE YOU GOING TO PAINT?

MORE THAN

100,000 HOUSES

HAVE BEEN PAINTED WITH THE

AVERILL CHEMICAL PAINT

IT IS THE BEST

In the world for exterior work upon Cottages, Villas, or Buildings of any kind, whether built of brick, wood, or iron. It is a liquid, ready for use, and requires no oil thinning or drier. Purest white, and any desired shade can be had in packages from one gallon upwards.

Letter Received from Levi Shaw, Trustee of the United Society of Shakers.

MR. LEBANON, N. Y., Sept. 27th, 1871.

RESPECTED FRIENDS: In reply to your inquiry as to what we think of the Averill Chemical Paint, we have used in our Society at Mount Lebanon some 1,000 gallons. We are very much pleased with it, and until we are convinced that there is something better, shall give it the preference of all other paints. We have used heretofore the (—), (—), and most all other brands of white lead, neither of which have given us perfect satisfaction. Most of it would chalk off after being on some two or three years. This, after three years' experience, we do not find to be the case with the Averill Pure White Chemical Paint. Indeed, it appears just as well as when first put on. I will write you again on the subject when I am not in quite so much of a hurry.

Sample card of beautiful colors, and recommendations from owners of the finest residences in the country, furnished free by the

AVERILL CHEMICAL PAINT CO., 32 Burling Slip, New York, or 118 Superior Street, Cleveland, Ohio.

L. HATFIELD, AGENT, 131 Portland Street, Boston, Mass.

CHARLES OSGOOD & CO., Norwich, Ct.

ROBERT SHOEMAKER & CO., N. E. corner 4th and Race Streets, Philadelphia, Pa.

R. & W. H. CATHCART, 113 Thames Street, Baltimore, Md.

LAWRENCE & CO., 52 Main Street, Cincinnati, Ohio.

GEO. W. PITKIN, 120½ Michigan Avenue, Chicago, Ill.

GEO. PARTRIDGE & CO., St. Louis, Mo.

P. S.—The superiority of these Paints has already brought numerous worthless imitations in the market. We caution the public against using them.

DOTY'S CLOTHES WASHER.

"We believe the improved machine has no superior. The 'help' use it, and like it."—American Agriculturist. (See premium-list description, Feb. number, page 74.)

METROPOLITAN WASHING MACHINE CO., 32 Cortlandt st., New York.

PRATT'S ASTRAL OIL

has now the established reputation of being in every respect the safest, purest, and most reliable oil made.

OIL HOUSE OF CHAS. PRATT,

Established 1770. 108 Fulton st., New York.

We do not consider the success of the Blanchard Churn to be wondered at. Everybody knows that "the best" will always win.

WHY NOT WRITE AT ONCE!

We are trying to distribute information in regard to Waltham Watches. We know the better they are understood the more they will be sold. Hence, we have prepared an interesting pamphlet, illustrated with fine engravings, which gives a full and correct account of their manufacture; also a Descriptive Catalogue, with prices of every size and grade. We send this free to any one. From it you will learn the prices, also our plan of sending them by Express; the Watch not to be paid for till you have handled and examined it. Address HOWARD & CO., 865 Broadway, New York.

Mention that you saw this in the American Agriculturist.

No stamps required for return postage.

Residents of California, Oregon, and the Territories will find special advantages in writing to us, as we make the extra heavy cases adapted to these localities.

GEO. A. PRINCE & CO. ORGANS

AND

MELODEONS.

The Oldest, Largest, and Most Perfect Manufactory in the United States.

48,000

Now in use.

No other Musical Instrument ever obtained the same popularity.

Send for Price-Lists.

Address

BUFFALO, N. Y., Or CHICAGO, ILL.

THE BAXTER ENGINE.

2 TO 10 HORSE POWER.

Send for Circular and Price-list to

WM. D. RUSSELL, 18 Park Place, N. Y.

Some of our very best dairymen tell us that they complete the whole process of butter-making, churning, working, and salting, to their entire satisfaction in the Blanchard Churn, without touching their hands to the butter. We know it can be done.

CAMPBELL'S Late Rose Potato.—A new seedling of finest quality, from Early Rose. Yields twice as much as Peerless. Three bushels were grown from half a pound. Descriptive Circulars free. Price, \$1 per lb., or \$2 for 4 lbs., post-paid. GEO. W. CAMPBELL, Delaware, O.

Hear our Side and know why we sell on Trial the best Four-Ten Hay Scale, made at \$75. Free Price-list. THE JONES SCALE WORKS, Binghamton, N. Y.

HOW to obtain a Cast-Steel Plow for five dollars. For particulars, address COLLINS & CO., 212 Water st., New York.

MONEY MADE RAPIDLY with Stencil and Key Check Outfits. Catalogues, samples, and full particulars FREE. S. M. SPENCER, Brattleboro, Vt.



FOR the BEST and CHEAPEST Stump-Puller and Rock-Lifter, address T. W. FAY, Camden, N. J.

\$200 For 1st-class Pianos. No commission—no Agents Address U. S. PIANO CO., 865 Broadway, N. Y.

Also, manufacturer of

Asbestos Boiler Felting,

Roofing and Sheathing Felts, Boiler Scale Preventive, Acid, Water, and Fire-proof Compositions, Paints, etc. and dealer in "ASBESTOS, ASPHALTUM, and general Roofing materials."

Descriptive Pamphlets, Price-lists, Terms to Dealers, etc., by mail.

H. W. JOHNS,

78 William st., N. Y.

[Established in 1858.]



DENLOW & BUSH'S "SAFETY" OIL

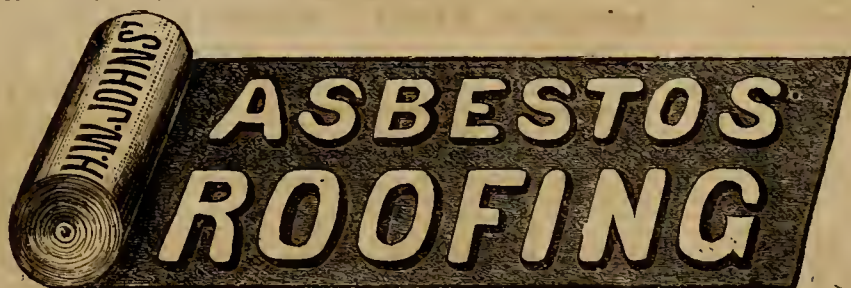
WILL NOT EXPLODE, even if a lighted lamp be upset and broken! SAFEST and PUREST OIL KNOWN. Fire test guaranteed over 150°. Used in 100,000 families. For sale everywhere. Dealers address DENLOW & BUSH, 130 Maiden Lane, N. Y.; 40 India St., Boston; 34 S. Calvert St., Baltimore; or 479 S. Canal St., Chicago.

"Asbestos Roofing"

Is a substantial and reliable material, which can be safely used in place of Tin, Slate, etc., on steep or flat roofs, in all climates. It is finished on the roof with the

"Asbestos Roof Coating,"

prepared ready for use. (Also valuable for restoring old Tin, Shingle, and other roofs.) It is proof against burning sparks and cinders, and can be easily and cheaply transported and applied.



FIRST PREMIUM (MEDAL) AWARDED IN 1870, AND INDORSED BY CERTIFICATE FROM THE AMERICAN INSTITUTE IN 1871, AS "THE BEST ARTICLE IN THE MARKET."

Cheap Farms! Free Homes! ON THE LINE OF THE UNION PACIFIC RAILROAD.

A LAND GRANT OF 12,000,000 ACRES

Best Farming and Mineral Lands in America.

3,000,000 Acres in Nebraska,

GREAT PLATTE VALLEY,

GARDEN OF THE WEST, Now for Sale!

These lands are in the central portion of the United States, on the 41st degree of North Latitude, the central line of the great Temperate Zone of the American Continent, and for grain-growing and stock-raising unsurpassed by any in the United States.

CHEAPER IN PRICE, more favorable terms given, and more convenient to market than can be found elsewhere.

FREE Homesteads for Actual Settlers.

THE BEST LOCATIONS FOR COLONIES.

Soldiers Entitled to a Homestead of 160 Acres.

Free Passes to Purchasers of Land.

Send for the new descriptive pamphlet, with new maps, published in English, German, Swedish, and Danish, mailed free everywhere. Address

O. F. DAVIS, Land Commissioner, U. P. R.R. Co., OMAHA, NEB.

900,000 ACRES

EXCELLENT FARMING AND SPLENDID

Michigan Pine Lands

FOR SALE,

On which are ONE THOUSAND MILLIONS OF PINE TIMBER, and inexhaustible quantities of Maple, Beech, Elm, Ash, Hemlock, Oak, etc.

The grant of lands to the Grand Rapids and Indiana Railroad Company to build their Road from Fort Wayne, Ind., to Traverse Bay and Mackinaw, Michigan, comprises in its farming lands every variety of soil, from the rich clay loam to the light sandy, and they are found in that section of Michigan, north of the city of Grand Rapids, and contiguous to the great fruit belt on the eastern shores of Lake Michigan, now being rapidly developed by railroad and other enterprises.

Farming Lands are sold to actual settlers, on credit, one quarter down, balance in yearly payments, interest 7 per cent. Persons desirous of locations for farms will, on application at the Office in Grand Rapids, be furnished with Tickets over the Road, entitling them to Return of Fare, in the event of purchasing any of the Company's farming land. For information about the lands, prices, location, etc., etc., address

WM. A. HOWARD, Land Commissioner, Grand Rapids, Michigan. TITLE PERFECT.

FREE!



Containing reliable descriptions of city property, suburban residences, and New England farms. Now for sale. Address

REAL ESTATE JOURNAL, 25 Tremont Row, Boston.

1,500,000

Acres of the best Farming Lands in Illinois, Iowa, Minnesota, Nebraska, Kansas, and Missouri, for sale at low prices and on easy terms to settlers. Descriptive pamphlets, and all other necessary information, freely furnished by mail or otherwise.

W. J. BARNEY, Chicago, Ill.

SECURE A HOME. A RARE OPPORTUNITY in the best market, the most delightful and healthy climate, and best Fruit Soil in the Union; 30 miles from Philadelphia. Land from \$30 to \$30 per acre. For full information, address R. J. BYRNES, Hammonton, N. J.

FOR SALE.—Fine farm of 240 acres, with good buildings, in Dorchester Co., Maryland, near Cambridge, the county town, for \$4,000, on terms to suit. Address A. I. MORAAY, Cambridge, Dorchester Co., Md.

GUANO, BONE, PLASTER.

Best No. 1 Peruvian Guano. Best Ground Bone. Best Land Plaster. Sold in lots to suit, to either the farmer or dealer, by GRIFFING & CO., Send for Circular. 60 Cortlandt St., New York.

SEED CORN!

"CORN IS KING."

Cooley's Early Field Corn.

MILLIONS OF BUSHELS OF CORN are lost annually by the early fall frosts; and other millions are not developed, by the failure of the young stalks to push forward before the dry and hot weather of July and August dwarfs their growth.

Mr. C. C. Cooley, of Manchester Island, in the Ohio River, during the past twelve years has developed a White Field Corn that is at once VERY PROLIFIC, and

Matures in Fourteen Weeks.

Of this corn the New York Herald says: "The ears of corn received of Mr. Cooley are certainly a novelty. Only think of new corn, raised in Ohio, ripe enough to shell and sell in the New York market on the 15th of August."

The N. Y. Tribune says: "This corn is extraordinary."

The Prairie Farmer says: "The ears average eleven inches in length. The kernels . . . are matured enough to withstand injury from the frost. As the stalks of this corn are not so tall as those of other varieties, it can be planted nearer together."

FREE DISTRIBUTION OF SEED.

The seed of this very desirable Corn is only this spring first presented to the public. For the purpose of extending its benefits as widely as possible, the publishers of the

CINCINNATI WEEKLY TIMES

Have devised a method of distributing

TEN THOUSAND SACKS FREE,

To the farmers of the North, North-west, West, and South-west.

For further information address, with stamp,

PUBLISHERS WEEKLY TIMES,

No. 63 West Third St., Cincinnati, O.

The Premium Sanford Corn.



It has received the highest premiums at every State and County Fair wherever exhibited. 150 Farmers, in different States, who have tested it the past season, testify to its superiority over all other varieties. M. W. Stone, of Hamden, O., reports a yield of 203 bushels from one and one sixth of an acre without extra culture. J. J. Abernethy, New Village, N. Y., says: I have raised 55 bushels from one half-acre. J. D. Edgar, Yankton, Dakota Terr., writes: It matures much earlier than any corn we have ever had here. It is the corn for this country. I propose to give it a more extended trial. Ship me by freight 40 bushels selected seed. From Chamberlain & Chaffin, Garrotte, Ill.: The Sanford corn produced of an average two ears to a stalk. Planted 1st of June, harvested middle of September (100 days from planting). Have found none to equal it. J. W. Miller, Graham Lake, Minn., writes: I planted May 14th. The season being very dry, it did not sprout in three weeks. My neighbors said I was sold, but changed their tune at picking time. I harvested 14 bushels of the finest corn I ever saw from the plant of seed planted. I shall plant the whole, and want no better corn. Dr. N. S. Smith, Janesville, Wis., reports: I raised 110 bushels of same, ripe corn per acre, white and Yellow Dent did not exceed 65 per acre.

Beware of bogus and impure seed. Send to head-quarters and get the genuine. Those who order, and state the name of the paper in which they saw this advertisement will receive gratis one pound of the famous Late Rose Potato. One quart, post-paid, 60c.; two, \$1; peck, by ex. or freight, \$2; 1/2 bushel, \$3; bushel, \$5.

SEED POTATOES.—Peerless—4 lbs., post-paid, 75c.; one bushel, by freight or express, \$1.50; one bbl., \$3.50; five or more, \$3 per bbl. Late Rose (genuine)—4 lbs., post-paid, 75c.; 1 bushel, by freight or express, \$3.50; one bbl., \$8. Early Rose, \$2.50 per bbl.

SEED OATS.—For two stamps, to pay postage, I will send three samples, sufficient for trial, the best from ten varieties tested for two seasons.

Send stamp for Circular, giving full description and list of choice Field and Garden Seeds. Address

S. B. FANNING, Jamesport, N. Y.

MAMMOTH DENT CORN.—Raised 500 bushels, seed obtained from I. N. Balthis. Enormously productive. Price by mail, 4 lbs., 50c. By express, 1 pk., \$1.75; 1/2 bu., \$2.50; 1 bush., \$2.75; 2 bushels, \$5. Address RICH LECHNER, Sheridan, Pa.

CHOICE SANFORD CORN, saved from selected ears. Price per qt., post-paid, 50c.; two qts., 80c.; one pk., by ex., \$1.75; 1/2 bu., \$2.50; per bu., \$4. Address CHARLES L. SCHMUCKER, P. O. Box 1392, Fort Wayne, Ind.

MOORE'S EARLY CONCORD SWEET CORN.—Every one should plant this, the earliest and best in cultivation. 15c. per pkt., 4 pkts. for 50c., by mail, post-paid. JULIUS L. BROWNING, Chatham Village, N. Y.

CAMPBELL'S 60 Days Sugar Corn.—New. Believed to be the earliest sweet corn grown. Long ears, large grains, and exquisite flavor. Packet, 25c., post-paid. GEO. W. CAMPBELL, Delaware, Ohio.

JOHN S. COLLINS sells good genuine plants as low as any other responsible person offers.

Great Reduction in Prices.

As we have reduced the prices of our CELEBRATED BONE FERTILIZERS for the spring trade, we invite all interested in agriculture to send for Circulars. Address LISTER BROTHERS, Newark, N. J.



Having been the first to introduce to the public the Hubbard Squash, American Turban Squash, Marblehead Mammoth Cabbage, Mexican Sweet Corn, Phioney's Watermelon, Brown's New Dwarf Marrowleaf Pea, Boston Curled Lettuce, and other

New and Valuable Vegetables,

with the return of another season I am again prepared to supply the public with Vegetable and Flower Seeds of the purest quality. My Annual Catalogue is now ready, and will be sent free to all. My customers of last year will receive it without writing for it. It abounds in fine engravings, many of which were taken from photographs of the vegetables themselves. It has not only all novelties, but the standard vegetables of the farm and garden (over one hundred of which are of my own growing), and a carefully selected list of Flower Seeds. As stated in my Catalogue, all my seeds are sold under three warranties—1st: That all money sent shall reach me; 2d: That all seed ordered shall reach the purchaser; 3d: That my seeds shall be fresh, and true to name. Catalogues free to all.

JAMES J. H. GREGORY Marblehead, Mass.

SEED TREES. PLANTS. FRUIT GENUINE.

OUR DESCRIPTIVE CATALOGUE OF CHOICE GARDEN, FIELD, and FLOWER SEEDS, SMALL FRUITS, FRUIT, ORNAMENTAL, and SHADE TREES, SHRUBS, VINES, ROSES, BULBS, Vegetable Plants, Fertilizers, etc., with Order-Sheet and Direction Envelope, mailed to all on application. SEEDS, PLANTS, etc., mailed to all parts of the United States and Territories safe and fresh. We grow Vegetables, Small Fruits, etc., for market ourselves, and know the value of a pure, reliable article to the Farmer, Gardener, and Fruit Grower. All can sow and plant our stock with confidence. D. H. BROWN & SONS, Seedsmen, Fruit Growers, etc. 24 HIRAM ST., & CHERRY LAWN FARM, New Brunswick, N. J.

ALL FOR \$1.00.

Sent post-paid, by mail.

- 10 pkts. Choice Annual Flowers, worth 50 cts.
1 Choice Gladiolus Bulb, " 30 cts.
1 Lilium Auratum Bulb, " 30 cts.
2 Double Tuberose Bulbs, " 30 cts.
One sent free for a club of five.

Catalogue of Flower and Garden Seeds sent free. W. B. DIMON, JR., & CO., Brooklyn, N. Y.

Choice Onion Seed

Every old onion-raiser knows that the difference in value of a crop of onions raised from seed of average quality, and one raised from onions that have been most carefully hand-picked each year for a long series of years, is from fifty to a hundred dollars. The seed I offer is of my own growing, and has had its reliability of yielding choice onions, free from scullions, as fully inbred as are the traits in any of the purest bred animals. My catalogue has recommendations from twenty farmers who have used my seed, and so know all about it. Catalogues sent free to all.

JAMES J. H. GREGORY, Marblehead, Mass.

Fall Meadow Oat-Grass Seed.

Last year we were unable to supply the demand for this article. We have now a limited quantity (all we could obtain from Europe) of this variety, so valuable for pasture or hay. It is fully described and figured in the American Agriculturist of March, 1871, page 104. Price one bushel of 14 lbs., \$4.00. Sample packets, by mail, of two pounds, for one dollar. We also offer the following:

- English or Perennial Ryegrass Seed, per bush., \$4.00
Kentucky Blue Grass, extra clean, " 4.50
Lawn Grass, finest mixture, " 5.00
Sweet-scented Vernal Grass, per lb., .80
White Dutch Clover, " .50
Alsike or Hybrid Clover, " .50
Lucern or French Clover (Alfalfa), " .50

With all other Grass, Garden, and Flower Seeds, for which see Dreer's Garden Calendar for 1872, mailed to all applicants.

HENRY A. DREER, Seed Warehouse 714 Chestnut st., Philadelphia, Pa.

Three New Melons.

My Catalogue contains a description, with engravings, of three new melons, which are well worthy the attention of all who love choice melons. Catalogue free to all.

JAMES J. H. GREGORY, Marblehead, Mass.

RUSSEL COE'S

Ammoniated Bone Superphosphate Lime, The most valuable commercial fertilizer now in use, at a reduced price.

Quality guaranteed equal to any heretofore manufactured. Prof. Samuel W. Johnson, of Yale College, and Chemist for the State of Connecticut, in his report on commercial fertilizers, makes it worth fifteen dollars per ton, in gold, more than any of the sixteen kinds of fertilizers analyzed, most of them superphosphates, as will be seen by reference to his pamphlets.

Manufacture and Post-Office at Linden, Union Co., N. J. CLUB TOGETHER. SAVE WHEN YOU CAN. Small Fruit Plants given away. \$7 worth for \$5. \$10 worth for \$10. \$45 worth for \$25, ordered at dozen or 100 rates. See pag. 153. THOS. C. ANDREWS, Moorestown, N. J.

**Rare and Beautiful Flowers
and Choice Vegetables**

CAN ALWAYS BE OBTAINED BY SOWING



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 Fancies, German, Carnation, and Picotee Plinks, Verbenas, Truffant'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; No. 2, \$15; No. 3, \$10; No. 4, \$5.

For a list of the contents of each Collection, see the Eighteenth Annual Edition of their celebrated Seed Catalogue and Amateur's Guide to the Flower and Kitchen Garden.

just published, which will be mailed to all applicants upon receipt of 25 cts.; an edition beautifully bound in cloth, 75 cts. Regular customers supplied gratis.

This is without exception the largest and best Catalogue ever published in this or any other country. It contains 146 pages closely printed matter, besides several hundred finely executed engravings of favorite flowers and vegetables, and a beautifully colored Chromo of a group of twenty of the most popular flowers in cultivation. Also a descriptive list of 2,500 species and varieties of flower and vegetable seeds, including all the novelties of the past season, with full directions for culture.

We will send a packet of choice Flower Seeds gratis to persons sending us orders for catalogues and inclosing 25 cents (price of catalogue), if they will state that they saw this advertisement in the *American Agriculturist*.

Address **B. K. BLISS & SONS,**
P. O. Box 5712, New York City.

The Earliest and Handsomest Beet.

Early Dark Red Egyptian Turnip Beet.
A trial of this variety for the past three 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. 30c. per ounce; \$1.00 per 4 ounces; \$3 per pound.

B. K. BLISS & SONS,
23 Park Place, and 20 Murray St., New York.

To Farmers and Gardeners.

I invite all who have been in the habit of buying their garden seed from boxes left at the stores to give my seed a trial, side by side, and mark the difference in their germinating, and in the purity and quality of the vegetables raised from them. I have made it my mission for several years past to drive bad seed from the market, and so save farmers and gardeners the immense loss they annually suffer from the purchase of it.

The public have well appreciated my efforts, and I have now fifty thousand customers in the United States and Canada. I sell no seed I do not warrant, and what is the real pith of the matter I stand by my warranty. To enable me to do this I grow myself a large proportion of the seed I sell. Catalogues sent free to any applicant.

JAMES J. H. GREGORY, Marblehead, Mass.

GEN. GRANT CUCUMBER—Grows from 25 to 30 inches long; enormous bearer; unsurpassed for table use or pickles; 20c. per packet. **SANFORD CORN**—Yields 150 bushels per acre; 1 qt., 50c.; 4 qts., \$1.50, post free. **PEERLESS POTATOES**—1 lbs., 60c., post free.

G. W. WILSON, Auburn, Ohio.

IMPROVED White-spined Cucumber Seed.—The result of a careful selection for several years of the most perfect-shaped cucumbers, from vines that have uniformly produced them, in my own frames. Price 25 cts., post-paid. **C. THOMPSON ADAMS, Florist and Horticulturist, West Medway, Mass.**

Choice English Peas.

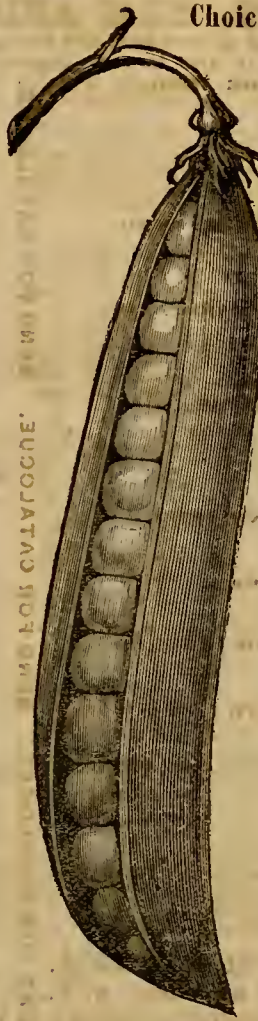
The following varieties have been fully tested both in Europe and this country for the past two years, and can be confidently recommended as superior to any other varieties in cultivation. Mailed, post-paid, at prices affixed.

Laxton's Alpha Pea.
THE EARLIEST WRINKLED PEA IN CULTIVATION.—A blue, wrinkled pea, of exquisite flavor, remarkable for its earliness and prolific bearing. This pea was raised by Mr. Laxton; it is very early as first crop, beating in this respect *McLean's Advance* and *Little Gem*; its beans pods well filled and of good size down to the bottom of the haulm. The Royal Horticultural Society awarded a first-class certificate to this variety.

One-half pint packets, 35 cents; \$1.40 per quart.
Laxton's Prolific Early Long Pod.
This valuable variety has created a great sensation among market-gardeners and seed growers. Pods in a green state were exhibited in London averaging eleven to twelve peas in a pod, and were pronounced an exceedingly fine variety. For a second early pea, there is none of a similar class in cultivation equal to it, and we feel very confident that it will soon come into general cultivation. 1/2 pint pts, 50c., per quart, 56c.

Laxton's Supreme.
The earliest blue pea in cultivation, with enormous well-filled pods. This pea has been exhibited all over the country, and has taken innumerable prizes, and was included among the twenty-four sorts of vegetables which won the Fifty-Guinea Cup, which was presented by the editors of the *Gardener's Chronicle* at the Royal Horticultural Show at Manchester. Per 1/2 pint packet, 35c.; per qt., 90c.

Also many other new varieties introduced the past season, for which see our Catalogue.



SUPREME PEA.—(LAXTON'S.)

B. K. BLISS & SONS,
Nos. 23 Park place & 20 Murray st., New York.

LATE ROSE POTATO.

This valuable Potato, which is now for the first time offered for sale, differs from all other varieties so far introduced, inasmuch as it is not claimed to be a new seedling, but a sub-variety or sport of the well-known *Early Rose*, which it strongly resembles in quality, color, and form—but is three weeks later, hardier, and more productive, having yielded the past season 250 to 300 bushels to the acre.
\$12.00 per bbl., \$5.00 per bush., \$3.00 per 1/2 bush., \$2.00 per peck, 4 lbs., by mail, \$1.00.

Our Illustrated Potato Catalogue will be mailed to all applicants. Address **B. K. BLISS & SONS,**
23 Park Place, and 20 Murray St., New York.

Moore's Early Concord Sweet Corn.

Another year's trial has proved this to be the best Sweet Corn in cultivation.
Selected ears, 25c. each; packet, 25c.; quart, by mail, 90c. Address **B. K. BLISS & SONS, P. O. Box 5712, New York.**

LAWN GRASS SEED.

By the use of our improved mixture, a beautiful Lawn may be made in a very short time. For preparing a Lawn, and subsequent management, see our Seed Catalogue. Packages of one qt., 30c., 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.

Reserve Potato.

NONE better. Satisfaction or no pay. Send for Circulars. **Peerless at Bottom Prices.** Largest stock west of N. Y. Half sold. Central and Western buyers save freight in purchasing of us.
L. D. SCOTT & CO., Huron, Erie Co., Ohio.

PEERLESS POTATOES.

Get the GENUINE, delivered at R.R. depot, \$3 per bbl., \$1.50 per bush., \$1 per 1/2 bush., 75c. per peck; or 4 lbs. by mail, post-paid, 75c.

JULIUS L. BROWNING, Chatham Village, N. Y.

SKY FARM PEERLESS.—Best because unmixd. Mountain-grown, selected seed. 4 lbs., 60c.; peck, 60c.; bush, \$1.25; in quantity, \$1 per bush. All varieties furnished. **H. S. GOODALE, S. Egremont, Mass.**

PEERLESS POTATOES.—Delivered on cars at \$3 per bbl. No charge for bbl. **HARVEY BROTHERS, Growers and Importers of Select Garden and Flower Seeds, Buffalo, N. Y.**

PEERLESS POTATOES, \$3.50 per bbl. Early Rose, \$3.
W. S. CARPENTER & SON, Rye, Westchester Co., N. Y.

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IMPERIAL SUGAR BEET.

This superb variety is the result of a careful selection for several years past of the French Imperial Sugar Beet, by Mr. Henry Lane, an experienced farmer of Cornwall, Vt. After a satisfactory trial, we can recommend it with the greatest confidence, as being hardier, more productive, and containing a greater percentage of sugar than the ordinary variety; and much better adapted for cultivation in this country, either for stock or the manufacture of sugar. We hear the most favorable reports from those who have tested it in various sections of the country, all of whom are satisfied of its superiority. It is the best beet raised for feeding cows or young stock. From thirty to forty tons raised to the acre, at a cost of from five to eight cents per bushel, the cheapness with which they can be raised, the large amount of healthy, nutritious food raised to the acre, and its great value as food for cattle, sheep, and swine, make this the most profitable root to raise.

Four pounds is the amount usually required for one acre.

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Price, 15 cents per ounce; 40 cents four ounces; \$1.25 per pound.

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This superior variety is the result of a careful selection, for successive years, of the best-formed, largest, and deepest-colored roots of the Imported Long Orange Carrot, by which it has attained a perfection hitherto unknown in this useful vegetable, being larger, better flavored, and of a deeper orange color, and more sure to produce a crop. Butter-makers will find this variety very useful in giving to their butter a rich, deep yellow color. We unhesitatingly pronounce it the best variety in the market, and one which will not fail to give satisfaction to the purchaser. One oz., 15c.; four ounces, 50c.; one lb., \$1.50, by mail, post-paid.

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	oz.	1/2 lb.	lb.
Extra Early Red, very early and productive.	25c.	\$0.75	\$2.50
Wethersfield Large Red, for main crop.	15c.	50	1.50
Large Red Oval or Globe.	30c.	1.00	3.00
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This extraordinary variety, originated abroad and carefully tested here for two years, is now offered as a very great improvement upon the ordinary black or gray Buckwheat. Sown at the same time as the common Buckwheat, it continues in bloom longer, matures a few days sooner, and yields nearly or quite double under the same conditions. The grain is of a beautiful light gray color, varying slightly in shade, and the corners are much less prominent than in the ordinary variety, while the husk is thinner, thereby saving from 15 to 20 per cent waste in the mill. It is manufactured into flour, which flour is whiter and more nutritious. Price per bushel, \$5.00; half-bushel, \$3.00; peck, \$2.00; four pounds by mail, \$1.00.

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Superb named Varieties
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New and Rare Plants

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THE BREEDING STUD. **THE CLYDESDALE STALLION, Lord Clyde,** WILL SERVE 30 MAIRES THIS SEASON, At \$40 per Mare, To be paid at time of Service. Address **WM. CROZIER,** Beacon Stock Farm, Northport, N. Y.

Fleetwood Farm, Near Frankfort, Ky., Thorough-bred Horses, Trotting Stock, Imported Alderneys, South Down Sheep, etc. **J. W. HUNT REYNOLDS.** (State where you saw this advertisement.)

PURE-BRED SHORT-HORNED CATTLE.—1 Bull, 3 yrs. old—1000; 2 Heifers; 1 Bull calf—fine animals—"Duke of Putney" Stock. For sale by **NOAH PRATT**, Cornton, Vermont.

FOR SALE.—Pure Jersey Cattle—Bulls, Cows, Heifers, and Calves. Address **RICHARD YOUNG**, Morton's P. O., Delaware Co., Pa.

SUPERIOR JERSEY Heifers (Registered). **Berkshires**, from prize and imported stock. **Cotswold and South Down** Lambs. Fine-bred Fowls and Eggs for hatching. **FRANCIS MORRIS,** 13 N. 15th st., Philadelphia, Pa.

N. GUILBERT, Evergreen Farm, Gwynedd, Pa., continues to have on hand, at his usual low prices, Blooded Cattle, Calves, Horses, Cotswold and South Down Sheep—Lambs, \$15 each—Swine, Fowls, Turkeys, Geese, Ducks, Pigeons, Dogs, Maltese Cats, Rabbits, and even Farms for sale. Eggs of all first-class Fowls.

Ayrshire Cattle for Sale. I am importing and breeding thorough-bred Ayrshire cattle, and offer the same at reasonable prices. I have a number of calves and yearling bulls ready to ship. **J. H. MORGAN**, Ogdensburg Stock Farm, Ogdensburg, St. Lawrence Co., N. Y.

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BLACK BASS for stocking ponds. **JERSEY CATTLE,** Family cows. Address **W. CLIFT**, Mystic Bridge, Ct.

ESSEX PIGS. Last year, several readers of the *American Agriculturist* purchased Essex pigs from me. So far as I have heard, they have given good satisfaction. I keep only pure Essex, and breed them with great care. Last spring, I could not fill all my orders, and, much to my own regret and the loss of the intending purchaser, was obliged to return the money. This spring I expect to be able to furnish very superior pigs, and shall be glad if those wishing to buy pure Essex from me will order early. Address **JOSEPH HARRIS,** Moreton Farm, Rochester, N. Y.

OHIO IMPROVED HOGS take most premiums. Send for Price-list. And imported fowls. **L. D. SILVER**, Salem, Ohio.

ESSEX PIGS.

It gives me great pleasure to state that my spring pigs are very fine—I think the best I have ever raised. I shall be happy to receive orders from any readers of the *American Agriculturist*, as I feel sure the pigs will give good satisfaction.

The Essex, when thorough-bred and of the right kind, will, in my judgment, improve any breed with which they may be crossed.

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JOSEPH HARRIS,
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Essex Pigs. Blood of recent importations. Pigs of all ages.

Jersey Cattle. From my first premium herd.

White Leghorn fowls, bred with care for past 8 years.

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Have won the FIRST PRIZES wherever exhibited. At the PROVINCIAL Show in Canada; at the Great Fair of ST. LOUIS; at the State Fairs of NEW JERSEY and NEW YORK; and at the New ENGLAND Fair, they have taken Sweepstakes and First Prizes, and at many COUNTY FAIRS. None will be shipped but First-class Pigs. Address

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Premium Chester Whites; Berkshire and Essex Pigs.

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Send for Circular and Price-list.

THE PURE CHESTER WHITE PIGS are bred and for sale by **JAMES YOUNG, JR.,** & Co., Marshallton, Chester Co., Pa. Send for Circular.

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I have a thorough-bred Essex boar, seven months old, that I will sell for fifty dollars. Also one over five months old, price forty dollars. They are well-bred, healthy, and vigorous, and are just what is needed to cross with common sows. Boxed, provided with food for the journey, and delivered at the express office without extra charge. Address

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A monthly of twelve large quarto pages. Address the **POULTRY WORLD,** Box 690, Hartford, Ct., for free specimen copy.

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Described in the *Am. Agriculturist*, December No., 1871. Sent for fifty cents. Address as above.

CAPONIZING INSTRUMENTS,

As improved by H. H. Stoddard. Price \$4 per set. Address as above.

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EGGS for sale from imported and selected home-bred fowls of undoubted purity.

Fifty-five special premium were awarded my fowls at four exhibitions (14 varieties). Send stamp for Descriptive Circular and Price-list.

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New York Mills, Oneida Co., N. Y.

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Dark Brahmans (selected birds), \$20 per trio.
Houdans, 15 "

Bred from my First Prize strains.

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Crosses of Williams, Comers, and Kensington Stock. Cocks, 13 to 15 lbs.; hens, 8 to 10 lbs. Eggs from selected birds delivered at 33 Park place, New York, \$1.50 per doz., or packed to go by express, \$2 per doz.

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EGGS FOR HATCHING, from nine varieties of pure-bred fowls, including Bronze Turkeys, Ducks, and Geese. All noted strains. Send stamp for descriptive circular. **G. W. FELTER,** Batavia, Ohio.

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AND ALL KINDS OF LIVE-STOCK,
Shipped to any Part of the Country.

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EGGS FOR HATCHING.—Partridge and Buff Cochins, \$3 doz. Houdans, Dark Brahmans, \$3 doz.; 2 doz., \$5; 4 doz., \$8. Silver-Gray Dorking, White Leghorn, Silver-spangled Hamburg, Golden Sebright Bantam, Black-Breasted Red Game Bantam, each \$3 doz. Light Brahma, \$2 doz.; 2 doz., \$3; 4 doz., \$5. We are breeding from best imported and prize fowls. Our Light Brahma cock, 8 months old, weighs 11 lbs., full grown will weigh 13 lbs. We send fresh eggs, which accounts for their hatching well. Sent to every State in the Union. Send for descriptive Catalogue. **W. S. CARPENTER & SON,** Rye, Westchester Co., N. Y.

EGGS FOR HATCHING.—From choice, full-bred fowls. Light Brahmans, \$1.50 per doz. Partridge Cochins, \$1. Houdans, \$2. Golden-faced Sebright Bantams, \$1.50. Carefully packed and promptly forwarded by express. Address **A. M. CAREY,** Selina's Grove, Snyder Co., Pa.

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Dark Brahmans, 21 and Specials; Black Spanish, 1st, 2d, and Special; and Brown Leghorns 2d, at Ex. N. Y. S. P. S., Albany, Feb. '72. Partridge Cochins, Creve Coeur, Houdans, and Cayuga Ducks. All choice. Send stamp for Circular. **A. M. HALSTED,** Box 23, Rye, N. Y.

EGGS. I am now booking orders for eggs from the following breeds, on all of which I have taken first premiums; Light Brahmans, from cock weighing 15 1/2 lbs., \$2.50 per 13; Dark Brahmans, imported cock, \$1 per 13; Houdans, \$1 per 13; Rouen Ducks, \$2.50 per 13. A few choice fowls for sale. **JOEL BRUNNER,** Hosensack, Lehigh Co., Pa.

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From a new variety of Buff Cochins—wings and tail white. See *Agriculturist* for July, 1871. These fowls took first premium at New Jersey State Fair. Send stamp for Circular. I am now receiving orders for eggs. Price \$3 per doz. Address **A. GORSLINE,** Bloomfield, N. J.

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"The Best Pump in the World."

Our Agents report over \$300,000 worth of property saved from Fire this year by these pumps, being the most powerful force-pumps in the world, as well as **Non-Freezing.**

See October number, page 395, also the Premium-List, page 393, of the *Am. Agriculturist*. This paper never deceives the farmers. See notice in February number, page 45. Try one. If it don't do the work claimed, send it back and get your money, as we warrant our pumps to do all we claim for them on our circulars.

Send for circulars or orders to the **Bridgeport Mfg Co., No. 55 Chambers St., New York.**

An order for nine No. 1 Pumps secures an exclusive town agency.

AMERICAN SUBMERGED PUMP. General agent for Illinois, **ALFRED A. RUNDLE,** No. 318 North Centre St., Bloomington, Ill.

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A JUDICIOUS USE OF

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Blacking, for Harness, Carriage Tops, etc., and his **LEATHER PRESERVATIVE**

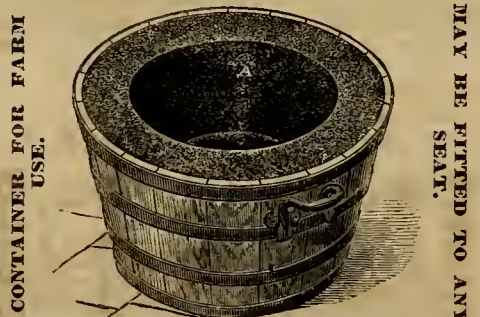
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For Boots and Shoes, is most excellent economy. These articles are always reliable. Manufactured by

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The Cox system possesses all the advantages of the dry-earth system, without its disadvantages; it is economical, deodorizing, and self-acting. The whole refuse of every house—as excreta, liquid or solid, ashes, and sweepings—are disposed of and turned to account, and it is applicable in individual cases, dwellings, and in large communities.—*Scientific American*, Jan. 1, 1872.

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Took the First Premium at Great American Institute Fairs of 1870 and 1871.

A better Closet and lower price than any other.

Price, No. 1, Black Walnut, with arms, \$13.00
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Agents wanted. Address **GRIFFING & DRAPER,** 60 Cortlandt St., New York.

TOBACCO DUST.

Only \$2.00 per Barrel.

It Kills WORMS, BUGS, FLEAS.

It is an Excellent FERTILIZER.

It can be used in the HOT-BED, COLD-FRAMES, CONSERVATORY, FLOWER, VEGETABLE GARDEN, or FARM.

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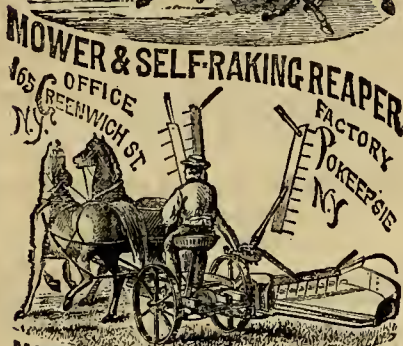
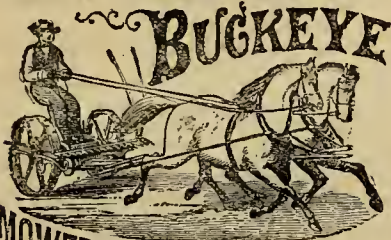
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Harder's Premium Railway Horse Power and Thresher and Cleaner, received, THE FIRST PRIZE

At Great National Trial, at Auburn, N. Y.
For "Slow and easy movement of horses, 15 rods less than 1 1/2 miles per hour, Mechanical Construction of the very best kind, thorough and conscientious workmanship and material in every place, nothing slighted, excellent work, &c." as shown by official Report of Judges. Threshers, Separators, Fanning Mills, Wood Saws, Seed Sowers and Planters, all of the best in Market. Catalogue with price, full information, and Judges Report of Auburn Trial sent free. Address
MINARD HARDER,
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AWARDED THIS MACHINE

THE "LIGHT RUNNING" "DOMESTIC"



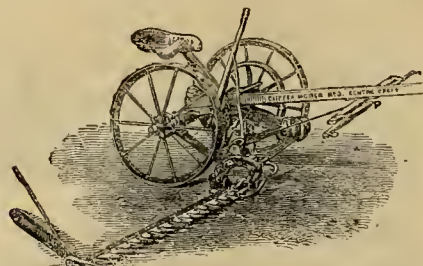
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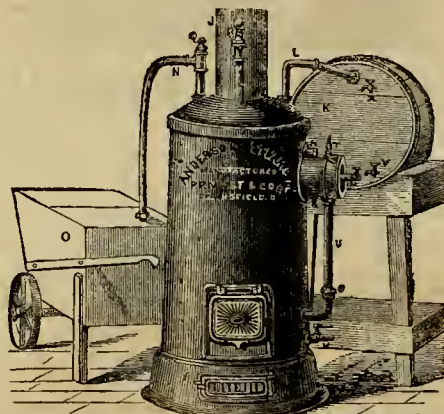
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PAGE'S PORTABLE PUMP, Patent Syringe, and Fire Extinguisher, with metal boxes, and otherwise improved, for \$3. Send for Circular. N. PAGE, JR., Danvers, Mass.



The uniform success of the Clipper Mowers in the field, the testimony of every farmer who has used them, that they are the lightest in draft, the most durable, and the most economical machine for the farmer to buy, fully substantiates what the proprietors have always claimed—that the Clipper is the Best Mower in the World. To the No. 4 size is attached the Dropper (cutting 5/8 feet, with separate Finger-Bar for reaping), constructed with great improvements—in fact perfected; and in point of efficiency, strength, lightness of draft, and symmetry of proportions, it is, as a Reaper, also unequalled. Farmers! see it before you buy. Pass your own judgment upon it. Look at its many improvements possessed by no other machine. Remember, it is fully warranted. Send for Pamphlet. THE CLIPPER MOWER & REAPER CO., P. O. Box 6,173, 151 Chambers st., New York.



ANDERSON'S AGRICULTURAL STEAMER, for Steaming Feed for Stock; Heating Cheese Vats, Tannery Vats, Conservatories, etc. This Steamer is made of Wrought Iron, thoroughly riveted and finished in good style. It has a reliable Automatic or Self-Regulating Water Feeder, Safety Valve, Vacuum Valve, Water Gauge Cocks, Whistles, etc., all complete. The boiler is peculiar in construction, being ONE COMPLETE DOUBLE BOILER WITH ANOTHER, the two communicating one with the other. It has an extraordinary amount of fire space for the size of the boiler; No. 8, a medium size, having 3,853 square inches of fire surface; consequently, it requires but little fuel to run it. Either wood or coal may be used for fuel. It will cook more feed or heat more water in a given time than any other steamer of the same size of cost. It is more durable than any other, for the reason that the fire-box is made of wrought iron, and is entirely surrounded with water. We are also manufacturing

Anderson's Low Pressure Steam Heater, for heating Private Dwellings, Stores, Churches, Conservatories, etc. We manufacture for all the territory east of Illinois. For further particulars, address

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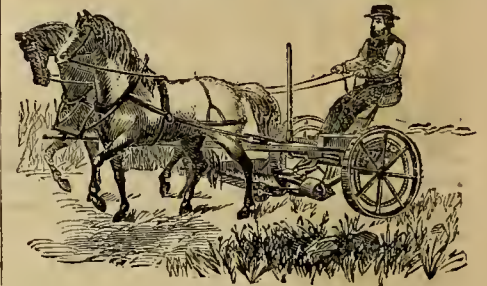
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Send for Circular. THE only combined Seed Sower and Cultivator. Made only by **AMES PLOW COMPANY,** 53 Beckman st., New York.

WOOD'S CELEBRATED HARVESTING MACHINES.



Greatly Improved for 1872. Send for Descriptive Catalogue.

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Johnston's Self-Raking Reaper

is so well known among grain-growers generally, that it needs no extended heralding in print. As manufactured by us, it is the only Reaper that will save the entire crop when badly lodged. We warrant it to cut any grain that grows, and in any condition. A pair of ordinary horses and a boy to drive it will cut from 10 to 20 acres a day in the most satisfactory manner. Send for illustrated pamphlet.
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Vertical & Horizontal CORN MILLS.
30-inch grinds 30 bns. per hour, and 20-inch 15. Price \$380 and \$140.
EDWARD HARRISON,
New Haven, Ct.

LAST SEASON, D. LANDRETH & SON, Phila., Seedsmen, had gone over 300 acres with Fertilizers, with Allen's Planet No. 8, by May 12th. Descriptive circulars free.
THE BEST ONION DRILLS are Allen's Planets, though they sow all garden seeds evenly in quantity and depth, and make straight rows and even crops. Testimonials free.
Beets, Carrots, Parsnips, Salsify, and Salad, and soaked or tarred seeds rolled in plaster or ashes, sow beautifully with the Planet Drills. S. L. Allen & Co., 119 S. 4th, Phila., Pa.

Metropolitan Agricultural Works.

Nishwitz Pulverizing Harrow, The best implement for the purpose now in use, price \$30. **Caloon's Broadcast Seed-Sower** will sow evenly all kinds of seeds. Price \$10. Steel Clipper Plows, and all other improved implements for the farm and garden, sold by **GRIFFING & CO.,** 60 Cortlandt St., New York.

The Garden Cultivator,

Illustrated and described in the *Agriculturist* for December, 1871, page 462, is a recently patented hand implement which no practical gardener can afford to be without. For sale at wholesale and retail. Also Town, County, and State rights. Sample sent on receipt of \$1.75. Agents wanted. Address **THE GARDEN CULTIVATOR CO.,** Appleton, Wis.

BRICK. BRICK.

Pressed-brick machine. Patented January 16th, 1872. Makes the finest quality of front brick, at no greater cost than common brick. By change of molds, becomes a first-class tile machine. For particulars, address **J. W. PENFIELD,** Willoughby, Ohio.

"INVALIDS' TRAVELING CHAIRS, FROM \$15 to \$50. FOR IN AND OUT-DOOR USE. Any one having use of the hands can propel and guide one. Having no use of the hands, any child of five years can push a grown person about. Invalids' Carriages to order. **PATENT SEDAN CARRYING CHAIRS.** State your case and send stamp for circular. **STEPHEN W. SMITH,** 90 William St., New York.



A Great Boon—A Good Cheap Sewing Machine, at Last.

The *American Agriculturist* was the first journal in the world to bring effectively before the public that great labor and clothes saver—the wringing machine. So, also, this journal prepared and published the first popular illustrated article showing, in a clear manner, "How Sewing is Done by Machinery." The illustrations used in that article have been taken up, copied, and printed many millions of times by the various manufacturers. And now we have the pleasure of bringing before the public a practically useful, *low-priced* sewing machine. While so often recommending the utility of Sewing Machines, we have been all the while earnestly looking for the appearance of something that would come within the reach of the large class that could not possibly buy a \$50 or \$60 implement. But though we have bought and tried a multitude of machines of all sorts, sizes, and prices, until a spacious lumber-room would be required to store all the samples, we have, until now, felt obliged to continually caution our readers against buying any of the low-priced machines. And we still say that for general use the sewing machines sold for from \$45 to \$75 each are to be

which is decidedly superior to the usual thin silver-plating, as it is far more durable, and does not tarnish. It is simple in its parts, and its use quickly learned, and it runs so easily that a child can work it.

2d. It is easily attached to any table or stand having a leaf or edge projecting an inch or so, and can thus be used in any part of the house, near a window, etc. It is so light and portable that a lady can carry it with her in a reticule when visiting, or on a journey, ready for use at any moment. It is so convenient in this respect that it will be a useful addition where other machines are used, either for carrying to different rooms, or when two wish to sew at the same time. It is applicable for almost all kinds of family sewing.

3d. It makes the *elastic loop-stitch* (the same as the Wilcox & Gibbs and some other good machines), which, with a little care in making the closing stitch, is abundantly strong for nearly all kinds of sewing, and less liable to break in washing and wearing, owing to its elasticity. It has the advantage that the stitch can be removed when desired. Those who have lock-stitch machines, will find this stitch more convenient for many kinds of sewing, for embroidering, etc. Many contend that the elastic loop-stitch is more durable.

4th. While we do not gainsay the merits of the "foot-

herself, or for any friend, of one copy of *Hearth and Home* or two copies of the *AMERICAN AGRICULTURIST* for the balance of this year (1872), to the first 800 persons who send us \$10 for one of the new machines.

The New Sewing Machine as a Premium without Money.

To enable those to get this machine, who can not raise even the \$10 to buy it, we make the following offer:

We will send the Machine free to any one who will collect and forward SIX subscribers for HEARTH AND HOME one year at \$3 each; or TWELVE subscribers to AMERICAN AGRICULTURIST for one year, at \$1.50 each.

Almost any lady can readily secure this small number of subscribers and get a machine free; or some friend can thus obtain it for her, as a present.

Full Descriptions

of all the Premiums are given in an extra sheet, which will be mailed *free* to applicants. Read over the descriptions, and you will find many desirable articles—indeed, all are desirable. We have room in this paper only for the following DESCRIPTIVE NOTES:

Nos. 8, 9, 10, 11—Pocket Knives.—HERE'S FOR THE BOYS AND GIRLS!—These Premiums are among the most pleasing and useful that we have ever offered. Every boy, and girl too, wants a pocket knife. We give them an opportunity to obtain a most valuable one for merely a little effort. These knives are made by Messrs. Smith & Clark, Bronxville, N. Y., whose work is equal to any done in this country or Europe. No. 8 is a neat, substantial Knife, with three blades and buck-horn handle. No. 9 is a still finer article, with four blades and buck-horn handle. No. 10 is an elegant Knife, with four blades and shell handle. No. 11 is a Lady's Pocket Knife, a beautiful article, with four blades and shell handle.

No. 12.—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.

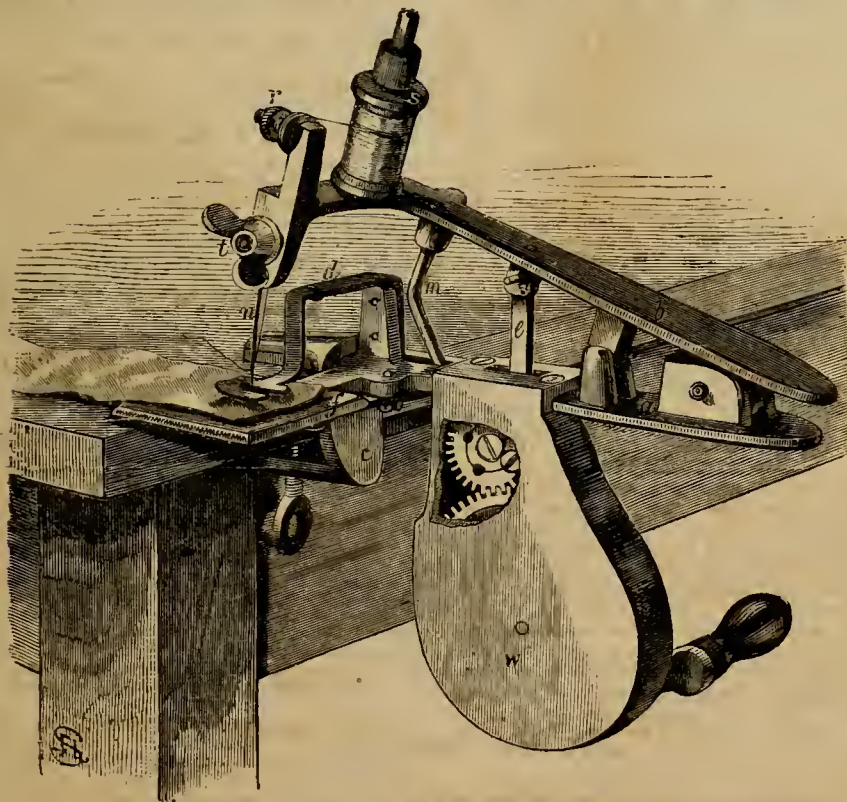
No. 14.—Casters and Fruit or Cake Basket Combined.—This is a new pattern, both novel and beautiful. It can be used as large, showy Casters, with six cut-glass bottles, or be instantly changed into complete Casters, with Call-Bell, and a separate Cake or Fruit Basket, with a colored glass dish inside. Every one receiving it will be delighted. It is from the same makers and of equally good quality as the preceding.

No. 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 play-mates; 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. 43.—Universal 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 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. 48.—A Good Watch.—The Watches made by the American Watch Co., Waltham,



BECKWITH'S NEW \$10 SEWING MACHINE.

DESCRIPTION.—c, clamp holding machine upon edge of table; W, shield over wheels, with an opening to show the wheels; e, the crank-bar or pinion-arm, by which b, the upper arm, is moved; a, the lower arm; f, cloth plate; n, needle; l, thumb-screw to hold the needle; d, presser foot spring; r, tension screw and disks; s, spool of thread; m moves the stitch-maker which can not be readily shown. It is very simple in form and use.

preferred when obtainable. But not one half of the families in our country have any useful sewing machine, simply because not half the people feel that they can possibly spare \$50, or more, in this direction, and so the everlasting "stitch, stitch, stitch," by slow hand-process, goes on, exhausting the strength and health of the toil-worn and care-worn mothers of the land—just that class who can not hire help and most need the aid of the sewing machine.

The new machine, now introduced, we have been watching for months, and trying to like it on account of its cheapness, and because it was well made (which we could not say of other low-priced machines we have seen); but this was unsatisfactory simply on account of the motion, or method of applying the power—by a vertical motion of the hand for every stitch. Happily this difficulty is at last obviated. A crank and multiplying wheel have been devised, and now we are prepared to indorse the \$10 Beckwith Sewing Machine as one worthy of being at once secured by all who can not purchase the expensive machines; and as will be seen below, many of those who have the larger machines will want this one in addition. Here are some of the advantages of the Beckwith Machine:

1st. It is well and strongly made, and thoroughly electro-plated with nickel throughout, by the new process,

pedal," many persons who are unable to use that, will find no trouble with this crank-motion. This gives complete control of the needle at any and every movement, so that the operator can stop on every stitch if desired. The crank in this new machine is placed below the table, which is an advantage over all other previous attempts at low-priced machines. The work is fed from the table towards the operator, which is claimed as a merit.

But the great commendation of this new machine is, that while it is practically useful, it is sold at the low price of \$10, and thus brings it within the reach of a hundred thousand families that want a sewing machine and can not raise funds to buy higher-priced ones.

We have contracted with the Beck with Sewing Machine Company for the first 1,000 of them to supply our own friends, and as Premiums. Each machine is put in a neat, compact box, with hemmer and guide, oil-can, bottle of oil, thread, different-sized needles, etc., with full Printed Directions for using, and delivered to any express office in this city, without extra charge above the \$10. As we buy the machines at wholesale price, we have decided to give our readers some advantage of this, and we therefore propose to make a present for himself or

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. 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. 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.

No. 107.—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 *Health 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.

Agricultural News and Items.

Twenty-two head of cattle, lately shipped from Illinois to New York, weighed over sixty-one thousand pounds, an average of over twenty-eight hundred; ten of them averaged over thirty hundred. They were grazed on the open prairie. . . . A Shorthorn cow, *Rosedale*, now owned by Col. King, of Minnesota, brought her former owner, in three years, the amount of \$2,500 in prizes, besides three calves. . . . The prize Merino ram at the Ohio State Fair has been sold to a Maryland breeder for \$500. . . . Twenty-five Merino ewes were lately sold in Vermont for \$1,000. . . . Five hundred dollars was paid for a pair of Poland-China hogs which took the premium at the Michigan State Fair. . . . A collection of two hundred and three Poland-China swine were exhibited by a single breeder in Fulton Co., Illinois, at the fair of 1871; a building expressly for their accommodation was erected by the owner at his own expense. . . . A Wisconsin farmer, in 1871, from fifteen cows, made 5,530 pounds of cheese and 900 pounds of butter, which brought him \$730 in cash. . . . A California sheep raiser owns 90,000 sheep, from which he realizes an income of \$100,000 yearly; he commenced twenty years ago with a flock of 800. . . . Mutton carcasses are shipped from the Rocky Mountains to New York for \$1.75 per head. . . . It was stated at the N. Y. Dairymen's Association that a grade Ayrshire cow owned by J. H. McMillan, of Erie Co., in that State, had given during twenty-three weeks an average of forty-three pounds of milk per day, from which 322 pounds of butter had been made in that time, equal to fourteen pounds per week. She was six years old. . . . The ma-

chine for extracting honey from the comb, called the Mel Extractor, is now largely used in this country and Canada; one bee-keeper, during the past season, took from one hundred and twenty-five hives and their swarms ten tons of honey by the use of this machine. . . . In California there is a single apiary of two thousand hives; the Italian bees are there considered the most productive honey-makers. . . . A Canadian breeder has sold a Shorthorn bull, which has taken many important premiums, to an American farmer of Wythe Co., West Virginia. . . . A cattle sale in California, made by the executor of the estate of J. R. Walsh, realized \$40,000; unbroken horses brought from \$24 to \$120; bulls, from \$5 to \$100, and cows from \$18 to \$100. . . . Butter is being packed in Washington Territory, for want of tubs and jars, in cylindrical bags of white muslin; these are again packed in barrels which are filled up with brine; in this manner the butter is said to keep excellently, and the packages are cheaper and cleaner than tubs or jars. . . . The scarcity of hay in Canada has caused great activity in the demand for fodder or straw-cutters, and from motives of economy and to prevent sacrificing their stock, Canadian farmers are cutting, steaming, and feeding straw with crushed grain. . . . The Silver-beet is being raised in Canada as a crop for plowing under as manure; it produces a mass of leaves thirty inches high, which furnishes a large quantity of green manure. . . . A New York farmer has realized \$700 from fourteen acres of clover in the shape of hay and seed. . . . Tobacco has been a very profitable crop in the New England States the past year; one farmer grew on half an acre a crop which sold for \$163; another, on five acres, to the value of \$2,863, and another on two acres \$841. Some of the choicest leaf sold for \$1 per pound, and several farmers sold at 22 to 30 cents a pound all through. One farmer in Massachusetts had twenty-eight acres. . . . In Connecticut a worn-out field was fifty years ago planted in timber. The timber has yielded ten cords per year and fencing for the farm for twenty years past, and when cleared last year produced fifty cords per acre, and is now new land again. . . . In the San Joaquin valley, California, one man owns 350,000 acres of land, and twelve others in all own 2,735,000 acres; one man's pasture field has sixty-five miles of fence around it, and his farm is forty-five miles long. . . . O. Barnhardt, Fairport, N. Y., lately sold a steer of his own raising for \$234.73; it was forty-four months old and weighed 2,890 pounds; during summer he was fed on pasture and some meal daily, and in winter on hay, roots, and meal. . . . C. W. Wadsworth sold at auction at Geneseo, N. Y., the following Shorthorn stock at the prices named, viz.: a roan cow, "Music," \$195; white cow, "Mollie," \$66; red cow, "Honey," \$71; roan cow, "Melody," \$120; others from \$95 to \$130, and bull-calves and bulls from \$35 to \$105; \$1,500 was refused for five choice heifers. . . . Mr. Alexander, of Ky., has sold two Shorthorn heifers to an English purchaser for \$12,000. . . . Irrigated land in some parts of Europe sells for \$50 per acre, while adjoining land, not thus improved, will sell for \$50 per acre. An owner of land having a surplus of water from his works often sells it to his neighbors for large sums, or rents it yearly to them. . . . Orendorf Bros., of McLean Co., Ill., lately had at Chicago eighty-one hogs fed by themselves, which averaged 513 pounds. The hogs were of the Poland-China variety. . . . Ex-Commissioner of Agriculture Capron has purchased a large quantity of agricultural implements in this country, mainly from Western manufacturers, for shipment to Japan. . . . A Pennsylvania farmer planted one acre in pumpkins in hills six feet apart, which yielded fifty double wagon-loads, estimated at over forty tons, besides which two hundred quarts of seed were saved, which brought \$50 in cash. . . . A Western farmer has saved his corn fodder by placing it in pits dug in the ground, salting it, and covering with straw and earth; in this same manner clover is cured and preserved in parts of Belgium. . . . An Ayrshire cow imported by Mr. Peters, of Massachusetts, is said to have given in one hundred and fourteen days an average of 49 pounds 3 ounces of milk per day, and three days' milk gave 6 pounds 3 ounces of butter; the weight of this cow was 967 pounds. An Ayrshire cow, also owned by Mr. Peters, when slaughtered, gave 882 pounds of beef and 111 pounds of tallow; the beef was fine-grained, well-marbled, and of the very best quality. . . . It is estimated that the cattle in the United States number 25,145,240, valued at \$1,000,000,000. . . . The herd of Ayrshire cows owned by J. H. Morgan, of Ogdensburg, N. Y., number thirty-seven bulls and fifty heifers and cows. . . . At the Kansas Agricultural College farm the crop of wheat yielded forty-three and a half bushels per acre. . . . A Michigan farmer experimenting with Alsike clover found it to fail on dry soils, but on wet, mucky lands it yielded well. It stood exposure to the weather well, was free from dust, and was agreeable to the stock, and mated with the timothy. The after-growth amounted, however, to nothing. . . . Amasa Scott, of Orleans Co., Vt., has a pair of steers, twenty months old, which weigh 2,500 pounds. . . . Fifteen companies, with a capi-

tal of \$2,000,000, are engaged in mining and manufacturing the Charleston phosphates. . . . An Englishman once appeared at dinner in a coat which was made from cloth woven from wool which was on the sheep's backs on the morning of the same day; and now a California farmer has breakfasted on bread which was made from flour ground from wheat cut, thrashed, and taken to mill the same morning, four hours only being occupied in the whole process. . . . M. L. Sullivan, an Illinois farmer, keeps two hundred and twenty-five plows, one hundred and forty-two cultivators, three hundred and fifty mules, fifty horses, and fifty oxen at work, and the result is that he needs a corn-crib eight feet high and five miles long, and a hay-shed that holds 2,500 tons of hay. . . . The condition of winter wheat is unpromising generally throughout the country; exposure to severe cold has injured the grain which unfavorable weather in the fall left in a very weak condition. . . . In Indiana, the State Board of Agriculture elected John S. Sutherland as President, J. D. G. Nelson Vice-President, A. Herron Secretary, Carlos Dickson Treasurer, and H. W. Caldwell Superintendent. . . . Two townships of land on the North Pacific Railroad have been purchased for the settlement of a colony of Scotch farmers, who are now arriving with a choice selection of thorough-bred stock. . . . Ten thousand acres of land in Maine have been purchased for a party of Swedish immigrants. . . . J. Bridgeford, Paris, Ky., has sold for \$300 a Shorthorn bull-calf, 8 months old, to J. H. Talbot, of Missouri; the calf weighed 760 pounds. . . . N. P. Neely, Ottawa, Ill., sold in January the following stock to Theodore Willson, Osage, Iowa: Shorthorn bulls "2d Duke of Greenbush," \$500; "Young Primrose," \$300; "Young Beauty," \$300; heifer calf "Golden Age," \$300; "Last Rose of Summer," \$300. To D. V. Perrin, Grant Co., Wis., "5th Duke of Greenbush," \$500; also one Essex sow, \$60; three Essex pigs, \$60; one Berkshire sow, \$50. Mr. Neely has fed his stock the past winter on Hungarian hay cut before the seed was ripe, and found it good feed; he also raised 6,000 bushels of mangels on five acres.

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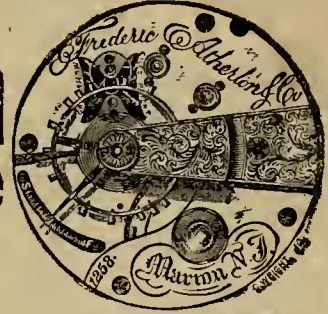
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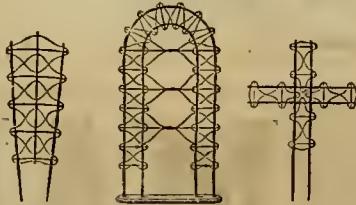
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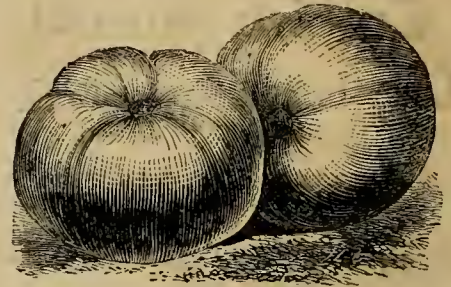
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Calendar for May.

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		Sun rises.	Sun sets.	Mo'n rises.	Sun rises.	Sun sets.	Mo'n rises.	Sun rises.	Sun sets.	Mo'n rises.
1	W	4:55	7:0	2:22	4:59	6:56	2:18	4:52	6:52	2:18
2	T	4:57	7:1	2:23	4:57	6:57	2:18	4:54	6:53	2:17
3	F	4:59	7:2	2:24	4:56	6:58	2:17	4:56	6:54	2:17
4	T	4:59	7:3	2:25	4:56	6:59	2:17	4:56	6:54	2:17
5	F	4:49	7:4	2:26	4:57	7:0	2:17	4:57	6:56	2:17
6	T	4:48	7:5	2:27	4:57	7:1	2:17	4:56	6:57	2:17
7	F	4:47	7:6	2:28	4:57	7:2	2:17	4:56	6:58	2:17
8	T	4:46	7:7	2:29	4:57	7:3	2:17	4:56	6:59	2:17
9	F	4:45	7:8	2:30	4:49	7:4	2:17	4:57	7:0	2:17
10	T	4:44	7:9	2:31	4:49	7:5	2:17	4:57	7:1	2:17
11	F	4:43	7:10	2:32	4:47	7:6	2:17	4:57	7:2	2:17
12	T	4:43	7:11	2:33	4:47	7:7	2:17	4:57	7:3	2:17
13	F	4:41	7:12	2:34	4:45	7:8	2:17	4:57	7:4	2:17
14	T	4:40	7:13	2:35	4:44	7:9	2:17	4:57	7:5	2:17
15	F	4:39	7:14	2:36	4:43	7:10	2:17	4:57	7:6	2:17
16	T	4:38	7:15	2:37	4:43	7:11	2:17	4:57	7:7	2:17
17	F	4:37	7:16	2:38	4:42	7:12	2:17	4:57	7:8	2:17
18	T	4:36	7:17	2:39	4:41	7:13	2:17	4:57	7:9	2:17
19	F	4:35	7:18	2:40	4:40	7:14	2:17	4:57	7:10	2:17
20	T	4:35	7:19	2:41	4:40	7:15	2:17	4:57	7:11	2:17
21	F	4:34	7:20	2:42	4:39	7:16	2:17	4:57	7:12	2:17
22	T	4:33	7:21	2:43	4:38	7:17	2:17	4:57	7:13	2:17
23	F	4:32	7:22	2:44	4:37	7:18	2:17	4:57	7:14	2:17
24	T	4:31	7:23	2:45	4:36	7:19	2:17	4:57	7:15	2:17
25	F	4:30	7:24	2:46	4:35	7:20	2:17	4:57	7:16	2:17
26	T	4:29	7:25	2:47	4:34	7:21	2:17	4:57	7:17	2:17
27	F	4:28	7:26	2:48	4:33	7:22	2:17	4:57	7:18	2:17
28	T	4:27	7:27	2:49	4:32	7:23	2:17	4:57	7:19	2:17
29	F	4:26	7:28	2:50	4:31	7:24	2:17	4:57	7:20	2:17
30	T	4:25	7:29	2:51	4:30	7:25	2:17	4:57	7:21	2:17
31	F	4:24	7:30	2:52	4:29	7:26	2:17	4:57	7:22	2:17

PHASES OF THE MOON.

MOON.	BOSTON.		N. YORK.		WASH'N.		CHA' STON.		CHICAGO.	
	O.	H. M.	O.	H. M.	O.	H. M.	O.	H. M.	O.	H. M.
New Moon	7	53 m.	8	28 m.	8	11 m.	7	59 m.	10	15 m.
1st Quart.	15	11 21 m.	11	9 28 m.	10	57 m.	10	45 m.	10	15 m.
Full	22	6 24 ev.	6	12 ev.	6	0 ev.	5	48 ev.	5	18 ev.
3d Quart.	29	9 29 m.	9	17 m.	9	5 m.	8	53 m.	8	23 m.

AMERICAN AGRICULTURIST.

NEW YORK, MAY, 1872.

The busy season is upon us. On our own farm we find more work to do in May and October than any other two months in the year. May is emphatically the "seed-time," October the "harvest." As we sow so shall we reap. Much of our success for the year will depend on our labor this month; and the amount, character, efficiency, and the economy of our labor this month will depend very much on the care, forethought, and wisdom with which we have laid our plans and prepared for their prompt execution. This is a lesson which every farmer of experience has had abundant opportunities to learn. He is the wise man who takes the lesson to heart. We can not now fully atone for past negligence or mistakes, but this fact should not discourage us. We should forget the things that are behind, and press forward. The man who never makes a mistake is to be pitied. The growing man, the man who is learning, the man who is destined to do something in the world, is the man who makes mistakes and profits by them. He tumbles down, but gets up and pushes onward. It is better to stumble than to stand still.

Hints about Work.

Take Care of your Health.—Few people realize what health is worth until they lose it. It is easier to prevent disease than to cure it. The character of our farming is undergoing great changes. We are using more machinery, keeping better stock, raising choicer varieties of fruit, grains, potatoes, roots, and grasses; are buying more or making better manure. Now, all this requires brains. We are aware that there is a great deal of nonsense written on this subject. But it is undoubtedly a fact that a man can not long use his brain as an intelligent, enterprising American farmer is now compelled to do, and work and worry at the same time, without abundance of nutritious food. If he undertakes to do it on fat pork, potatoes, bread, and cake, his health will certainly give way. The American farmer of to-day needs and must have more fresh meat. Better patronize the butcher than the doctor; better sell fewer eggs and buy less medicine. We have heard a farmer say: "Food

that is good enough for my men is good enough for me." He may have been right. But the farmer who thinks and works too, needs better food and cooking than he who merely works with his hands.

Don't Take down the Stoves.—Keep a fire in the living room night and morning. If you have a good old-fashioned hearth, so much the better. Keep a good fire on it. Nothing is more pleasant or healthy. But do not think because you have a fire you must shut the doors. In most localities, until the land is better drained, people will suffer more or less from malaria. Hard work before breakfast should be avoided as much as possible.

Let the Children Sleep.—Our bright, active, intelligent American boys and girls need a good deal of sleep. Make them go to bed early, and then if they can sleep until breakfast-time let them.

Do not Work the Boys too Hard.—Ever since boys were, men have been inclined to abuse them. And the better the boy and the worse the man, the more likely is the boy to be "put upon." The poorest tools are given to him and the most disagreeable work. Did you ever know an average man who selected the hardest cows to milk and gave the boy the easiest? Did you ever know a man who would go for water and let the boy sit down and rest in the field while he was gone?

Live-Stock.—The animals on the farm need extra care and attention this month, and yet, owing to the pressure of other work, they are very apt to be neglected. Recollect that a farmer's success depends very much on the judgment with which he manages his live-stock. Almost any farmer can raise corn and potatoes, but not one farmer in ten has the qualities necessary to manage horses, cows, sheep, and pigs to the best advantage. It requires good judgment, a kind disposition, promptness, systematic regularity, a keen eye to detect the first symptoms of lameness, indigestion, want of appetite, sluggishness, want of vigor, etc. When one animal is taken sick, it should be taken for granted that, as a general rule, there is some defect or neglect in the food or management, not only of this one, but of all the others. At any rate, the matter should be investigated.

Indigestion.—In nine cases out of ten, especially with horses, sickness in animals is caused by indigestion. Want of grooming, dirty, ill-ventilated stables, starving one week and over-feeding the next, not feeding at the regular time when on the road and then giving too much grain when the horses are exhausted by fasting and labor, giving too much food at noon and too little time to eat it in, feeding immature grain and musty hay—these are among the causes of indigestion.

Sheep.—Do not turn out to grass too soon; and as long as the grass is succulent give a little hay.

Milk Cows.—At this season grass is often too succulent. There is not nutriment enough in it in proportion to bulk. And it will generally pay to give the cows in the yard some hay to eat during the night, and a little "cut feed"—say one peck of hay and two quarts of fine middlings—the first thing in the morning. A good cow at this season gives a generous flow of milk, and it is unwise not to supply her all the food she can digest.

Horses.—When horses have been fed grain all winter, and have not worked regularly, it not unfrequently happens that they have little appetite as warm weather approaches, and when put to hard work on the farm lose flesh rapidly. They need a change of food. If it is possible, give them a few carrots, or, in the absence of these, a bran-mash, sufficient to relax the bowels. If oats have been fed in the winter, give a little corn in the ear by way of change, varied with "cut feed," consisting of chaffed hay and corn-meal or fine bran, or, better still, oatmeal. As a rule, nothing is so good as oats—and this year oats are nearly as cheap as corn. Barley is also cheap, and by way of a change there is nothing better for farm horses than boiled barley. Boil it until it bursts open, and add a little salt and mix it with chaffed hay. There is nothing that will fatten a horse so soon as boiled barley.

Three-horse Teams should be used wherever pos-

sible. There is economy in it. One man can drive three horses as well as two. The "dead weight" of the implement is the same in either case, and as it not unfrequently happens that the power of one horse is expended in drawing the empty machine, wagon, or implement, three horses can do *as much again* real work as two. It is a great mistake to do heavy plowing or harrowing with two horses, and be compelled to let them rest frequently. Put on three, and keep them steadily at work. In harrowing, especially, a rapid gait is much more effective than a slow, dragging pace. Brisk, steady work, and fewer hours in the field, with better grooming in the stable, would accomplish more work with less fatigue to man and horse.

Swine.—The system of feeding should be adapted to the breed. No pig can grow rapidly on poor food. A well-bred pig will grow rapidly on good food—a poor-bred pig will not; and this is the real essential difference between them. If you starve both, the well-bred pig is no better than the other. Let young pigs have all they will eat and digest. The younger the pig, the more it will eat in proportion to live-weight, and the more it will gain in proportion to the food consumed. We commence to feed our pigs when two weeks old, placing a little trough where the sow can not get at it. The pigs are specially fond of boiled beets or mangels, mixed with cooked corn-meal or fine wheat-bran. Wean gradually, at from six to eight weeks old. Until from three to four months old, the pigs can hardly be fed too liberally. After that, and when running out at pasture, if they are unmistakably getting too fat, ease off on the grain. As a rule, however, all young well-bred pigs should have a little grain in addition to pasture, and the slops of the house and dairy. See that the pigs have access to fresh water. They may not drink much, but it should always be provided for them, no matter how sloppy their food may be. Provide ashes, salt, sulphur, and charcoal. Keep the pens and troughs clean.

Poultry.—Provide plenty of nest-eggs for the hens, and see that two do not lay in one nest or in the same nest with a sitting hen. See that everything is kept clean in the poultry-house, and that it is well ventilated. Whitewash frequently. Nothing is better for young chickens than mud, or bread soaked in hot water, placed outside the coop, where the hen can not get at it. Move the coops frequently, so as to keep the ground or grass clean. This is particularly necessary with turkeys. Avoid the common mistake of having the coops too small, and see that they are well ventilated. The great secret of raising ducks is to feed them all they will eat, half a dozen times a day, or more!

Corn.—Nothing is more important in raising corn than to secure a "good start." It is half the race. A fine, mellow soil is of the first importance. The best way to secure this depends on circumstances. Every farmer must determine this matter for himself. As a rule, we seldom harrow the land sufficiently. Corn can not thrive among clods. Our own practice, when planted in hills, is to soak the corn from twelve to twenty-four hours in warm soft water, and dry it with plaster. By exercising due precautions, the same thing may be done when sowing with a drill.

Corn-Fodder.—It is a great mistake to sow corn broadcast. Sow in drills $3\frac{1}{2}$ feet apart, say four bushels of seed per acre, or a kernel about every inch in the row. The land must be as rich and mellow as possible. Use the cultivator frequently.

Potatoes.—Peachblows and other late varieties should be planted early. If you are late, plant the Early Rose or some other variety that ripens early. We have had a good crop of Flukes planted the first week in June. The Early Rose has a tendency to grow out of the ground, and should be planted deep, or else be well hilled up.

Mangel-Wurzel.—All things considered, we regard this as the best root crop for our climate. If the land is rich enough, and the plants get a good start, the severest drouth seldom hurts the crop. Sow in drills three feet apart, and thin out twelve to fifteen inches in the rows. It requires about

four pounds of seed per acre. The earlier the seed is sown this month the better, provided the soil can be got in good condition. But it is better to wait until June, or substitute ruta-bagas, rather than to sow on poorly-prepared land.

Work in the Horticultural Departments.

The spring has been so backward that many of the operations which ought to have been finished last month, will have to be done in this. Many plants that have usually survived the winter with a little protection, will probably be found to be injured and perhaps in some cases destroyed. It will often be necessary to replant, and preparations ought to be made as early as possible, so that the trees may be set before they have started to grow.

Orchard and Nursery.

Planting.—If trees were properly heeled in last fall, they may be set several weeks later than they could, if taken from the nursery rows. The planting should be forwarded as fast as possible, so that the present season's growth may ripen properly.

Grafting, if done after the trees have started to grow, will require considerable care, as the bark slips so easily, that there is danger of injuring the trees by peeling.

Cultivating.—An orchard needs to be kept plowed and thoroughly cultivated, in order to produce the best results, and during the first few years after planting some crop may be raised between the rows; potatoes or carrots are good crops for a young orchard.

Mulching.—Too much can not be said about properly mulching young trees, especially the first season after they are set: it saves a great deal of work in destroying weeds, and during a dry season will often prevent trees dying.

Nursery Trees.—Those budded or grafted last summer, will be disposed to throw out suckers from the stock. These should be rubbed off, and not be allowed to get large enough to require cutting.

Seeds.—Plant all seeds as soon as possible, and keep the beds free from weeds. Young seedlings should be shaded as soon as up, taking care to use some kind of shelter that will allow a free circulation of air around the plants; a screen of laths is much used by nurserymen.

Insects.—War must still be kept up against all injurious insects, plans for destroying which have been given heretofore.

Fruit Garden.

As the fruit garden is only an orchard on a small scale, the directions for planting and general cultivation will be the same.

Strawberries.—Finish setting new plantations, and fork under the manure applied last fall.

Cuttings of currants, gooseberries, etc., may be set out in rows three feet apart, with six inches between the cuttings. After one season's growth they may be planted where they are to grow.

Currant bushes which have become sickly and unsightly from the want of care, ought to have the old wood cut back, so as to give light and air.

Raspberries and Blackberries.—Tie up the canes of last year's growth and cut away the old bearing canes, if not attended to last fall. Plenty of manure should be spaded under between the rows.

Grape-Vines.—If grape-vines have been left down until now, on account of frosts, and the shoots have pushed, great care must be used not to injure them. When vines are trained according to the arm system, the arms should be bent in the form of a curve, to allow the buds to start equally. Young vines, set out this season, should be allowed to grow only one cane.

Layers may be made by laying the canes in trenches until the buds start, when they should be gradually covered with soil, as the shoots grow.

Kitchen Garden.

In the warmer parts of the country, the early crops of hardy vegetables will be ready to gather this month, while in the more northern States the ground will not be ready to plant sooner than the first week in May. It is best to wait until the ground is warm and dry, before sowing, as a few days can not make a great difference in the harvest.

Asparagus may be cut from established beds, taking care not to injure the roots. If it is sent to market, it should be put up in bunches six to eight inches in diameter, according to the season, taking care to have the tops even, and when bunched, to cut the butts off square.

Beans.—Do not plant the pole and Lima beans until all danger from frost is over. A few rows of bush beans may be planted early this month.

Beets.—Sow a few rows very early, as they will stand considerable frost. The seed may be sown thickly, and afterwards the plants may be thinned and used for greens.

Cabbage and Cauliflowers.—Set out plants from the hot-bed and cold-frame, and sow seed for second early. As soon as the seed is up, sprinkle the plants with air-slaked lime, to keep off the fly. Plants that were set last month must be kept hoed, and liquid manure applied occasionally.

Carrots.—Sow a few rows for early, and put in plenty of seed, as it often comes poorly. Keep the soil between the rows stirred often, to prevent the growth of weeds.

Corn is a tender plant, and is easily injured by frost; therefore it should not be planted until all danger from frost is past. In garden culture plant in drills, allowing one foot between the plants.

Cucumbers, started under glass, may be set out as soon as the ground is warm; give them a little protection from the sun, during the day, by means of a newspaper, or pieces of board set around the hills. Sow for pickles next month.

Egg-Plants require more heat than most other vegetables, and ought not to be planted out until settled warm weather.

Herbs.—Sow seeds of Sage, Sweet Marjoram, Summer Savory, and Thyme, etc.

Leeks ought to be sown early, so as to get a good start before the dry weather comes on. Stir the soil between the rows, and thin if too thick.

Lettuce.—Sow seed for a succession, and set out plants from the hot-bed.

Martynias make one of the finest pickles we have, and if once tried, will always be grown. Sow when the ground is warm, and when large enough, transplant into rows, two feet apart, allowing eighteen inches between the plants.

Melons.—Treat as recommended for cucumbers.

Mustard.—Sow for salad in rows, 15 inches apart.

Nasturtiums.—Plant and give them the support of brush.

Okra.—Sow the latter part of the month where it is to be grown.

Onions.—Keep the beds sown last month clear of weeds, and loosen the soil often.

Peas.—Brush the tall varieties and keep them properly hoed. Plant more seed for a succession.

Peppers should be treated the same as egg-plants.

Potatoes.—Hoe as soon as up; plant for the second early crop. A great deal of labor may be saved, if the garden is large enough to allow of horse cultivation.

Radishes.—Sow for a succession, and sprinkle with air-slaked lime as soon as up, if insects trouble.

Salsify.—Sow thickly in drills, fifteen inches apart, and when up, thin to three or four inches in the row.

Spinach.—There ought to be several sowings of spinach for a succession. New Zealand Spinach should be sown in drills, and afterwards transplanted into rows, three feet apart each way; this is preferable to Spinach during the summer, as it is not so liable to run to seed.

Tomatoes.—Transplant as soon as the weather will permit, three or four feet apart each way, according to the richness of the soil. The plants

in neat gardens are trained to some sort of a trellis, and the vines pruned, to secure the best results.

Turnips.—Sow in well-manured soil, and as soon as up, sprinkle with ashes or air-slaked lime, to prevent the insects from destroying them.

Flower-Garden and Lawn.

Evergreens do best if planted this month, as this is the season when they commence their annual growth. In transplanting do not expose the roots to the sun and air, but keep wet and protect with hay or blankets, and set out as soon as possible.

Margins.—Cut the edges of beds, walks, and drives smoothly with an edging-knife.

Annuals.—Transplant from the hot-bed or window-boxes the young seedlings as soon as the weather becomes mild.

Perennials may be sown in a bed by themselves, and kept free from weeds. Sow seeds of those coming into flower as soon as ripe.

Bulbs.—Plant out Gladioluses, lilies, etc., as soon as possible. Tuberoses should be started in pots in the greenhouse or hot-bed.

Climbers.—Provide supports for climbing vines, such as Sweet Pea, Cypress-vine, and Morning Glory.

Dahlias.—Start in the hot-bed, and set out the plants as soon as the ground is warm.

Lawns.—Mow often, in order to induce a thick growth of grass, and to keep down all weeds. Use the roller after a rain.

Greenhouse and Window Plants.

The latter part of this month will be early enough to put out house plants into the borders, and in order that the plants may not be put back in their growth, the ventilators should be opened, and during mild days the doors, so that the plants may be gradually hardened. Plants stored in the cellar during the winter may now be brought out, potted, and placed in the borders.

Camellias, when put out of doors during the season, should be shaded, or else placed where they will not be injured by storms.

Fuchsias seldom do well when planted in the borders, unless they have some protection from the sun; if planted out, they should be well staked.

Cuttings of shrubs may be made from the green wood as soon as it becomes a little firm.

Hanging Baskets make very pretty ornaments for a piazza, if they do not get the strong rays of the sun. They should be so arranged as to be moved up and down, to allow them to be watered easily.

Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, show at a glance the transactions for the month ending April 15, 1872, and for the corresponding month last year.

1. TRANSACTIONS AT THE NEW YORK MARKETS.

Table with columns: Receipts, Flour, Wheat, Corn, Rye, Barley, Oats. Rows for 26th of this month, 25th of last month, and sales.

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

Table with columns: Receipts, Flour, Wheat, Corn, Rye, Barley, Oats. Rows for 26 days 1872 and 26 days 1871.

3. Exports from New York, Jan. 1 to April 15.

Table with columns: Flour, Wheat, Corn, Rye, Barley, Oats. Rows for 1872, 1871, 1870, 1869, 1868.

4. Stock of grain in store at New York.

Table with columns: Wheat, Corn, Rye, Barley, Oats, Malt. Rows for 1872, 1871, 1870.

Gold has been variable in price, having advanced to 109 1/2 and advanced to 110 1/2. The closing quotation, April 13th, was 110 1/2. Bread-stuffs have been moderately active. Flour has been in reduced stock, and decidedly firmer, particularly winter wheat extras, which have been offered

with unusual reserve. Spring wheat has been without material changes in values, but closed weak. Winter wheat, on the contrary, has been much dearer and in quite urgent request, especially the better grades of red and amber, which have been purchased more freely by millers, in good part for use at the South. Corn has been in fair request, and closed stronger in price, shippers buying moderately. Rye and Barley have been depressed and lower. Oats have been quoted cheaper, leading to more extensive dealings, mostly in mixed Western. Wool has attracted less attention, and prices have been quoted lower, though holders had not been willing to make important concessions. Manufacturers have been buying only to meet urgent wants. Provisions have been in rather more demand, particularly hog products, which closed more steadily. Cotton has been more active, and quoted higher. Hay has been in demand at former rates. Hops and Tobacco, in request within our range. Grass Seeds have been dull and irregular.

CURRENT WHOLESALE PRICES.

Table with columns: Item, March 16, April 15. Rows include Price of Gold, Flour, Extra Western, Wheat, Corn, Barley, Straw, Hops, Feathers, Seed, Timothy, Sugar, Molasses, Coffee, Tobacco, Wool, Domestic, California, Oil-Cake, Pork, Beef, Lard, Butter, Cheese, Peas, Potatoes, Turnips, Onions, Cranberries, Broom-Corn, Apples.

New York Live-Stock Markets.

Table with columns: Week Ending, Beesves, Cows, Calves, Sheep, Steine, Totl. Rows for March 18th, 25th, April 1st, 8th, Total in 4 Weeks, do. for prev. 4 Weeks.

Table with columns: Average per Week, do. last Month, do. do. prev's Month, Average per Week, 1871. Rows for Beesves, Cows, Calves, Sheep, Steine.

Beef Cattle.—Notwithstanding an average increase of about 400 cattle per week during the past month, there is a little improvement in price. The rates remained unchanged for three weeks, when drovers combined for a rise, as they had been losing money. After holding lots for several days in the yards, hoping for an improvement, owners were forced to sell at just about what the cattle cost in Chicago. Having eaten beef freely all winter, people are ready to turn to something else in the spring, and they now find substitutes in the abundant supplies of veal, eggs, fish, etc. Just now, with a strong holding back on the part of shippers, the rates are advanced 1/2 c. per lb., and stock is in demand again. Texan "Jong-horns" are coming forward more freely, some of them from Ohio distilleries, where they have taken kindly to slop-feed. The fat cattle have been exhausted in Kentucky. Our main supplies now arrive from Illinois, with fair supplies from Ohio and Missouri.

Below we give the range of prices, average price, and figures at which large lots were sold: March 18, ranged 10 @ 14 c. Large sales 11 @ 12 1/2 c. Av. 11 1/2 c. March 23th, do. 10 1/2 @ 14 c. do. do. 11 1/2 @ 13 c. do. 12 c. April 1st, do. 10 1/2 @ 11 c. do. do. 11 1/2 @ 12 c. do. 11 1/2 c. April 8th, do. 10 @ 13 1/2 c. do. do. 11 @ 12 c. do. 11 1/2 c.

Milk Cows.—The fresh-cow trade does not improve in the least, though receipts have been lighter. Milk is abundant and low, cow beef hard to sell, and

cows themselves too plenty for the demand. The greatest difficulty is found in selling poor cows, and, judging from the stock sent here, one would suppose the farmers had all combined to dispose of their worthless trash. A pen of this kind of stock—genuine scallawags—was just sold at \$15 per head. Other poor cows sold at \$25 @ \$40; fair, at \$50 @ \$60; and good to prime at \$65 @ \$80. Calves.—We have seldom seen the calf trade so completely demoralized. Not that the supply of live calves has been so very large, but because dressed have come forward so freely, while soft weather rendered it imperatively necessary to sell them at once. When a butcher was offered fat dressed calves at 10c. per lb., he was not inclined to pay above 8c. for live. One large lot of dressed was sold at 5c. per lb. A pen of 280 choice Bucks Co., Pa., live calves, 135 lbs., was sold at 8c. It is now too late in the season to send in dressed calves from any distance. Good to prime milk-fed live calves are worth 7c. @ 8c. per lb.; common to fair sell at 4c. @ 6 1/2 c. Hog-dressed are worth 8c. @ 10 1/2 c. for milk-fed, and 4c. @ 6c. for small and thin veals. Sheep and Lambs.—Sheep are coming forward sparingly, and are now improving. They ran down about 1/2 c. soon after last report, and trade dragged heavily. This was owing to a dullness in wool, which led skin-buyers to reduce the prices of pelts about 75c. each. The skins had formerly been the chief recommendation for selling sheep, so quick did the pelc-buyers pick them up at \$1.50 @ \$5, each. Now it takes a fine lot of skins to reach \$1. Lambs come forward sparingly this backward spring. They are worth \$1 @ \$9.50, each, on 10c. @ 12c. per lb., live weight. Poor to medium sheep are quoted at 7 1/2 c. @ 8 1/2 c. per lb.; fair to good at 8 1/2 c. @ 9 1/2 c.; and prime to best selections at 10c. @ 10 1/2 c. Swine.—No hogs are now arriving dressed, and live come forward less freely. And still there is a decline of 1/2 c. on live. Just at the close there is a scarcity, and prices of city dressed are 1/2 c. higher than they were a few days ago. The consumptive demand lessens as warm weather comes on. Live are worth 4 1/2 c. @ 5c.; city-dressed Western, 6 1/2 c. @ 6 3/4 c.



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 Jud & 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 Volume Thirty are now ready. Price, \$3, 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.

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.

Castor Pomace.—"H. S.," St. Louis, wants to know the value of Castor Pomace as a fertilizer. The only analysis of this substance we know of was made by Prof. Johnson, and is as follows: Water, 9 per cent; oil, 18; fiber and mealage, 33; nitrogenous bodies, 29 1/2 ash, 6 (the ash consists of one third phosphoric acid, and one third potash, magnesia, sulphuric and carbonic acids). As the pomace contains one third as much phosphoric acid and ammonia as ordinary guano, its value as a manure or as an article of commerce is proportionate. It is stimulating and rapid in its action, and therefore would be valuable as an article to enrich composts, or as an application for stimulating the early growth of plants.

Be Sure and Read the number of *Hearth and Home* for April 20. The information about medicines, humbugs, etc., is alone worth ten times the cost of the paper.

The "Lightning" Saw. — "Jas. J. D., Sberbrooke, P. Q., Canada, asks if the saw described lately in the *American Agriculturist* is really what it is represented to be, or half as good.

Culture of Beans. — "Vermont" wants to grow beans, and asks what manure shall be put on, how shall he put in and how harvest the crop.

Averill Co. Paint. — E. Evans, Somerset Co., N. J., asks what we know of the Averill Co. Paint. We know that it is put up in cans, all ready for use, and of any desired color; that it spreads easily, has good body, and a very beautiful appearance; that we have used it on inside and outside work, and found it so convenient and excellent, that we would not again go to the trouble of mixing up ordinary paints for any purpose, even at a much less price than the Averill paint can be procured for; and therefore we recommend those who are going to paint, to use it.

Section Roller. — "A Subscriber," Denver City, Col., sends us a cut of a roller, furnished with several flanges, which not only rolls the ground, but leaves a number of parallel channels, which serve to conduct water used in irrigation, over the land, and asks our opinion of it.

Charcoal-Dust. — "A Subscriber," Pine Bash, N. Y., asks if the charcoal-dust from old pit-bottoms will help a poor soil, in which nothing grows but sorrel. Charcoal-dust has no fertilizing property. It is not uncommon to see old pit-bottoms, twenty years old, as bare as the day on which the pit was burned. It would therefore do little good to spread the stuff over a field; it would be better to grow and plow under two crops of buckwheat. Lime would help this land, especially after the buckwheat was plowed in.

Purchasing Improved Stock. — "J. B. R.," Wayne Co., Ill., asks us if we would advise him to buy an inferior bull of thorough-bred stock at a low price, or if it would be cheaper in the end to procure a good one at a higher price. It would be best to get the most perfect animal that can be procured, consistent with the depth of the purse.

Broom-Corn. — "Farmer," Somerset Co., N. J., wants to know all about growing broom-corn and the best kind to plant. Broom-corn needs the same cultivation as Indian corn. It is often grown in the same field with corn by farmers who make their own brooms, and cultivated with it. Two quarts of seed are required per acre. Plants should be thinned to five or six to a hill; rich soil is needed to get a good yield.

Valuable Premiums.

(See also page 168.)

Any person, anywhere, can obtain one or more of the valuable premium articles in this table, without money, by simply gathering a few names for one or both of the papers.

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.

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.

Premium Clubs can be made up of subscribers to either paper, or partly of both, 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 two 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.... (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, \$3 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 on the 2nd and 4th columns, or from the 3rd 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. Columns include Name of Premium Article, Price of Premium, and Number of Subscribers required at various rates (\$1.50, \$3, \$4, etc.).

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. Full Description of each Premium sent free.

Roofing Material.—"Inquirer" wants a roofing material in place of shingles, one which is fire-proof and durable. H. W. Johns's Asbestos Roofing is probably as good as any, where the roof is flat or of low pitch. It is easily applied—any farmer or workman of ordinary intelligence can put it on.

Manure for Quinces.—A Germantown, Pa., correspondent obtains good results from hog manure spaded in and a top-dressing of salt.

Average Crop of Beans per Acre.—"D. H. P.," Leavenworth, Kan., wants to know how many beans can be raised per acre, on the average. We have generally raised twenty to twenty-five bushels, but the average is probably not over fifteen. Few farmers do justice to this crop.

An Imperfect Ice-House.—"L. L. S.," Newburgh, finds the ice in his ice-house has begun to melt rapidly. He states there is a ditch communicating with the bottom of the house which probably admits air, and if so, it is doubtless the cause of the trouble. If any current of air is permitted to enter the bottom of the house, it rapidly raises the temperature and the ice melts. There should be a trap in all drains from ice-houses to prevent air from entering.

Sowing Plaster.—"D. B.," Manalapan, N. J., wants to know how much plaster should be applied per acre on clover, and when. One bushel should be spread evenly early in May, or when the clover has got a good start. Guano will be found a better application to strawberries than flour of bone, spread about the roots and raked in as early as possible.

Clark's Compost.—"Subscriber" asks for our opinion about Clark's compost from Manchester, N. H. We advise him to keep his five dollars and lay it out in ashes and plaster nearer home.

Horseradish.—"Ignoramus" is referred to article on page 153. As to land, rich light loam and plenty of manure will give the best returns. At the distances given in the article, it will take 14,496 sets to the acre. The roots are dug the fall after planting. Under the best cultivation, the yield is about five tons to the acre. Grinding is done upon revolving graters. R. H. Allen & Co., New York, make them. We can not tell about price—it is very variable.

Alsike Clover.—Wm. H. Joy, Muscatine, Iowa, wishes to sow some Alsike clover (*Trifolium hybridum*) for forage and as food for bees, and wants to know something about it. It is said to be adapted to moist soils, to grow rapidly, make good hay, and to be relished by cattle, but as far as we can speak from actual experience in one season it has no especial advantage over red clover as a forage crop, except that it will grow on moist soils, where red clover is subject to be heaved out by the frost. As bee pasture, it is recommended by some who have tried it; others again do not think much of it. The seed may be purchased at the seed stores, at 80 cents per pound, and four or five pounds are sufficient for an acre. It should be sown similarly to red clover.

A Tasteless Pump.—"P." asks what sort of a pump he shall use to avoid the unpleasant taste often given to the water. Cucumber wood (*Magnolia*) gives no taste, hemlock gives little or none, iron pipes, even when rusty, only flavor the water which stands in them; if that is pumped out, the fresh water is tasteless.

Where the Fashions come from.—Wherever the court of Fashion may be, her prime ministers are E. Butterick & Co., of New York, who "receive" in a fine structure at 555 Broadway. The building is 200 feet long and seven stories high, and is all occupied by their subordinates. Messrs. Butterick & Co. deserve the thanks of the community for demonstrating that in dress, as in other things, simplicity and utility are first principles in aesthetics. In the sanctum where the fashions are made, are a number of women intently studying the outlines of magnificent garments of—tissue-paper. They imagine and then embody new effects in form, style, color, and arrangement. The fashion of a garment having been decided on by the designer, the conception finds form in paper, and if accepted, a duplicate is made in cloth and fitted to a living model, and its merit proved by actual trial.

Other departments are devoted to different branches of the business, such as sketching and drawing, engraving for publication, editing, making up, and printing the "Metropolitan," the fashion magazine published by this house. The mechanical part of the work is completed in Brooklyn, in a separate factory, a building 50 x 100

feet, three stories high, and all occupied with the peculiar details of grading, cutting, arranging, folding, and preparing the patterns for the salesrooms. One hundred and fifty persons find constant employment in this department, but the total number of employes of the house is about 300.

The whole is completely systematized, and so confident are the proprietors of the exactness of their work that, though they cheerfully pay for all material spoiled in cutting through fault of the pattern, they have had but two such cases occur in the many millions of patterns they have sent out. Their arrangements enable ladies in all parts of the country to obtain, at very moderate cost, patterns for any garment, in the best styles, which may be relied on. It gives us pleasure to say that the cardinal principles which form the groundwork of the fashions of this house are neatness, feasibility, cheapness, and, above all, harmony; and as a consequence they have become the dictators of the modes for our country.

To Improve a Meadow.—"J. W. S." has a field in pasture, which needs renovation; he proposes to plow it and sow to rye, and seed with timothy, and pasture the rye with sheep, early next spring. This may do, if the field is plowed and harrowed twice during the summer, but it would be preferable to dress the field with manure, sow six quarts of timothy and clover, and harrow it well, without plowing.

Grubs in Cattle.—"A. M. K.," Mansfield, Ohio, can expel the grubs from his cattle by pressing the lumps on their backs between the finger and thumb, when the grubs will be forced out. They should not be killed in the skin, or they will make sores. Turpentine will have no effect but to irritate the cattle.

Harrowing Winter Grain.—"R. W. B.," Victor, N. Y., asks if harrowing his winter wheat will injure the young grass (timothy), and whether once harrowing is sufficient. One harrowing is sufficient; we have for several years harrowed our winter grain in the spring, and never found the timothy injured by it. Spread plaster about May 1st; it should be kept on the surface.

Lime for Corn in the Hill.—"J. P. Johnston, Wilmington, Pa., asks if it will pay to put lime in the hill when planting corn. No. The great benefit of lime is to help decompose the sod, and it needs to be applied as soon as the ground is plowed, and as long before the corn is planted as possible. A more stimulating manure would be preferable at planting time, as hen or hog manure, superphosphate or guano.

Tobacco Stems.—"J. B. Schneider, Kankakee, Ill., asks if it will pay to use tobacco stems for manure. In New England the stems are carefully collected, and composted as manure, and if it pays there, it ought to in Illinois.

Cost of Fence Wire.—"E. D. C.," North Star, Pa., wants to ascertain the cost of a wire fence. As he does not state what sort of a fence he proposes to build, we give him the price of the wire, when he can figure out the cost of the fence he needs. No. 9 wire is 10 cents per pound, and weighs one pound per rod. Staples are about 12 cents a pound.

Buckwheat Fallow.—"H. B. Cameron, Bealton, Va., asks if it would benefit "their cornland" to plow in two crops of buckwheat before seeding to wheat. Yes, the effect would be to add some fertilizing matter—although it is not very much—clean the land, and improve its texture.

Cotton-seed Meal.—"Mrs. "W. B. K.," Ilawara, La., writes her experience about cotton-seed meal for cows. She has used it for one year, and finds it makes rich milk and sweet, yellow butter. Mixed with wheat-bran the cows will eat more of it than alone.

Buffalo Bull-Calf.—"P. B. B." wishes to procure a buffalo bull-calf, if he knew where to get one. Unfortunately we can not help him, and, except as a curiosity, would not advise him to go to much trouble or expense to get one.

Plowing New Ground.—"S. B. S.," Patterson, Mo., asks if he should plow newly cleared ground before growing grass seed. By all means, get the ground into as mellow a state as possible, if you desire the grass to succeed well.

Devon Cattle.—"C. B. S.," Wayne Co., Mo., asks the price of Devon cattle. The general price is about \$400 per head for young stock, and \$250 to \$300 for mature animals, unless of superior character, when

the value is dictated by the estimation in which the owner holds them. For prices of fowls write to any of those who advertise in our columns.

Efflorescence on Bricks.—"M. A. H.," Little York, Washington Co., Ind., sends a sample of a substance with which in that vicinity bricks made of clay become incrustated. The sample sent is an impure nitrate of potash, and is doubtless due to the presence of potash and some organic matter in the clay. Clay, when produced from feldspathic rocks, often contains free soda or potash, and the efflorescence sometimes seen on bricks is thus occasioned.

Leached Ashes and Hen-Manure.—"W. H. W.," Evansville, Ill., has thrown leached ashes into his chicken-house, where they have become well mixed with the manure; he asks, if the mixture will be good for cabbages. Yes, or for any other crop.

How much Manure to the Acre?—"S. J." asks how much stable manure, at \$1.50 per load, he shall apply to the acre. It depends on the crop. Twenty loads for grain or potatoes, while corn, turnips, grass, or cabbages will bear double that quantity. Manure in too great abundance often causes grain crops to lodge or rust, and potatoes or peas to run to stalks.

Plaster on a Meadow.—"F." asks if it would benefit his meadow to sow plaster on it, enough to pay him for drawing the plaster twenty miles. If the time can be spared as well as not, the advantage gained would repay for the trouble. A bushel of plaster per acre has sometimes doubled the crop of hay, and almost always has proved very useful.

Cure for Cribbing.—"W. E. H.," Dunleith, N. Y., sends the following cure for cribbing—viz.: Take one pound of common soap when soft, and work it up with the hands with two ounces of cayenne pepper, and rub the manger, neck-yoke, etc., with the mixture. This cured his horses.

SUNDRY HUMBUGS.—The "Electro-Magnetic Curling Comb" swindle, denounced in these columns twice before this, has had an extensive run, and multitudes have been cheated out of \$1.25 each—because religious and other respectable journals have given it the use of their columns, often in editorial items. False engravings and false statements have been widely issued, and the rascal, hailing from Garrettsville, Ohio, has by these means coined money rapidly. Samples of these combs are before us—cheap little common horn combs, 3 inches long, worth a few cents only, having a bit of zinc and copper bonded upon the sides with a small copper wire, and of no utility whatever. A line at the end of the "directions for use" says: "The Electro-Magnetic Curling Comb must be used ONLY on FALSE hair," though nothing of this is hinted in the showy, talking advertisements. Those journals which have unwittingly or carelessly (and therefore reprehensibly) helped on this swindle, should make all amends possible by promptly denouncing the cheat—*stalling* is the proper word—and thus help stop it. . . . A standing caution: Beware of "Sault Oil," "French Burning Oil," and of "rights" to make them, and of the other things advertised along with them. This caution applies to all cheaply manufactured, so-called burning oils or compounds. You will be burned if you touch them. . . . Wood & Co., Mt. Vernon, N. J., ought to be avoided by everybody having an ounce of brains. There must be a good many having less than this amount, or he would not continue to get money enough from his offered vile and nonsensical wares, to keep him going as he does. . . . J. H. Reeves, 78 Nassau street, is trying the confession and affectionate dodge, and pretended exposure of other humbugs, to work himself into the confidence of nervous people and get their money. He changes his operations and tactics often, but clings to his old name, that was long since synonymous with humbug. . . . The "College of Health" is a name adopted by a swindler. . . . Only poor deluded people will trust their health and lives to the medicines of "Dr. F. E. Andrews, 300 Lexington avenue, N. Y.," "Edward P. Hynlar, M.D., Thompson street, N. Y.," "Dr. Abel King, Broadway, N. Y.," or any single one of the advertising "doctors" and medicine-makers whose circulars, advertisements, 20 to 50-page pamphlets, etc., with pretended recommendations of high personages, have been sent to us by the score, with inquiries as to their reliability. They are to be avoided *without exception*. . . . Is it cheap? A nice-looking paper sent a whole year for ten cents, and to large clubs for five cents! The big hand-bill says so. An examination reveals the fact that it is published once a quarter, and that it is really an advertisement of a plaster that will cure all the ills that flesh is "air to. . . . The "Dollar Stores," when not swindles, as are most of

them, especially those that receive orders by express or mail, are just like any other stores, only they put a lot of showy articles together that they will sell for \$1, and they are seldom cheap at that price. . . . All the "cheap watches" for \$1 to \$5, by tickets or otherwise, the magnetic time-keepers, etc., are humbings. Never buy a watch except of a known party, whom you can reach readily, and compel him to make good all he promises for it. . . . It is strange that some very respectable people should write to us asking about reliable agents for the Havana and other lotteries. Every lottery, even if genuine, is a cheat. It takes a great number of people's money, pockets half or more, and then gives these people a chance to cast lots for what is left. All gift enterprises are similar in character and results. St. Joseph, Mich., has a flaming one (on paper); Boston has a lottery called the "Women's Homestead League," ostensibly managed by a "goddess of the morning," Aurora C. Phelps. We have a lot of presented tickets, between the numbers 42,000 and 4,000, for sale cheap! We can't impose on our friends by giving them away. . . . Among other lotteries to be let alone, is the sale of the "Mount Florence Estate," to be sold in 35,000 dollar shares. Wonder how many of these "shares" are to be given to editors to advertise it? . . . The Sawdust operators are getting thick again, with the new dodge of receiving letters "for safety" in some other city (where Mr. Gaylor can't watch them so closely they think), but still claiming that their head-quarters is in New York. They are all similar. Among them are Turner & Wells, 220 Chestnut st., and J. T. Spencer & Co., 10 South st., Philadelphia; D. H. Dayton and R. S. Turner, Williamsburgh, N. Y.; Sidney Messenger, cor. Broadway and John street, New York; Noah Judson & Co., 109 William st.; C. E. Penn, 28 Bowerly; J. P. Gurney, *alias* J. P. Strange, *alias* Austin Chipman, *alias* Dr. Wm. S. Cody, *alias* M. O. Doane, all of 16 S. 5th ave., New York; G. M. Washburn, 3 Beckman st., etc., etc. (A gentleman of Barre, Vt., in sending this last, says, "Go on in your good work of exposing humbings; for although you may not think it needed, it is saving thousands of dollars to the laboring class of our country"—yes, hundreds of thousands!). . . . To "Subscriber": Yes! you might cut out a thousand just such advertisements, and 999 of them would be humbings.

Seeding to Grass after Corn.—"A Subscriber" asks if he can get a crop of corn off from the ground in time to seed down to grass in the fall, and cut hay the next season. Not under ordinary circumstances; but if the ground is very rich, clean, and made mellow, and the grass seed sown not later than the middle of September, it may be done. Grass and clover have been sown on such land in the spring, and mowed for hay the same season.

Twin Cattle.—F. F. Vasey, Dunn Co., Wis., corroborates the assertion that twin cattle are not necessarily barren, he having twin cows seven years old which have had five calves each.

Lime and Salt Mixture.—"D. V. H.," Washington Co., Ill., asks how lime and salt should be mixed for applying to wheat, and when it should be applied. Slake the lime with a quantity of water in which salt has been dissolved until it can take up no more, sufficient to reduce the lime to a fine dry powder. Five or six bushels per acre of this mixture may be spread early in spring over the wheat. Its effect is generally to stiffen the straw.

Price of Chemical Manures.—"A Reader" is informed that the following articles can be purchased in New York at the prices mentioned—viz.: Nitrate of Soda \$10, Nit. Potash \$15, Sulph. Potash \$12, Sulph. Ammonia \$10—per 100 pounds; Superphosphate of Lime \$45 to \$60, Ground Bone \$35 to \$45, per ton. For dealers' names, see advertising columns.

Cotswold Sheep.—John Irwin, Buchanan, Mich., has purchased a Cotswold buck, but he is not satisfied with his appearance; his wool is long and grows on his forehead, but his legs are of a brownish color. This answers to the description of the Cotswold, excepting the color of the legs, which may be due to his having been kept in a dirty pen, which at this season often causes the wool to be stained.

Concrete Buildings.—"L.," Eastwood, Lucas Co., O., asks if the walls of concrete buildings need to be lathed before plastering. No; these walls are absorbent, and do not condense moisture on the surface.

Washing Fruit-Trees with Lye.—"T. W. S." asks when is the best time to wash apple-trees with lye, and whether it is good for peach-trees.—The object is to kill moss, lichens, and other parasites, as

well as the eggs of insects, and the best time is early in the spring, and repeat as often as is necessary to effect the object. It is a very old remedy. Carbolic soap added to the lye is a great improvement. We have this spring gone over all our apple-trees with it, using say half a pound of the soap to a gallon of lye. It is as beneficial on peach-trees as on apple-trees.

Which Stock?—"A Subscriber," Adams Co., Pa., wants to improve his stock; he wants that breed which will grow large and quickly, and be pretty good milkers; he does not like the Jerseys or Devons, as they are too small. The Durham or Short-horn would suit him. In his county there should be pasture sufficient to raise this stock, which grows quickly to a large size, but needs correspondingly good feed.

"Quack" Grass.—M. J. Hughes, St. Lawrence Co., N. Y. There is no way of getting rid of "Quack" grass but plowing and harrowing, and picking up the roots and destroying them; mere plowing and harrowing tends to increase the evil.

A Six-Acre Farm.—"J. C. S." has six acres of land, twenty-five miles from market in Central Ohio, and wants to know what he had best do with it; land is dry and rolling. Market-gardening would doubtless be better than poultry-raising. Get Peter Henderson's Gardening for Profit for \$1.50, and follow his directions.

Mulching with Wheat-Chaff.—"I. F." asks if wheat-chaff will compact so closely when used as a mulch for fruit-trees, as to injure them. There can be no danger of this; chaff is a good material for a mulch.

Share's Horse-Hoe.—"F. R. K.," Gallia Co., Ohio. Share's Horse-hoe and Perry's Scarifier are both excellent implements; the first is suitable to a greater variety of uses than the second—for that reason we prefer it.

Brittany Cattle.—A few months ago it was stated in these columns that we knew of no herd of Brittany cattle in the country. We have since learned that the Hon. Charles L. Flint, Secretary of the Massachusetts State Board of Agriculture, has for some years been breeding the Brittany cattle, but we are not informed if he has them for sale.

Wood Ashes.—"C. L. J.," Saybrook, O., has 100 bushels of unleached wood ashes; can he use them to most profit on clay land, or on sandy land to be seeded to clover?—The effect of wood ashes in considerable quantities, as 50 to 100 bushels per acre, is to make clay lands looser in texture, and sandy lands more compact. In small quantities these effects would not be very apparent. In any other way, either soil would be equally benefited, though probably the light soil may need them most, on account of the seeding to clover. Ten bushels per acre, sown in spring, would be a proper quantity under above circumstances.

Potatoes after Corn.—A friend, whose garden consists of a heavy clay soil, says he "forks up his corn-stubble into ridges in the fall, burying all the stalks and leaves in the trenches, to make the soil mellow for potatoes as the next crop. I cut the stalks into pieces about eight inches long, so that they will rot and supply potash to the potatoes." Corn-stalks do contain about three times as much potash as wheat straw; but we apprehend the advantage of the above plan is due to rldging and mellowing the soil rather than to potash.

Artesian Wells.—J. F. Smith, Sand Point, Texas. It is impossible to tell the cost of an Artesian well, or of the implements necessary to bore it, unless the depth is known. This can only be ascertained by an experiment, which after all may be a failure, but if successful, is a guide for others in the same locality. The experiment, therefore, should be a joint affair.

Grub in the Head.—"D. M.," Ulster Co., N. Y., has lost some sheep by grub in the head, and wants a remedy. Tobacco-smoke blown up the nostrils of the sheep has sometimes been effectual in dislodging the grubs; it is not often that sheep die with grubs, though they are often annoyed by them. To prevent them, keep the sheep's noses smeared with tar during the warm summer months, when the fly abounds.

Preventing Hill-Sides from Washing.—"J. T. J.," La Crescent, Minn., asks, if a hill-side is sowed to clover, whether the clover roots will prevent washing of the surface?—No; clover roots have no binding influence on the soil; the spreading surface roots of a close sod, in which white clover is plentiful, tend to pre-

vent washing; such land should be laid down with grass instead of clover, and when plowed the furrows should run diagonally up and down the hill.

Fits, or Megrimms.—"F. D.," Tom's River, N. J., has a pony, which is sometimes taken with fits, or blind-stagers (?), and asks what he should do for a cure. There is no remedy that can be depended on, if the disease is what is often called megrims, and causes the horse to fall in convulsions or insensibility. If merely a temporary giddiness, it may be relieved by avoiding rapid or heavy work requiring great exertion, and administering tonics, with the best of food, but not stimulating, and securing perfect ventilation of the stable. If the disease is the more serious one, it is not safe to use the horse, and very wrong to sell him, as one fit is only a precursor of others, which will follow until death occurs suddenly in one of them.

Fowls eating Feathers.—"Subscriber" asks if there is any remedy for fowls eating each other's feathers, when they have abundance of fresh meat fed to them. We know of none but the effectual one of "Off with her head."

Saltpeter for Cows.—"Subscriber," McKeysport, has been told that a handful of saltpeter, given twice a week to cows, will prevent the milk turning sour rapidly in hot weather, and asks, "How is it?"—We think it would be a somewhat questionable and dangerous remedy. Saltpeter is poisonous in large quantities; half an ounce has been known to kill a man, and a handful given to a cow, unless for some good reason, as medicine, would or might be hurtful. As it operates on the kidneys, it would probably reduce the flow of milk. With perfect cleanliness, and cooling the milk before starting, it ought to be carried 100 miles without souring.

To Seed down Wet Land.—"E. A. B.," asks how he shall get a piece of wet land into grass. We have succeeded in getting a good stand of red-top on such land by burning the stubble of the coarse growth in spring, harrowing, and sowing red-top thickly, or about a bushel and a half per acre, with a few quarts of timothy intermixed. Red-top will finally crowd out all the rest.

\$1, or \$2, or \$3.—One dollar will pay for the *American Agriculturist* from May 1, to the end of 1872. Two dollars will pay for the weekly *Hearth and Home* from April 20 to the end of 1872 (including all of Edward Eggleston's great story, "The End of the World"). Three dollars will pay for *Hearth and Home* and *American Agriculturist* for the same time.

Earth-Closets.

While farmers enjoy especial advantages for the preservation of their own health and that of their families, it is nevertheless true that in one very important essential they are careless and inattentive. We allude to the necessary appendage to a household, the closet; with which is generally connected a cesspool. This cesspool receives, for a number of years, the aggregate waste of a family, which is absorbed by the ground and soon saturates all the soil contiguous to it. The well often receives the drainage which finds its way through the soil, and the water, becoming contaminated, conveys, as it is consumed by the family, the deadliest poison. This peculiar poisonous matter, in quantities so small as to be undetected by taste or smell, produces dysentery, cholera, and typhoid fevers. Here exists an alarming danger to which a great proportion of unsuspecting country residents are subjected. The earth-closet system at once does away with this unpleasant and serious evil. Dry earth is an absorbent and a disinfectant, and it needs only to become generally known, and that there be a satisfactory means of applying it, to have it introduced into use in every country household. The Goux Earth-Closet is one of the simplest and most convenient of several modes of using dry earth. The tub or vessel used is not contaminated, being lined with a thick layer of earth, which is made compact by being compressed or beaten in around a mold. This lining forms a receptacle which receives or absorbs all solid or liquid matter, and a scoopful of dry earth, thrown in, completes the method. When the tub is filled it may be removed and emptied upon a heap, under cover, where it may be preserved in a perfectly inodorous condition until needed as a fertilizer. In this shape it will be found equal to guano, and spread on meadows or on fodder and other crops, it will represent a considerable money value, which now is utterly wasted, and worse than wasted, rendered injurious. In place of dry earth, sifted coal-ashes may be used.

Read the Story.

On page 196, the Publishers give the first chapters of a Remarkable Story, by EDWARD EGGLESTON, author of the "Hoosier School-Master." It is entitled a "Love Story," but it will be found to differ very widely from the sensational novels or love stories that fill up flash newspapers, and form the staple of "yellow-covered literature." It illustrates life in the West thirty years ago, and though following a historical chain of occurrences in the eventful lives of a group of persons, which will render the story attractive, there is a constant dropping in of the philosophy of human actions, so to speak, which is full of instruction and food for thought. The author has a wonderful power of observation, and delineates character and conduct with a master-hand. Having read many chapters of the story in advance, we can assure all who follow it that they will enjoy a rich repast, affording great pleasure and profit. It will doubtless have a success unsurpassed by any American story that has ever yet been written.

The small portion given in this paper hardly takes the reader into the merits of the narrative, but will suffice to give some idea of the style and character of the whole. Its earlier chapters read like a Western Idyl; but Mr. Eggleston soon gets us into the grotesque scenes which he draws so strongly, and Gottlieb Wehle, the Backwoods Philosopher, the Millerite Preacher, the Steam Doctor, Cynthy Ann, the "Hawk," and, above all, Jonas Harrison, one of the most effective Western characters ever drawn, make a rare gallery of original portraits. The speeches of Gottlieb Wehle, Jonas, Cynthy Ann, and the Philosopher, the Night Adventure of August, the Mob Scene, the life-like description of gambling in the saloon of a Mississippi steamboat, are drawn most vividly.

. The weekly numbers of HEARTH AND HOME are supplied by all News-dealers. Single copies are mailed, post-paid, from this office, for 10 cents each.

EXTRA.

. The subscription to *Hearth and Home* is only \$3 for a whole year, but when specially desired, subscriptions will be received from the beginning of this Story (April 20th) to the end of this year (over 8 months) for Two Dollars.

XXTRA.

. *Hearth and Home* and *American Agriculturist* are sent together for \$4 a year; or \$3 will pay for both from April 20th to the end of 1872.

N. B.—In making up Premium Clubs, referred to elsewhere (pages 165 and 168), Three subscribers for either paper, or both, from April 20th to the end of 1872, may be counted as Two full-year subscriptions in Premium Clubs.

Percheron Horses.—H. E. Fisk, New York, asks the price of a pair of Percheron horses, or the cost of importing a pair. The Percheron horses are very scarce since the late war in France, and would probably be difficult to procure. Imported horses are held at high prices on their arrival here on account of the risk incurred on the voyage. Clydesdale horses possess every good quality of the Percherons, and probably more. One might cost \$2,000 to import. Some were lately sold in England for work-horses (geldings) at \$1,500 per head.

Winter in the North-West.

On April 10th we received by mail a cluster of peach-blossoms, plucked on March 18th, at Olympia, Washington Territory. Coming at a date when our own peach-trees were still enjoying their winter's rest, it occurred to us to say a word about the climate of the North-west, when most opportunely a friend handed us a slip from the Philadelphia Inquirer, in which the required data were already collated, and of which we here present the substance. There is a general impression that Oregon, Washington Territory, and Montana must be very cold, as they are so far north, forgetting that isothermal lines (lines of the same temperature) do not correspond with parallels of latitude. A comparison of the monthly mean temperatures as well as the mean of four months will show this in a striking manner. Most of the figures in the following table are furnished by the United States Signal Office at Washington, and represent three daily quotations of the thermometer at each place—morning, noon, and evening:

	Dec. '71.	Jan. '72.	Feb. '72.	Mar. '72.	Mean.
Louisville, Ky.	35°	33°	33°	35°	34
St. Louis, Mo.	31	28	32	36	31½
Chicago.	23	27	26	29	26
Baltimore.	30	35	36	33	33½
Philadelphia.	30	29	32	29	30
Washington.	33	33	34	33	33
New York.	30	30	30	29	29½
Helena, Montana 18	26	36	42	—	30
Kalama, W. T.	31	32	44	—	36

The temperature at Helena, Montana, may properly be taken as a fair average for the territory. It is on the general route of the Northern Pacific Railroad, directly in the mountains, and but a few hundred feet below the highest point on the line. Notwithstanding the past winter has been the coldest ever known in Montana, it will be observed that the average temperature at Helena (latitude 46½°) for the four months was the same as that of Philadelphia, although the latter city is 4,200 feet lower and 450 miles further south. Similar comparisons may be made with Chicago and other cities.

The average winter temperature at Kalama, Washington Territory, on the finished portion of the Northern Pacific road (in latitude 46°), was several degrees warmer than at Louisville or Baltimore, in latitude 39°. The greatest cold of the past winter at Kalama was 14° above zero.

Letters from members of the Montana territorial government, dated March 6th, state that for three weeks previous to that time (beginning about the middle of February) the weather had been so mild that all signs of winter had disappeared; farmers had put in their spring grain crops, and new grass was three inches high.

As we write near New York, April 10th, we can see the first plow afield that we have observed this spring, though of course the past has been an exceptional season.


The question of the climate of the North-west is now an important one, as a railroad through Montana and Washington Territories will open a vast region to settlers, who, as well as the projectors of the road, are interested in knowing what obstacles the climate may present.

What is a "Jointer" Plow?—"M. F. C.," of Somerset Co., N. J., asks what is the jointer plow mentioned by "Walks and Talks'?" It is simply an ordinary plow with another small point and mold-board attached to the beam in the place or just in front of the coulter. It cuts a small furrow an inch or so deep, and two or three inches wide, and turns it to the bottom of the previous furrow, where it is covered by the regular furrow slice. It is sometimes called the Michigan double-plow or Michigan subsoil plow. The word "jointer" refers to the small plow on the beam. This plow was first brought to general notice at the New York State Trial of Plows in 1850, and has been very extensively used ever since. It is a favorite plow with all that class of farmers whose great object is to check the growth of weeds rather than to kill them.


Drain-Tile or Stone?—"C. C. W." asks whether he should sell stone at 60 cents a perch, with only a few hundred yards to haul them, and buy tile, or use the stone in drains, and whether it would pay, after covering the tile with some earth, to put in six inches of small stone on top of it?—We would sell the stone and buy tile. The small stone would be quite useless where C. C. W. proposes to put it.

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.

 *Hearth and Home* (weekly) with *American Agriculturist* sent to one address for \$4 a year.

Large Pay for Little Work,

and that, too, for rainy days, evenings, odd spells, or for a constant occupation—for MEN, WOMEN, and CHILDREN—anywhere, and everywhere.... Over 14,000 Persons have found it so; and here is how it is: The Publishers offer 107 Premiums, every one of them a first-rate article—just as good as so much money—for use or for sale. (See list on page 165, and send for a free, full description, if not having one.) Now, to get one of these articles without money, it is only necessary to solicit and forward a few subscribers for the *American Agriculturist* or HEARTH AND HOME, or for both of them.

The number required is given against each premium.

It is easily done. Show a copy of the papers, explain their value and cheapness—the cost being only a few cents a week. Few Post-Offices have around them less than twenty-five families, and many have hundreds, that would be profited in mind and pocket by reading one or both of these journals. They only need to have this shown to them. Any enterprising person, old or young, can do this just as easily as it has been done by the 14,000 who have already secured the premiums. Human nature and human wants are similar everywhere. Read page 165. These premium offers will remain open two months yet (to June 30), and May and June are good months for getting them. Partly filled premium lists can be completed, and new ones be begun and completed. A subscriber a day will get a large premium. Many can get several each day or week. Begin to-day. Any one taking hold with a will, determined to succeed, will succeed. The Premiums are open to all.

Value of Manure from different Animals.

A discussion was recently had at Lodi, Wis., on the relative value of the different kinds of manure. "The debate drifted on to the value of different animals to produce the best manure, consuming the same kind of food, and not being able to agree, it was decided to submit the matter to the *American Agriculturist*. Of course, you will understand that the question is whether with horse, ox, cow, sheep, or any other animal, consuming the same food, the quantity and quality of the manure will be the same." There is considerable difference in the bulk of manure made from different animals, as well as in the amount of water which it contains. But the intrinsic value of the manure made from a given quantity of food is practically the same, whether the food is consumed by a horse, ox, cow, or sheep. We say practically, because there are certain hypothetical cases in which there might be a difference in the value of the manure, but it is in all cases so slight that it is useless to discuss them. The manure from an animal that lost weight during the consumption of a given amount of food would contain a little more plant-food, and consequently be a little more valuable than from an animal, eating the same amount of food, that gained in weight. The flesh, wool, hair, feathers, hide, horn, and bone produced, take something from the manure. He is a very unwise farmer, however, that starves his animals for the sake of making his manure a trifle richer in nitrogen. It is generally said that a horse doing hard work will not make as rich manure as a horse lying idle. But if both have the same amount of food, the idle horse, if he gains in weight, would be less valuable than the working horse, that gained nothing or lost weight. But these are merely theoretical refinements

that a practical farmer, whose object is to make good manure, need not take into consideration. His only question need be, *What food* contains the greatest amount of valuable fertilizing elements? The animal has, practically, no more to do with making rich or poor manure, than a stove has to do with making rich or poor ashes. It depends entirely on the food.

Bee Notes for May. — By M. Quinby.

Surplus honey is the first consideration in bee-keeping. All boxes intended for use, should be ready now. One hive in a hundred may store surplus, in a good season, during apple-blossoms. It is not always economy to put on the boxes at this time, because Dandelion blossom new, and the abundant pollen that the bees get from them, will stain the combs yellow, and give an unpleasant flavor to the honey. Notwithstanding a yellow color is preferred for cheese and butter, the honey for market, to be nice, must be purely white. Manage to have the bees use all this honey to rear their brood, and get a strong force ready for clover-time.

Those who expect to increase their colonies this season should, if they have not already done so, prepare their empty hives at once. I am greatly in favor of Averill paint for hives; some light tint is preferable to the clear dazzling white. Hives of two or three colors, alternated with each other, seem to assist the bees to distinguish their own from their neighbors' hive. I do not assert that this is better than oil-paint. I only say it seems better, as there is no smell of the oil which appears to be offensive to the bees. When new swarms are lived in oil-painted hives, a greater percentage desert and go to the woods than in those unpainted.

Establish this rule at the beginning of the season, that is, to allow no bees to cluster outside for want of room inside. Extreme hot weather should be the only excuse hereafter for idle bees outside. Any one expecting the best results from his farm, garden, orchard, dairy, or apiary, without effort or knowledge on his part, will be likely to reap a short crop, and soon prefer some other pursuit. To know how to obtain the best results from a hive of bees, one must either learn by experiment himself, or adopt the experience of others. It seems now to be pretty well understood that the best results can not be obtained with the old box-hive. Another year's experience proves that transferring from box to movable-comb hives—of the right kind, of course—pays for all trouble. For directions see Bee Notes for May, 1871. After transferring, the hive is in condition to be controlled. Being able to reject all drone combs, and thereby preventing a useless horde of consumers, is of itself sufficient to remunerate all trouble. Eggs laid in drone cells, hatch out drones; the same eggs, if laid in worker cells, produce workers. Swarming is not always—may I not say, seldom?—satisfactory in box hives, when the bees manage it themselves. The bees have been brought up in ignorance of what we can do for them, for the very good reason that we did not know ourselves, and they suppose that it is necessary to provide a successor for the mother to the hive, before taking the old one away. As a rule, natural swarming does not take place short of a week or ten days' preparation. Quite often, at the commencement, there are abundant bees to spare a swarm—bees live but a short time, and often die as fast as they hatch out, when the hive is full—but at the time they get ready, they have not increased, have been idle during the preparation, and a whole swarm has lost several days right in harvest-time. Could a swarm have been taken out as soon as there were bees enough, and put into empty combs, ample winter stores would have been secured. Suppose that, just at this time, when they have prepared to leave, a change in the atmosphere prevents the secretion of honey in the flowers, and your swarm has an empty hive to fill, and no means to do it with. Have no combs in which to rear brood; the old bees are dying every day, and it is possible, before the next yield of honey, there are too few bees left to accomplish much. This can be avoided, if you understand it. When you have decided to take this matter into your own hands, you should become familiar with the appearance of the hive that has bees to spare a swarm. The next thing is to know when the flowers are secreting honey in abundance. When bees and honey are right, then is the time to make the swarm, regardless of any preparation of theirs. Every day that a colony is without a laying queen, in summer-time, reduces the profit of keeping it. The old queen goes, or ought to go, with the first swarm, whether natural, or artificially made. In natural swarms, they usually leave sealed cells with young queens, to supply her place in the old hive. It would be profitable to have a queen, fully mature, artificially reared, to supply her place, whether cells are left or not. At the end of a week the hive should be opened, and all queen-cells removed, when the laying queen may be safely introduced. If no mature queen is on hand, the next best thing is a

finished cell, ready to hatch, to introduce the next day. If no such cell is to be had, leave one, and but one, of the first made by the old hive. You will, of course, see that there are drones in some of the hives, at such times.

As long as good colonies, in the box-hives, can be purchased under ten dollars, it is doubtful if economy would dictate making artificial swarms, or having others. I would like to have you feel indifferent about it. I would suggest that you provide an empty hive for each old stock, in case they were disposed to swarm; but otherwise do just as if all the bees that hatched in a hive were going to stay home the whole season and wanted room for stores. Give room inside the hive for surplus boxes that will hold from 150 to 200 pounds. The chances are, that such hive will make no preparation for swarming. If they do not, the *extra* amount of surplus that they will store, will purchase two or three stocks for winter. Should they swarm, you will have the new stock and some surplus, and no anxiety in the matter. Give room inside, and have the boxes in close proximity to the body of the hive, and all will be likely to go well. Before there are many bees in the way, early in the month, open the hive, find the queen, and clip one wing; the swarm will not go off in such case, if they issue.

The hive may be so arranged that the room for surplus boxes can be occupied with frames; and as soon as combs, ready made, can be furnished, and the honey extracted, the quantity that we are now getting may be trebled. Any one having lost a hive of bees this winter, will find a great advantage in saving all the combs, unless drone-cells, or diseased; put them in frames, as in transferring. These are what we want when we come to extracting our honey, instead of compelling the bees to lose time constructing combs. I will make an estimate of the cost of comb, in honey, describe an extractor, and give instructions in rearing queens, etc., soon.

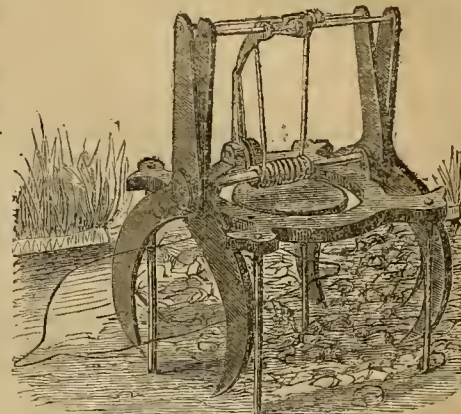
Holstein or Dutch Cattle.

Holland has long been famed for its dairy products and its milch cows. About twenty years ago a Dutch cow was imported into the United States, and her excellent qualities led to further importations, until the stock has become somewhat distributed, and has achieved a good reputation as heavy milkers and large beef-cattle. The cattle which are the subject of the illustration on our first page, are the property of Mr. J. T. Ellis, Flemington, N. J. Prof. Geo. H. Cook, Geologist of the State of New Jersey, in a recent visit to Europe was much interested in the Dutch cattle, and favorably impressed with their excellence as producers of both milk and beef. Prof. C. has examined the animals from which our engraving is taken, and pronounces them very good specimens of the breed. It will be seen that their milking qualities are largely developed, and that their general character stamps them as eminently a dairy stock. A cow of this breed has yielded 35½ quarts of milk per day, from which nearly 3 pounds of butter have been made. Heifers of two years old have reached a weight of 1,200 pounds. It is not uncommon for bulls to attain a weight of 2,400 pounds, and working oxen of 4,500 pounds the pair. They are large feeders, and need the best pasture and care to bring about these results.

Moles and Mole-Traps.

Moles are a nuisance. Whatever use they may perform in the economy of nature, in gardens and meadows they must be got rid of. The traps so far in use, are not efficient. They fail in many ways. What is wanted, is a trap which will not deter the mole from entering it, and which, as soon as the mole goes in, suddenly and unfailingly destroys it. The trap figured on this page seems well adapted to these joint purposes. It is set as follows: The earth over the run is pressed down with the foot, which closes the passage. The trap, set as in the cut, is forced down into the soft earth, until the pan

(a) is in such a position that the mole, in repairing its burrow, which it will be sure to do, presses it upwards as it passes beneath it, and



THE MERRIMAN RAT AND MOLE TRAP.

springs the trap. The jaws (b, b) close with force enough to instantly kill the mole.

We have tried this trap for catching rats, and have found it to be very efficient.

How they make Watches at Marion.

BY GEORGE CARY EGLESTON.

Pocket time-pieces were first used about the year 1600. They were then known as Nuremberg animated eggs, a rather long and clumsy designation, that soon gave place to the name watch, from the old division of the solar day into equal parts known as watches. They were made, for about two centuries, wholly by hand, each workman manufacturing the entire watch.

As a matter of course, they were of clumsy construction so far as the running apparatus was concerned, and exceedingly inaccurate as time-keepers, and for a considerable period the inventive faculty of watch-makers was directed wholly to the production of queer casings, or the devising of ingenious attachments, which impaired the value of the watches, and served only to make them curious and costly toys, of hardly any real use. They were encased in all sorts of things. Some were placed in heavy gold crosses, to be suspended from the neck. Others were made in the form of skulls and cross-bones, and watches appeared in all sorts of fantastic shapes. Their dials peeped out of snuff-boxes, bracelets, shirt-bufftons, and finger-rings, and some were even set in saddle-pommels. There were some of them as large as the crown of a hat, while others were so small as to fit in the end of a pencil-case. One of these is still preserved in Switzerland, the diameter of which is but three sixteenths of an inch, and yet it marked on its little dial the day of the month, the hour, the minute, and the second.

But, large or small, plain or curiously wrought, the watches of the olden time all failed in the one only excellence a watch can have—accurate time-keeping. There is nothing better calculated, however, to make people wish for a perfect thing than the possession of a very imperfect one; and so after a while there began to be a demand for something more accurate in the way of time-pieces, and out of that demand has grown the almost perfect watches now made in America, whose manufacturers are disposed to think them defective if they vary more than a few seconds a year from absolute mean time.

To trace the history of the improvements made would be pleasant enough, but the limits of an article are altogether too narrow for

such an attempt, and after all the real era from which the world must hereafter date the history of satisfactory watch-making, began when American mechanics conceived the idea of doing by machinery that which could never be adequately done by hand, and so making perfect the parts of a whole which, as a whole, is expected to do something like perfect work. When they did this, people derided their work, and sneered at it as "machine-made," forgetting that automatic machinery is of necessity much more accurate in its operations than any human hand can possibly be.

Then, again, it was said that these manufacturers had discarded *three fourths of the pieces* belonging to the works of a watch; and so they had, to the great improvement of the time-keeper, because, other things being equal, the simpler a machine is the better it is.

The jeerings went on, but little by little people learned two facts: first, that these machine-made watches kept better time than any others; and secondly, that they would last longer than any other time-pieces ever made, and when these two points were once fully established, the watches made in this country took the leading place that they hold to-day.

Ever since the first of these factories was started, there has been a steady improvement of the product, and now, under sharp competition, each of the great establishments is constantly adding to its machinery new devices for bringing the delicate wheels, and cogs, and pinions, and screws, and springs nearer and nearer to a mathematical perfection of form, for the one purpose of making their watches more and more nearly perfect in their marking of the time.

It was but a few years ago that half a dozen gentlemen got off a train of cars in the Jersey meadows a few miles out from New York. The place was bald and dreary enough then, but the visit of these gentlemen was the forerunner of a great industry that has grown up there. They went there to select a site for the United States Watch Company's works, and now they have quite a goodly little town around their great towering factory, wherein hundreds of happy, industrious men and women sit every day, each attending a quiet little automatic machine, that does its appointed work with the utmost precision, and helps to swell the daily shipment of nearly perfect Marion watches.

I saw these people and their machinery at work the other day, and truly wonderful work they do too.

In one room there are great punches, each cutting the rough metal into bits of convenient shape, or stamping the bits into a proper degree of density and hardness. Each punch has its own work to do, and nothing else, and each man confines his attention to his own machine. Here, as everywhere in the factory, the intelligence employed lies largely in the machinery, its attendants having nothing to do but to supply it with its proper material. In other rooms, hundreds of girls sit in long rows, each attending a machine which does its work silently, turning out screws, cutting screw-heads, cutting teeth in wheels, punching holes, or doing whatever else its function is, with unfiring industry and unerring precision. There are, in all, one hundred and seventy-six pieces, large and small, in every watch made at this factory, and each watch is the workmanship of one hundred and forty-one persons, and one hundred and fifty-two separate and distinct machines.

To catalogue all these machines, many of which were invented in this factory and can be

used nowhere else, and to tell their several uses, would of itself require more space than I can occupy with this article. I can only speak now of some of the curious parts of the great subdivided industry.

One girl sits in a corner running a little piece of mechanism that whittles steel wire up into shavings. Of what use are these little shavings, so small that they stick together in the box? My guide answers a question to this effect by putting a powerful magnifying glass into my hand, and asking me to examine them through that. I then discover that they are not shavings at all, but screws—perfect screws, all precisely of a size, and all precisely alike, with a fixed number of threads on each. These are used to fasten the jewels into their proper places. And so we went next to the girls who were cutting the jewels up into proper sizes and shapes. The jewels used are rubies, garnets, and sapphires. They are sawed first into thin slices, by means of circular bits of tin charged with diamond powder. Then these slices are cemented together and sawed transversely. This finishes the work of getting them out in the rough. The tiny bits are then cemented to a metallic disc and ground to an even thickness, the accuracy of which is tested by means of an instrument having a long indicating needle, which marks the thousandth part of an inch. As the stone is placed at the inner end of the needle, the minutest conceivable variation from its proper thickness will be shown, exaggeratedly of course, by the tell-tale point.

When exactitude of thickness is secured, the stones are cut to proper angles for their several uses, and the accuracy of these is tested by another indicator. A somewhat similar contrivance, too, is used to determine the exact thickness of the hair-springs, but with even greater attention to minute accuracy, the needle marking variations of $\frac{1}{15,000}$ part of an inch.

Every part of the watch, large or small, is made in the same way. Nothing is left to judgment, eye, or hand. Every shape is determined beforehand, and every result measured unerringly by instruments of almost marvelous delicacy. And so exactly is all this done, that the various pieces in the different watches are freely interchangeable.

When a "train," as a complete set of the working parts is called, has been finished, it goes to the regulator to be adjusted before being made into a movement. This regulator is a plate containing a perfect watch movement made to work a small hand marking a minute part of a second by each revolution, each revolution being divided into four separate motions. The newly-made train is placed in position by the side of this, and made to move a similar little hand. The man attending the regulator keeps the two in motion before him, adjusting the new one from time to time, until the two little hands revolve precisely together, and then he knows that all the parts are of proper size, proper shape, proper polish, and proper adjustment to make a watch that will run correctly. This much must be secured before any train is put into a movement, as the works of a watch set up, ready for the case, are called. The company wants to make correct time-keepers, and will tolerate no measurable variation from accuracy of motion.

When this is done the superintendent knows that the works are properly made, and without any further experiment he might safely sell the watch under a guarantee that it is vastly better as a time-keeper than any hand-made watch ever was or ever can be—namely, that it is very much better than any European watch yet

manufactured. But *perfection* is what the Marion watches aim at, and no possible means of securing it are spared. Besides defects of construction, there are two other causes of inaccuracy to be guarded against. One of these is change of position, and the other difference of temperature. When the movement is set up, therefore, it is kept running for a considerable time in a frame which holds it at different times in a variety of positions, and the slightest variation from mean time is sufficient to call for its readjustment. When it is so perfect as to stand this test, it is placed in an oven heated to 100° Fah., where it is kept for several days, after which it is removed and packed away in ice for a like period. If it shows no variation under this severest of all tests, it is sent out for sale.

And that is how they make watches at Marion, like the one Mr. Chittenden carries, that varies but two seconds in fourteen months.

Ogden Farm Papers.—No. 28

I sometimes wish I had never said a word about "gilt-edged" butter. For, since the publication of the article describing it, I have been run down with applications for detailed information. Knowing how ungracious it must seem to a farmer who writes a careful letter earnestly seeking information not to give it, I answered these letters at some length, until I found that my time and attention were being taken from imperative duties. Since then, at the disagreeable risk of giving offense, I have had to refer correspondents to this number of the Ogden Farm Papers for a statement of the whole case. I wish to premise that I do not pretend to know the best way to make butter; that my experience in dairy matters has not been very extensive; and that I hold up my practices as an example with much misgiving as to the judgment that may be formed of them by those who have more knowledge and experience in the business. I can only say that I do the best I know, and that I have found the result in my own business reasonably satisfactory.

First, to describe the utensils required: (1.) A water-tank holding at least two feet (or better two and a half feet) of water, having a superficial area of not less than four square feet for each ten cows in the dairy. This tank should stand in a room where it will not freeze in the coldest weather. It had better be partly or entirely below the level of the ground, that it may be reasonably cool in summer, and it must be fresh and well ventilated, its bottom free from stagnant moisture, and its sides not exposed to foul exudations from adjacent sink-drains, etc. The tank should be supplied with fresh water from a well or spring by a natural or artificial stream. The larger the flow the better, but it will suffice for a dairy of 40 cows to use a half-inch stream. The fresh water should have a temperature not higher than 58°. It would of course be better that the stream should be a constant one, but it will often be necessary, as in our case, to use a windmill, and we find in practice that it is never dead calm long enough together for the water to become stagnant or too warm. (2.) A set of cans, 8 in. in diameter and 25 in. deep, such as are made by the Iron-clad Can Co. of New York City, and called "Orange County Creamery Cans." These have heavy iron bands at the bottom, which serve the double purpose of strengthening them and of so ballasting them that they float upright in the water. They have common iron bails at the top for handling (fig. 1). Each can

should have a light tin cover (fig. 2), not wired at the edge, and furnished with three studs sitting inside the can to hold it in place. In the center there should be a hole, one inch in diameter, for ventilation. With a dairy of ordinarily good cows, three cans will be required for ten cows.

(3.) A conical skimming dipper (fig. 3), four or five inches in diameter at the top and pointed at the bottom, the top not wired, and the handle, which rises vertically from the dipper, attached a little below the top on the inside.

(4.) Larger cans, with tightly-fitting covers, for holding the cream.

(5.) A churn of whatever form may be considered best.

(6.) A butter-worker, of which there are several good varieties, none better in my opinion than a white-oak table, sloping a little, with a groove around the edge, to convey the buttermilk to one point, whence it drips into a pail; and a two-handled white-oak paddle for manipulating the mass.

(7.) A sponge, five or six inches in diameter, of the soft coarse-grained variety sold by druggists as bathing sponges. (8.) A suitable mold for making the butter into pats. (9.) Square pieces of the cheapest and thinnest bleached muslin, large enough to inclose the pats. (10.) A Philadelphia butter-tub, figured in a previous number of the *Agriculturist*, which is a high oval tub containing a tin case, of which the ends are partitioned off for ice, and the center furnished with studs to support light wooden shelves to hold the layers of butter.

These utensils being provided, the process is as follows: The milk is taken immediately from the stable to the milk-room (not allowed to stand and absorb the odor of the stable), and is strained into the cans, filling them to within about two inches of the top. As soon as a can is filled it is set into the tank and the cover placed upon it. It will often happen that the last can is not sufficiently filled to sink deep enough to float erect, and there should be one or more strings pendent from the ceiling to be made fast to its bail and keep it straight. At the next milking this can should not be disturbed, but the entire mess should be put into fresh cans. Just before the third milking time (after 24 hours' sitting), the first lot of cans should be carefully lifted out of the tank and skimmed with the conical dipper, the cream being put into the cream can. Just before the fourth milking time the second lot of cans should be skimmed in like manner. If necessary, toward evening of the day before churning, the cream-cans should be taken out of the water and placed in a warmer room, so that the temperature of the cream will rise to from 60° to 62°. If it is cold weather, and it is necessary to stand the cream in a room with a fire, the cans should be set on a table, as the air toward the floor, even in a heated room, is often too cold. We find it best to have two butter days a week—Tuesday and Friday. Early in the morning, the churn, which has stood uncovered and in a well-ventilated place since its last use, is thoroughly scalded, and then rinsed out with lukewarm water in winter, and cold

water fresh from the well in summer. Cream is then poured in, and the churn kept in motion, without interruption, until the butter comes. When the butter has all formed, it is gathered by a slow, rocking motion of the paddles, the plug is removed, and the buttermilk withdrawn. It is sometimes, but not always, necessary to rinse down the paddles before the butter gathers. The buttermilk having run off as well as it will, the plug is returned to its place, and two or three dipperfuls of water of suitable temperature, according to the season, are thrown in, and the paddles are worked slowly back and forth for a moment, when this water is drawn off and a second supply is added in like manner. If this water is quite milky a third supply is added. This is the only washing that the butter receives. It tends to consolidate the mass, and to remove the most of the buttermilk.

The butter is then taken out, about 10 lbs. at a time, and placed upon the working table, which, as well as the paddle, has been previously scalded, and washed with cold water. The butter is then flattened out with the paddle, its surface being gashed and checked (but not cut entirely through) in both directions by its blunt edge. When it is thoroughly cut over, the paddle is laid aside, and the sponge, well wrung out of cold water, is firmly patted over the whole surface, and over so much of the table as may contain buttermilk from the working. It is then returned to its vessel of water, and with the paddle the butter is turned over, rolled together, flattened out, and again manipulated with the blunt edge, and the sponge, wrung out clean and dry, is again used. This process is repeated until the butter is thoroughly dry, no globules of water (or perspiration) being perceptible when it is manipulated with the paddle.

Then the requisite quantity of salt (Onondaga Dairy salt being in our opinion the best) is sprinkled over it, and thoroughly incorporated with it by a short but rapid working. The butter is then packed in the bottom of a cream-can and covered up. Another mass is taken from the churn, similarly prepared, and packed closely upon it. The can is then set in a place neither too cold nor too warm, and allowed to remain until the next working, either from morning until toward evening, or from evening until morning. The butter is then worked again, and if necessary, though it generally is not, the sponge is used to remove any brine that may appear. Immediately after this working the butter is molded into pats, and each pat is turned from the mold with its lower side placed on the center of one of the squares of muslin, which has been freshly wrung out of clear cold water. Any inequality of the edge of the pat is smoothed over, two opposite corners of the cloth are turned over the top, and with the other two the pat is lifted into its place in the butter-box and completely covered over.

In winter-time this butter may be transported to any distance without ice, but as soon as the weather becomes warm the compartments at the ends of the box should be filled with broken ice, which will keep it cool, with proper care,

for twenty-four hours. When the butter and ice are ready for market, the top should be fitted on to the box and secured in its place by the stick which passes through the handles of the tub, and fastened with a lock if to be transported by public conveyance. If carried in an open wagon, the box should be covered with a blanket to shelter it from the sun.

Concerning the quantity of salt to be used, it is impossible to give directions to suit all tastes. We use about one ounce of salt to two pounds of butter. Most markets would require one ounce of salt to one pound of butter, or even more than this.

The butter being dispatched, one of the most important labors of the dairy remains to be performed—that is, the thorough scalding, and cleansing, and sunning, and airing of every utensil that has been used in its manufacture. The sun and air are great purifiers, and will remove any tendency to taint, provided all extraneous matter has first been carefully removed, but not otherwise. After the utensils have been put out to air, the room itself should be thoroughly cleansed and ventilated, and at least once in a month the walls should be lime-washed.

The question of artificial coloring is important to be understood. Unless one has a profusion of colored roots or of early cut hay or rowan, the butter will be at some time during the winter too white to be attractive. We have tried a great variety of processes for coloring, but until recently have had great difficulty in securing perfect uniformity. Carrot-juice put in the churn is often very good, but sometimes a bitter root will escape detection, and its juices will seriously affect the flavor of the butter; the color will also vary in intensity. Annatto and annattoine, as ordinarily used, require more judgment to secure uniformity than can always be commanded. We have now been using for some time a preparation of annattoine made according to Burrell's recipe, and find it as nearly perfect as could be hoped for. The recipe is as follows: Put 1 lb. of annattoine in 2 gals. of clear spring water, and let it stand 24 hours, stirring frequently. Put 1 lb. of potash and $\frac{1}{2}$ lb. sal-soda in $1\frac{1}{2}$ gal. cold water. When these are all dissolved, settled, and skimmed, pour the clear liquor into the solution of annatto. Let the compound stand some days, stirring occasionally. Keep the preparation in stone jugs or in bottles in a dark place. Shake before using, and put into the churn one tablespoonful for each five quarts of cream—more or less, according to the depth of color desired. By using always the same proportion, the same shade will always be produced.

I believe that an adherence to the foregoing directions will secure as good a result as the character of the cows in the dairy is capable of. With Jersey cows or grade Jerseys, there is no doubt that a much finer quality of butter can be made than with any other breed; and in the long run, the best utensil for making "Gilt-edged Butter" will be found to be a thoroughbred Jersey bull.

The butter being made, half the battle is fought. The other half will be to make a market for it. The secret in doing this is to make it known, by whatever means may be available, that the butter bearing your stamp is good—and always good. No matter about price at first, secure at the outset a good class of customers, at half-price if necessary, and make your butter a necessity to them. You will secure, as soon as you deserve it, a demand for your whole product at more than the usual market price.



Fig. 1.—MILK-CAN.

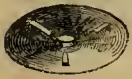


Fig. 2.—COVER.



Fig. 3.—SKIMMER.

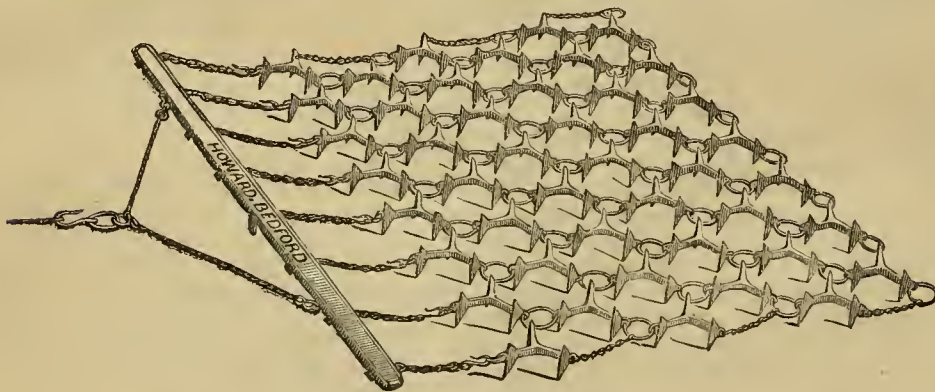
About Harrows.

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

Last spring the makers of Thomas's smoothing harrow complained that the account given in "Ogden Farm Papers" of my experience with their implement had resulted to their disadvantage, and they asked me to try this year one of a new form, but working on the same principle. Another maker asked me to try a Bussell harrow (a cousin of the Nishwitz). A friend had sent me an English "Flexible" or chain harrow. I had already a large "Shares."

The latter, which is now well known, I consider the best harrow for rough cultivation that I have ever seen. It cuts up a newly-turned sod furrow to perfection, and gives one or two inches of perfect covering, while it tends rather to press the furrow into its place than to tear it up, as the common tooth-harrow does. I have

and the ground is very finely pulverized and leveled. By repeated use, it may be made to do the work of both roller and bush; and I have found it, for all work for which it is adapted, as nearly perfect as any implement can be. But it is *not* adapted for the cultivation of corn on Ogden Farm. I gave it a fair trial, with the row and across the row, and it tore up or covered up too much of the crop for my taste. On light soils it may answer—I can not tell without trying—but on my soil it will never do until I can get control of sun and rain, and keep the ground light and mellow from planting time until the corn is up, and I very much doubt whether it would do even then. It is, however, to my mind, no argument against a plow that you can't mow grass with it. I am entirely satisfied with the Thomas harrow, as a harrow; for hoeing corn I must still recommend "the good old way." If I could have only one, I would dispense with the Shares rather



ENGLISH FLEXIBLE OR CHAIN-HARROW.

not had a common harrow on the place for two years, nor do I care to have one so long as I can get a Shares.

The Bussell harrow is intended to do the same work with the foregoing—that is, the rough handling of newly-plowed land—but to do it in a very different way. The frame is A-shaped, like the Shares, and it has the everlasting spring seat on it by which manufacturers hope to catch the fancy of the lazier class of farmers. (I shall not be surprised to see some day a churn with a spring-seat for the man who is to turn the crank.) The frame is supported on about a dozen wheels set along its edge, wheels with sharp edges and very much dished, and about 14 inches in diameter. They are set at an angle with the line of march, so as to cut into the ground and throw the dirt (a little outward) as fine as sawdust. I gave this machine a fair trial, and found its wheels not suited to my heavy soil, its draught not suited to my very heavy mule team, and its seat not suited to my heavy style of riding. In short, I did not like it, either as an agricultural implement or as a pleasure vehicle. I have, however, good accounts of it in some other quarters. I return to my Shares harrow, quite content.

Thomas's smoother is mainly for finishing work. It has been very much improved from its original form, being now made in three sections, each about three feet square, hinged together in such a way as to cover a width of nine feet, and hung to run with one end a little further back than the other, so that the teeth shall not "track" with each other. The teeth are made of $\frac{5}{8}$ steel rods, and are a little inclined to the rear, so that their action is smoothing rather than scratching, something after the manner of a bush. When properly regulated, the tracks of the teeth are about one inch apart,

than with the Thomas. Both together make the most complete work.

The English flexible harrow (fig. 1) is quite an old affair—so old that the patent has run out, making it public property—which our implement-makers would do well to adopt. The teeth are of chilled iron, and they are fastened together with steel links. It is perfectly flexible, and every tooth is bound to descend until it touches the ground. This makes it the "s'archin'est" harrow that can be found. The top of every hummock and the bottom of every dead furrow is sure to receive its due share of the scratching. The teeth are longer on one side than the other, and at one edge they are vertical, while at the other they are oblique, so that the harrow may be used either side up or either end first. Drawn as it is shown in the cut, it is an effective harrow to follow the plow; drawn the other side up, and with the draught-bar hooked to the opposite end, it is a fine smoothing-harrow, almost equal to a chain-mat drawn over the ground.

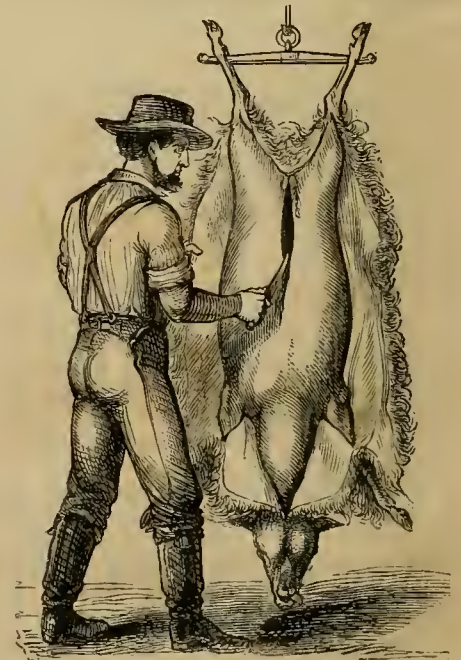
I have found this a good implement for all work, and so much better than anything else I have ever seen for fining manure that has been spread from a cart, or for beating up the manure on a pasture (loosening up the grass at the same time), that I believe its use will add at least ten per cent to the effect of manure, spread and beaten in the ordinary way, simply by causing a more even distribution of the fertilizing matter over the whole surface.

JERSEYS IN NOVA SCOTIA.—The testimony of our Mobile correspondent is no more favorable to this breed for the far South than is that of Mr. Chas. C. Brown, of Yarmouth, Nova Scotia, for the far North. He says: "My $\frac{3}{4}$ Alderney gave Nov. 21st 23 lbs. 7 oz. milk,

dropped calf March 26th, and will come in again March 10th; gives now (Jan. 5th) 10 to 12 lbs. in the morning, fed on good hay (cut in June), with half a bushel of turnips per day, and is good beef notwithstanding the usual gauntness of the breed. We think our climate especially adapted to the Alaerney. When I had but one cow and a family of eleven, with five children, using milk freely, and cream always three times daily, we made as high as 7 lbs. butter from one week's milk. This season, with a second cow ($\frac{3}{4}$ Alderney), a daughter of the first, but with six children, we made up to 23 $\frac{1}{2}$ lbs. Surely we are not wrong when we think this breed suits our country."

How to Dress a Sheep.

The "woolly taste" in mutton is not derived from the wool. The peculiar flavor of ill-dressed mutton has nothing to do with the coat of the sheep, but arises from the absorption by the meat of the gases from the intestines, which, as the outside of the carcass cools, can not escape, and are therefore absorbed by the flesh. There is a simple remedy. As soon as the animal is dead, let the hide be slit up from the brisket to the tail, and to the knees, by a quick motion of a sharp-pointed knife, inserted beneath the skin. Strip the skin from the belly and the ribs and legs, so that it will be out of the way of the intestines. Then open the sheep immediately, and disembowel it. All this ought to be the work of about one minute or two, or if it occupies five, there will not be sufficient time for the carcass to cool sufficiently to cause any unpleasant taste. Then proceed to strip the skin from the back of the carcass. A sheep should be killed by thrusting a sharp knife through the neck, back of the wind-pipe, without touching it however, but cutting the arteries; and as soon as the knife is inserted,



DRESSING A SHEEP.

it should be twisted around as if to make a round hole; there will then be no mistake made in cutting the arteries, and the death of the animal will be comparatively painless and rapid. As mutton should be made the chief meat diet of a farmer during the summer, it is well that every one should know how to slaughter and dress a sheep in the best manner. Among other trades, a farmer ought to be a fair if not a good butcher. He will not then complain of woolly mutton.

The Abyssinian Wart-Hog.

Those who saw Barnum's Menagerie after the additions were made to it last autumn, will recognize in the engraving here given portraits of two of the most interesting ugly beasts in the collection—the Wart-hogs of Abyssinia. These animals belong to the genus *Phacochærus*, and though in the same family with our domesticated swine, differ from them sufficiently to be placed in a separate genus. The Wart-hogs have the same general appearance as the domesticated ones, but differ in the number and arrangement of their teeth. They have a very heavy look, and their uncouth appearance is enhanced by the small size of their eyes and their very large ears.

A marked characteristic, and one which gives them their common name—the scientific name being the same thing turned into Greek—is a warty appendage or tubercle attached below each eye. There are some four species known, all natives of Africa, and all having these peculiar appendages upon each side of the head. The species here figured has remarkably long bristles along the upper part of the neck and back, which serve to increase the wild aspect of the animal. In their native state the Wart-hogs are exceedingly ferocious, and we do not know of any attempts at domesticating them. It may be that if placed where their wants were provided for, they would, like the wild hog of Europe, lose their intractability and become useful. When we compare the hogs of the wilder parts of the South and West, where they are known as "sub-soilers," "ridge-backs," "jumping alligators," and "land-pikes," with a high-bred Yorkshire or Essex, the difference is very wide. Perhaps this wild hog of Africa is not so far below the "land-pike" as that is beneath the best specimens of our best breeders.

We do not know that these African animals possess any desirable qualities that should lead to their domestication, but this case is no more unpromising than was that of the originals of our valued breeds. It can not be supposed that all the animals likely to be useful to man have yet been brought under domestication. We

hope to see some day in this country a Society of Acclimation, which shall test under domestication all animals that promise usefulness, whether for their flesh or their coverings. Such a society existed in Paris, but the animals were eaten during the siege.

rocks, with peat bogs in the intervalles. On the stunted but nutritious pastures afforded by such a country, a race of hardy cattle have been bred for centuries without any admixture from other races. They have, therefore, as may be expected from all these conditions, and from the

fact that they have been bred for the especial purpose of supplying the English cities with beef, become a breed of active, hardy, comparatively small, but exceedingly vigorous cattle, of but little account for the dairy, but carrying on their fine frame a proportionately large amount of good, well-flavored meat. The vigor of the race is understood when it is known that a Galloway bull will perpetuate his qualities and marks thoroughly on the produce of even a pure

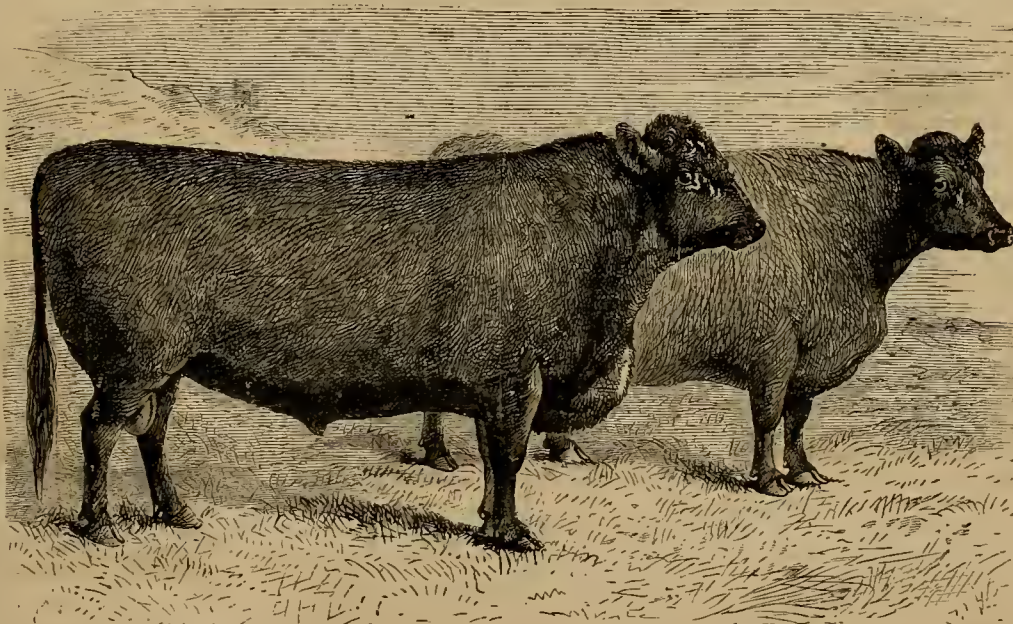


ABYSSINIAN WART-HOGS.

Polled Cattle.

Not long since, a Western "stock journal" stated that there was no established breed of hornless cattle. Hornless or polled cows and oxen are not at all uncommon in some of the Western States, more especially in Illinois and Missouri, but still, in the United States, it is true we have no stock-breeders who make a specialty of this species. In Western Canada there is at least one breeder who possesses a herd of pure-bred Galloways, of which race the cattle figured in the engraving is a true repre-

Shorthorn cow. This peculiarity gives him an especial value to those breeders who desire to cross their stock with Galloway blood. The usual method of raising the young cattle in Galloway is to let them suck the cows; or if the cows are milked it is only at such times as when the calf has possession of one side of the cow and the milkmaid the other. Under these circumstances, it can not be expected that the breed is fitted for the dairy. But for certain districts in the United States they would be found valuable, as they have all the hardiness of the Texan, with strength and activity sufficient to



GALLOWAY POLLED CATTLE.

sentation. Galloway is a district on the west coast of Scotland, which owing to the influence of the sea-breezes possesses a moist, warm climate, so much so that figs are sometimes ripened in sheltered gardens when trained on walls having a south aspect. The soil, however, is poor, and the surface mainly composed of granite

consequence a race of polled cattle has become established in those countries. But there the stock is generally of a red color, and more fitted for dairy purposes. An attempt is being made to import these Norfolk polled cattle into this country, and we think that it is a design worthy of being thoroughly carried out.

enable them to travel hundreds of miles in droves without falling off in condition. It has been customary for the Galloway cattle to be driven in large herds to the London market, a distance of five hundred miles, stopping nights to get a feed on pastures kept specially for them. Very often droves of lean stock have been retained on some of the rich meadows of the midland counties of England to be fattened. The breed has thus become crossed on the native stocks of Norfolk and Leicester, and in

Horns are frightful weapons amongst a drove of half-wild irritated and alarmed cattle, and so far as our beef stock is concerned may be very profitably dispensed with. There is no doubt but that the introduction of these hornless breeds, with all the other advantages they possess, would be of benefit to our Western and much of our Eastern country. They arrive at an early maturity, at three years old will make 600 to 800 pounds of beef, which is well flavored, tender, and with fat and lean well mixed together, and, in short, are a favorite breed with the feeder, drover, butcher, and consumer.

Walks and Talks on the Farm.—No. 101.

I have been reading Miss Howard's translation of Prof. Vile's lectures on chemical manures. His fundamental idea is that by the use of nitrogen, phosphates, and potash we can dispense with ordinary barn-yard manure. Within certain limits this is undoubtedly true. But it was Lawes and Gilbert, and not Prof. Vile, that proved the fact. The lectures are a strange compound of truth and error. That which is true is not new, and that which is new is not true—or at any rate, as the Scotch say, "not proven."

These lectures, as translated by Miss Howard of Georgia, and published in pamphlet form, are having a considerable circulation in the Southern States. And, notwithstanding their innumerable errors and doubtful statements, they are well calculated to attract attention to the advantages of using artificial fertilizers, and thus do much good.

Throughout the whole length and breadth of the large area known as the Atlantic slope, artificial manures, if of good quality and sold at a reasonable price, might be used to an enormous extent with great benefit to the individual farmers and planters and to the commercial interests of the country. If my memory serves me, as much as 145,000 tons of guano was used in a single year, and principally in the Southern States, before the war. Since then, Peruvian guano has deteriorated greatly, and what is even worse, it varies very much in quality, some cargoes being worth nearly twice as much per ton as others, while, as I understand, it is all sold by the Peruvian agent at the same price.

Our manufactured fertilizers, as a rule, are even still more unsatisfactory. A few are good, many are inferior, and some are not worth the freight. Prof. S. W. Johnson has done a noble work in determining the value of many of our commercial manures. In his last report on the subject, he has placed a higher value on the different ingredients of manure than formerly, and the manufacturers whose manures will not stand the test of such an estimate should know that there is something wrong in their processes. And there is one point that they should understand. This method of estimating the value of manures can not do the manufacturers injustice, but it may mislead the farmer. The manure can not be worth *more* than the ingredients it contains indicate; but it may be worth *less*, because some of the ingredients may be in an unavailable condition. For instance, a mixture of leather, hair, wool, and ground undissolved Charleston phosphates would not be worth half what the analysis indicates. The nitrogen and phosphoric acid are there, but in such an unavailable condition that the manure would have comparatively little effect on the crop to which it was applied. The analysis, therefore,

may represent the manure as more valuable than it is; but a manure is never more valuable than the analysis indicates.

Prof. Johnson, after a very careful consideration of the whole subject, estimates the values of the ingredients of manures as follows:

Potash.....	7	cents per lb.
Nitrogen.....	30	" "
Soluble phosphoric acid.....	10 $\frac{1}{4}$	" "
Insoluble ".....	6	" "

The Manhattan Manufacturing and Fertilizing Company, whose manures I have considerable faith in, send me an analysis of their Phosphatic Blood Manure, made by Prof. S. W. Johnson. It contains:

	Per cent.	Value per ton.
Water.....	21.40	
Soluble phosphoric acid.....	5.66	\$18.39
Insoluble ".....	8.03	9.63
Potash.....	1.40	1.96
Soda.....	2.60	
Nitrogen.....	3.32	19.92
Value per ton of 2,000 lbs.....		\$49.90

In the present condition of the artificial manure market, this is not a bad showing. The manure is not as good as it should be—not as good as the ingredients used in its manufacture are capable of producing. The fact is, it is not an easy matter to decompose bone-dust, and if I were the manufacturers I should employ mineral phosphates instead. I know there is an unfounded prejudice against them, but the soluble phosphoric acid obtained from them is just as valuable as that obtained from bones.

But can we afford to use artificial manures at these prices? On poor, sandy land, and where the products can be sent to the cities on the Atlantic coast, I think we can. And even here in the interior the market-gardener, seed-grower, and nurseryman may sometimes use them with considerable profit. Even farmers in the interior, on poor, sandy land, may use them for the purpose of "getting a start," but not as a steady thing. We can do better—at least I think so—by making more manure on our own farms.

Taking Prof. Johnson's figures, the potash, phosphoric acid, and nitrogen in a ton of clover hay would make it worth \$17.57 for manure. Bran would be worth \$22.10; peas, \$22.84; malt-dust ("combs"), \$31.30; linseed oil-cake, \$33.76, and decorticated cotton-seed cake, \$47.56 per ton for manure.

When fed to animals, there is a loss of about five per cent of nitrogen and a very insignificant amount of potash and phosphoric acid. If we deduct five per cent from the above figures, it will be safe to assume that they represent the value of the manure made by an animal consuming a ton of the foods named, as compared with the theoretical value of artificial manures. On the same basis, a ton of ordinary barn-yard manure would be worth \$3.25.

To a farmer who buys as much bran and other food to feed to sheep and pigs as I do, there must be encouragement in the above figures. I think they are too high, but it seems that artificial manures can not be obtained in this country at a cheaper rate. And if our Eastern and Southern friends can afford to buy these manures we certainly ought to be able to make considerable profit from feeding stock and making manure on our farms.

A Pennsylvania farmer writes: "During the winter I have been looking over old files of the *American Agriculturist*," which is certainly a very sensible thing to do. "You seem in Walks and Talks," he says, "to hold out the idea that

summer-fallow and thorough cultivation will exterminate the weeds. Do you really believe it?" I believe that weeds do not spring spontaneously from the earth. They are produced from roots and seeds. If we could kill all the roots, and get all the seeds to germinate and then kill the plants, the soil would then be free from weeds. This is a simple truism. But I do not believe that there is any practicable method of making a soil absolutely free from weeds. I think it is possible to cause all the weeds to germinate in say eight inches of the surface soil; but if when this was attained the plow should run half an inch deeper, we should probably the next season have a plentiful crop of weeds. Let these go to seed, and relax all efforts to kill the plants for a few years, and the land would soon be overrun with weeds. But what of all this? The only sensible plan for a farmer to adopt is to fight the weeds, and keep fighting them.

In England, where most of the land is rented, it is a great question how much the landlord or in-coming tenant shall pay the out-going tenant for unexhausted improvements. Mr. Lawes, in one of the ablest papers ever written on an agricultural subject, advocates allowing the tenant farmer a greater liberty in regard to the kind of crops he may raise than is common in most leases. But he says: "The tenant should be required to keep the land free from weeds; and, in default, to pay compensation to the landlord or in-coming tenant for the cost of cleaning; such cost to be assessed by competent persons." And he adds: "The cost of cleaning foul land which is in high condition is much greater than that of putting land which is poor in condition, but free from weeds, into good condition."

This is emphatically true, as I have found to my cost. I have had a hard fight with the weeds, but am steadily getting the upper hand of them. I feel savage on the subject, and have little patience with a farmer who looks upon a weed as something to be checked or kept back for the time being, and not killed.

"You say in March Walks and Talks," writes a young farmer at Cassville, Wis., "that soiling in summer and steaming in winter would enable me to keep more stock, but I have always contended it is the food and not the stock that makes the manure. From that we are to understand that the ultimate end and aim of farming is the manufacture of manure." This is pretty much so. It is quite certain that where manure is not one of the principal objects of feeding, soiling and steaming will not pay. In a section where land is cheap and rich, and where feed is abundant and manure is little needed, the mere saving of food will not pay for the labor of soiling and steaming. It is only where land is high and feed expensive that there is any chance of profitably adopting these processes. And on such land and in such circumstances manure is a great object. All I intended to show by my remark (and I must admit that it was rather an unfortunate one) was that even admitting that you could keep one third more stock on the same food you would not make one third more profit, less the expense of steaming, because you would not make any more manure. I buy a good deal of bran and grain to feed out on my farm, and I should think I was doing well if the stock would pay me the market price of the food that I raise and that which I buy, and leave me the manure for profit. Ordinary farm stock will not do this. But I have not time now to discuss this matter

as fully as its importance demands, and I have no wish to get into a controversy with the advocates of steaming. My sympathies are all with them, and with every farmer who is trying to improve our processes of agriculture. I have sometimes thought, however, that it is a pity so many of our ablest agricultural writers spend so much of their energy in advocating deep plowing, soiling, and steaming, when there are so many other subjects of far greater importance on which we need line upon line and precept upon precept.

A man at Reading, Pa., whose name I suppress, wrote me as follows: "I can increase your net profit on sales of live-stock *twenty thousand dollars per annum*. What arrangement can I make with you in reference to payment for such services? I am willing to do this either on commission or salary. It will require no addition to the capital you already have invested in that branch of your business. There is no risk; all operations being cash. I sincerely hope you will not consider the above assertion an exaggeration, or the product of an excited imagination of an unfledged novice, as I can assure you I am no child in operations of this character, and am accustomed to dealing in facts only." I wrote to ask him to tell me how I could raise and keep such an amount of stock on my farm as would afford a profit of \$20,000 a year. I told him I had no trouble in selling stock. But if he could tell me how to keep it more economically, and to raise it in such numbers and of such high quality as to afford such splendid results, I should be glad to hear from him. To this I have received no reply.

We have had capital luck with our lambs this spring. The weather has been very dry, and the sheep were strong, healthy, and in good condition, and this is the great secret of having "luck" with lambs. It is a curious fact that the lambs from Merino ewes sired by a thorough-bred Cotswold are generally as large and sometimes larger than the lambs from Cotswold ewes. And yet many of my Cotswold ewes weigh three times as much, and all of them twice as much, as the Merino ewes. One of the Cotswold-Merino lambs weighed at birth 14 lbs.

I notice a statement of a well-known Merino breeder in the West to the effect that he tried a cross with fifty good-sized "roomy" Merino ewes and a full-blood Cotswold. No difficulty was experienced at yearning time, and the lambs looked vigorous and healthy for several days, but after that seemed to want more milk than their mothers were able to furnish them, and though on good tame pasture, before the end of summer a few lank, living specimens and more dried pelts were all he had to show as the result of the experiment. "It may be," he says, "that the fault was not in the cross, but in the treatment before and subsequent to lambing. We treated the flock precisely as we treated our other stock." That tells the whole story. Though a sensible man and an experienced breeder, he thought he could bring into existence a lot of large lambs, and have them grow rapidly on the same amount of food required by the small, slow-growing Merino lambs. He "treated them precisely the same;" and consequently it is certain that either the small Merino lambs got more milk than they needed, or the grade Cotswolds got less.

Since writing the above, we have weighed (March 22d) a grade Cotswold ewe, that is about a year old. I can not tell her exact age. I had

74 lambs last spring from 60 Merino ewes. I sold 70 to the butcher, and this ewe is one of the four he left me, and he certainly did not leave me the best. I killed two for the table when from eight to nine months old, and never ate tenderer or more juicy mutton. But I thought it rather deficient in flavor. This ewe we have just weighed is covered with a heavy fleece of long wool that will answer for combing purposes. In fact it is nearly as long as that of the full-blooded Cotswolds. The ewe weighs to-day 121 lbs. Her mother at four years old did not weigh over 80 lbs. This is what these cross-bred lambs are capable of doing. This quality of rapid growth on the part of the Cotswolds is the result of years of careful breeding and liberal feeding. Now take such a flock of lambs and starve them, and what does any sensible man think would be the result? Is it not reasonable to expect "lank, living specimens and dried pelts"?

The grade lamb I have spoken of as weighing 14 lbs. was born March 3d. On March 1st we had one that weighed when born 12½ lbs. We have just weighed them again (March 22d). Both of them weigh exactly 25 lbs. each. I allow all my lambs a few oats, fine middlings, bran, sliced mangels, or anything that they will eat, placed in small troughs separate from the ewes; but it is not probable that these two young lambs, only three weeks old, have eaten very much. They have derived their nourishment from the Merino ewe. The milk seems to be very rich, and the secret of it is simply this: The ewes had good pasture last summer and autumn, and have been liberally fed all winter, and before and after lambing have abundance of milk-forming food—such as good clover hay, bran, and a few mangels.

My own opinion is that a farmer who has been accustomed to Merino sheep, and who does not expect to raise more than 75 lambs from 100 ewes, had better have nothing to do with Cotswold, Leicester, or South Down sheep. The poorest Merino sheep he can find, provided they are healthy, will be best adapted to his mode of treatment. When he is prepared to give better feed and more care he should get some improved Merinos; and if he keeps on improving in his general system of management he will in time be prepared to keep a still more artificial breed of sheep, and will at length succeed with Cotswolds or Leicesters. Whether it will pay to keep sheep that require so much more care and better feed will depend entirely on the demand for mutton, lambs, &c.

Some of the Cotswold breeders are disposed to expel me from the party for entertaining such notions—or rather for publishing them. I am not afraid of the truth hurting this splendid breed of sheep. To me it is encouraging rather than otherwise that these high-bred sheep are not adapted to "roughing it" on the cheap lands and vast prairies and plains and mountain-sides of the far West. If such was the case, the best thing we could do would be to pull up stakes and take our flocks out there. But depend upon it that Merino sheep will do better in such sections. Our Merino wool will be raised on these cheap lands, and the long-combing wool, good mutton, and early lambs will be raised in the better farmed and more highly cultivated parts of the country. In fact, I do not see how those of us who live in the older settled wheat-growing sections of the country can keep up the fertility of our farms without keeping more stock. And we have to

decide between dairying, or beef, pork, or sheep growing. I think we shall feel the competition from the West in the production of pork, beef, and fine wool, for some years, more than in early lambs, good mutton, and combing-wool. To raise the latter to the best advantage, we need clean, dry, highly cultivated land—or precisely what is needed to produce remunerative crops of winter wheat. The more mutton we produce the more wheat shall we grow per acre.

So far, my mangel-wurzel have kept perfectly. I raised about 3,000 bushels on three acres, and as I had no cellar room to spare, we pitted them on a dry, sandy slope near the barn, and found it far less trouble every way than I expected. It would of course be far more convenient to have a good cellar, but the want of it need deter no one from growing roots.

I have never been a strenuous advocate for raising roots extensively in this country. They probably act as a tonic, and stimulate the appetite, and improve digestion, and regulate the bowels. They are very useful to the farmer who keeps improved stock and feeds liberally. But for ordinary farm stock, fed as most farmers feed, I doubt whether roots can compete with Indian-corn. In England it is customary, especially on sandy farms, to sow one fourth of all the arable land every year with turnips—the rotation being clover, wheat, turnips, barley. The latter crop is seeded with clover. This is pastured with sheep until the next fall, or sometimes for two years, and is then plowed rather shallow and sown with wheat. The land is not plowed until it is time to sow the wheat.

It has been said, and with much truth, that turnip culture is the sheet-anchor of British agriculture. Turnips must have very rich and very clean, mellow land. It is a crop that is all consumed on the farm, and on light sandy soils it is generally eaten on the field where it grew by sheep. The crop needed a heavy dressing of manure, the land was kept very clean, and where the crop was eaten off, and the droppings of the sheep left on the land, and especially with the sheep allowed oil-cake, it is easy to understand that the land would be in high condition for barley and clover, and when the latter crop is also eaten on the land the prospects would be good for a great crop of wheat. It is easy to see, therefore, why the turnip crop has proved so exceedingly profitable to the English light-land farmer.

It is a great mistake, however, to suppose that it is the turnip crop that makes the land rich. This would be mistaking cause for effect. The turnip requires rich land, and its growth and consumption on the farm husband the manurial elements already in the soil, and render them available for grain crops.

Mr. Lawes, in a recent address, after giving an account of his experiments, remarked: "We may learn from these results that the growth of the root crop did not of itself contribute anything to the fertility of the land."

He further said, speaking of his own farm: "I am disposed to give up the growth of turnips altogether, growing no other roots but mangolds, and these probably to the extent of not more than one fifteenth or one twentieth of the arable land of the farm."

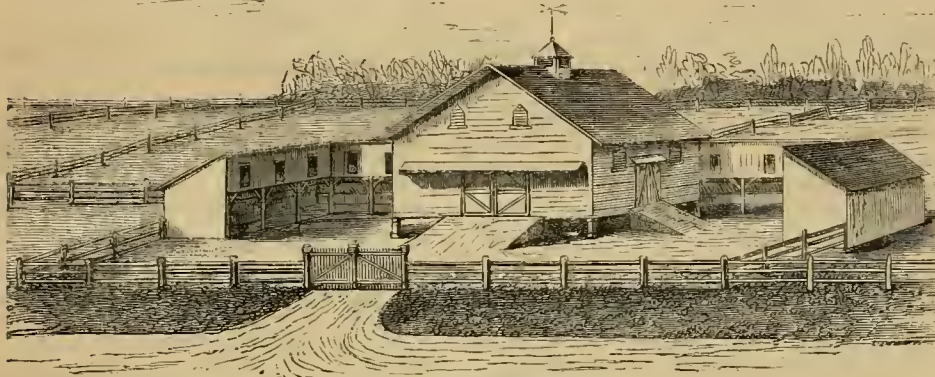
Coming from the highest living authority on scientific farming, these remarks are certainly worthy of consideration. They are quite in accordance with some statements I have repeatedly made in the *Agriculturist*. But I have not time to say more on the subject at present.

A Western Cattle-Barn.

Several requests have been made for a plan of cattle-yard, barn, and sheds for a stock farm. We visited a farm in Illinois last season where we saw a barn and sheds very well adapted to this purpose. The barn was appropriated wholly to hay and grain; the yard was spacious, and

Larger stumps, up to 8 inches, may all be pulled out by using a block and tackle. Blocks of three sheaves should be used, and a rope sufficiently strong for the purpose. A hitch should be taken upon the largest stump, and all those around it drawn out, when another large stump may be chosen to hitch to. In the *Agriculturist* for Sept. 1871, page 338, is a cut of a stump-puller

bars reaching from it to the sides, made of light laths, are fixed to the top of the trough to prevent the sheep from jumping into it. Its light is regulated by the size of the sheep.



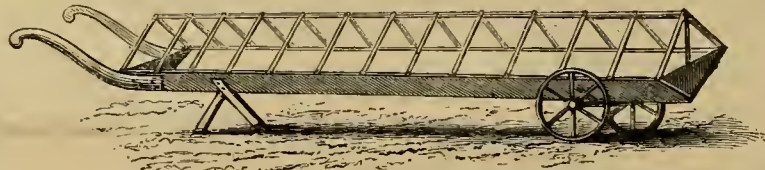
A WESTERN CATTLE-BARN.

surrounded on three sides with sheds, either closed or open, in which the stock was kept. A neat fence closed in the front. The barn was raised three feet from the ground and rested on posts of brick-work. The space thus gained was used as a shelter for those hogs which had the run of the yard. The yards were well littered with straw and the remains of the corn-fodder which had been fed to the stock, by which means a large quantity of manure had been accumulated. Eighty head of stock—cows and steers—had been fed the previous winter in this yard, and the sheds were occupied when we visited the place with several head of cattle just taken off the pastures to fatten. The plan here given is equally well adapted to a large or small farm, as it may be extended at will to accommodate any required number of cattle.

which is powerful enough to take out stumps two feet in diameter, but the method here figured will be found effectual for smaller stumps.

Sheep-Rack for the Field.

We have heretofore spoken of the benefit of pasturing fields with sheep. Often a poor field



A PORTABLE SHEEP-RACK.

may be much improved by turning in a few sheep and feeding them therein. In this case some supply of grain is necessary for the sheep, and useful to the land. We give a cut of a movable trough adapted to this purpose, which may be taken to any part of the farm or wheeled to any poor spot in the field where it is desired

Fodder-Corn—Planting.

The time for planting corn for fodder (for the main crop) is the same as for the grain crop. The land, enriched and prepared as directed in an item on page 127, in April, should now be made thoroughly fine, clean, and smooth. One plowing, and repeated harrowings just before planting, will leave the soil fresh and loose, and will give the crop a fair start with the weeds.

The rows should be marked out 3 feet apart (if possible north and south). Abundant light and air are necessary to the perfect development of the plant. We were once advised by a farmer friend to plant our crop in drills, 10 inches apart, because this would cause the corn to shade the ground completely, and obviate necessity for weeding. At the end of that season the friend who had advised it, said he was satisfied that "fodder-corn was a humbug, and not fit to feed to a decent cow." The advice had come to us after we had already planted at three feet, and the reply to our friend was, that we considered the corn-fodder we were then using the best butter-making food we had ever had. Later experience and observation have confirmed the belief that the *quality* of corn-fodder depends more on ventilation and light to the very ground

than even on the richness of the soil. Probably a heavier weight of crop is produced at three-foot intervals than at anything less, owing to the greater height and

better development of the plants. No doubt the best variety of corn for this use is some rank-growing sweet corn, but as the seed of this is costly and often difficult to procure, we have settled on what is known in the market as "Western mixed," a yellow, dented, "horse-tooth" corn, which produces a large crop, and develops a good proportion of saccharine matter in the stalk.

We use about four bushels of seed to the acre. This may be sown along the row by hand, or, better, planted by an Emery drill planter, set to discharge at its fullest capacity. If the land is tolerably free from stones, our advice would be to plant fully two inches deep, and then run a Thomas smoothing harrow over the field, just as the corn first begins to break ground. This will make the surface light and fine, and will destroy an immense number of weeds that would soon give trouble. An acre of corn planted in this way on thoroughly rich ground may, if the cutting is commenced early enough for a second growth to follow, be depended on for the chief support of ten cows during the two driest months.

Digging Post-Holes.

The labor of digging post-holes is the chief cost of setting up a fence. This can be economized by using the proper tools. Fig. 2 is a post-auger (shown without handle) which is an improvement on any we have seen. We procured one from B. K. Bliss & Sons, N. Y., and found it on trial to be excellently adapted for the work. It penetrates the ground easily, working its way as a common auger does in

How to Pull Small Stumps.

A subscriber writes: "How shall I go to work to pull the stumps on 15 acres of land? They are from two to eight inches in diameter. What machine do I require?"—No machine.



METHOD OF PULLING SMALL STUMPS.

Stumps of two to four inches may be pulled out by a yoke of oxen, by hitching the chain at the top of the stump, and taking two or three turns around it, so as to get a twisting pull upon it.

to get a quantity of manure. It is a common trough of boards, mounted on a pair of wheels at one end, and furnished with legs and a pair of handles at the other end. A bar, with cross-

wood, and when the pan surrounding the auger is filled with earth it may be drawn out and emptied. But where many stones are in the soil other tools are necessary. Then the bar



Fig. 1.—USE OF POST-HOLE SPOON.

and post-spoon (fig. 1) are needed. The bar is a common iron bar, with a sharp steel point, with which the hard gravel is loosened. The spoon is inserted in the hole and the stones and earth taken out. This post-spoon is made by R. H. Allen & Co., Water street, New York. We have found it a very handy tool in use. With these tools, post-holes may be made so small that the post will fit tightly in them, requiring little



Fig. 2.—POST-HOLE BORER.

filling, and making a firm, solid setting. A great saving is gained over the common method of digging with pick and shovel, whereby a hole is needed to be made as broad as it is deep.

In setting posts, it is an excellent plan to fill the hole around them with stones, which do not retain water while they admit air, thus preventing the posts from rotting for many years.

How to Manage Manure.

The value of liquid manures is not sufficiently realized. One cow voids in the course of a year 8,000 pounds of liquid, which undiluted and fermented would be too strong to apply even to grass. It is safe to say that not one thousandth part of this is ever saved for use, but

nearly the whole is allowed to go to waste. Further than this, the construction of barn-yards is so imperfect that much of the valuable part of the solid manure is washed away and wasted, or it is permitted to ferment and heat in such a manner that its value is much lessened. Struck with these views, we once went to work to economize all these wastes. A square pit was dug in the center of the barn-yard, four feet deep. The sides and bottom were planked. The bottom sloped to the rear about six inches. Blocks were laid on the sloping bottom (a) and a quantity of rails and poles were laid across, to make a false bottom, on which the manure was thrown as it came from the stable. Drains from the stables and sheds carried all the liquids into this pit, where it escaped to the rear into the cistern (d), together with all the water which filtered through the manure pile after rain had fallen on it. The cistern was lined with hemlock plank, which after three years was still perfectly sound, and was ten feet deep and eight feet square. A pump of wood (c) similar to that figured on page 339 in our volume for 1871 (fig. 1) was set in the cistern, and when necessary the rain-water from the barn roof was turned into it to dilute it. In this way a large quantity of liquid manure was procured, which was found of the greatest service both in the garden and in the field. Spread on a piece of clover it enabled four cuttings to be made during the season, which was estimated as equal to five tons of hay to the acre, and which otherwise on account of the dry season could have been cut but once, with but a fourth of this yield.

For hand-use the wheel-tank (fig. 2) was made with joints dovetailed and put together with strips of brown paper smeared with tar placed between them. This made them water-tight. The tank was three feet square and deep, and scattered the liquid over six feet wide, or over three rows of fodder-corn, which in this way, while young, could be easily watered with this cart at the rate of an acre an hour, and thus its early growth could be rapidly forced. Of all the economies of the farm it is safe to say that there is none in which greater improvement and saving may be made than in that of the management of manure, and the saving and utilizing of all the liquids. Here is a simple and inexpensive plan, which may, however, be improved upon after experience of its usefulness and possible defects. The pump by being turned could either discharge the water from the cistern on the manure-heap to prevent too much heating, or directly into the small tank or any other spreading apparatus.

Windmills for Farm Work.

Many of our readers are interested in the question of the applicability of the power of the wind to the light work on the farm. Before the introduction of steam, wind and water powers were the motive agents of machinery, and even now water powers are found to be of such value in respect of cheapness that they are very seldom idle, even in presence of facilities for the use of steam. In the same way wind powers are still largely used in old-settled countries, and steam has not driven them out of use. In the

northern parts of Europe—Germany, Holland, Belgium, France, and England, for instance—windmills are in constant work, some of which are over a century old, and are doing good and

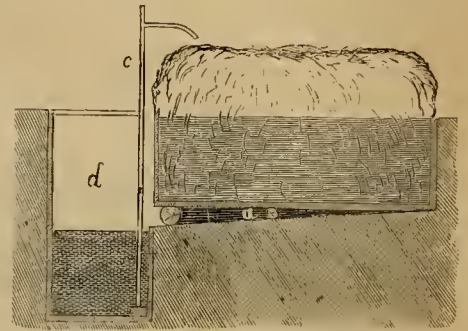


Fig. 1.—MANURE PILE AND CISTERN.

cheap service. There is no doubt of the fact that wind-power might be largely used in the United States with great advantage; but many patents having been taken out for improvements on windmills, and all of them being persistently forced upon the notice of the public, and many

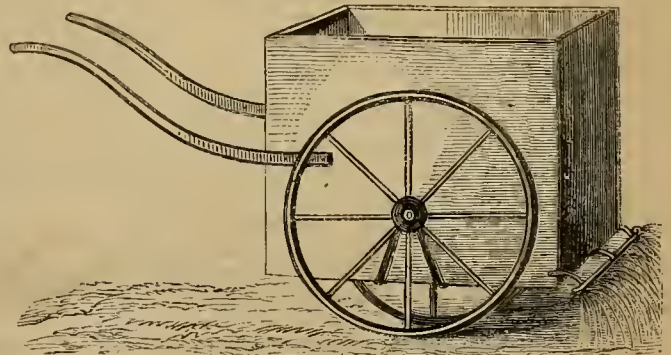
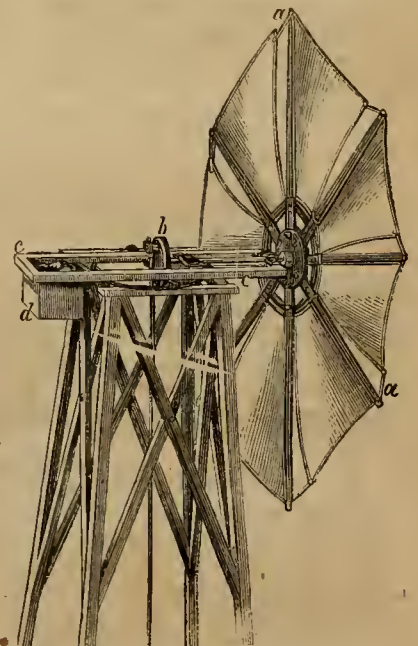


Fig. 2.—LIQUID-MANURE TANK.

of these being found not efficient or cheap in practice, a prejudice seems to have arisen against them. But the old-fashioned mill remains unaffected by patent rights, is just as useful as



A SIMPLE WINDMILL.

ever, and so simple that a mechanic who can construct a simple water-wheel or wagon-wheel is competent to make one. We figure such a windmill, which is in every-day use, which costs very little, and which may be constructed to do

light or heavy work, as desired. The frame on which to mount it may be of timber, as in the cut, or it may be a stone or brick building if desired for a substantial machine for heavier work. The power is constructed in the shape of arms—shorter or longer, according to the power needed—fixed to a center-wheel or hub, which is mounted and keyed on to an axle. Sails are carried on these arms, of sail-cloth or heavy sheeting, of a triangular shape, as shown in the engraving, which are fastened closely to one arm and by a cord at the corner (shown at *a*) a foot or less in length to another. This gives sufficient inclination backward to the sail to gain the motion required with a front wind. On the axle is a crank-wheel (*b*), which moves the rod to be connected with the pump, or it may be connected by means of pulleys and bands to get an upright rotary motion needed for grinding, or a pair of miter-wheels will give a horizontal rotary movement. A frame (*c*), is carried on a circular table, on which it may be revolved so as to enable the sails to be presented fairly to the breeze; a box (*d*) at the rear end of the frame is weighted with stone, to balance the weight of the arms and sails. A pin passed through holes in the circular table retains the frame in the position needed, and keeps the sails faced to the wind.

The construction of this mill is so simple, and it is so easily managed, that all those of our correspondents who of late have anxiously inquired for a cheap power for churning, pumping water, and irrigating land will do well to study it out. A mill with arms six feet long may be made to do work equal to one fourth of a horse-power, if all the working parts are well fitted and kept well lubricated, as all machinery should be. When out of use, the sails are untied and removed, or they may be furled and clewed to the arms until again required.

Implements for Cultivating Corn.

The corn crop is one which requires more hard labor than any other grain crop on the farm. Generally it is planted, covered, cut up, husked, and shelled by hand, rendering necessary at least ten days' labor for every acre before everything is completed. A great saving may be made by using machines as far as possible. There are many planters in use, more or less

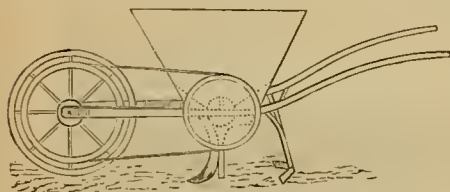


Fig. 1.—SIMPLE CORN-PLANTER.

costly, but a very cheap and useful one may be made for a few dollars by any wheelwright, which will plant two or three rows at a time, and thus make it possible to get in twelve or twenty acres of corn in a day. It consists (see fig. 1) of a frame mounted on a wheel similar to a wheelbarrow frame, with handles to push or guide it. A box to contain the seed is mounted on the frame, which tapers toward the bottom, and thus obliges the seed to fall upon the revolving cup which distributes it. This is a cylindrical block of wood which fits closely to the bottom. An axle passes through it which is connected with a pulley outside of the box. This pulley is turned by means of a band or cord fitting into another pulley fixed to the driving-wheel, and every revolution of the wheel

causes one revolution of the pulley and likewise of the cylinder inside the feed-box. A cup or receptacle made by boring a hole with an auger or bit, large enough to hold three or four grains of corn, is made in the cylinder, which in passing around is filled with seed. The seed is carried on until it passes out through the open

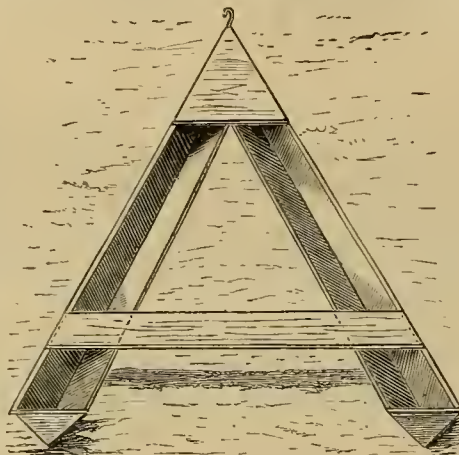


Fig. 2.—CORN-COVERER.

bottom of the box in which the cylinder is made to fit closely, and is dropped into a tube which conducts it into the furrow made by the small plow in front; a semicircular scraper carried behind covers the seed. It is obvious that by adding to the width of the machine it may be made to drop two or three rows at the same time.

When corn is dropped by hand after the field has been furrowed out in squares, it may be covered, two rows at a time, by a simple contrivance shown at fig. 2. It is simply a triangular implement, made of narrow boards six inches wide and six feet long, nailed together by their edges in the form of troughs, and fitted into a V-shape, with a spread of five feet between the ends. A cross-piece is nailed on to hold it together, and a hook placed at the point, by which it is drawn along the furrows and the loose earth drawn over the seed. If it should not be found heavy enough, stones or some earth is thrown into it until the weight is right. It covers two rows at a time and may be drawn by one horse. For cultivating corn we have used a harrow shaped like that shown in fig. 3. It is made wide enough to work two rows at a time, passing over the young corn in the intermediate row by reason of the vacant space left in the front where the teeth are not put in. A pair of handles enables it to be guided and managed with facility. Two horses are required to draw this harrow, and if the ground is moderately clean no other tool is required. Hilling up corn with the plow is unnecessary, and flat cultivation with the harrow or horse-hoc is considered to be preferable.

How to Use SAWDUST.—Some years ago we had the control of a large supply of sawdust, which we used as bedding for horses and cattle. We used it through two years, and had a good opportunity of testing its value in the stable and in the manure pile as well as on the soil. The main bulk of the sawdust was from pine. When spread on the stable a few inches in depth, it

absorbed completely all the liquid from the animals, and their coats were consequently kept perfectly clean, and very little labor was needed to keep oxen and cows free from dirt, even during the winter. When thrown out into the heap, this litter fermented and rotted very readily, without fire-fanging, and soon became a homogeneous mass, not to be distinguished from clear fermented horse-manure. It was used with the very best effect as a dressing on meadows, and as an application for potatoes and oats. It was readily harrowed into the plowed soil, and the harrow spread it very evenly over the grass-land. Our experience was so favorable, that we should be glad to use it again.

Ridge and Furrow Plowing.

It is a common practice amongst English farmers to plow those fields which they intend to put into spring crops, in the early winter, on what they call the ridge and furrow plan. By this method the subsoil is exposed to the repeated frosts and thaws of the winter, and is mellowed and sweetened. Besides this the frost is enabled to penetrate several inches deeper than otherwise, lifting the compact subsoil and expanding it so that when it thaws in the spring it is loosened and rendered of an open texture. The mode of working is as follows: The plowman commences at one side of the field, and plows a furrow towards the outside. He returns in the same furrow, plowing up the subsoil and throwing it out on the unplowed land. He then plows another furrow parallel with the first, throwing the soil towards the subsoil last thrown out, and thus completes a ridge. He thus progresses throughout the field, which presents, when finished, a series of these ridges, separated by deep furrows, in which the subsoil is exposed. In spring these ridges are either split or the field is cross-plowed.

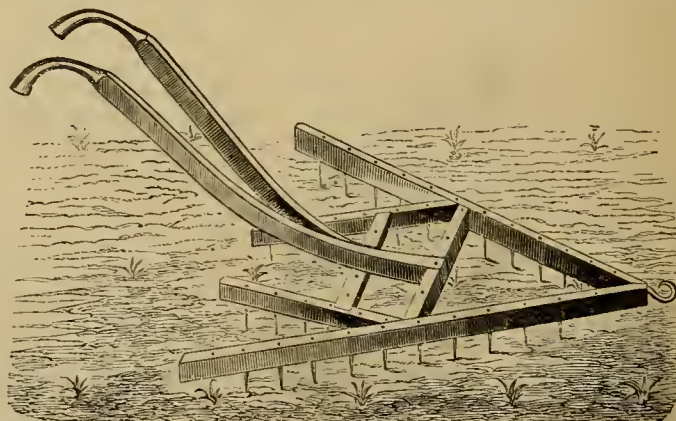


Fig. 3.—HARROW-CULTIVATOR.

It is thus evident that one such plowing deepens the soil over half the field just as many inches as the plow has penetrated into the subsoil, and another similar plowing may be made to complete the strips left in the first operation. This operation has the advantage of bringing to the surface a portion only of the subsoil at one time, and thoroughly mingling it with the surface soil, after exposing it in a most complete manner to the beneficial action of the atmosphere for some months. It would be a valuable experiment to make on a portion of a field to thus prepare a piece of corn stubble for oats next spring, and test the value of the process. We have no doubt it would be so satisfactory that the plan would be regularly adopted in future by every experimenter. Three acres a day may

be thus plowed, and if the ridges are split in the spring, the same quantity of work may be done, so that really a saving of work will be made, as one and a half acre per day will on the whole have been plowed; and the land can be worked earlier, and is in excellent condition for spring crops. In preparing for roots the manure may be thrown into the furrows and covered when the ridges are split, when it will be in fine order to cross-plow in the spring.

A Good Wool-Box.

Mr. F. M. Bugbee, Ohio, sends us the accompanying sketch of his wool-box. It is composed of three boards, each three feet long,

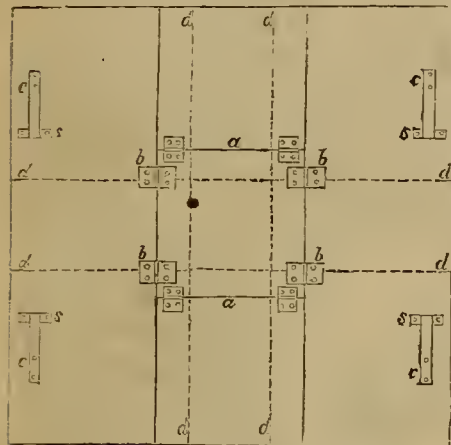


Fig. 1.—WOOL-BOX OPEN.

one inch thick, and twelve inches wide. The center one (fig. 1) is divided at equal distances at *a, a*, and connected with hinges opening upwards. The two outside boards are joined to the center square by hinges at *b, b, b*, also opening upwards. At *c, c, c, c*, screw on the springs, cutting away the wood underneath so that they may lie flush with the boards when pressed down. At *d, d, d, d*, make a cut one inch deep with a thin saw, to hold the ends of the strings. Make a hook (*e*, fig. 2) of hard wood, one inch thick and fourteen inches between the jaws, and the box is done.

To use it, first fix the strings from the cuts *d, d, d, d*, in the direction of the dotted lines

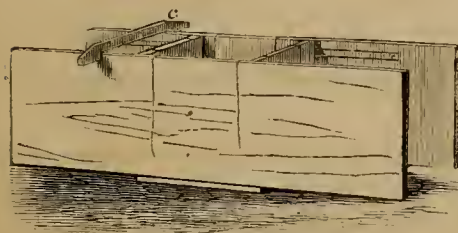


Fig. 2.—WOOL-BOX CLOSED.

on fig. 1. Lay the fleece with the clipped side downwards on the boards, bring up the sides, which secure by placing across them the hook, as in fig. 2; then close the ends, which the springs will keep in their places; tie the ends of each string tightly over the wool; then remove the hook, and the box will fall back, leaving the fleece tightly packed and tied.

Our correspondent claims the substitution of the springs instead of using pegs as a great improvement. And such is the case. But it is not new, as we have used a similar box for several years. It may, however, be new to some of our readers, and we present it accordingly. The use of some such contrivance in packing wool is always to be recommended, as it leaves

the fleeces in a more presentable shape, and enables them to be packed more closely in the sacks. With wool, as with all farmers' produce when sent to market, the best price is gained for that which not alone is good but looks well.

Disease in Calves.

Several have inquired about a disease to which young stock, particularly calves, have been lately subject. The symptoms are, falling off from feed, rough coat, bloodshot eyes, dry nose, a cough, and a highly fevered condition. On examination after death, small thread-like worms are found in the air-passages. It is often supposed that these worms are the cause of the trouble. This is a mistaken idea. This complaint is undoubtedly influenza, and the consequence of exposure to damp and cold, with an enfeebled state of the system. It is not necessarily fatal, if proper attention be given. Warm gruel of bran, middlings, or oatmeal is of service, a warm stable is necessary, and generally a careful restorative treatment will bring about a cure. The worms seem to be one of the last results of the disease, and are found not only in the air-passages, but also in the lungs. This complaint prevailed amongst the lambs last spring, and some of ours were attacked, but recovered by the administration of a little warm gruel, with a few drops of peppermint-water added, fed to them with a spoon. We notice that it has also been very prevalent amongst young stock in England, of late, but readily yielded to treatment similar to that we have suggested above. Prevention would be by means of warm shelter and generous feeding.

THE VALUE OF SOOT AS A MANURE.—As soft or bituminous coal becomes more extensively used west of the Alleghanies, it will be of great importance to farmers of the Western coal districts to understand the value of the soot which is left in large quantities as a deposit in the chimneys where this coal is consumed. Soot accumulates in chimneys so rapidly that it is necessary to remove it very often, and it is far too valuable to be allowed to be lost or wasted. A French chemist has made an analysis of coal-soot, by which we ascertain that in 1,000 pounds the following quantities of valuable ingredients as fertilizers are contained, viz.:

A substance resembling vegetable matter, soluble in caustic potash.....	302 pounds
A substance, soluble in water, containing ni-	
trogen.....	200 "
Carbonate of lime and magnesia.....	150 "
Sulphate and acetate of lime and magnesia.....	112 "
Phosphate of lime.....	15 "
Chloride and acetate of potash.....	45 "
Acetate of ammonia.....	2 "
Charcoal powder (carbon).....	38 "
Water and sand.....	136 "

A glance at these constituents will readily show that soot contains valuable fertilizing properties, while its very fine state of division renders it most easily and effectively applicable to crops. In Europe it has been used for years as a top-dressing to all crops, but with notably most effect on grass, wheat, and oats. Its pungent character and very bitter taste make it desirable as a preventive against the turnip-fly and the cut-worm and caterpillars, which injure cabbages. As it is a new article of use to American farmers, it would be of interest to experiment with it on various crops, and note its effects, with the precaution to be observed, that in quantities greater than ten bushels per acre it is apt to burn the crops in dry seasons. It should therefore be

applied previously to the rains of spring or fall, or in small quantities of say four bushels per acre, repeatedly.

COOKING FOOD FOR PIGS.—H. J. Fisher, Preble Co., Ohio, asks the following questions: "Do you feed cooked food to your pigs? What steamer do you use? and do you think it pays?"

—We are now feeding our *young pigs* cooked corn-meal and fine middlings, all they will eat, and give them sliced raw mangolds in addition. They are very fond of the mangolds, and we think them cooling and healthy. The breeding sows have only uncooked food—bran and a little corn-meal soaked in water for twelve hours. We have a Prindle steamer, but when cooking only a small quantity of corn-meal, etc., we take off the top and use it as a kettle. We think cooking food for young pigs that we wish to push rapidly forward pays well. Our aim is to get them to eat and digest as much food as they can assimilate. For old breeding pigs that can digest all the food we allow them and more, cooking or grinding is a mere waste of labor and fuel.

The Culture of Peanuts.

The best soil for peanuts is a light loam, light both in texture and color. The plant needs the mellow soil for its peculiar habit of growth, and a red or dark clay soil gives an undesirable color to the nuts, which depreciates their market value. The soil should be prepared by one or two plowings, so that a perfectly mellow bed be prepared for the seed. A shallow furrow is considered the best, for the reason that the harvesting of the nuts is rendered easier when they are nearer the surface; if the soil is deep they will penetrate further than is convenient in gathering them. When the ground is prepared in a proper manner, furrows are to be laid off twenty-seven to thirty-six inches apart, as the land may be poorer or richer. Cross-furrows are made at the same distances apart. In each check a handful of guano or superphosphate is to be dropped, at the rate of 150 pounds per acre. If the land is deficient in lime, a dressing of 50 bushels per acre should be given after the first plowing, and harrowed in. This is a crop that needs lime for its successful growth. The seed should be shelled very carefully by hand; the skin must not be broken. Two nuts are dropped in each hill and covered very lightly, not more than two inches, or three at the most. Directly after planting, cultivation with the plow commences, to be followed with the hoe and hand-weeding. The crop must be kept perfectly free from weeds and grass, and the soil be kept loose and mellow. Constant cultivation is necessary; as many as seven plowings being generally given until the vines spread and are in the way, when hand-weeding is to be resorted to. No hilling up is necessary. The stems which produce the fruit enter the ground without being covered with the soil artificially. Generally the crop is ready to harvest early in October. The harvesting should be done before frost if possible, as a hard frost destroys the vines and detaches them from the nuts. A plow with a broad, sharp share attached to a bar or coulter, so that no furrow is turned, is run up and down the rows, cutting beneath the plants and severing the tap-roots, or the vines are dug up with prong-hoes or forks. Hands follow the plow, who pull up the loosened vines and shake off the adhering earth, and lay them in rows to



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SHEARING COTSWOLDS AT HERDSDALE.—Drawn and Engraved for the American Agriculturist.

dry. Two days' exposure is necessary before they are ready for stacking for final curing. A stake, pointed at both ends, and seven feet long, is thrust into the ground, rails are laid on the surface to prevent contact with the earth, and the vines are heaped around the stake in a tall, narrow stack, so that the air can easily penetrate and cure the vines. Straw is placed over the top to shed rain, and two weeks are required to thoroughly cure the crop. Mold or dampness, which would injure the color, is to be carefully avoided. On the brightness and lightness of the color the value in a great measure depends. When cured, the nuts are separated by hand generally, but this is a slow process, two to four bushels daily being the work of an experienced hand. A thrashing machine is used by large growers in North Carolina, which thrashes with two horses 100 to 200 bushels in a day. The vines make a very excellent fodder, but when spread on the ground and plowed in, and a dressing of lime given annually, with some fertilizer at planting, the crop may be grown successively for several years. It is not probable that this crop would retain its present market price if its production was materially

increased, the demand being but limited; and, in view of its comparatively costly culture, the average yield of 30 to 50 bushels per acre does not seem to make it a very enticing crop. The season required for perfect ripening is long, and it is very doubtful if the nuts could be matured further north than Virginia in the East and Kansas in the West. Nuts of excellent quality were grown in Kansas last season, but the bulk of the crop is raised in East Virginia and North Carolina, in the localities adjacent to tide-water. Our correspondents in Wisconsin, Michigan, and other Northern States will see that this crop is not suited to their climate.

Shearing Cotswolds.

Our illustration represents the shearing of a flock of Cotswolds at Herdsdale, the farm of our Mr. L. A. Chase, at Florence, Mass. The operation of shearing, although it looks a somewhat rough one, may be made by a careful hand very easy to the sheep. General directions for shearing were given last month on page 140. Some care is necessary in handling heavy sheep,

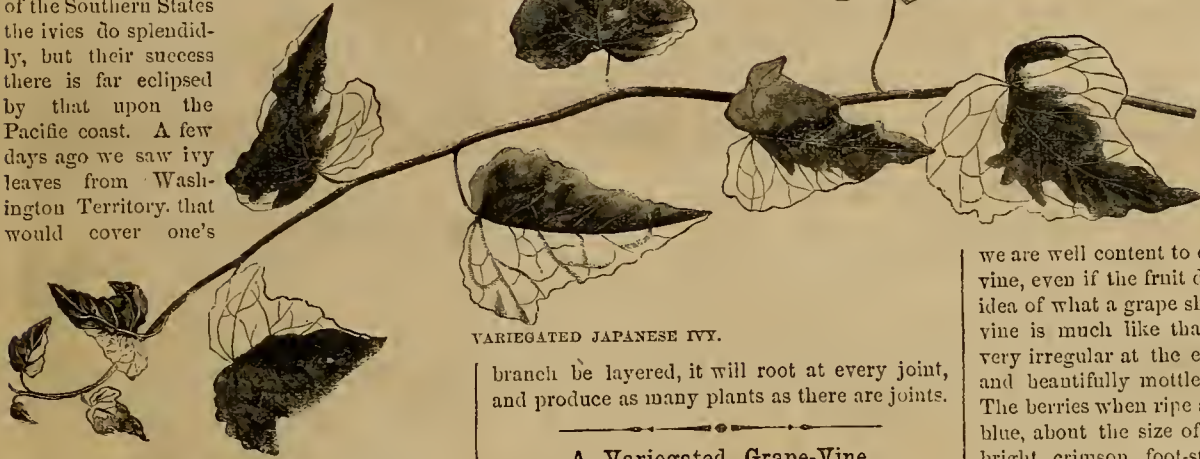
especially the ewes which have not yet had their lambs. The patience and docility of the sheep beneath the operation of shearing is proverbial, but still we have seen very unnecessarily rough usage given to them. Possibly no better shears can be found than the old-fashioned ones, and a skillful shearer will make as few cuts with them as with any of the new-fangled ones with patent guards and other preventives against cutting, which when used are found to be no guards at all. The operation is commenced at the neck of the sheep, the shearer standing behind it, as shown in the illustration. The remainder of the work is better described by the picture than it could be by a page of description. It is therefore only necessary that the positions of the figures be studied, and they will tell their own story. Long-wooled sheep have a rather tender skin, and if the weather after shearing should be wet and cold, it would be advisable that they be kept up until they become used to the loss of their coats. If any signs of cold or running at the nose appear after clipping, it is well to smear their noses with pine-tar, which they will lick off, and thus take sufficient internally to have a remedial effect.

Ivies—Plain and Variegated.

But few north of Delaware can grow Ivy as a climber and be sure of it. We have seen in favored situations in New England the side of a stone house covered with it, and in the city of New York it will often flourish for several successive winters. At last comes an unfavorable winter, and away goes the work of years. Through many of the Southern States the ivies do splendidly, but their success there is far eclipsed by that upon the Pacific coast. A few days ago we saw ivy leaves from Washington Territory, that would cover one's

our nurserymen and florists offer a dozen or more varieties at 25c. to \$1 each, according to size and rarity. Ivy roots readily from cuttings set in moist soil in a shady place, or if a

plain these names a little, *Cissus* is one applied to some beautiful green and hot-house climbers of the grape family; *Vitis* is the grape proper, and *Ampelopsis* we best know as the Virginia Creeper or American Woodbine. As the later botanists have been unable to find any points in these three genera which seem of sufficient importance to keep them separate, the three are by some united into one — *Vitis*, the grape. This helps us with the plant in question, which has been so banded about under different names that



VARIEGATED JAPANESE IVY.

branch be layered, it will root at every joint, and produce as many plants as there are joints.

A Variegated Grape-Vine.

We sometimes come across plants in cultivation which are puzzles. That which we call the Variegated Grape-vine is one of these. We find it in some catalogues as a *Cissus*, and in

we are well content to call it a variegated grape-vine, even if the fruit does not come up to our idea of what a grape should be. In foliage this vine is much like that of the grape in shape, very irregular at the extremities of the shoots, and beautifully mottled with white and green. The berries when ripe are of the most charming blue, about the size of pepper-corns, and upon bright crimson foot-stalks. This vine is one which will either give great satisfaction or produce disappointment, according to the position in which it is grown. If planted in a place where it is shaded the greater portion of the day, it will produce handsomely-marked leaves, but if exposed to full sun the foliage will be dull and unsatisfactory. This variegated grape is not a new plant, as we grew it some twelve years ago. Our specimen was unfortunately placed in an open exposure, and it made so poor a show that we were quite disgusted with it. Since then we have seen it in the grounds of others, grown in the shade, with the markings quite as distinct as those shown in the engraving.



VARIEGATED GRAPE.

hand, palm, fingers, and all. Still, in all places not excessively inclement, ivy can be grown as an edging, or to make a bed by itself. A slightly raised bed covered with ivy looks well upon a lawn, the darker green of its foliage making a pleasing contrast with the lighter shade of the grass. A well-kept edging of ivy is particularly elegant, and though it may take a full year to establish it, the result is well worth the trouble. As to the different species of ivy, we frankly confess that we know nothing positive about them. Several years ago the late Berthold Seemann "did up" the ivies, and told us that what we had been calling Irish ivy was *Hedera Canariense*, and made us unlearn many other things we thought we knew. A few years later came Shirley Hibbard with his classification of ivies. He not only knocked Seemann's arrangement into "smithereens," but that of every one else, and came out with an original renaming of old things made out of whole cloth. Between Seemann the botanist and Hibbard the egotist the nurserymen are in a poor case as to names. The variegated ivies, as a general thing, have a hard time of it during our hot summers. They are beautiful in house culture, but lose their markings under our summer suns. Some years ago Mr. George Such, of South Amboy, N. J., gave us a bit of what was then a new Japanese Ivy, and is now called in the catalogues *Hedera Japonica versicolor*. It has been subjected to all the slights and exposures that any plant should meet with, and yet year after year it has grown freely, and put out its beautifully variegated leaves as cheerfully as if it had received the best of care. The form of the leaves in this plant is so changeable, that it is difficult to say what the normal shape is. The coloring is no less whimsical. Some leaves are merely edged with white, others are half white and half green; sometimes one will come all white, and again a tinge of purple will be pleasingly intermingled with the white and green. We give an engraving of a small branch of this variety of the natural size. We think it probable that in even very cold localities the hardier Ivies can be grown as edgings or as beds, provided a good covering of leaves be given to protect them during the winter. The catalogues of most of

another as a *Vitis*, while an esteemed friend insisted last summer that we should come and see his beautiful variegated *Ampelopsis*. To ex-

which the pollen is taken than like that which received the pollen and bore the seed. It is likely that this holds true with other plants. The

Crossing and Hybridizing.

Dr. Denney has given in the Florist and Pomologist (London) some interesting articles upon cross-breeding Pelargoniums. His accounts of his experiments and their results are of great value to those concerned in producing new seedling Pelargoniums and other florists' plants, but are not of sufficient general interest for us to reproduce them. There are two points made by Dr. D. which should be kept in mind by those who aim at raising new varieties of fruits and flowers by hybridizing or cross-fertilizing. He finds that, provided the two parent plants are of equal health and vigor, the male plant exercises the greater influence upon the progeny. That is, the resulting seedlings will be in more respects like the parent from

Croton and Senasqua grapes are vastly more like their pollen-bearing exotic parents than the native Delaware and Concord which served as the mother-plants. Another point of interest to those who work at improvement of flowers is the infrequency of any really remunerative results. In flowering Pelargoniums, Dr. D. is satisfied if he gets on an average one good variety out of four hundred seedlings, and five or six others that are fair improvements over their parents. He is satisfied, nevertheless, that the only way that even slow progress can be made is by cross-fertilization, and states that out of a bed of several seedlings in flower, raised from seed from the best varieties, but which had been produced without artificial fertilization, there was not in the whole bed a single plant worth selecting for propagation.

Will Evergreen Screens Protect Fruit-Trees?

Mr. J. Day, of Dayton, Ohio, writes an article to show that shelters and wind-breaks of evergreens and other trees will not, as commonly believed, afford protection to orchards. His argument rests upon observations made upon peach and cherry trees. On the cold New Year of 1864 the thermometer fell about 50° in a few hours, and in the morning stood at 14° below zero. Our correspondent found that the buds and twigs of peach and cherry trees were as thoroughly killed in orchards surrounded by dense forest of miles in extent, as they were in the open country. Several other instances are cited, in which the buds were killed by extreme cold, notwithstanding the trees were surrounded by forests. The drift of Mr. D.'s argument is, that forests and evergreen belts are of "no protection against the severe freezing of fruit-buds." As we never claimed that they were, we can not spare space for a long article to show that they are not. We never knew any one to assume, as Mr. D. seems to think has been done, that it was possible to fence out the cold by means of evergreen or any other trees. Mr. D. will admit that a board fence or a screen of trees of any kind will break the force of the wind more or less, as the shelter is close and high or otherwise. This is all we have ever claimed or have ever known to be claimed for a protecting belt around an orchard. We are ready to admit that no amount of shelter will protect the fruit-buds, when the thermometer is 20° below zero. Our correspondent makes the mistake of supposing that it is only the severe cold that injures fruit trees. When the mercury falls to a certain point, we are quite sure that peach-buds will be killed, but this severe freezing is not the only thing that interferes with the productiveness of the trees. The winds of early spring are often very dry winds, and if they have an unobstructed sweep over the trees, the vitality of which has just awakened, they can produce great injury, simply in drying out the just swelling buds and young twigs. A wind carries away the heat from a body very rapidly. A still day, with the thermometer at 32°, is not uncomfortable, but if the wind is violent, we find it very inconvenient, even while the thermometer remains the same. We have known persons to perish from cold in a Texas "norther," when the temperature was above freezing. The constant wind cooled the person so rapidly, that they sank from the effects of cold, without being frozen. If the buds escape death from severe cold, we are not sure of a crop of fruit. The critical period of blossoming must be passed

before we can feel safe, and it is well known that long-continued rains and violent wind storms can seriously affect the fertilization of the flowers and the setting of the fruit. At this time a long cold wind has a most untoward effect, and it is then that the shelter is of great use. If our friend will leave extremely low temperatures out of the question, and observe protected and unprotected orchards without reference to exceptional winters, he may modify his views. At all events we can point him out places where fruit-trees have not only been benefited by shelter belts, but where their existence was actually impossible until the tree belts were planted.

The Matthews Apple.

BY DR. J. STAYMAN, LEAVENWORTH, KANSAS.

This is an apple of great promise, being very beautiful and perfect.

It originated in Nelson Co., Virginia, on the farm of Mr. Matthews, and was first introduced to the public by Tyree Dollins, of Albemarle Co., Va., from whom we received specimens at the meeting of the American Pomological Society at Richmond, Va., September last.

Tree a stout, upright grower, with light-colored bark.

Fruit medium to average; weight from 6 to 10 ounces; form round, slightly conic; skin smooth, rich waxen yellow; dots, large, scattered, whitish or gray; stem medium, slender; cavity wide, deep, green; eye small, closed; basin rather narrow and shallow, furrowed; core large, round, open; carpels large, hollow; seeds medium, ovate, plump, dark; flesh yellowish, very tender, juicy, pleasant sub-acid; quality good to very good; season October to February. (See outline on page 184.)

Raising Garden Seeds—Carrots.

With the multiplicity of books upon gardening, we have had none that gave any satisfactory directions for growing seeds. This gap in our horticultural literature is now well filled by Mr. Francis Brill's "Farm-Gardening and Seed-Growing," just issued by Orange Judd & Company. To give a specimen of the work as well as to answer several inquiries about carrot seed, we quote what Mr. Brill says upon raising it. Presuming that at the digging in the fall, a selection has been made of the finest roots for the purpose of growing seed, and that these have been successfully wintered in a pit or cellar, the work to be done this spring is thus described by Mr. Brill:

"The seed does best in a rather strong loam, moderately rich. After plowing and harrowing, make rows three feet apart with the marker, along which with a crowbar make holes eighteen inches apart; place the roots therein, the crowns level with the surface, fastening the earth firmly against them with a dibble. They should be set out about the middle of April or as soon as all danger of severe freezing is past.

"The after-culture is the same as for beets, except that ridging is unnecessary. Planting every fifth row with potatoes will facilitate the gathering of the seed. The seeds are produced in heads or clusters at the extremities of the branches, and ripen unevenly, hence they require repeated cuttings. When ripe, which may be known by the seed changing to a brown color and the branches commencing to dry, the heads must be cut with shears, gathered into a barrel, carried to the loft, and spread over the floor. When the crop has all been gathered

and the whole become thoroughly dry, the heads can be removed to the thrashing floor, and thrashed with a flail, only hard enough to separate the seed from the small sticks which support them, and avoid as much as possible breaking these sticks, in order to make the cleaning more easy. When thrashed, separate the coarser sticks from the seed with a No. 4, and again with a No. 6 sieve, rubbing the larger seeds through with the hand; place the seed thinly on a large cloth, exposed to the sun, and after it has lain so for five or six hours, set a barrel in the center; on this place a No. 8 sieve, through which pass the seed by rubbing with the hand, throwing out the sticks as they accumulate in the sieve. Repeat this operation the following day, this time using No. 10 sieve, which will remove the furze or beard, when it may be finally cleaned by passing twice through the fan-mill, and finished by No. 24 sieve. But a very few years ago it was believed that the removal of the furze injured the seed, and it was carefully picked out by hand, but experience has proved to the contrary, and now not a pound of seed is sold in any seed-store in this country but that which is rubbed clean, in which condition it is more easily handled and can be more easily and evenly sown."

Notes from the Pines.

In the natural course of events I should have been able to report progress, but now the first week of April has gone, and we are about where we were the first week in December. What a winter the past has been! and what a spring this is!! Winter shut down so suddenly, that my next neighbor had a large share of his potatoes and cabbages frozen fast in the field, with never a thaw to loosen them until April. I was so fortunate as to get everything up in time except a single row of cabbages. For the past week thawing has gone on during the day, making the soil too soft to tread upon, and each night it has frozen hard enough to form a firm crust.

CONIFEROUS EVERGREENS have had a most trying time of it. I shall lose a large number of rare species. Some sorts ordinarily hardy now present a sad array of dead and whitening leaves. It is too early yet to know the precise extent of the damage. All those evergreens which have passed the winter unscathed may be set down as perfectly hardy.

THE GOLDEN YEW.—I have before said a word in favor of this tree, and this spring I am more than ever impressed with its merits. It not only has shown no signs of winter-killing, but with the first bright days the tips of its branches begin to turn yellow, and give promise of that golden glow which shall shortly make this a conspicuous object upon the lawn.

BROAD-LEAVED EVERGREENS.—If the conifers have fared badly, it has gone much worse with the broad-leaved evergreens. The evergreen barberries, Mahonias as they are called, show no signs of life. Their leaves are of the color of sole-leather, and appear to be past resuscitation. But the rhododendrons! These all through the winter have been interesting objects, as their leaves have served as rude indicators of the temperature. In extreme cold weather the leaves would curl into a roll and hang pendent by their stalks. When the weather was less severe, they would assume a more or less horizontal position, and when there was any approach to mildness the leaves would uncurl and assume nearly their summer appearance. During the winter we daily watched these changes

as we passed the clump on going to and returning from the city. But those fatal days of March! No matter about the date, but it was when plants froze in a room where there was a fire. This finished them, and the browned leaves hang in mournful helplessness. I fear that the flower-buds are killed also. Still, a rhododendron is hard to kill, and I shall not give up until I find them dead to the root.

BULBS.—It seems strange to have no *Bulbocodiums*, *Snow-drops*, nor *Crocuses* in the first week in April. I have had the beds uncovered, and found that underneath the leaves the plants had just poked their noses above the surface, but when the soil freezes hard every night we can not expect that the flowers will unfold.

COVERED THINGS.—The past winter has shown the great benefit of a slight covering of marsh hay or litter. Spinach and the like that was covered is bright and ready to grow, while a few things that were overlooked are frozen to the very heart. It may look like a small economy to rake up the leaves in autumn and put them over the beds, but we do not know of anything that pays better.

HERBACEOUS PERENNIALS.—I have a very large bed of these, but did not cover it. The soil is too soft yet to walk upon, but from the paths I can see that some things have fared badly. It pleased me greatly to see that the most beautiful—I had almost said of herbaceous plants, and I will say—of all *Columbines*, *Aquilegia carolia*, was one of the first things to show signs of life. I think that the first notice, I am sure that the first engraving of this charming plant in this country was published in the Horticultural Annual for 1867. If I can make this plant as popular as it deserves to be, and make people feel that no garden, not even the smallest, is "complete without it," I shall feel that I have done something to benefit floriculture.

TRIAL THINGS.—As spring comes on, or rather as time progresses, new seeds and the like come in for trial. It is very interesting work, this testing of novelties, but horribly time-consuming. The whole work from planting to testing the product requires personal attention, and can not well be delegated. There are very few men who can take ten varieties of potatoes, and give you at the end of the season the returns from each variety separate. Somehow they will get mixed, the labels will get knocked over, or something will happen, to make the experiments valueless. Thorburn & Co. have sent that remarkable collection of Laxton's new peas, which came out from England this year. The trial packet contains five varieties of less than a hundred peas each, and sells for five dollars. If I get a single pod as large as the one figured on the packet as "Laxton's Superlative, average size," I shall sing *peculiar pæans* to Thorburn and Laxton, and wish them great *pecuniary* reward. Dreer has sent beans, warranted to be of the snappiest sort. Henderson & Co. put me under obligation to *try* more new tomatoes, when I thought the Trophy indicated the end of the fight. R. H. Allen & Co., among other seeds, wish me to see what I can get out of—goodness gracious—a yellow-fleshed watermelon. Can a watermelon be good if it is not of the richest crimson? We'll see. Then Bliss & Sons have new revelations in the potato line, and Richardson & Gould send

COLOCASIA ESCULENTA, or **CALADIUM ESCULENTUM**, as some have it. These bulbs or rather tubers are so much out of the usual way, that they deserve a separate paragraph. Such bulbs! We think ourselves lucky if our home-grown

ones are as large as a turkey's egg, but these are as big as cocoanuts, which, as they came from South Carolina, shows what climate will do. We have not reached the end of the sweet-corn business, for here comes Nicholas Cole, of Pella, Iowa, with "General Grant" sweet corn, claimed to be "larger and sweeter" than any other. But I can not take space to enumerate all, and results of things tried will be of more interest than a list of things to be tried.

How many Strawberries to the Acre?

BY "NOVICE," ATHENS, TENN.

The yield of strawberries is a subject concerning which I am much in doubt. Of experience I have but little other than prospective, and the authorities within my reach "agree not together."

What is a reasonable yield per acre? All the evidence I can find is the following:

Andrew S. Fuller in his *Strawberry Culturist* says: "An acre of the best varieties of strawberries, properly cultivated on ordinary sandy loam, will in four years produce something like the following results: Three crops of 300 bushels each, 900 bushels," etc.

From the catalogue of Wm. Parry, of Cinnamon, N. J., I quote as follows: "We have grown on one third of an acre seventy bushels of strawberries, which was at the rate of two hundred and ten bushels or 6,720 quarts per acre, . . . and the premium crop of this country was at the rate of 263 bushels."

From a paper read before the Farmers' Club by Henry T. Williams I also quote: "On the light lands south of us the average number of quarts per acre is about one thousand. Very few fields average over 1,500."

This certainly is diversity, but I can not see the unity. Are these gentlemen correct in their statements? Mr. Fuller's imaginary results are 30 per cent greater than Mr. Parry's best actual results, and nearly 15 per cent better than the best known results as recorded by Mr. Parry—viz., "the premium crop of this country." And Mr. Williams's statement of the average yield of a large berry-growing district is only about one tenth of Mr. Fuller's imaginary crop, viz., 30½ bushels; while "very few fields average over" about one sixth of the same, viz., 47 bushels.

With this evidence before me, I can not well guess what a novice, with average common-sense and a disposition to do everything in the best possible manner, may expect as the result of his labors in the cultivation of strawberries.

REMARKS.—"Novice" does not seem to have taken into consideration the facts that there is great difference in the productiveness of different varieties of strawberries, and that the same variety may be very fruitful in one soil and climate and worthless in another. We have no doubt that all three of the gentlemen quoted are right. Mr. Fuller's estimate was probably made from the yield in the grounds he then occupied, a naturally strong soil in high cultivation; Mr. Parry shows what can be done in the light warm soils of Southern New Jersey; while Mr. Williams probably tells what he has seen in Delaware, where strawberry culture on the large scale is yet a new thing. Belmont, near Boston, is a great strawberry-growing place, and there from four to five thousand quarts to the acre is considered a fair average crop, but this is obtained with varieties which would probably not grow at all with our Tennessee friend. Fruit culture of all kinds is a matter of local experience, and one in which large sums have been lost by a premature counting of chickens.

If "Novice" has no near fruit-growing neighbor by whose experience he can profit, he must learn by experiment what varieties are adapted to his locality, and will give him the best results.

Growing Horseradish.

To answer many letters, we give in brief the following directions:

Around the City of New York the gardeners usually grow it as a second crop. The ground is very plentifully manured, and then marked off into rows one foot apart. Every alternate row is then planted with early cabbages, and after the plants are all set out the horseradish sets are planted in the intermediate rows at the distance of eighteen inches apart. If the horseradish starts too soon it is cut off in hoeing the cabbages, which does not injure the horseradish roots in the least. In July the cabbages are harvested and sold, and the ground is left entirely to the horseradish. Such, in short, is the method practiced around New York. As the farmer is supposed to produce only one crop from his land each year, he can manage the crop without so much labor. The soil must be deep, so as to allow the roots to penetrate a foot or more if possible. The sets which are planted consist of the small roots taken from the large ones, and are from four to six inches in length. In order to distinguish the bottom from the top end of the sets, a slanting cut is made across the lower end, while the top is cut off square. When planted upside down they will grow, but the roots are apt to be irregular and branching. These sets are planted in May, in rows two feet apart and eighteen inches between the plants. During the summer it is only necessary to keep the weeds down and the soil loose. Horseradish is not injured by frost, and may remain in the ground until quite late. Just before the ground closes up the roots are dug, and after trimming off the small rootlets for sets for planting the next season, the large roots are either stored in pits in the open ground, or preserved in sand in a cool, dry cellar. The small rootlets are preserved in sand, taking care not to make the layers of roots so large that they will heat.

Lawns and Grass-Plots.

There is no horticultural operation more likely to prove unsatisfactory to the amateur gardener than the making of a lawn. The uncertainty of the seasons, and the unreliable character of much of the seed, are against his success, and if his operations are upon old soil a host of weeds will take possession of the ground before the grass is visible. Perseverance will command success in lawn-making as in other matters, but we wish to advise the novice that establishing a lawn is not so easy as some represent it to be. In view of the difficulties of the case, we advise those who have small plots which they wish to convert into lawns to lay turf wherever it can be obtained of good quality and at not too great an expense. The soil which is to be sodded should be well enriched before the turf is laid, and the job well finished by beating or rolling, so as to bring the grass roots in close contact with the soil. In England a method of grassing lawns is successfully practiced which we have never tried, but which looks as if it might be useful. Sod is cut or broken into pieces three or four inches square and scattered over the surface, seed is then sown in the usual manner, and afterwards the surface is made even by rolling or beating.

Fuchsia Culture.

Whoever first recommended Fuchsias as bedding plants did them great injustice. There are few plants less fitted for the purpose—in our climate at least. They often become miserable-looking objects under our hot sun, refusing to flower, and often losing their foliage. Even where Fuchsias will flourish and bloom, it is a great mistake to use them as bedding plants, as their flowers have their beauty concealed by the foliage and their own pendent position. Fuchsias to be properly appreciated should stand well up, and if they can be placed as high as the level of the eye, or even higher, the better will they show. We advise our readers, instead of planting out the little specimens offered by florists, to give them larger pots, and to continue to grow them in pots or boxes. They grow rapidly, and yield readily to cutting and pinching, so they may be trained in any form that pleases the fancy. The majority of Fuchsias are summer-blooming, and should be kept dormant in a cellar during the winter. They are especially useful plants for the ornamentation of verandas, balconies, and like places. Large, well-grown plants placed at an entrance that is approached by a number of steps produce a fine effect, as here the flowers can be seen from below as one ascends the steps. The engraving represents the variety "Elm City," which, though not new, is one of the best.



DOUBLE FUCHSIA "ELM CITY."

Transplanting Beets and Ruta-Bagas.

Another year's experience makes us confident



BEET FOR TRANSPLANTING.

that the recommendation to grow mangolds, beets, and ruta-baga turnips by transplanting is

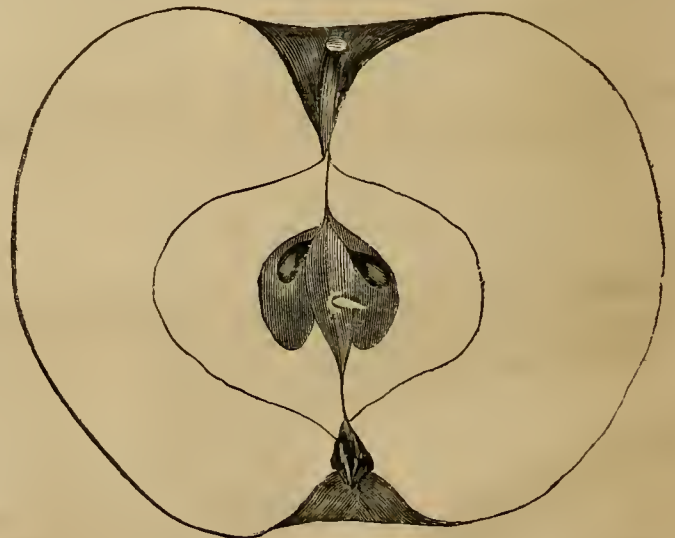
worthy of general adoption. The great labor of growing these crops is confined to their care while young. Single plants should be left finally from 12 to 15 inches apart in the row. By the

ordinary process, not only these plants but the great number that grow between them, must be carefully weeded and cultivated. By the transplanting process, the plants are grown in a seed-bed, where they are all preserved to repay the cost of their care. The seed is sown early in May, and while these plants are growing to the proper size for transplanting, the harrow is keeping the field free from weeds at a very cheap rate, and the setting out will require less labor and cost less money than would a single one of the three hand-hoings required in the other system. The transplanting is done late in June or early in July, according to the state of the plants in the seed-bed. As the plants are pulled the tap-root is cut off and the leaves shortened to four or six inches. The engraving shows by cross-lines how the plants are prepared for setting. The planting is done by means of a dibble. Furthermore, the plant is benefited rather than injured by being removed and trimmed, all the imperfectly developed plants are rejected, and the final result will be a much better crop than can be grown in any other way.

Expert Garden Workmen.

BY PETER HENDERSON.

In my long experience with workmen I have observed that, other things being equal, the man who could move his hands quickest, was almost certain to be the man most successful in life. Rapid movement of the hands in such light operations as writing or type-setting argue quick mental decision, and if such a mind is well balanced, its possessor is more likely to distinguish himself than he who moves more sluggishly. Now, two thirds of all garden operations—particularly those of flower-gardening—are as light as either writing or type-setting, and for many years I have taken great pains to stimulate my workmen to rapidity of movement in all our light work, and it is astonishing what the gain in labor has been in this particular. For example, the average work of a man planting cabbage or lettuce plants, when we began market-gardening, did not exceed 2,000 a day; now, and for many years past, a man, with a boy to drop the plants, will set 6,000 a day, and one of my old foremen, Jelu Scarry, now gardener to Dr. Thos. Vail, of Troy, N. Y., has repeatedly planted 10,000 in a day. And John Rielly, mention of whose wonderful success as a market-gardener has been before made in these columns, can tie up 1,200 bunches of celery in a day, while the average workman scarcely reaches 400. In the lighter work of our green-houses rapid movement is even of more importance, and the rivalry among our workmen for distinction in this matter is of great benefit to themselves as well as to us. The acknowledged champion, at present, of our whole force of forty men is a young Irishman, named James Markey. Jim, though not yet 25, has been with me a dozen years or more, and from the first has distinguished himself for doing all light operations quicker and better than any boy of his years, and probably to-day can make more cuttings, or pot more plants, in the same space of time, than any other man in America. It is very good average work for one man to pot off in 2 1/2-inch pots 2,000 cuttings in ten hours. Jim potted off one day of ten hours, this spring, 7,000, while his average work of this kind is 5,000 a day. Of course, such ability



THE MATTHEWS APPLE.—(See page 182.)

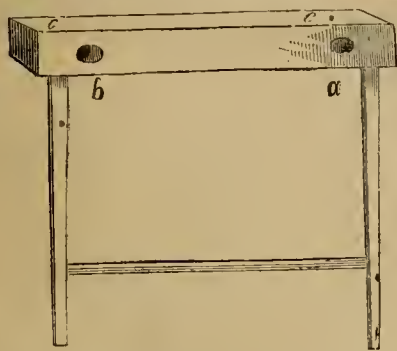
commands its price, and Jim is paid quite twice that of most of his fellows, and is much valued by me as an example well worthy of imitation.

THE HOUSEHOLD.

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

Support for a Quilting-Frame.

In February we gave a simple device for supporting a quilting-frame, and this has reminded "A. K.," of Tullahoma, Tenn., of another. The engraving shows one of the two supports required. It is made of any light wood, three feet wide and four feet high. The poles to which the quilt is attached are round, seven feet long, or the desired length. In the cross-bars of the support, holes (*a*, *b*) are bored to receive the ends of these poles, which are inserted in them. Gimlet-holes are made at *c*,



SUPPORT FOR QUILTING-FRAME.

down through the support and into the poles. The quilt is fastened to the poles in the usual manner, and rolled up upon one of them, except so much as is required to allow the ends of the poles to go into their places in the supports. The quilt as the work progresses can be readily rolled from one pole upon the other, and by boring a few holes in the ends of the poles at *a*, *b*, it may be stretched and held in place by the insertion of wooden pegs or nails.

Hints for the Household.

BY MRS. N. W.

Washing.—Housekeepers will find it a great convenience to have two wash-boilers on washing day, one for re-heating the suds, while the other and larger one contains the boiled clothes. It is as handy as plenty of flat-irons on ironing day. Let the readers of the *Agriculturist* try it and see.

Potatoes.—Always add salt to the water while potatoes are boiling; boil moderately, not violently, and let them be only well covered with water.

Buckwheat Cakes.—Never make buckwheat cakes of buckwheat alone; make one part of corn-meal, two of wheat-flour, and three parts of buckwheat. They are then spongy, instead of being *flabby*.

Bread-Making.—In making bread always use potatoes or nice corn-meal. I do not feel as though I were doing the correct thing if I use only flour. The corn-meal need not be made into mush; scald it first in the mixing pan before adding the flour, then set in the usual manner. The most prejudiced person can not detect by the taste any corn in the bread, but there is an increased sweetness, and it keeps moist much longer. Of course, the best corn-meal must be used, not that rank chicken-feed kind. Besides the improvement in the bread, the flour-barrel holds out *much* longer, and health is promoted. I put about one part of corn to three parts of flour, when setting the sponge.

Odds and Ends.

We now and then look through the stock of our neighbor, W. H. Baldwin, No. 38 Murray st., to see what new devices are offered to facilitate household operations. There seem to be but few novelties this spring, but then there are scores of old things that are not generally known, but are most useful. In the time of spring cleaning and moving, carpets are to be taken up and put down again. The pro-

per putting down is much facilitated by a carpet-stretcher. In cities, those who make a business of putting down carpets, would as soon think of going to a job without a hammer, as without a stretcher.

A *stretcher* (fig. 1) is a blade of steel, about five inches long, with blunt teeth like saw-teeth. By means of a socket it is attached to a handle of convenient length. In use the teeth are pushed into the carpet several inches from the edge, and the carpet is stretched by a pushing motion, and held in place until the edge is tacked. One person can stretch while another

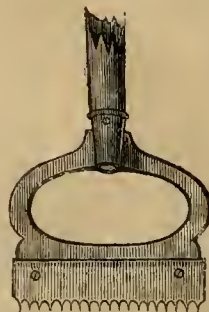


Fig. 1.—STRETCHER.

tack, or the handle of the stretcher may have a broad end and be held against the shoulder of the one who tacks. An implement to answer equally well with the one here figured may be made from an old saw-plate, screwed to a properly-shaped wooden handle. A carpet looks better and wears longer when properly stretched.

The Potato-Muddler, shown in fig. 2, is made of galvanized iron. Being heavier than the ordinary wooden one, it is claimed to do better execution.

Back-saving Dust-Pan. Some one has got out a "Patent Back-Saver," which consists of a dust-pan with high sides and a long handle, as shown in fig. 3. By resting the handle against a table or other piece of furniture, the dust may be swept into it, without the sweeper being obliged to stoop.

Home Topics.

BY FAITH ROCHESTER.

WHAT SHALL I GET FOR DINNER?—This question sometimes haunts me all the forenoon, until the moment arrives when it must be answered without delay. So long as it is an unsettled question, it interferes with any permanent peace of mind.

"Why not settle it at once, and have done with it?" asks Paterfamilias.

"Sure enough!" I answer. "Well, what would you like for dinner to-day?"

"Oh! most anything good to eat," he says. But when I press for more definite suggestions, I am asked, "What have you got in the house?"

A most sensible question. It is surprising to find how large the list is, even when we seem to be "out" of many things we like to keep on hand. I must write out a list again, as I have sometimes done before. A glance at this, once or twice a day, will help much toward that refreshing variety in our meals that I so much believe in. It jogs one's memory about putting asoak over night mackerel and such things as are seldom cooked because we forget to prepare them until it is too late.

One should always have on hand a variety of flour and meal—corn-meal, Graham, fine flour, cracked wheat (or wheaten grits), hominy, oat-meal, buckwheat flour. Then there are the various starch preparations. Two or three kinds should be kept in the house—rice, corn-starch, tapioca, sago, arrow-root, farina, Irish moss, etc. Of vegetables there should be plenty, and a large variety, and this is the proper time of year to look after that matter. The kitchen or vegetable garden greatly concerns the housekeeper's interests, and should be thought of in season. In May it ought to be yielding, as a result of last year's forethought, spinach, early beet tops, asparagus, parsnips, salsify (these last two out of the ground and in the cellar before they begin to sprout, of course), lettuce, radishes, horseradish. If proper care has been taken, we have still on hand potatoes, turnips, onions, carrots, cabbage, beans, dried sweet corn.



Fig. 2.—MUDDLER.

Fruit, of course, every day, and at nearly every meal, in some shape. Canned tomatoes should come in very often. With plenty of good milk and eggs, in addition to the above-named articles of diet, how bountifully we may live!

Concerning meats I will say little, knowing how much depends upon one's nearness to a good market, and not caring to say a single word in favor of the eternal and abominable pork that is such a staple in most farmers' families. Fish, poultry, and dried beef have their place, and may be prepared in various ways.

It is well to make out a list, each season, of the kinds of food available and suitable for that season. A weekly programme for the season, in addition to this, would simplify matters—good deal sometimes, especially where one has a good servant who likes to work without asking questions. It is not necessary to fill out the programme entirely, but there are some things we could have regularly once or twice a week, on definite days, and we should be almost sure of a better variety in our meals, if we adopted the programme-system. Some persons have this method in regard to the dessert only.

HELP FOR MOTHERS.—Was I going to suggest some helps for mothers who have their "hands and hearts full"? Oh! if mothers could only have a chance to be mothers to their children, in a large

human (as opposed to merely animal) sense! So far in the world's history extremely few women have had the proper culture and the requisite leisure for the highest duties of motherhood. With most of us, the necessary care for our children's physical needs comes about all our time and strength. Looking at the matter in a general way, it seems a very cruel thing that mothers should be so burdened, as most of them are, with housekeeping and social labors and duties, while their children are young and need a mother's constant vigilance and loving guidance. But when I look at specific cases—my own, for instance—I see that it can not well be helped, in the present condition of human affairs, and we must just do the best we can in the midst of our common difficulties.



Fig. 3.—DUST-PAN.

Good household helpers are scarce in the labor market, and sometimes the family purse is too slender to pay for all the help that is really needed.

I suppose there are indolent women enough, sweeping the city pavements with their costly garments, to justify a good deal of the talk we see in the papers about the extravagance and indolence of fashionable women, but farmers' wives generally need to be exhorted to rest more, rather than to do more work. Especially is this true of mothers. Good health is a foundation for that which goes by the name of "good nature." A half-sick woman will usually be irritable. When a loving and well-meaning mother finds herself "cross," she needs to pray for grace and something else—to pray in the most practical manner for plenty of help and plenty of rest—and for good diet and pure air, too.

When children are well the care of them is much easier and pleasanter than when they are nervous and peevish, because of physical disorder. A plain, wholesome diet, with plenty of pure air, bathing enough to keep their bodies clean, and a comfortable degree of warmth—these are the essentials for a child's good health, and consequent good nature.

We want to give our little children such advantages for mental cultivation as their tender years require. Very few of us are within reach of kin-

dergartens, but if we have caught something of the kindergarten spirit, it will be a help to us in any situation as mothers or teachers. To educate by means of play, or to turn a child's pleasures into its discipline—that is the secret. We should encourage our children to do *well* whatever they undertake to do. Slow and careful, rather than quick and careless. We should encourage or awaken in them a desire to know all about the materials they use and see around them.

Country children have a great advantage over city children, during the summer months at least. While quite young, they may become familiar with the names and uses of the trees, shrubs, herbs, birds, beasts, fishes, insects, etc., of their own vicinity. Good illustrated works on scientific subjects may be great helps to mothers. A microscope is much to be desired, especially for use in examining flowers and insects. I mentioned a globe last month.

Of children's playthings I have written before, and nothing new on that subject occurs to me at this time. Pictures are great educators, and care should be exercised in the selection of picture books. Most of the large primers with colored pictures are very poor trash. There are packs of fine cards to be found at most book-stores, representing animals, birds, flowers, and foreign people.

THE DISTRICT SCHOOL.—Whether our children attend this school or not, it is our business (yes, women, *ours*) to look after the interests of the public school—the swarms of little children there are going to rule the country, by and by. Our children, even if they do not belong to their number—as most of them do, no doubt—must associate with them in many ways.

But why do I appeal to such selfish motives? Are not all children "ours," in a large Christian sense? Are we not, each and all, parts of the society which ought to see that a fair chance is provided for every child to get a good education? There is no law to keep women away from the school meetings. Mothers would not be out of their sphere there, and certainly not in the school itself. We ought to make our teachers feel that we are interested and anxious about their performance of the very serious duties intrusted to them. No week of the school session should pass without a visit to the school from some woman in the district. If this were expected and likely to occur at any hour, the effect upon teacher and pupils would be excellent. It would benefit the whole neighborhood. Each one of us should use some influence in favor of genial, well-qualified teachers (with as little change as possible from one session to another) and pleasant, well-ventilated school-rooms, with tasteful and convenient grounds and out-buildings. The teacher should be one among us. A frank association between parents and teachers would be mutually beneficial. None of us have any more important business—no, not priests nor potentates—than the education of little boys and girls into a noble manhood and womanhood. It is business that everybody can engage in, for the little children we have always with us; and all that they see and hear helps to educate them.

GRAHAM BREAD.—One woman wishes to know how to make good Graham bread. It is never made successfully after the usual recipes for bread of fine flour. To all who have thoroughly tried the Graham *gems*, I think that form of Graham bread is most acceptable. The method of making these is very simple. The *essentials* are patty-pans, buttered and well heated, and a hot oven. Nothing else but the meal and water. Inexperienced persons will probably make the batter too stiff, and it may take them some time to learn that the gems seem lighter and *sweeter* if made without salt. I am no vegetarian, and use salt daily in my food, but I think it a mere superstition and a gastronomic mistake to put salt into some forms of bread.

Our inquirer may have no patty-pans (the iron clusters are best), or she may wish especially to learn how to make Graham bread with yeast.

In an August number of *Hearth and Home* for 1871, "Mrs. Hammond" gave a recipe, which is the best I have found. She always sifts Graham flour,

to make it light, but mixes the bran again thoroughly with the flour. This is an improvement, certainly. For one quart of flour thus prepared, use half a cup of good yeast and a little more than half a pint of warm water. Stir this well together at night, and set in a warm place. In the morning add more flour, but not too much to stir with a spoon—for Graham bread should not be kneaded. Stir it well, pour it into the pan, and let it rise an hour. Some prefer to steam Graham loaves, as well as those of corn-meal, before baking. This prevents the formation of the thick hard crust so dreaded by poor teeth. Many suppose that molasses is essential to good Graham bread, but some of the best cooks do not use it.

A KANSAS MOTHER ANSWERED.—A good letter comes to me from a woman in Kansas, who has four little children under seven years of age. She says, "I have my hands and heart full, and need all the helps in the way of instruction and amusement that I can get. If the Kindergarten gifts are not beyond my limited means, I shall have them sooner or later." She asks me to state in the *Agriculturist* where they can be obtained and what is their cost.

I am unable to give their precise cost. I think \$10 would purchase the whole set. Through the agency of a friend I obtained Weibe's Guide, or "Paradise of Childhood," and all the gifts except Nos. 12, 13, 16, 17, 18, and 20, for that sum. The American manufacturer is Milton Bradley, Springfield, Mass., where they can always be found. The express charges from Massachusetts to Kansas would amount to nearly three dollars.

I can not conscientiously *advise* this mother to procure these gifts and attempt to give her little ones the Kindergarten culture. She does indeed need "helps," and I know of no help so great, for mothers and children also, as the Kindergarten. But for the Kindergarten proper, we *must* have qualified gartners (or teachers), and there should be a group of children of the same age. Very few mothers are smart enough and wise enough to use the Kindergarten gifts successfully, without having had especial training for it. I could not, even during the few months after I first obtained them, while I had the care of only one four-year-old child. But I could make *some* use of them, and enough to make me feel more than paid for the trouble and expense they had cost. After grandma and annie gave back our younger child, it became extremely difficult to use the Kindergarten gifts for *lessons*. The little blocks are very small (cubic inches and their halves and quarters), and dimpled hands of less than two years' growth were capable of making sad havoc among them, unless there was close watching. Now another "wee one" claims her share of mamma's time and toil, and the Kindergarten gifts are seldom brought into use, except for what the children call "Kindergarten *plays*"—when they build whatever they choose of the blocks or tablets, sitting in high chairs beside the table. The perforating and weaving have given a good deal of pleasure and some good exercise to the eldest child, but he is such a woodsman and farmer now (since his father's business allows him to live with us again), that I am not called upon, as formerly, to provide almost constant employment.

I give my experience to those who care for it. I do believe most heartily in the Kindergarten proper. I think every child would be profited by such a course of training, occupying three hours daily for three or four years. Of late I have sometimes feared that what I have said in its favor may lead some mothers to attempt too much, and thus to lose faith in the Kindergarten itself (the garden of children with a skilled child-gardener). Here, for instance, is one who says she "has tried the Kindergarten and does not think much of it"! I have no idea that she has tried the genuine thing with such result.

I want every earnest person to hear of the Kindergarten, and think about it, and help prepare the way for it, but we can not all reap the direct benefits. Mrs. W. writes, "I hope the day is coming when *every* mother may be able to make her child's care and culture her daily *business*"—quoting from a former article of mine. "O woman! great is thy faith!" But not too great. It is com-

ing. You and I would like to *see* it, and it costs a struggle to admit that *our* darlings must fall short of the culture we would gladly give them.

But there is a deal of comfort—to me, at least—in the belief that it will not always be so. We human beings are gradually learning—never so fast as in our day—that *it pays to help each other!*

Another time, I think, I will suggest some "helps" to mothers who have their "hands and hearts full." I have scarcely room for any at present.

Economies in Furniture—Oilcloth.

BY CARRIE CLOVERNOOK.

One of our neighbors sent a set of chair-frames to the cabinetmaker's to be re-seated. The foreman told her he could not promise to do them, as he had plenty of more profitable work, but he would sell the canes for a trifle and could show her in a few minutes how to put them in as well as it would be done in his shop. The chair-frames were sent home, the advice taken, and before night they were almost as good as new. The same lady has an old arm-chair, with a splint seat, or rather that had one when it was new, and she said if she could fix that, she would be quite happy. I suggested that a piece of strong canvas, firmly hemmed on all its edges, could be used. It should be large enough to wrap about the rounds that once held the splints, then should be sewed with twine, putting the needle through the edge—the hem will prevent pulling or tearing—and also through the canvas above the round, inclosing it tightly. This will make a firm seat, and a cushion can be added, if desired. It is a pity to have such chairs disabled, for all the family enjoy them, and if thrown aside, the old people miss them sadly. I have seen rocking chairs made prettier than when new, by fastening canvas with small tacks where the canes had been, taking care to have the wood-work hid as little as possible. If a few layers of old quilts sewed together, for stuffing, be added, and the whole covered with rep or Brussels carpeting, the cushion is finished.

An old lady dropped in just at night, with her knitting, and her bit of good news was, that she had a nice piece of oilcloth for her kitchen stove, and it had not cost her a cent. A couple of yards of coarse haggling, such as covers packages of bathing, had been given her at the store, and a few strokes of Sam's hammer fastened it securely to the side of the barn. It was first brushed over with thin rye-paste; when this was thoroughly dry, it was given a coat of dark-brown paint, and when this was well dried, another coat was added. When these had hardened, the edges were trimmed and bound with narrow strips of tin. It was pronounced a success. As the materials for painting were in the house, she enjoyed telling to her friends how comfortable an article she had made without expense. I have often seen in print directions for making oilcloth, but never have noticed any which advised a coating of paste first, but my friend said that she was taught by one who had followed oilcloth making, and that it was a great improvement.

MOVING MARBLES AND MIRRORS.—In packing mirrors or marble for removal, they should be placed by themselves in a box, and fixed in their places by side-pieces and wedges, driven closely, and nailed; laths should be placed across mirrors, and no elastic materials, as pillows or featherbeds, be used in packing them. Marble should be put in a box by itself, wetted sheets of clean paper laid between the pieces, and each piece held firmly in its place by side-pieces and wedges. It may then be carried over a rough road in a wagon, without injury. Glass and china ware should be packed upon the same principle—that is, they should be so firmly fixed that it will be impossible for them to move and jar against one another. The way the packing material is crowded in, to make the whole firm, is of much more consequence than its quality or quantity. Newspapers, soft straw, or hay may be used; but, whatever the material may be, have every crevice filled, and all well packed.

BOYS & GIRLS' COLUMNS.

**The Boys and Girls' Pictures—
More Prizes Offered.**

When one has made a mistake, he should acknowledge it. I admit that I made a blunder about the boys and girls' pictures. I said that the time during which the stories could be received would be up May 1st. As the paper for May goes to press about the fifteenth of April you will see that I can not announce the awards until next month. I am very sorry for it, but I really intended to put it so that they could appear in this number. Let us have patience. There is such a quantity of letters, and they keep coming every day, that it will be a fine task to read them all.

Now, while we are waiting, let us be doing something. We wish to have another competition in progress, and what shall it be? I have it. Girls first. I wish from the girls a list of the flowers they have seen during the month of May. From the girls in the country I shall expect lists of wild-flowers. Those who live in towns and villages may, if they prefer it, put down cultivated flowers, but wild and garden flowers must not go upon the same list. Choose whether you will hunt up the wild ones, or prefer to name those that grow in your own and other people's gardens. Use the common or botanical names, as you prefer. In making up the awards not only will numbers be considered, but accuracy in spelling. It is understood that the list is to contain only the flowers that the writer has seen. Mind, it must include only plants that are actually seen in flower.

Now for the boys. Boys do not generally care much for flowers, I am sorry to say, and I must set them at some livelier work. Young gentlemen, we will have from you a list of all the native wild animals you have seen during the month of May, exclusive of insects. Birds, quadrupeds, snakes, lizards, etc., may come in, but no "bugs." This gives the country boys a great advantage over town-dwellers, and we must allow those who live in cities and towns to take their choice, and if they can not go often into the country to see the wild birds and quadrupeds, they must make lists of domesticated ones. As these lists will be very much smaller than the others, if a boy chooses to put down the tame animals only, he must then tell what country they originally came from.

Now, boys and girls, the object of this is to induce you to use your eyes and your tongues. If you do not know the name of a plant, a bird, or other object you wish to include in your list, ask some one who does. Try and get the right name, and then to write it down correctly. Recollect that these observations are to be continued during the month of May, and the lists must reach me by the fifteenth of June. The prizes for these will be books—good, new, and useful ones. The publishers are very liberal in such matters, and I shall give at least six books among the boys, and as many among the girls, making due allowance for ages. Now look at the offer for the prizes in March. The same conditions about writing, giving name and age, etc., mentioned there, will be observed now. In the story prizes, those with the liveliest imaginations had the best chance, but now the matter-of-fact youngsters, who go about with their eyes open, have something suited to their tastes. So, girls, start after the flowers, and, boys, "stir up the animals," and when you have found out all that the month of May can tell you, do you tell it to THE DOCTOR.

Addresses Wanted.—Letters sent by "The Doctor" to Miss Mary Ross, Iowa, and Edmund D. Redd, Va., have been returned from the post-office. His letters were directed according to the addresses given by them. Some mistake, children.

A Boys and Girls' Bird-House.

We call it a boys and girls' bird-house, because any boy with ingenuity can make it for his sister, or the two can own it in common. The drawings were sent by J. L. Hyde, Pomfret Landing, Ct., and there was nothing to show whether Mr. J. L. H. is one of our boys, or one who was a boy once. At all events, we are much obliged for his bird-house, and will tell you how he makes it. The foundation of the house is any convenient-sized box, such as may be had at the stores. A piece is nailed to each end, cut to the slope it is desired to have the roof. As the roof is to be thatched, it had better be pretty steep, as it will not only shed the rain the more easily, but the house will look better. The upper end of the pole which is to support the house is made square; it passes through a hole in the bottom of the box, and extends far enough above the ridge of the roof, to form the chimney. A ridge-pole is then passed through the upright pole and the end-pieces, as shown in figure 1. Places for the windows are to be cut out, but the doorway may be only a dummy,

and painted black. Birds are not very particular how they enter the house, and will go through a window just as well as a door. As we wish the house to have a pleasing appearance, we must cover it so as to represent a log-cabin. For this purpose small branches of any straight, easy-splitting wood are to be cut of the proper lengths, and split lengthwise, as in figure 2. These, with the bark on, are then to be fastened by small nails all over the ex-

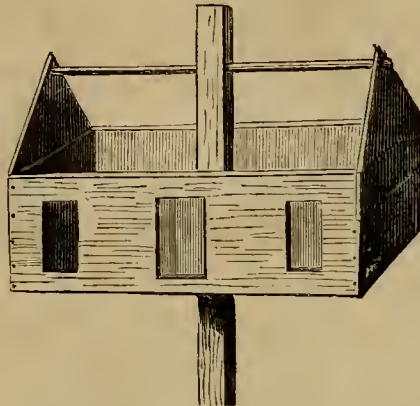


Fig. 1.—FRAMEWORK OF BIRD-HOUSE.

terior of the house, as shown in figure 3. The roof is then to be thatched, and though Mr. H. draws it as done, he does not tell how to do it. We should tie the straw into small bundles with twine (tarred would be best), making them long enough to reach from one side of the house to the other, and to project well over to form the eaves. Then we should nail the bundles, one by one, to the upper edges of the box, and bind them at the top to the ridge-pole, by means of twine. The bundles must be crowded up close to one another, to prevent leaking. If this way of putting on the straw does not work, you can no doubt hit upon some other that will. The house may be divided up to accommodate several families. The lower



Fig. 3.—BIRD-HOUSE COMPLETE.

story may be so partitioned as to form four rooms, with an entrance-window to each, and the garret can have a division across it, and make two rooms, which can be entered by windows in the gable ends. The appearance of the house will be much improved, and it will stand the weather better, if the wood has a coating of painter's oil. Birds will like a house of this kind better than they will the showy-painted things that are often provided for them. When the house is in place, you can put "To Let" on it, if you choose, but the birds will come just as soon without it, and it is very amusing to see the little things out house-hunting. The enjoyment of a bird-house may be much increased, if you put in some quiet place near by a plenty of such materials as the birds use in making their nests; cut hay, locks of wool, old curled hair, shreds and ravelings of cloth, feathers, and the like, will all be acceptable. We had nearly forgotten one thing. The whole affair may be made much more ornamental by setting some climbing plants at the bottom of the pole. A hop-vine will grow very quickly, and make a fine mass of green. If strong strings or wires are attached near the top of the post, and their other ends fastened to pegs driven into the ground, you can plant morning-glory



Fig. 2.—SPLIT STICK.

seeds, and soon have a fine pyramid of vines, which in the early morning will be covered with flowers.

Aunt Sue's Puzzle-Box.

CROSS-WORD ENIGMA.

- My first is in want but not in need.
- My next is in oats but not in feed.
- My third is in snow but not in rain.
- My fourth is in wheat but not in grain.
- My fifth is in pink but not in black.
- My sixth is in rail but not in tack.
- My seventh is in good but not in nice.
- My eighth is in rats but not in mice.
- My ninth is in corn but not in rice.
- My tenth is in once but not in twice.
- My whole is a man well known to fame,
- And a city, too; now tell the name.

ELLA E. FARGO.

DIAMOND CROSS-PUZZLE.

- 1. A vowel. 2. Time past. 3. Something lean and thin.
- 4. Not assisted. 5. Having power to reduce. 6. Delightful.
- 7. A husbandman. 8. An appeaser. 9. Serving to introduce. 10. To support by food. 11. Indian corn.
- 12. To request. 13. A consonant.

The central letters, horizontal and perpendicular, name an admirable production. R. T. ISBESTER.

PL

Raley of edb dan alrye of sire
Liwl keam a nam hayleth wayleth dna wesi.

SNICKER.

SQUARE WORDS.

- 1. Perform. 2. Black. 3. Repeat. 4. Murder. 5. Music.
- 2. Square the word "CROWD."

STAR AND CRESCENT.

PUZZLE.

Take the names of two kings and half of another (all mentioned in the Bible), and transpose the letters into the name of a water-fowl. F. W. HALL.

DECAPITATIONS.

- 1. Behead a boy's name, and leave a vessel.
- 2. Behead a boy's name, and leave part of the body.
- 3. Behead a girl's name, and leave a boy's.
- 4. Behead a girl's name, and leave a tribe.
- 5. Behead a bird, and leave a measure.
- 6. Behead something good to eat, and leave the boy who might eat it. H. H.

GEOGRAPHICAL ANAGRAMS.

- 1. Laity. 5. By revel.
- 2. Planes. 6. Rent not.
- 3. The scorer. 7. Worn key.
- 4. Males. 8. Sob not. HARRY.

NUMERICAL ENIGMA.

I am composed of 11 letters.
My 3, 8, 1, 5, is a kind of trimming.
My 7, 10, 11, 9 is a despicable character.
My 4, 6, 9, 2, 3, is a marine production.
My whole is the name of a flower. C. L. S.

ANSWERS TO PUZZLES IN THE MARCH NUMBER.

NUMERICAL ENIGMAS.—1. Contentment is a gem beyond a diadem. 2. Something nice to work.

BLANKS.—3. Ate, eight. 4. Hugh, hew. 5. Idle, idol. 6. Colonel, kernel.

ALPHABETICAL ARITHMETIC.

34286959254 (Key. "New codfish.")

ANAGRAMS.—8. Restaurant. 9. Euphemism. 10. Agriculturist. 11. Impatience. 12. Pertained. 13. Orenadier. 14. Disparagement. 15. Satisfied. 16. Continual. 17. Inconsiderable.

Cross-Word.—Hattie.

PL.—What's the use of always fretting
At the trials we shall find,
Ever strewn along our pathway?
Look ahead, and never mind.

SQUARE WORD.

S O A K
O N C E
A C R E
K E E P

BIG BOYS AND GIRLS NEED NOT READ THIS.

WILLIE H. K. says, "I wish I knew how to make out those numerical enigmas." Why, bless your dear little heart! come and sit down by me, and I will tell you all about it. First I will make an easy one for you:

I am composed of 17 letters:

- My 11, 2, 13, is yourself.
- My 5, 3, 8, 4, is what you like to read.
- My 6, 16, 9, is what you hear with.



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THE WHISTLE-MAKERS.—Drawn and Engraved for the American Agriculturist.

My 17, 12, 14, 10, is a long stick.

My 1, 15, 16, 7, grows on trees and plants.

My whole is a proverb.

There: get your slate and pencil, and write down 17 figures across, in a row. Now, "my 11, 2, 13, is yourself," that must be "you;" so put down y, under 11; o, under 2; and u, under 13. Now, what do you "like to read"? "Robinson Crusoe." Yes, but we only want four letters; I guess it is "book," so put those letters down under 5, 3, 8, and 4. You know "what you hear with." What "grows on trees and plants"? "Fruit?" Yes, but we only want four letters: try something else. Now I shall leave you to find out the rest, and you must write and tell me how you succeeded.

AUNT SUE'S NOTICES TO CORRESPONDENTS.

J. P. Let me first see how you will "square BABA-LOU" yourself.

W. J. D. Where do you find "AIDE"?

J. T. McA. You sent no answers with your puzzles.

ANNA BELLE C. Thanks for your nice little letter, especially for the lock of hair. What possible good could it do you to know what my "last name" is? Would you be any happier, if you knew "for certain" that it was Brown, or Jones, or Snooks? Yes, "any one may answer puzzles."

MAY A. W. Of course, you "may make up puzzles for the *Agriculturist*," and if they are good ones they shall be published.

GLEBERT A. S. I am sorry that you can not forget little unpleasantnesses. My Southern nieces and nephews are just as dear to me as the Northern ones, perhaps a little dearer, on the principle of the misguided lambskin

that strayed away from the ninety and nine. You may remember how glad the folks were to welcome it home again.

Glad to hear from A. M. Rice, Alice C. Taylor, Belle R., C. W. J., M. H. E., Jessie D., Anna H., Geo. V. R., Jere P., A. B. Leach, S. G. T., and C. W. W.

Thanks for puzzles, etc., to R. T. Isbester, J. E. M., A. S. H., W. H. K., E. S. C., O. A. Gage, and W. E. W.

The Whistle-Makers.

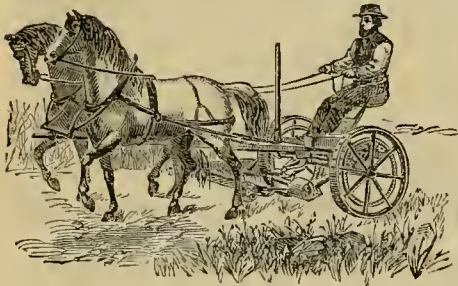
We are sorry for the man who can not look back upon a scene similar to the one represented in the engraving, and remember it as one of the happiest of his life. It may be that there are some of our readers who have always lived in cities, or who have only gone to the country when mid-summer made the town too hot for them, who never made whistles. How little do those who only visit the country in mid-summer, know of its beauties! Our country boys and girls—for girls like to have whistles—well know that there is no more delightful season than that in which they make whistles. Boys have ball-time, kite-time, and marble-time, and I do not know why they should not have a whistle-time. There is a whistle-time, but I never heard it called by that name. It is only when all vegetation is awakening, when spring proper, not the spring of the almanacs, has really come, that whistles can be made. Willow makes the best whistles, though poplar will do very well, and as willows generally grow by the side of streams, whistle-makers are likely to be led to pleasant spots. I can well recollect the day when Joe, who was always scolding about "them ar young 'uns," and who always did what the "young

'uns" wanted him to do, sharpened our knives, and how Aunt Mary put up our lunch, and we all went off together where, as the Atwell boys said, the willows "grew prime." In those days boys did not say "bully," but "prime" and "hunkum" were the biggest words we knew the use of. It is so long ago! and yet the rippling laugh of the boys and girls and the laughing ripple of the brook ring in my old ears with a freshness that almost startles me. We made our whistles, listened to the birds, looked for the early flowers, and had just such a Saturday as only comes once in a lifetime. What matter if Joe did make that knife so sharp that it cut my fingers, was not E. there to tie it up? and if in my eagerness to make a large whistle it made a sound more like a bull-frog than a bird, did we not all laugh? I could find the very spot now. The brook, the willows, the birds, and the flowers, would all be there—everything, but the young hearts that made the place ever memorable. Of all the half-dozen whose whistles and whose shouts made the time so merry, I can tell you of the whereabouts of but one, and he sits here, renewing the pleasures of his youth in thinking of the many happy whistle-making parties his boys and girls will have in these bright spring days.

Don't suppose I am going to tell you how to make a whistle. In my boy-days the worst thing that could be said of a stupid fellow was, "He don't know enough to make a poplar whistle." I really don't know how boys learn all about these things. The selection of the twig, the shaping of the mouth-piece, then the hammering of the bark, to make it slip off, and the final proper shaping of the wood—I can not recollect how I learned them any more than boys can now tell how they know when top-time comes.

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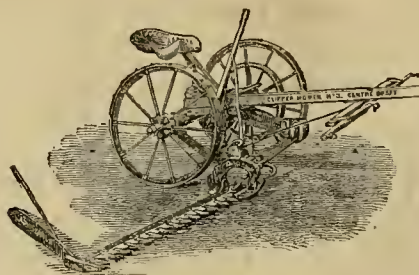
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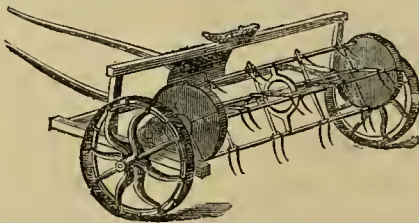


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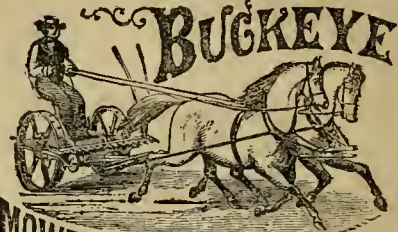
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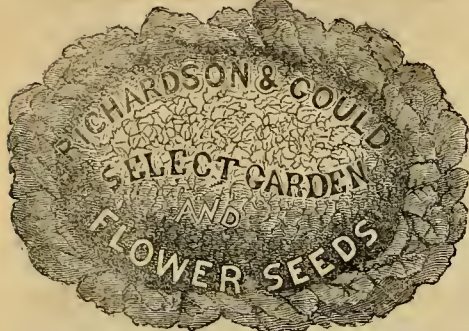
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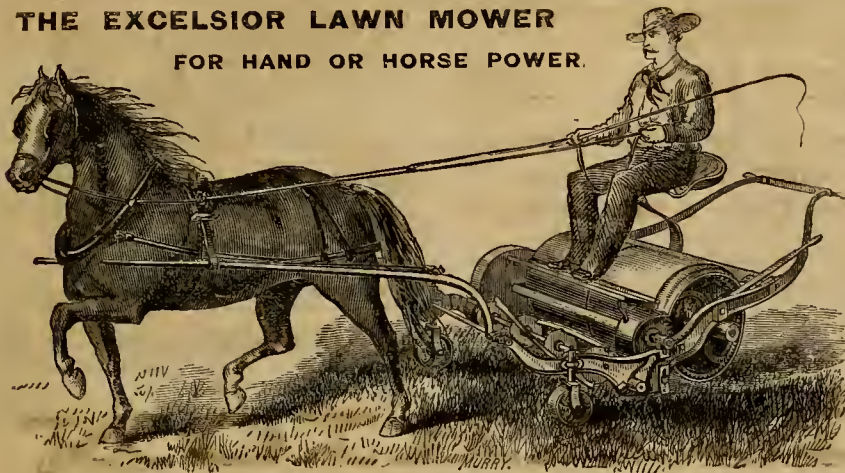
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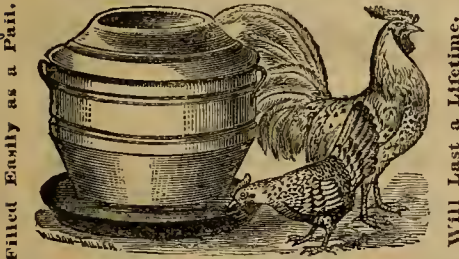


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*C. J. Payne
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The End of the World.

A LOVE STORY.*

BY EDWARD EGGLESTON.

CHAPTER I.

IN LOVE WITH A DUTCHMAN.

"I don't believe that you'd care a cent if she did marry a Dutchman! She might as well as to marry some white folks I know."

Samuel Anderson made no reply. It would be of no use to reply. Shrews are tamed only by silence. Anderson had long since learned that the little shred of influence which remained to him in his own house would disappear whenever his teeth were no longer able to shut his tongue securely in. So now, when his wife poured out this hot lava of *argumentum ad hominem*, he closed the teeth down in a deadlock way over the tongue, and compressed the lips tightly over the teeth, and shut his finger-nails into his work-hardened palms. And then, distrusting all these precautions, fearing lest he should be unable to hold on to his temper even with this grip, the little man strode out of the house with his wife's shrill voice in his ears.

Mrs. Anderson had good reason to fear that her daughter was in love with a "Dutchman," as she phrased it in her contempt. The few Germans who had penetrated to the West at that time were looked upon with hardly more favor than the Californians feel for the almond-eyed Chinaman. They were foreigners, who would talk gibberish instead of the plain English which everybody could understand, and they were not yet civilized enough to like the yellow saleratus-biscuit and the "salt-rising" bread of which their neighbors were so fond. Reason enough to hate them!

Only half an hour before this outburst of Mrs. Anderson's, she had set a trap for her daughter Julia, and had fairly caught her.

"Jule! Jule! O Jul-y-ee!" she had called. And Julia, who was down in the garden hoeing a bed in which she meant to plant some "Johnny-jump-ups," came quickly toward the house, though she knew it would be of no use to come quickly. Let her come quickly, or let her come slowly, the rebuke was sure to greet her all the same.

"Why don't you come, when you're called, I'd like to know! You're never in reach when you're wanted, and you're good-for-nothing when you are here!"

Julia Anderson's earliest lesson from her mother's lips had been that she was good for nothing. And every day and almost every hour since had brought her repeated assurances that she was good for nothing. If she had not been good for a great deal, she would long since have been good for nothing as the result of such teaching. But though this was not the first, nor the thousandth, nor the ten thousandth time that she had been told that she was good for nothing, the accustomed insult seemed to sting her now more than ever. Was it that, being almost

eighteen, she was beginning to feel the woman blossoming in her nature? Or, was it that the tender words of August Wehle had made her sure that she was good for something, that now her heart felt her mother's insult to be a stale, selfish, ill-natured lie?

"Take this cup of tea over to Mrs. Malcolm's, and tell her that it a'n't quite as good as what I horried of her last week. And tell her that they'll be a new-fangled preacher at the school-house a Sunday, a Millerite, or somethin', a preachin' about the end of the world."

Julia did not say "Yes, ma'am," in her usually meek style. She smarted a little yet from the harsh words, and so went away in silence.

Why did she walk fast? Had she noticed that August Wehle, who was "breaking up" her father's north field,



TAKING AN OBSERVATION.

was just plowing down the west side of his land? If she hastened, she might reach the cross-fence as he came round to it, and while he was yet hidden from the sight of the house by the turn of the hill. And would not a few words from August Wehle be pleasant to her ears after her mother's sharp depreciation? It is at least safe to conjecture that some such feeling made her hurry through the long, waving timothy of the meadow, and made her cross the log that spanned the brook without ever so much as stopping to look at the minnows glancing about in the

life she had never before crossed the meadow brook without stooping to look at the minnows.

All this haste Mrs. Anderson noticed. Having often scolded Julia for "talking to the fishes like a fool," she noticed the omission. And now she only waited until Julia was over the hill to take the path round the fence under shelter of the blackberry thicket, until she came to the clump of elders, from the midst of which she could plainly see if any conversation should take place between her Julia and the comely young Dutchman.

In fact, Julia need not have hurried so much. For August Wehle had kept one eye on his horses and the other on the house all that day. It was the quick look of intelligence between the two at dinner that had aroused the mother's suspicions. And Wehle had noticed the work on the garden bed, the call to the house, and the starting of Julia on the path toward Mrs. Malcolm's. His face had grown hot, and his hand had trembled. For once he had failed to see the stone in his way, until the plow was thrown clean from the furrow. And when he came to the shade of the butternut-tree by which she must pass, it had seemed to him imperative that the horses should rest. Besides, the harness-string wanted tightening on the bay, and old Dick's throat-latch must need a little fixing. He was not sure that the clevis-pin had not been loosened by the collision with the stone just now. And so, upon one pretext and another, he managed to delay starting his plow until Julia came by, and then, though his heart had counted all her steps from the door-stone to the tree, then he looked up surprised. Nothing could be so astonishing to him as to see her there! For love is needlessly crafty, it has always an instinct of concealment, of disguise, of indirection about it. The boy, and especially the girl, who will tell the truth in regard to a love affair is a miracle of veracity. But there are such, and they are to be revered—with the reverence paid to martyrs.

On her part, Julia Anderson had walked on as though she meant to pass the young plowman by, until he spoke, and then she started, and blushed, and stopped, and nervously broke off the top of a last year's iron-weed, and began to break it into bits while she talked, looking down most of the time, but lifting her eyes to his now and then. And to the sun-browned but delicate-faced young German it seemed a vision of Paradise—every glimpse of that fresh girl's face in the deep shade of the sun-bonnet. For girls' faces can never look so sweet in this generation as they did to the boys who caught sight of them, hidden away, precious things, in the obscurity of a tunnel of pasteboard and calico!

This was not their first love-talk. Were they engaged? Yes, and no. By all the speech their eyes were capable of in school, and of late by words, they were engaged in loving one another, and in telling one another of it. But they were young, and separated by circumstances, and they had hardly begun to think of marriage yet. It was enough for the present to love and be loved. It is the most delightful stage of a love-affair when the present is sufficient, and there is no past or future. And so August lung his elbow around the top of the bay horse's

hames, and talked to Julia. It is the highest praise of the German heart that it loves flowers and little children; and like a German and like a lover that he was, August began to speak of the anemones and the violets that were already blooming in the corners of the fence. Girls in love are not apt to say anything very fresh. And Julia only said she thought the flowers seemed happy in the sunlight. In answer to this speech, which seemed to the lover a bit of inspiration, he quoted from Schiller the lines:

"Yet weep, soft children of the spring;
The feelings Love alone can bring
Have been denied to you!"

With the quick and crafty modesty of her sex, Julia evaded this

very pleasant shaft by saying: "How much you know, August! How do you learn it?"

And August was pleased, partly because of the compliment, but chiefly because in saying it Julia had



A TALK WITH A PLOWMAN.

water flecked with the sunlight that struggled through the boughs of the water-willows. For, in her thorough loneliness, Julia Anderson had come to love the birds, the squirrels, and the fishes as companions, and in all her

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brought the sun-bonnet in such a range that he could see the bright eyes and blushing face at the bottom of this camera obscura. He did not hasten to reply. While the vision lasted he enjoyed the vision. Not until the sun-bonnet dropped did he take up the answer to her question.

"I don't know much, but what I do know I have learned out of your Uncle Andrew's books."

"Do you know my Uncle Andrew? What a strange man he is! He never comes here and we never go there and my mother never speaks to him, and my father doesn't often have anything to say to him. And so you have been at his house.

They say he has all up-stairs full of books, and ever so many cats and dogs and birds and squirrels about. But I thought he never let anybody go up-stairs."

"He lets me," said August, when she had ended her speech and dropped her sun-bonnet again out of the range of his eyes, which, in truth, were too steadfast in their gaze. "I spend many evenings up-stairs." August had just a trace of German in his idiom.

"What makes Uncle Andrew so curious, I wonder?"

"I don't exactly know. Some say he was treated not just right by a woman when he was a young man. I don't know. He seems happy. I don't wonder a man should be curious though when a woman that he loves treats him not just right. Any way, if he loves her with all his heart, as I love Julie Anderson!"

These last words came with an effort. And Julia just then remembered her errand, and said, "I must hurry," and, with a country girl's agility, she climbed over the fence before August could help her, and gave him another look through her bonnet-telescope from the other side, and then hastened on to return the tea, and to tell Mrs. Malcolm that there was to be a Millerite preacher at the school-house on Sunday night. And August found that his horse was quite cool, while he was quite hot. He cleaned his mold-board and swung his plow round, and then, with a "Whoa! haw!" and a pull upon the single line which Western plowmen use to guide their horses, he drew the team into their place, and set himself to watching the turning of the rich, fragrant black earth. And even as he set his plowshare, he set his purpose to overcome all obstacles, and to marry Julia Anderson. With the same steady, irresistible, onward course would he overcome all that lay between him and the soul that shone out of the face that dwelt in the bottom of the sun-bonnet.

From her covert in the elder-bushes Mrs. Anderson had seen the parley, and her cheeks had also grown hot, but from a very different emotion. She had not heard the words. She had seen the loitering girl and the loitering plowboy, and she went back to the house vowing that she'd "teach Julie Anderson how to spend her time talking to a Dutchman." And yet the more she thought of it, the more she was satisfied that it wasn't best to "make a fuss" just yet. She might hasten what she wanted to prevent. For though Julia was obedient and mild in word, she was none the less a little stubborn, and in a matter of this sort might take the bit in her teeth.

And so Mrs. Anderson had recourse, as usual, to her husband. She knew she could browbeat him. She demanded that August Wehle should be paid off and discharged. And when Anderson had hesitated, because he feared he could not get another so good a hand, and for other reasons, she burst out into the declaration:

"I don't believe that you'd care a cent if she did marry a Dutchman! She might as well as to marry some white folks I know."

CHAPTER II.

AN EXPLOSION.

It was settled that August was to be quietly discharged at the end of his month, which was Saturday night. Neither he nor Julia must suspect any opposi-

tion to their attachment, nor any discovery of it, indeed. This was settled by Mrs. Anderson. She usually settled things. First, she settled upon the course to be pursued. Then she settled her husband. He always made a show of resistance. His dignity required a show of resistance. But it was only a show. He always meant to surrender in the end. Whenever his wife ceased her fire of small-arms and herself hung out the flag of truce, he instantly capitulated. As in every other dispute, so in this one about the discharge of the "miserable, impudent Dutchman," Mrs. Anderson attacked her

in front of the house. Cynthia Ann was getting dinner in the kitchen at the other end of the hall, and Mrs. Anderson was busy in her usual battle with dirt. She kept the house clean, because it gratified her combativeness and her domineering disposition to have the house clean in spite of the ever-encroaching dirt. And so she scrubbed and scolded, and scolded and scrubbed, the scrubbing and scolding agreeing in time and rhythm. The scolding was the vocal music, the scrubbing an accompaniment. The concordant discord was perfect. Just at the moment I speak of there was a lull in her

scolding. The symphonious scrubbing went on as usual. Julia, wishing to divert the next thunder-storm from herself, erected what she imagined might prove a conversational lightning-rod, by asking a question on a topic foreign to the theme of the last march her mother had played and sung so sweetly with brush and voice.

"Mother, what makes Uncle Andrew so queer?"

"I don't know. He was always queer." This was spoken in a staccato, snapping-turtle way. But when one has lived all one's life with a snapping-turtle, one doesn't mind. Julia did not mind. She was curious to know what was the matter with her uncle, Andrew Anderson. So she said:

"I've heard that

some woman treated him cruelly; is that so?" Julia did not see how red her mother's face was, for she was not regarding her.

"Who told you that?" Julia was so used to hearing her mother speak in an excited way that she hardly noticed the strange tremor in this question.

"August."

The symphony ceased in a moment. The scrubbing-brush dropped in the pail of soapsuds. But the vocal storm burst forth with a violence that startled even Julia.

"August said that, did he? And you listened, did you? You listened to that? You listened to that? You listened to that? Hey? He slandered your mother. You listened to him slander your mother!" By this time Mrs. Anderson was at white heat. Julia was speechless. "I saw you yesterday flirting with that Dutchman, and listening to his abuse of your mother! And now you insult me! Well, to-morrow will be the



A LITTLE RUSTLE BROUGHT HER TO CONSCIOUSNESS.

husband at all his weak points, and she had learned by heart a catalogue of his weak points. Then, when he was sufficiently galled to be entirely miserable; when she had expressed her regret that she hadn't married somebody with some heart, and that she had ever left her father's house, for her father was always good to her; and when she had sufficiently reminded him of the lover she had given up for him, and of how much he had loved her, and how miserable she had made him by loving Samuel Anderson—when she had conducted the quarrel through all the preliminary stages, she always carried her point in the end by a *coup de partie* somewhat in this fashion:

"That's just the way! Always the way with you men! I suppose I must give up to you as usual. You've lorded it over me from the start. I can't even have the management of my own daughter. But I do think that after I've let you have your way in so many things, you might turn off that fellow. You might let me have my way in one little thing, and you would if you cared for me. You know how liable I am to die at any moment of heart-disease, and yet you will prolong this excitement in this way."

Now, there is nothing a weak man likes so much as to be considered strong, nothing a henpecked man likes so much as to be regarded a tyrant. If you ever hear a man boast of his determination to rule his own house you may feel sure that he is subdued. And a hen-pecked husband always makes a great show of opposing everything that looks toward the enlargement of the work or privileges of women. Such a man always insists on the shadow of authority because he can not have the substance. It is a great satisfaction to him that his wife can never be president, and that she can not make speeches in prayer-meeting. While he retains these badges of superiority, he is still in some sense head of the family.

So when Mrs. Anderson loyally reminded her husband that she had always let him have his own way, he believed her because he wanted to, though he could not just at the moment recall the particular instances. And knowing that he must yield, he rather liked to yield as an act of sovereign grace to the poor oppressed wife who begged it.

"Well, if you insist on it, of course, I will not refuse you," he said; "and perhaps you are right." He had yielded in this way almost every day of his married life, and in this way he yielded to the demand that August should be discharged. But he agreed with his wife that Julia should not know anything about it, and that there must be no leave-taking allowed.

The very next day Julia sat ewing on the long porch



GOTTLIEB.

last day that that Dutchman will hold a plow on this place. And you'd better look out for yourself, miss!

Here followed a volley of epithets which Julia received standing. But when her mother's voice grew to a scream, Julia took the word.

"Mother, hush!"

It was the first word of resistance she had ever uttered. The agony within must have been terrible to have wrung it from her. The mother was stunned with anger

and astonishment. She could not recover herself enough to speak until Jule had fled half-way up the stairs. Then her mother covered her defeat by screaming after her, "Go to your own room, you impudent hussy! You know I am liable to die of heart-disease any minute, and you want to kill me!"

CHAPTER III.

A FAREWELL.

Mrs. Anderson felt that she had made a mistake. She had not meant to tell Julia that August was to leave. But now that this stormy scene had taken place, she thought she could make a good use of it. She knew that her husband co-operated with her in her opposition to "the Dutchman," only because he was afraid of his wife. In his heart, Samuel Anderson could not refuse anything to his daughter. Denied any of the happiness which most men find in loving their wives, he found consolation in the love of his daughter. Secretly, as though his paternal affection were a crime, he caressed Julia, and his wife was not long in discovering that the father cared more for a loving daughter than for a shrewish wife. She watched him jealously, and had come to regard her daughter as one who had supplanted her in her husband's affections, and her husband as robbing her of the love of her daughter. In truth, Mrs. Samuel Anderson had come to stand so perpetually on guard against imaginary encroachments on her rights, that she saw enemies everywhere. She hated Wehle because he was a Dutchman; she would have hated him on a dozen other scores if he had been an American. It was offense enough that Julia loved him.

So now she resolved to gain her husband to her side by her version of the story, and before dinner she had told him how August had charged her with being false and cruel to Andrew many years ago, and how Jule had thrown it up to her, and how near she had come to dropping down with palpitation of the heart. And Samuel Anderson reddened, and declared that he would protect his wife from such insults. The notion that he protected his wife was a pleasant fiction of the little man's, which received a generous encouragement at the hands of his wife. It was a favorite trick of hers to throw herself, in a metaphorical way, at his feet, a helpless woman, and in her feebleness implore his protection. And Samuel felt all the courage of knighthood in defending his inoffensive wife. Under cover of this fiction so flattering to the vanity of an overawed husband, she had managed at one time or another to embroil him with almost all the neighbors, and his refusal to join fences had resulted in that crooked arrangement known as a "devil's lane" on three sides of his farm.

Julia dared not stay away from dinner, which was miserable enough. She did not venture so much as to look at August, who sat opposite her, and who was the most unhappy person at the table, because he did not know what all the unhappiness was about. Mr. Anderson's brow foreboded a storm. Mrs. Anderson's face was full of an earthquake, Cynthia Ann was sitting in shadow, and Julia's countenance perplexed him. Whether she was angry with him or not, he could not be sure. Of one thing he was certain: she was suffering a great deal, and that was enough to make him exceedingly unhappy.

Sitting through his hurried meal in this atmosphere surcharged with domestic electricity, he got the notion—he could hardly tell how—that all this lowering of the sky had something to do with him. What had he done? Nothing. His closest self-examination told him that he had done no wrong. But his spirits were depressed, and his sensitive conscience condemned him for some unknown crime that had brought about all this disturbance of the elements. The ham did not seem very good, the cabbage he could not eat, the corn-dodger choked him, he had no desire to wait for the pie. He abridged his meal, and went out to the barn to keep company with his horses and his misery until it should be time to return to his plow.

Julia sat and sewed in that tedious afternoon. She would have liked one more interview with August before he left. Looking through the open hall, she saw him leave the barn and go toward his plowing. Not that she looked up. Hawk never watched chicken more closely than Mrs. Anderson watched poor Jule. But out of the corners of her eyes Julia saw him drive his horses before him from the stable. As the field in which he worked was on the other side of the house from where she sat she could not so much as catch a glimpse of him as he held his plow on its steady course. She wished she might have helped Cynthia Ann in the kitchen, for then she could have seen him, but there was no chance for such a transfer.

Thus the tedious afternoon wore away, and just as the sun was settling down so that the shadow of the elm in the front-yard stretched across the road into the cow-pasture, the dead silence was broken. Julia had been wishing that somebody would speak. Her mother's

sulky speechlessness was worse than her scolding, and Julia had even wished her to resume her storming. But the silence was broken by Cynthia Ann, who came into the hall and called, "Jule, I wish you would go to the barn and gether the eggs; I want to make some cake."

Every evening of her life Julia gathered the eggs, and there was nothing uncommon in Cynthia Ann's making cake, so that nothing could be more innocent than this request. Julia sat opposite the front-door, her mother sat farther along. Julia could see the face of Cynthia Ann. Her mother could only hear the voice, which was dry and commonplace enough. Julia thought she detected something peculiar in Cynthia's manner. She would as soon have thought of the big oak gate-posts with their round ball-like heads telegraphing her in a sly way, as to have suspected any such craft on the part of Cynthia Ann, who was a good, pious, simple-hearted, Methodist old maid, strict with herself, and censorious toward others. But there stood Cynthia making some sort of gesture, which Julia took to mean that she was to go quick. She did not dare to show any eagerness. She laid down her work, and moved away listlessly. And evidently she had been too slow. For if August had been in sight when Cynthia Ann called her, he had now disappeared on the other side of the hill. She loitered along, hoping that he would come in sight, but he did not, and then she almost smiled to think how foolish she had been in imagining that Cynthia Ann had any interest in her love-affair. Doubtless Cynthia sided with her mother.

And so she climbed from mow to mow gathering the eggs. No place is sweeter than a mow, no occupation can be more delightful than gathering the fresh eggs—great glorious pearls, more beautiful than any that men dive for, despised only because they are so common and so useful! But Julia, gliding about noiselessly, did not think much of the eggs, did not give much attention to the hens scratching for wheat kernels amongst the straw, nor to the barn swallows chattering over the adobe dwellings which they were building among the rafters above her. She had often listened to the love-talk of these last, but now her heart was too heavy to hear. She slid down to the edge of one of the mows, and sat there a few feet above the threshing-floor with her bonnet in her hand, looking off sadly and vacantly. It was pleasant to sit here alone and think, without the feeling that her mother was penetrating her thoughts.

A little ruelle brought her to consciousness. Her face was fiery red in a minute. There, in one corner of the threshing-floor, stood August, gazing at her. He had come into the barn to find a single-tree in place of one which had broken. While he was looking for it, Julia had come, and he had stood and looked, unable to decide whether to speak or not, uncertain how deeply she might be offended, since she had never once let her eyes rest on him at dinner. And when she had come to the edge of the mow and stopped there in a reverie, August had been utterly spell-bound.

A minute she blushed. Then, perceiving her opportunity, she dropped herself to the floor and walked up to August.

"August, you are to be turned off to-morrow night."

"What have I done? Anything wrong?"

"No."

"Why do they send me away?"

"Because—because—" Julia stopped.

But silence is often better than speech. A sudden intelligence came into the blue eyes of August. "They turn me off because I love Jule Anderson."

Julia blushed just a little.

"I will love her all the same when I am gone. I will always love her."

Julia did not know what to say to this passionate speech, so she contented herself with looking a little grateful and very foolish.

"But I am only a poor boy, and a Dutchman at that"—he said this bitterly—"but if you will wait, Jule, I will show them I am of some account. Not good enough for you, but good enough for them. You will—"

"I will wait—forever—for you, Gus." Her head was down, and her voice could hardly be heard. "Good-by." She stretched out her hand, and he took it trembling.

"Wait a minute." He dropped the hand and taking a pencil wrote on a beam:

"March 18th, 1843."

"There, that's to remember the Dutchman by."

"Don't call yourself a Dutchman, August. One day in school, when I was sitting opposite to you, I learned this definition. 'August: grand, magnificent,' and I looked at you and said, Yes, that he is. August is grand and magnificent, and that's what you are. You're just grand!"

I do not think he was to blame. I am sure he was not responsible. It was done so quickly. He kissed her forehead and then her lips, and said good-by and was gone. And she, with her apron full of eggs and her cheeks very red—it makes one warm to climb—went back to the house, resolved in some way to thank

Cynthia Ann for sending her, but Cynthia Ann's face was so serious and austere in its look that Julia concluded she must have been mistaken, Cynthia Ann couldn't have known that August was in the barn. For all she said was:

"You got a right smart lot of eggs, didn't you? The hens is beginning to lay more peart since the warm spell set in."

CHAPTER IV.

A COUNTER-IRRITANT.

"Vot you kits doernt of vor? Hey?" Gottlieb Wehle always spoke English, or what he called English, when he was angry. "Vot for? Hey?"

All the way home from Anderson's on that Saturday night, August had been, in imagination, listening to the rough voice of his honest father asking this question, and he had been trying to find a satisfactory answer to it. He might say that Mr. Anderson did not want to keep a hand any longer. But that would not be true. And a young man with August's clear blue eyes was not likely to lie.

"Vot vor ton't you not speak? Can't you virshita blain English ven you hears it? Hey? You a'n't no teef vot shteele I shtooes, unt you ton't kit no troonks mit vishky? Vot you too tat you pe shamt of? Pin lazint' rount? Kon you nich English shtprechen? Oot mit id do vosat!"

"I did not do anything to be ashamed of," said August. And yet he looked ashamed.

"You tidn't pe no shami, hey? You tidn't! Vot vor you loogs so leig a teef in der bentenshry? Vot for you sprachen not mit me ven ich sprachs der blainest zort ov English mit you? You kooms sneaggin heim Zaturtag nocht leig a tog vots kot kigt, unt's got his dail dween his leks; and ven I aks you in blain English vot's der madder, you loogs zheepish leig, und says you a'n't tun nodin. I zay you tun sompin. If you a'n't tun nodin den, vy don't you dell me vot it is dat you has tan? Hey?"

All this time August found that it was getting harder and harder to tell his father the real state of the case. But the old man, seeing that he prevailed nothing, took a cajoling tone.

"Koom, August, mine knabe, ton't shtand dare leig a voel." Vot tit Anderson zay ven he shent you avay?"

"He said that I'd been seen a-talking to his daughter, Jule Anderson."

"Vell, you nebber said no hoorn doo Shule, tid you? If I dought you said vot you zhoondn't zay doo Shule, I voof ehst drash you on der shpot! Tid you gwarl mit Shule, already?"

[The above story, "The End of the World," will be continued from where it leaves off here, in *Hearth and Home* for April 27 (Vol. IV., No. 17), which can be obtained of any News-dealer; or of the Publishers (Orange Judd & Co., 245 Broadway, New York), who will send it post-paid for 10 cents. The succeeding chapters of this story will be found very interesting. See page 163.

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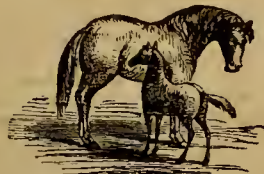
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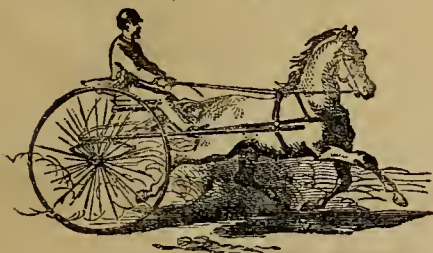
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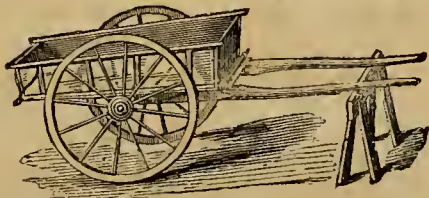
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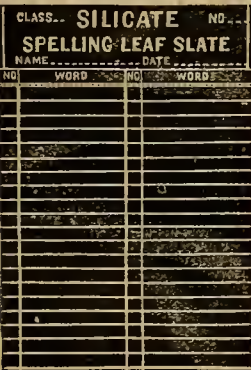
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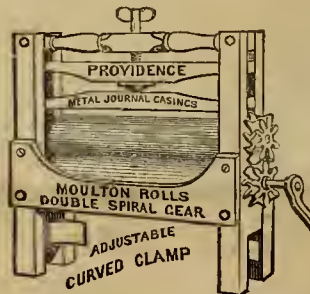
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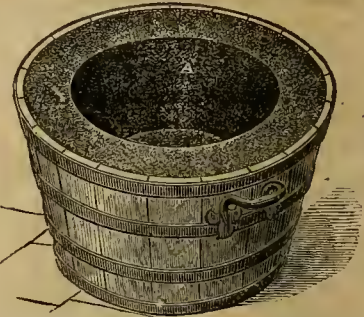
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VOLUME XXXI.—No. 6.

NEW YORK, JUNE, 1872.

NEW SERIES—No. 305.



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A SEA-SIDE FARM.—DRAWN BY G. PERKINS.—Engraved for the American Agriculturist.

Our many inland readers, when they read the title to the engraving, will look around for the farm and the farmer. They are both in plain view, and as unlike the farm and farmer of any other part of the country as the sea-shore is unlike prairie or mountain-side. From their close proximity to the sea, most of these along-shore farms are, if not sterile, at least not over-fertile, and the sweeping storms and the salt atmosphere restrict the cultivator to a few crops, though it often happens that he can grow these few in great perfection. The farmer himself is something of an amphibian, and is quite

as handy at managing a boat as a mowing machine. Nets are quite as important to him as hay-rakes, and the oyster-dredge is as much a part of his outfit as the dairy utensils. We can recall pleasant visits to more than one of these shore-farms, where, if there was not much systematic agriculture, there was a great deal of comfort. The sea which carries away so much of value from the land returns much to those who live by its side. Fish, oysters, clams, lobsters, and other articles of food are abundant and easily obtained, and the sea which furnishes the provisions also sends drift-wood to cook

them with. Fertilizers for the fields are drawn from the ever-full storehouse of the sea. Fish, sea-weed, and marsh mud all go to the compost heap, and bring abundant returns from the meadow lands and fields. It often happens that the shore-farmer carries on a mechanical trade with his agriculture, and this is either boat-building or net-making. Perhaps this kind of life does not tend to make the best sort of "scientific" farmers, but it does tend to make, what is quite important, a useful and self-reliant people, among whom we have found more culture than their rough exterior would lead one to expect.

Contents for June, 1872.

Table listing various agricultural topics such as American Cuckoos, Apple-Worm Traps, California Churn, and Market Reports, with corresponding page numbers.

Calendar for June.

Calendar for June showing sunrise and sunset times for Boston, N.Y. City, Philadelphia, and Washington, along with moon phases.

labor as effective as possible. We do not advise farmers to employ less labor. This will be the effect of high wages and low prices of farm produce.

Hints about Work.

Planting Corn.—We have had a late and hurried spring, and much land intended for corn is not yet planted. An early variety of corn will sometimes ripen planted as late as the first or even the second week in June.

Beans.—We have had a good crop of beans planted the last week of June, but as a rule it is better to plant as soon after you are through planting corn as possible.

Potatoes.—It will save much labor in hoeing, just as the potatoes are breaking the crust to harrow the ground. We have repeatedly done this with a common harrow, with marked advantage.

AMERICAN AGRICULTURIST.

NEW YORK, JUNE, 1872.

Some of the readers of the American Agriculturist were vexed with us for saying that wages would not be lower. We fully realized that wages were far higher than farm produce; but we could not shut our eyes to the fact that, while so many new railroads were being constructed—while contractors were clamorous for men, and bidding against each other—farmers, though employing more labor than any other class, could not control prices.

INDEX TO "BASKET," OR SHORTER ARTICLES. Am. Jersey Cattle Club, Living Fence-Posts, Applying Hen-Manure, Maggots on Sheep, Arkansas Moving, Manure for Potatoes in Artificial Incubation, California, Ashes from Bark, Marsh Hay, Bean Crop, Mixed Phosphates, Bearded Straw, Mixed Paints, Blindness in Horses, Males, Large or Small, Borers, Natural History Journals, Breeding Hens, N. H. Board of Agric., Buckwheat on Fallows, N. H. Board of Agric., Burning Stumps, Navicular Disease, Bush Strawberries, Oats, Sowing, Butter don't Come, Odd Eggs, Cabbage Lice, Packing Butter, Carbolic Acid, Phoenix Island Guano, Cashmere Goats, Pickles, Cheese-Making, Piling Manure, Chester Co. Corn, Polishing Flour, Chicken Cholera, Potato Starch, Chip Manure, Poultry Bulletin, Cleaning Cesspools, Preserving Eggs, Clover Seed, Premium List, Colorado, Prices of Butter, Compost Heaps, Pruning, Concrete Buildings, Purify the Heimery, Corn in Drills, Ragweed, Crude Petroleum, R.R. Bonds, Cutting Clover, Reaper and Mower, Dept. of Agriculture, Ringing Hives, Dissolving Bones, Scales on Fowls' Feet, Do You Want?, Setting Raspberries, Drawing Book, Sheep in England, Dyeing Green, Soda and Bones, Early Lambs, Soiling Crop, Every Physician, Spinning Wool, Farm for Nothing, Stain for Bricks, Feeding Cornstalks, Steaming Feed, Feeding Oxen, Stretches in Sheep, Fine Lettuce, Stump-Puller, Fodder Crop, Swamp Muck, Fool Air in Wells, Subsoiling, Gardening in June, Sundry Humbug, Garget, Tea Plants, Good Chester White, Testing Bone Flour, Good Common Cow, The Best Mower, Grubs in Cattle, The Moon, Guano, Thorough-bred Hogs, Gutter in Cow-Sheds, Three Horses on Mower, Hen-Houses, Treating Manure, Hint for Mechanics, Uneven Pulling, Holding up Milk, Unfermented Grape-Juice, How Many Eggs?, Value of Feed, Humbugs, Sundry, Washing Wool, Hydraulic Cement, Weeds in Iowa, Iodine Ointment, Weight of Cotswolds, Iron Vases, Western Farming, Kidney-Worms, What is Muck?, Knitting Machine, What Ails the Pig?, Large Pig, Little Work, What the Physicians say, Lice on Cattle, White Mustard Seed, Long Wools in Large Flocks, Windmill Wanted.

weeds from starting. When the stems begin to run, set the cultivator narrower, and put on wings, to throw a little soil towards the plants. Repeat this two or three times, at intervals of a few days, and thus make a broad hill. If the land is tolerably clean, and the harrow was used freely, the cultivator will kill and keep down the weeds with a little aid from the hoe. Any weeds that escape, should be pulled out of the hills by hand. A weedy potato-field is a disgrace. The weeds retard the growth of the plants, and greatly increase the cost of digging. As a rule, farmers make a mistake in not planting their potatoes earlier. But a fair crop of some early variety may be obtained when planted the first week in June.

Cultivating Corn.—This is the most important work of the month. Great improvements are yet to be made in our methods of cultivating. But whatever method is adopted, the great point is to mellow the soil and kill every weed. It is no exaggeration to say that, taking the country through, the weeds rob us of half the profits of our corn crops. Study to kill the weeds in the most expeditious and least costly manner—but kill them. Do not wait for them to grow above the ground. The best time to kill weeds is as soon as the seeds begin to germinate. Use harrow, cultivator, or any other implement you prefer—only use it early and frequently. Our hot sun will kill the young plants by the million in a few hours. Weeds are like fire, easily controlled if taken in time, but if they get the start of us it is difficult to subdue them.

Mangel-Wurzel.—These may still be sown. Drill in rows, $2\frac{1}{2}$ to 3 feet apart. Four pounds of seed is required per acre. If the land is rich and the plants come up early, single out the plants in the rows, 15 inches apart. Later crops should be left thicker, say 12, 8, or 6 inches apart, according to the time the plants have to grow.

Turnip-Beetles.—Make the ground very mellow for this crop. Drill in rows $2\frac{1}{2}$ feet apart, 2 to 3 pounds of seed per acre. When in the rough leaf, thin out with a hoe, leaving single plants 12 to 15 inches apart. Sow as early this month as the land can be got in good condition. It is very important to sow the seed immediately after the land is plowed for the last time. The best, if not the only remedy for the turnip-beetle or "fly" is to have the land rich and mellow, and to deposit the seed in fresh, moist, warm earth, not over half an inch deep. The main point is to get a quick growth until the plants are in the rough leaf, when there is little danger from the fly. Dusting the plants while wet with rain or dew, with slaked lime, helps to check the ravages of this great pest of the turnip-grower.

Summer-Fallows for Wheat.—Tenacious clay loams are the soils most benefited by summer fallowing. To make thorough work such soils should be plowed three times. Either early in the spring (or, better still, the fall previous), and again the middle or end of June, and again just before sowing. The cultivator, roller, and harrows should be used freely, to kill weeds and mellow the soil. On light land, once plowing in June, and merely keeping the land clean with a cultivator and harrow, makes a good seed-bed. Whatever plan is adopted, it should be understood that no vegetation of any kind, in our dry climate, should be suffered to grow, as the plants pump up large quantities of water from the soil, and the land will be nearly as dry as if a spring crop was grown. See article "On Fallowing" in this number of the *Agriculturist*.

White Mustard.—The land for this crop must be made as fine and mellow as possible. If intended to plow under or feed off, and to sow winter wheat, it should be sown the early part of this month. But it will mature if sown as late as the middle of July. Sow from four to six quarts per acre, broadcast, and cover with a light harrow or roller.

Winter Rape or Cole-Seed requires the same treatment as mustard. It is a crop intended to be eaten off on the land by sheep. It is not injured by frost. For winter feed, sow from the middle of June until the middle of July. From 3 lbs. to 5 lbs. per acre is sufficient seed. It is better to drill it in and cultivate, but a fair crop can be obtained by sowing

broadcast. It is worthy of more extended cultivation, especially by breeders of mutton sheep.

Horses.—Give the horses some green clover, at noon, and cut it with a mowing machine, and rake it up with a horse-rake. It is little trouble, and as hay is scarce and high, it will pay. It is a great mistake to suppose that horses will not eat hay if they are allowed any green food. We have an object in advising you to cut it with the machine. You will then have your machine in readiness for haying.

Cows.—If the pastures are scant, or the grass too succulent, it is a good plan to allow the cows all the hay they will eat at night. And if cut, moistened, and a little bran or corn-meal mixed with it, so much the better.

Sheep.—It is a good time to weed out old and poor-bred sheep from the flock. If in fair condition, they can be sold to the butcher at good prices.

Pigs.—If possible, let all the pigs, old and young, have the run of a clover or grass pasture. Breeding sows of a good breed will keep plenty fat enough on clover alone; but young, growing stock should have some corn, every day, in addition to the clover. See that they have an abundant supply of fresh water, and let them have access to a mixture of salt, ashes, charcoal, and sulphur. Get a good, thorough-bred boar now for next winter's use. Many farmers who intend to do so, put it off until it is too late. Order at once. The best thorough-breds can now be had for \$20 or \$25 each, and they will pay for their cost ten times over.

Rainy Days.—Get ready for harvest. See that the machines, rakes, scythes, etc., are in perfect order. Get a barrel of crude petroleum, and wash or paint all the wagons, plows, harrows, and everything that is exposed to the air. They will last as long again. Do not mix anything with the oil.

Work in the Horticultural Departments.

The warm weather of June brings an abundance of flowers and fruits. Care and labor are necessary to keep the ground in proper order, so that the growth of the plants is not checked. Constant cultivation and stirring of the soil is necessary for all crops, whether of the farm or garden, but this labor is abundantly repaid by the large crops of fruits and vegetables, which reward the careful gardener. The crop of strawberries will be ready this month, and then will follow in rapid succession the other small fruits, so that there is a constant series of agreeable surprises in the ripening of some choice fruit or the flowering of a rare plant.

Orchard and Nursery.

The principal work this month in the established orchards is to thin the fruit and keep the trees free from insects. An orchard should be carefully plowed several times each season, and if any crop is raised between the rows of trees, an extra quantity of manure should be applied, so that the growth of the trees will not be interfered with.

Thinning, though not generally practiced among fruit-growers, ought to be more regarded, as the fruit from a tree thus thinned is much finer, and will easily bring a higher price than if the tree is allowed to ripen all that sets. After the fruit is fairly set, one third to one half should be thinned out, and the sooner the better.

Insects.—Do not allow any caterpillars to remain upon the trees long enough to destroy the foliage. Nests of the Tent-caterpillars can be removed either early in the morning or at night, by the bare or gloved hand, and nests that are on the extremities of the branches can be reached by means of a long-handled brush, dipped in petroleum.

Slugs which attack the leaves of pear and cherry trees may be destroyed by dusting lime upon them.

Grafts.—Look to the growth of grafts set this spring, and if there is room for only one, remove the second one entirely, and pinch back the growth of the remaining one, if very vigorous.

Pruning.—June is thought by many to be the best month for pruning, as the wounds heal very readily.

Others think that the removal of so much foliage checks the growth of the tree. If one can spare the time now to prune his orchards, it may be done at the present as well as at any other time.

Young Trees, if carefully watched and kept in proper shape by pinching, will seldom need pruning, or at least more than can be done with a knife.

Seedlings will need to be kept clear of weeds, so that they may make a healthy growth. Young seedlings of evergreens and deciduous forest trees will require shading for the first season.

Fruit Garden.

Strawberries.—If the strawberries were not mulched last spring, place cut hay or straw around each hill, to keep the fruit from touching the ground, else the rains will wash the dirt upon the berries, and render them gritty and unfit for use.

Gooseberries.—The ordinary way for marketing is to pick them when green, as the ripe fruit seldom amounts to much in this country. The fruit may be freed from sticks and leaves by allowing them to roll down a trough, slightly inclined.

Currants.—Place a mulch of hay around the roots; it will save much time in destroying the weeds, and also give a much finer quality of fruit. Cuttings planted out last month will need to be hoed, and kept free of weeds.

Grape-Vines planted this spring should be allowed to produce only one cane, and this must be tied to a simple stake, taking care not to injure the buds. Bearing vines require to be pinched during the growing season, and the fruit thinned, to prevent the vine from exhausting itself. Apply sulphur with a bellows, on the first appearance of mildew.

Raspberries and Blackberries.—Tie the canes to stakes, or, what is better with raspberries, stretch a wire along the row, and secure it firmly by means of a strong post at each end; the canes can then be secured to the wire, and so spread out as to allow the sun and air to reach all parts.

Dwarf and Cordon Fruit Trees.—Keep these carefully pinched and tied to their supports, and if they are old enough to fruit, thin out when fairly set.

Kitchen Garden.

June is a month for weeds, and only by constant cultivation can we keep the crops free from them. Where the cultivation can be performed by horse-power, much trouble is done away with. During a dry season, if the soil is frequently stirred, much good is done to the crops.

Asparagus.—Do not allow the bed to become filled with weeds, as much of the good effect of manuring is lost. It requires but little time to hoe up the weeds when small. The weeder described in the December number of last year is an excellent tool in a soil tolerably free from stones, as more work can be done with it in the same time than with any other implement we have ever used.

Beans.—Bush and pole varieties may still be planted early this month. Hoe those already up.

Beets.—Weed and thin; the young plants pulled out will make good greens, if cooked as spinach.

Cabbages.—The early sorts will now be ready for the table or market, and the later kinds will be ready to transplant. Sow seed for late sorts, and as soon as large enough, transplant to ground from which early peas and potatoes have been taken.

Carrots.—Keep the ground well cultivated between the early sorts, and sow seeds for general crop.

Celery.—The plants in the seed-bed must not be allowed to get weedy.

Corn.—Sow once in two weeks for a succession; the late sorts are more prolific than the early kinds. Keep free from weeds, and break away suckers.

Cucumbers.—Plant in hills, 6 or 8 feet apart each way, and use plenty of seed, to allow for the bugs.

Egg-Plants require plenty of heat, frequent hoeing, and occasionally a watering of liquid manure.

Lettuce does not usually do very well when sown so late, unless it can be in a partially shaded place.

Melons of all kinds require the same treatment as cucumbers.

Onions must be thoroughly weeded, and the soil stirred often, to secure a profitable crop.

Parsnips.—Keep the soil loose and free from weeds until the leaves cover the ground and prevent working.

Peas are not usually very successful when sown late, on account of the mildew. If planted at all, cover with 5 or 6 inches of earth, to prevent drying up.

Rhubarb.—Cut off the flower-stalks, as they needlessly exhaust the plants.

Ruta-Bagas may be sown the latter part of the month, and if there is any trouble from insects, dust with ashes, slaked lime, or plaster.

Spinach.—The New Zealand is the best for summer use, and should be planted in hills 6 feet apart, with three or four plants to the hill. Ordinary spinach runs to seed soon during the summer.

Salsify needs the same cultivation as recommended for parsnips.

Sweet Potatoes do well in most of the Northern States. The first week in June is early enough to plant. A well-manured ridge, about one foot high, should be prepared and the sets planted one foot apart. We have found the Southern Queen to be the best sort, but the Nansmond is also good.

Tomatoes must have their excessive growth kept in check by pinching, in order to get a good crop of fruit. Some sort of a trellis should be provided for training the plants upon.

Flower-Garden and Lawn.

Lawns will require to be cut every week or ten days, and the grass should be left to serve as a mulch and manure. Remove all weeds as soon as they show themselves. See article on page 222.

Bedding Plants ought to be all out now, and the weeds kept down until the plants cover the beds.

Tuberosees, started in pots, may be turned out now in a warm, rich spot, and as soon as the flower-stalks appear, tie them to small stakes, to prevent the wind from breaking them.

Bulbs.—After the leaves of the spring-flowering ones have died, take up the bulbs, and store in some dry place, and keep away from rats and mice.

Roses and Climbers.—Keep all climbing roses, etc., tied to the walls or trellises, and do not allow them to straggle about.

Greenhouse and Window Plants.

Most of the greenhouse plants will be turned out, or at least such as will flourish out of doors. The plants remaining in the greenhouse ought not to be neglected, but should be carefully watered and shaded from the sun. Plants that do not succeed if planted in the open ground, may often be plunged, pot and all, and when ready to remove them to the greenhouse in the fall, they can be easily raised and re-potted. This is a proper season to look after the next year's supply of manure and soil for potting purposes; sods, piled up and turned several times during the summer, make the best potting soil.

Commercial Matters—Market Prices.

Gold has advanced to 114 1/2, closing May 13th at 113 1/2. There has been an unusually active demand reported for Breadstuffs since our last, for home use, shipment, and, to a considerable extent, on speculative account, at a sharp and quite general rise in prices, particularly for Flour, Wheat, Rye, and Corn, which have been in most urgent request. Southern millers have been very free purchasers of wheat. Corn has been sold very liberally for forward as well as prompt delivery. The backwardness of canal navigation and the diminishing supplies of flour and grain at the sea-board have tended to strengthen values. The dealings in Rye have been mainly speculative. The general market closed strong and buoyant, influenced, in part, by the firmness in Gold, and the favorable foreign advices. Provisions have been more sought after and quoted rather dearer in many instances. New Butter and Cheese have been arriving more freely, and meeting with a readier sale. Eggs have declined materially, under

large receipts. Wool has been less active and quoted easier in price, but closes more steadily. Tobacco has been in more demand, and firmer. Hay has been unusually scarce, and in quite urgent request at much stronger prices. Hops, dull. Grass Seeds, quiet.

Northern Pacific Bonds.—Messrs. Jay Cooke & Co. report the sales of Northern Pacific Gold Bonds in the United States during March and April at \$1,891,900.

The following condensed, comprehensive tables, carefully prepared specially for the American Agriculturist, show at a glance the transactions for the month ending May 14, 1872, and for the corresponding month last year.

TRANSACTIONS AT THE NEW YORK MARKETS. RECEIPTS. Flour, Wheat, Corn, Rye, Barley, Oats. SALES. Flour, Wheat, Corn, Rye, Barley, Oats. Comparison with same period at this time last year. RECEIPTS. Flour, Wheat, Corn, Rye, Barley, Oats. SALES. Flour, Wheat, Corn, Rye, Barley, Oats. Exports from New York, Jan. 1 to May 10. Stock of grain in store at New York.

CURRENT WHOLESALE PRICES.

Table with columns for April 15 and May 14 prices. Items include Flour, Wheat, Corn, Rye, Barley, Oats, Hops, and various oils and seeds.

New York Live-Stock Markets.

Table showing weekly receipts and prices for Beef, Cows, Calves, Sheep, and Swine. Includes columns for week ending, receipts, and average prices.

Beef Cattle.—Grass cattle have been coming forward very freely of late, making the supply unusually large, especially for so early in the season. The quality is very fair. Many distillery-fed cattle have recently been sent

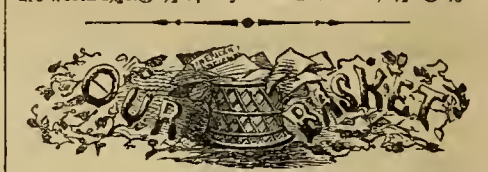
in, and there are more to come. The impression is general that we are using up stock which ordinarily comes to market later in the season, and that we may expect a lighter run in midsummer. The market has been somewhat variable, first declining, and then advancing, followed by a temporary decline, and now the rates are in favor of the seller again. There is a large out-of-town demand for beef. Some of the latest arrivals of Texas cattle, fed two years in Missouri, show very fair quality. They sell at 11c. @ 11 1/2c.

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

Table showing price ranges for large sales of cattle, including April 15, April 22d, April 28th, May 6th, and May 13th.

Milk Cows.—The supply of cows is rather light, but quite sufficient for the demand. The generally cool weather lessened the demand for milk, while fine grass caused a full yield, and milkmen had little occasion to add to their stock. Trade was very dull until within the last week. Now there is a little briskness again. Common cows sell at \$30 @ \$45, fair at \$55 @ \$65, and good to prime at \$70 @ \$80. Calves.—The greatest glut is just over, and calves begin to improve after very hard markets. The supply steadily increased up to last week, and many live calves were sold at 5c. @ 5 1/2c. 3 lb., live weight, with prime at 7c. @ 7 1/2c. Those low rates begat a heavy demand, and, as the arrivals are now lighter, they sell off readily. Quotations of dressed are dropped, the weather being too warm to send them from the country. Some of the latest receipts were seized as unfit to eat. Good to prime milk-fed live calves are worth 7 1/2c. @ 8 1/2c. 3 lb.; common to fair cull at 5 1/2c. @ 7c. Sheep and Lambs.—There has been a great falling off in receipts of sheep, the season of lambs preventing sending the ewes forward, while farmers preferred keeping most of their flocks until after the shearing season. The bulk of the sheep now coming forward are shorn, and quotations are for each. Wool lots are worth 7 1/2c. @ 10c., a few choice reaching 10 1/2c. Lambs are scarce and in demand at \$6 @ \$8.50 per head. Poor to medium sheep are quoted at 6 1/2c. @ 7 1/2c. 3 lb.; fair to good at 7 1/2c. @ 7 3/4c.; and lambs at 13c. @ 18c. 3 lb., live weight. Swine.—The weather, or something else, in sending hogs forward too fast for use, saved at very low rates. The market steadily declined until last Saturday, when 5 1/2c. was about the average price for slaughtered. Just now there is a little firmness, but the rates are still low. Live are worth 4 1/2c. @ 4 3/4c.; city-dressed Western, 5 1/2c. @ 5 3/4c.

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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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 Volume Thirty are now ready. 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.

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.

Thorough-bred Hogs.—A "Farmer," Northampton Co., Pa., asks what is the reason thorough-bred hogs don't look any better than common stock in a year or two; they run down if not taken extra care of, as

bad as any common sort.—Just so; why not? There is nothing in any improved stock to make them free from the consequences of neglect or starvation. If a farmer would succeed with thorough-bred stock, or any other, he must give them the best feed and care; it is this only that pays in this branch of farming, and the same is true of all other branches.

The Best Mower.—"H. W.," Alleghany Co., Pa., asks which is the best mower.—Our preference is the Buckeye, but there are several others so nearly equal to it, that facility in procuring them would with us have great weight in purchasing. There is very little difference, if any, in the prices of the leading machines. In selecting a machine to offer as a premium, we after carefully considering the matter, fixed upon the Buckeye, and after several years' experience have seen no reason to regret our choice.

Mixed Paints, ready for use, are offered by various manufacturers under different trade names. We learn that the painters attempt to throw discredit on these. There is no reason why paints put up in this way should not be as good as any others. We have tried some of them to our entire satisfaction. There may be poor paints of this kind in the market, as there are adulterated paints of the common sort, but those prepared by reputable manufacturers are a great convenience to people in general, whatever the painters may think about them.

American Jersey Cattle Club.—The fourth annual meeting of this association was held in Baltimore, April 17th. S. J. Sharpless, of Philadelphia, was elected President; G. E. Waring, Jr., of Newport, R. I., Secretary and Treasurer; and J. Howard McHenry, of Pikeville, Md., Andrew Robeson, of Boston, and T. J. Hand, of Sing Sing, N. Y., Executive Committee. The 2d volume of the Herd Register will be issued this summer, and entries for it should be sent at an early day to the Secretary, who will furnish blanks and instructions on application. The essay on Jersey Cattle, which was prepared by the Secretary for the first volume, will soon be published in a pamphlet form by Orange Judd & Co.

What the Physicians say—A Letter that tells its own Story.—"New York, 249 West 42d Street, April 22d, 1872.—Messrs. ORANGE Judd & Co.: Gentlemen: At a meeting of the 'NEW YORK MEDICAL UNION,' held on the 20th instant, it was resolved and adopted: 'That as an expression of personal and professional respect for a publisher who will battle against fraud and crime, under the guise of medical advertisements, as Orange Judd & Co. have done, in the case of Byrn against Judd & Co., we subscribe *en masse* to the *Hearth and Home*.' The Medical Union having authorized me to attend to the execution of the above resolution, I do myself the pleasure to inclose check for the amount of the year's subscription, together with a list of the names and addresses of the members, and beg you will order the paper sent to those addresses, commencing with the fourth volume. With very great respect, I remain yours, STEPHEN ROGERS, M.D."

Holding up Milk.—L. Pierce says he has found his cows will always let down their milk when inclined to hold it up if he gives them some salt to lick.

First Mortgage Railroad Bonds on any line of railroad having a present or prospective fair business are always considered good investments, and usually rise above par as soon as a road is completed. Good bonds are offered in our advertising columns by Messrs. Leonard, Sheldon & Foster. The Canada Southern Railroad is not only to be a trunk line, but it also passes through the finest agricultural region of Canada. The Cayuga Lake Railroad will have a very large coal business, while it traverses the splendid farming country along the margin of Cayuga Lake. At present, these bonds are offered at 90 and accrued interest.

Combined Reaper and Mower.—"W. J. L.," Wadesboro, N. C., asks if we would advise him to get a combined reaper and mower, or if separate machines would be on the whole the cheapest.—We have found the combined machine inconvenient, and would use separate machines whenever possible to procure them.

Natural History Journals.—"W. D. W.," Westmoreland Co., Pa. We have not, since the suspension of the American Entomologist, any journal devoted to Entomology. The Canadian Entomologist, monthly, is published at \$1.25 a year (U. S. currency), by Rev. C. J. S. Bethune, Port Hope, Ontario, Canada. The American Naturalist, published at Salem, Mass., monthly, at \$4 a year, treats on all branches of Natural History, including Entomology, and is a valuable work.

For other **Basket Items** see page 233.

Large Pay for Little Work,

and that, too, for rainy days, evenings, odd spells, or for a constant occupation—for MEN, WOMEN, and CHILDREN—anywhere, and everywhere.... Over 14,000 Persons have found it so; and here is how it is: The Publishers offer 108 Premiums, every one of them a first-rate article—just as good as so much money—for use or for sale. (See list on page 206, and send for a free, full description, if not having one.) Now, to get one of these articles without money, it is only necessary to solicit and forward a few subscribers for the *American Agriculturist* or *HEARTH AND HOME*, or for both of them. The number required is given against each premium. It is easily done. Show a copy of the papers, explain their value and cheapness—the cost being only a few cents a week. Few Post-Offices have around them less than twenty-five families, and many have hundreds, that would be profited in *mind* and *pocket* by reading one or both of these journals. They only need to have this shown to them. Any enterprising person, old or young, can do this just as easily as it has been done by the 14,000 who have already secured the premiums. Human nature and human wants are similar everywhere. Read page 208. These premium offers will remain open one month yet (to June 30), and June is a good month for getting them. Partly filled premium lists can be completed, and new ones be begun and completed. A subscriber a day will get a large premium. Many can get several each day or week. Begin to-day. Any one taking hold with a will, determined to succeed, will succeed. The Premiums are open to all.

Washing Wool.—"Maryland" wants the best method of washing wool, so that it will rate as "tub-washed," and if a Doty Washer would do the work.—"Tub-washed" wool is washed in soap and warm water until the dirt and grease is removed. As there is no rubbing, but merely continued squeezing for a short time, a washing machine is hardly needed. By placing the wool in water to soak for half a day previously the work is made easier. It is a good plan to run the wool through a "wringer" after washing.

Three Horses on a Mower or Reaper.—There is no way of attaching three horses abreast on a mower, except by placing the three-horse evener a foot or fifteen inches on the left-hand side of the pole. Any contrivance that will do this, will answer the purpose. Sometimes a piece of wood a foot or so thick, is firmly bolted on to the pole, and the evener is attached to this. We have never known grass so heavy that a pair of good horses will not cut it easily with a Woods or Buckeye machine. On a reaper we have sometimes found it well to put on four horses, attaching the first pair to the ead of the pole. If steady horses, one man can drive four as easily as three. If we had a mower that cut a swath wide enough to require three horses, we would put on four, and then go ahead at a good steady pace.

New Hampshire Board of Agriculture.—This Board was organized in 1870. It has held thirty meetings, and consumed forty days and evenings in discussion of questions of interest to farmers. Exchanges of reports and proceedings of kindred associations will be gladly made. Chairman, Moses Humphrey, Concord; Secretary, James O. Adams, Manchester.

Weight of Cotswold Sheep.—"C. A. L.," of Vermont, asks, "What is the largest Cotswold sheep you remember to have known?" This is a point on which we have never felt the slightest interest. Big oxen, big sheep, and big hogs have never had any attraction for us. A Cotswold sheep that will weigh 200 pounds at 14 months old is a far better test of a breeder's skill than one that will weigh 400 pounds at three years old. It is rare for a well-bred Cotswold to weigh over 350 lbs.

Clover Seed.—On rich limestone land, clover seed often proves one of the most profitable crops, in proportion to the labor, that can be raised on the farm.

Some good farmers think it impoverishes the soil, and this may be to a certain extent true, but if the money obtained for the seed is expended in purchasing bran, cotton-seed cake, or other food to feed out to animals next winter, the extra quantity of the manure so obtained will do far more towards enriching the farm than the growth of the clover seed will exhaust it. If you do not need the field for pasture, therefore, we would certainly recommend you to let it produce seed. Mow the first crop early and evenly. This is all that need be done until the seed is matured. If the clover was plastered in the spring, it is not well to sow any more on the crop left for seed. It sometimes produces such a luxuriant growth that the seed will not ripen. Even in this case, however, the crop can be mown for hay.

Ashes from Bark.—"J. R. M.," Flint Hill, Va., asks the value of the ashes from tanners' waste as compared with the value of those from wood.—The difference consists mainly in the lesser amount of potash in the ashes of bark, but as they contain some potash, also soda, phosphoric acid, and a large quantity of lime, they have a sufficient value to make them a cheap manure at eight cents per bushel.

Long-wooled Sheep in Large Flocks.—Some of our agricultural writers are still insisting that "one hundred" long-wooled sheep can not be profitably kept on one farm. They say a flock of forty or fifty may be so managed as to keep healthy. Arguments are wasted on such men. They have yet to learn the difference between cause and effect.

Buckwheat on Summer-Fallows.—On sandy soil that is being summer-fallowed for wheat, it is perhaps advantageous to sow buckwheat, and turn it under for manure; and on very heavy clay soil the same practice is sometimes resorted to for the purpose of making the soil more porous. But on ordinary loamy land we think the buckwheat would do more harm than good, as its growth robs the soil of moisture, and if we have dry weather in the fall, the wheat would probably not start as well as it would on a good bare fallow.

Large Grade or Small Thoroughbred Males.—"Would you carry your preference for thorough-bred males so far as to prefer a small pure-bred Shorthorn bull to a large, handsome, well-formed grade Shorthorn bull?"—Certainly, we would. The late Sir Charles Knightly once said: "No bull, if good enough, is ever too small." You may get good calves from the grade bull, but the tendency is towards deterioration. If you would improve your stock, you must resort to pure-bred males, and get the best you can afford.

How to Remove Foul Air from a Well.—Never go into a well without first lowering a candle into it. If it goes out, you may know that there is carbonic acid in the well. This gas is heavier than the air. The way to get it out is, to warm it in some way until it is light enough to ascend. This may be done by lowering down a tin pail of boiling-hot water with a rope, and moving it up and down in the dead air, or below the point where the candle goes out.

SUNDRY HUMBBUGS.—Several physicians write desiring us to print in pamphlet or book form a full report of Byrn's Libel Suit against us, for the particular use of the medical and legal professions, as much of the testimony is not fit for a general publication. It would doubtless be a valuable document, but without a large demand in advance we are hardly warranted in incurring this further heavy expense. The testimony of the witnesses, on the final trial, alone covered nearly 300 pages of large legal-cap paper. The whole proceedings, preliminary, interlocutory, various rulings, etc., all forming a part of the case, and necessary to a full report of it, would require a large volume. The condensed report given in a 16-column supplement to *Hearth and Home* for April 20th (No. 16), presents the important features and results, and a copy of that paper (which can be procured post-paid for 10 cents) should be in the hands of every physician at least, and would be very useful to every other person.... If the good people of Hinsdale, N. H., do not take hold and clear out from their midst the vendors (or one vendor under various names) of vile publications and sundry clap-traps, their fair town will have a taroished reputation throughout the country, and the one general watchword of the press will be: "Beware of any and every circular, document, or advertisement from Hinsdale, N. H.!" The so-called "New England Book Co.," is a libel on the name—with its advertisements of amorous books, pictures, medicines, etc. Parents write us that these circulars, setting forth vilely attractive books and pictures, are mailed directly to their sons

scarcely a dozen years old. . . . A swindler, calling himself Thomas D. Thorp, 737 Broadway, New York, is sending pretended notes for \$965 each to multitudes of parties at the South and West, with neatly lithographed letters, stating that he has failed, and wishes to sell these notes out of the State before he is examined by his creditors. He offers a large discount, and only wants the money when the notes are paid at the Park Bank, New Orleans, except \$5 down, to make the sale good. This \$5 is of course all he expects to get. It would seem that anybody having "gumption" enough to accumulate \$5, and to know what a note is, ought to be wise enough to escape this swindle. Yet we suppose there are people unsophisticated enough to bite the bait, or the enterprise would not be carried on. The small print, on what appears to be an Internal Revenue Stamp on the note, shows that it is not such a stamp at all. . . . Itinerant doctors circulate in many sections of the country, stop here a few days and there a few days, put out flaming circulars and advertisements, heralding their wonderful pedigree, antecedents, and superhuman skill; they eclipse all slow-going regular physicians, draw around them ignorant, trusting people with imaginary diseases which are cured by faith and gummion, and then they disappear for a season, to reappear in the same rôle again, if they have not killed too many people in a previous round. Every such itinerant "doctor" is a quack of the first water. . . . Those who have read our previous cautions, will not lose their money by sending \$5 to "T. Williams, M.D.," 5 Clinton place, New York, for his recipe for "nervous debility" and —, etc. There is no chartered Medical and Surgical "Institute" having any such agent as T. Williams, or any other. . . . J. H. Reeves, of 78 Nassau street, is too well known to our old readers to need any further showing up, under whatever guise he operates with this name. At one time he offers love powders (cantharides) to awaken illicit desires, and follows with offers of remedies for the effects of excesses—a bane and antidote. . . . J. T. Norris, whose name appears on a large catalogue as "proprietor" of the "Mohawk Small Fruit Farm," Springfield, Ohio, is so much in favor of one "womac's rights," that he vests his property in his wife, and after himself ordering goods and chattels of various kinds from various places, fails to pay for them, and has no property of his own. Nurserymen and other dealers who may receive his orders will do well to make a note of this. If the statements furnished to us be facts, the laws of Ohio ought to be full enough and stringent enough to incarcerate him as a swindler. . . . The "National Benefit, in Aid of Needy Families of Soldiers and Sailors," etc., at 267 Broadway, is another of the plausible lotteries that all good people should shun, no matter how many U. S. Senators may be represented as indorsers of the scheme. This appears to be an individual affair, ostensibly gotten up in aid of another *bona fide* movement for a like object, and the indorsements for that appropriated for this one. . . . Pity it is that there should be people ignorant enough to read and believe Mrs. Ver Plank's story about "Vinegar of Iridin," so ingeniously illustrated and set forth by A. J. White, of 319 Pearl st., New York, who tries to dodge Judge Brady's decision by saying he does not sell this stuff as a specific, though his medical sheet asserts it to be almost a specific for sundry diseases. . . . The Queer, or Sawdust, or pretended counterfeit money dealers still operate, the largest nest being at 16 S. nth Fifth avenue, ostensibly under such names as M. W. Anstie, alias W. E. Raymond, alias Geo. Danvers, alias Evan Green, alias James Price, alias Earnest Hines; C. A. Williams, corner Broadway and Fulton street; B. B. Wells, 23 Bowers, who implores you to come on and count out the money yourself, and will pay half your expenses. These fellows like to get a greenhorn into their dens, where they can, by aid of bogus policemen, strip him of his last dollar. James Price, 28 West 4th st., advertises (and several otherwise respectable newspapers admit him) "\$1,000 a Week, and an Immense Fortune," etc., all of which is to get names of parties to be swindled by pretending to send them good counterfeit money which is never sent. Turner & Wells mail letters in New York to be answered at 220 Chestnut st., Philadelphia, offering \$5,000 in perfect counterfeit for \$35. Of course, like all others of this class, they pocket the \$35, and send nothing, unless it be a box of sawdust or old paper, with a C. O. D. bill for more money, and a letter in advance describing the fine money in the box, so as to allure the victim to take it out of the Express office and pay the bill. Among the names of these operators we have Geo. Harrington, Monument square, Baltimore, Md., alias Sidney Messenger, corner John st. and Broadway, New York. . . . If any of our readers risk their time and money (a little money is always required *in advance*) in the great offers for employment, agencies, etc., emanating from three or four towns and cities in Maine, they will have to "learn wisdom by experience." The Young Men's Christian Associations of that State are doing something at investigating these concerns. We hope they will hurry up and expose the whole tribe, as they have done with some of them.

Knitting Machine.—R. Sproul, Texas, wants to know which is the best knitting machine for ordinary use.—We prefer the "Bickford" machine.

Fodder Crop.—"N." is going to be short of hay. What is the best crop he can sow for fodder, and how should it be sown?—Corn will give the greatest yield of any known fodder crop. Sow at once in drills three feet apart, grains about an inch apart in the drill, on rich ground, and cultivate until it completely shades the ground. Four tons of dry fodder, at the least, may be expected per acre.

Spinning Wool.—"S.," Velasco Co., Texas, asks for the most useful home machine for spinning wool, and the cost.—The simplest, and probably the best, is the common spinning-wheel; it costs from \$5 to \$10.

Living Fence-Posts.—"C. E. K.," Olmstead Co., Minn., having found that fence-posts rot at the longest in ten years, asks if it would injure trees to have wires fastened to them or go through a hole in the center, and thus have living fence posts. If trees were planted in rows at proper distances, the fence wires might be fastened to them with staples without any injury. A hole bored through the tree would in a short time close on the wire, and hold it fast if it did not injure the tree.

Gutter in Cow-Sheds.—"G. C. B.," North Platte, Mo., asks what should be the width and depth of a gutter behind the cows in a stable.—It may be eighteen inches wide and six inches deep. This will be deep enough to prevent the cows from standing in it. Square words and answers to puzzles should be sent direct to Aunt Sue, P. O. Box 111, Brooklyn, N. Y.

Mammoth Chester Co. Corn.—Thos. Wood, Doe Run, Pa., says the Mammoth Chester Co. Corn is nothing but the common corn of that locality. It is no new variety, but corn has been a little better fertilized and grown in that county than elsewhere, and consequently has improved. There is no advantage gained by purchasing it for seed over any other corn, which might be equally good if as well cultivated.

Ragweed.—"Wm. McM.," Venango Co., Pa., asks how to destroy Ragweed.—Ragweed is one of the easiest weeds to destroy. It is an annual, and if prevented from seeding can be overcome. If the soil is very foul, it would be well to summer-fallow it.

Subsoiling.—C. W. Houck, Ralls Co., Mo., writes that he has tried running a subsoil plow in the rows where corn or potatoes were to be planted, and gained an astonishing increase in the crop. This is the general testimony in regard to subsoiling. No soil can be injured by the deepest subsoiling, which merely loosens the deeper soil without burying the surface soil.

White-Mustard Seed.—"Walks and Talks" wishes to say to the scores of correspondents who have written to him in regard to white-mustard that he has no seed to sell. It can be obtained from any of the seed stores. They must excuse him for not replying to their letters privately. He thinks he has told all he knows about Mustard in the *Agriculturist*.

A Good Chester White Pig.—"W. P. T.," of Pennsylvania, sends us the weight and measurement of his Chester White boar, one year old. From snout to root of tail, 5 ft. 3½ in. (He does not give the length of the snout.) Girth, behind fore-shoulders, 4 ft. 6½ in. Height from floor to middle of back, 2 ft. 7½ in. Weight, 401½ lbs.

Manure for Potatoes in California.—Mr. A. T. Smith, of Sierra Co., Cal., writes: "I am an old subscriber to the *Agriculturist*, and the information derived from it has been hundreds of dollars in my pocket, and as I know of no one else capable of giving me the information, I take the liberty of asking you the following questions: I have a small ranch up here in the mountains, raise principally potatoes, and the land is getting pretty well run down by frequent cropping, and as manure is not to be had at any price, I have been corresponding with parties in San Francisco about getting guano. I can get Pacific Island guano containing 65 per cent of phosphate of lime, but Peruvian guano is not to be had. Will it pay to use the former on potatoes? I plant Early Rose and Peerless. Price in fall five cents per pound; in spring, seven cents."—As a rule, phosphatic manures have little direct effect on potatoes. You need ammonia as well. They are excellent for clover or mustard, and when these crops are grown and turned under, or eaten by stock and the manure applied, you get the ammonia and every other element of plant-food that

the potatoes require. Can not you keep pigs with advantage, and thus make manure? California needs some of the improved breeds, like the Essex or Berkshire. There is no reason why California should have to send to Chicago for good hams and pork. If you act on this suggestion, we think the *Agriculturist* will put several more "hundreds of dollars in your pocket"—which is precisely what we like to do for all our subscribers. Do not think you are taking a "liberty" in asking for information. It is always a pleasure to hear from our readers.

Lice on Cattle.—"C. D. W.," Coos, N. H., has his cattle troubled with lice, which carbolic soap does not seem to destroy. Has tried tobacco-water, which killed the lice on a calf, but also killed the calf. Tobacco-water should be used very cautiously on young animals, better not at all. Carbolic soap should be effective, but probably has not been used with sufficient perseverance. It must be remembered that the "nits" are very tenacious of life, and the young growing crop has to be cared for. It is best to persevere with the soap; also feed sulphur, a teaspoonful daily, until the cattle smell of it, when the lice will leave; at least, such has been our experience.

Mustard after Early Potatoes.—"Subscriber," Cook Co., Ill., asks if Mustard would be a good crop to sow on light, sandy land, in good condition, after taking off a crop of early potatoes, for the purpose of plowing it in for manure.—Yes. Sow as soon as the potatoes are dug on the fresh earth. Plow under when in blossom, or before. Do not let any seed form, or the Mustard plants will prove troublesome as a weed.

What Ails the Pig?—"T. G.," Kittrells, N. C., has a young Chester boar which eats well, but can not retain its food on its stomach. If he will give a handful or two of charcoal or of chalk, it will probably remedy this complaint. Pigs need something of this kind; in fact, a variety of such matter as charcoal, salt, ashes, ground bone, chalk, or earth, when they are closely penned up, is absolutely necessary to their health.

To Polish a Floor.—"E. L.," Williams-town, Mass., asks how to dress a floor of black walnut or yellow pine. A floor of any kind of wood may be polished by first smoothing with sand-paper, then rubbing with pumice-stone and water, until a good surface is made, then polished with boiled oil and tripoli, made into a paste. Take a piece of old felt hat, dip it into boiled linseed-oil, and rub the floor with it, then with another piece, dipped into the paste, rub until polished. If a very fine polish is desired, a paste of beeswax and spirits of turpentine may be used to finish. Some *elbow-grease* is needed. If a floor is intended to be polished, it should be laid in narrow strips, very accurately jointed, and of well-seasoned lumber.

Thick or Thin Sowing of Oats.—A correspondent at Alton, Maine, writes: "In the April number of the *Agriculturist*, in 'Hints about Work,' you say in regard to sowing oats, 'the richer the soil the less seed required.' My experience has been, the richer the soil the more seed it would bear."—Both these statements are correct. It depends on what is meant by rich or poor land. If land is so poor that it has not available plant-food sufficient to produce more than 20 bushels of oats per acre, it would be foolish to sow thick. Two bushels of seed per acre would probably produce as good a crop as if six bushels were sown. If rich enough to produce 50 bushels, three bushels of seed would be better than two bushels. If rich enough to produce 75 bushels, it might be well to sow four bushels of seed; but if rich enough to produce 85 bushels, we would not sow more than 3½ bushels; and if rich enough to produce 100 bushels, three bushels would probably be thick enough. On rich land, sown early, the plants *stool* more, and consequently less seed is required. As a rule, we seldom sow oats thick enough on good land. It should be observed, however, that the season has much to do with the question. Other things being equal, an excessively thick seeded crop is more apt to suffer from drouth than one sown thinner.

Ringed Hogs.—"J. B.," Winona, Minn., asks which is the best method of preventing hogs from rooting. A ring in the nose is the best method. All cutting of the cartilage of the snout is useless, as the wound heals very soon and the method is only temporary.

Steaming Feed.—"A Farmer" writes us that he has steamed feed for his stock for three years with very good effects, and could tell us a good deal about the business, but he is not a good hand at writing, though he understands farming well. He asks what we do with such letters. Such letters from farmers who know what they are writing about, are gladly received and well appreciated. A farmer who knows his business can very often give valuable hints to his brother-farmers, although his

sentences may not be exactly correct in their spelling or grammar. But this does not affect their real value. Let a "Farmer" write what he knows about steaming food if he has learned anything new.

Piling Manure.—"S." Nelson, O., wants advice about his manure pile. He uses 200 bushels of sawdust per week for bedding for four horses and sixteen cows, and has the manure piled in his yard, where it gets what rain falls on it, and no other water. He spreads half a bushel of plaster on it when he perceives a smell from it. Is he doing right?—Yes. We would, however, scatter the plaster in the stables. It is not probable that a manure pile of this character would ferment injuriously, except in dry hot weather.

Concrete Buildings.—W. Albert Lea, Minn., wants to know the *modus operandi* of making cement for building, and the cost. In the *American Agriculturist* for March, 1872, page 96, will be found an article on this subject, giving directions. The cost depends on so many contingencies that no accurate estimate can be given, useful for all localities. Hydraulic cement is worth about \$1.75 to \$2.25 per barrel in St. Louis, Louisville, and Chicago, and at this price for cement, if everything, including labor, is to be purchased, the cost will be from 10 to 15 cents per cubic foot.

Corn in Drills.—"W. A. L." Elliotta, asks if there is any gain in sowing corn for fodder in drills rather than in hills or broadcast. Generally the yield of corn in drills, when well cultivated, is fifteen to twenty-five per cent over the yield of hills and double of that sown broadcast. See last month's and this month's papers.

Stretches in Sheep.—"D. M." Union Grove, Wis., has lost several sheep by "stretches;" he wants a remedy. The cause of this disease (which is so called from the sheep stretching itself out) is costiveness. Anything that will prevent or cure this will be a remedy against stretches. Roots are especially useful as winter feed, and we have heard sulphur named as useful. We always give sulphur to our sheep, and feed roots, and never have trouble with stretches.

Chip-Manure.—"F." asks if chip-manure is good to mulch fruit trees with. Yes, better, if it is mixed with some lime, which will help it to rot.

Kidney-Worms in Hogs.—E. W. Tidd, Independence, Iowa, writes that his hogs are very weak in the back, and have lost the use of their hind-legs, which they drag after them when they move. What ails them?—These symptoms are attributed to worms in the kidneys, and turpentine rubbed on the back, or ashes given in the feed, is recommended as a cure. Half to a whole teaspoonful of copperas, according to the size of the hog, given daily in the feed, is another useful remedy.

Value of Feed.—"W. McF." St. Peters, Minn., asks which of the following articles furnishes the cheapest feed for cows, viz.: brewer's grains at 8 cents, oats 20 cents, corn 40 cents per bushel; hay, \$7 per ton; bran, \$15 per ton—milk being worth 20 cents per gallon and butter 25 cents per pound. Certainly, the most money can be made under these circumstances by producing milk for sale, and then hay, bran, and grains would be cheapest; if for butter, we would use bran and corn-meal.

Blindness in Horses.—"X. Y. Z." Iowa City, asks if, when a horse's eye is constantly watering, it is a sign that he is going blind, and whether the other eye will suffer by sympathy. This is a sign that something is wrong, which, if allowed to proceed, will probably end in blindness. It may be ophthalmia, or inflammation of the eye, causing an excessive flow of fluid, or it may be the result of a stricture of the nasal duct which prevents its escape. The first may possibly be remedied by giving a pound of glauber salts, and putting the animal on soft, cooling feed, as bran mash, and bathing the eye with cold water as often as convenient, and covering it with a rag kept wetted with a weak lotion of sulphate of zinc and water. The eye should be preserved from any strong light. If the latter, which can only be ascertained by a capable veterinary surgeon, a simple operation, such as forcing a passage with a syringe and water, may restore the duct, and give early relief. It is almost certain that sympathetic action will involve the other eye in time, if no early remedy is procured.

Grubs in the Back of Cattle.—"A. B. F." Sturbridge, asks us to ventilate the subject of "grubs." Does A. B. F. read the *American Agriculturist*? If so, he will find "grubs" or "warbles" have been written about very often. So lately as the March number, page 85, they were "ventilated." There is no prevention except in keeping the cattle in stables during the summer.

LAST MONTH OF THE Valuable Premiums.

Any person, anywhere, can obtain one or more of the valuable premium articles in this table, without money, by simply gathering a few names for one or both of the papers.

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 \$35,000 worth of fine engravings, and more good reading than can be found in 100 books costing one Dollar each.

Premium Clubs can be made up of subscribers to either paper, or partly of both, 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 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....
- (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 Post-master, 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 \$1.50; 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 Article at \$1.50	at \$3.00	at \$4.00	(1) (2) (3) American Agriculturist.	(4) (5) Hearth and Home.	(6) Both Papers together.
1	Knives and Forks (Patterson Bros.)	\$14.00	21	70	11	35	13
2	Knives and Forks (do. do.)	\$15.50	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	72	22
5	Cup and Fork (do. do.)	\$3.00	18	54	7	19	8
6	Fluted Steel (do. do.)	\$3.50	21	63	8	21	9
7	Each Cook's Knife, Fork, and Steel	\$3.00	9	30	4	15	5
8	Pocket Knife (Smith & Clark)	\$1.50	4	12	2	6	3
9	Pocket Knife (do. do.)	\$2.00	5	15	2	7	3
10	Pocket Knife (do. do.)	\$2.50	6	18	2	8	3
11	Ladies' Pocket Knife (do. do.)	\$3.00	5	15	2	7	3
12	Milk in Parvo Knife (do. do.)	\$3.50	6	18	2	8	3
13	Cake Basket (Lucius Hurt Man'g Co.)	\$12.00	19	65	10	33	11
14	Casters and Fruit Basket (do. do.)	\$3.00	4	14	2	7	3
15	Revolving Butter Cooler (do. do.)	\$3.00	16	52	8	26	9
16	Cup and Cracker (do. do.)	\$7.00	15	49	8	26	9
17	Waffles and Crackers (do. do.)	\$13.00	19	65	10	33	11
18	Half Dozen Napkin Rings (do. do.)	\$5.00	15	45	8	26	9
19	One Dozen Teaspoons (do. do.)	\$6.00	15	45	8	26	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	9	27	4	14	5
23	Gold Pen, Silver Case (George L. Hawkes)	\$3.25	8	30	4	15	5
24	Gold Pen and Silver Case (do. do.)	\$4.00	12	36	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. do.)	\$6.00	13	37	7	19	8
27	Ludden's Patent Revolving Pencil	\$1.50	4	12	2	6	3
28	Ludden's Patent Revolving Pencil	\$3.50	8	24	4	15	5
29	Anusette	\$4.00	13	37	7	19	8
30	Baby's Chair (L. A. Collins)	\$4.00	9	27	5	16	6
31	Parlor Kaleidoscope	\$7.00	16	52	8	26	9
32	Moore's Floral Set (Moore Man'g Co.)	\$1.00	3	9	2	6	2
33	Steam Engine	\$1.00	3	9	2	6	2
34	Garden Seeds for a Family (30 kinds)	\$1.00	12	36	6	17	7
35	Flower Seeds for a Family (100 kinds)	\$5.00	13	39	6	17	7
36	Garden Seeds and Flower Lubrication	\$1.00	5	15	3	11	4
37	Field Croquet	\$6.00	12	36	6	19	7
38	Sewing Machine (Grover & Baker)	\$50.00	60	240	30	120	33
39	Sewing Machine (Florence)	\$65.00	74	285	37	145	45
40	Sewing Machine (Willow & Gibbs)	\$55.00	60	240	30	120	33
41	Bickford Family Knitting Machine	\$25.00	33	120	19	60	21
42	Washing Machine (Dobbs)	\$15.00	21	77	10	33	11
43	Chester Winzer (Best Universal)	\$10.00	17	51	9	29	10
44	Blanchard Churn	\$8.00	16	52	8	26	9
45	Melodeon, 4-octave (G.A. Prince & Co.)	\$67.00	78	295	39	148	43
46	Melodeon, 5-octave (do. do.)	\$112.00	138	400	69	200	76
47	Piano, Splendid Toot. (Steinway & Sons)	\$65.00	60	240	30	120	33
48	Silver Watch (American Watch Co.)	\$40.00	50	150	25	75	25
49	Low's Fine Gold Watch (Am. Watch Co.)	\$10.00	10	30	5	15	5
50	Breech-loading Pocket Rifle	\$16.00	21	63	12	40	14
51	Double Bbl. Gun (Cooper, Harris & H.)	\$20.00	46	170	23	75	26
52	Tool Chest (Patterson Bros.)	\$4.00	60	190	30	95	33
53	Charles Pratt's Astral Oil (1 can, 5 Gal.)	\$4.00	9	27	5	16	6
54	Barometer (Carruth's Barometer)	\$10.00	18	54	9	29	10
55	Barometer (Wedge's Barometer)	\$12.00	22	66	11	38	12
56	Buckeye Harvester Mower	\$125.00	150	450	55	225	82
57	Patent Cylinder Piano (R.H. Allen & Co.)	\$18.00	27	81	14	45	16
58	Collins's Cast-Steel Floor	\$25.00	38	120	19	60	21
59	Hand Cultivator and Weeder (Comstock)	\$9.00	17	51	9	27	10
60	Chubb's Ironcast Seed-Sower	\$10.00	18	54	9	29	10
61	Any Hour do. do. do.	\$15.00	21	63	10	33	11
62	Pump and Sprinkler (Fager's)	\$5.00	18	54	7	19	8
63	Family Scales (Fairbanks & Co.)	\$14.00	21	70	11	35	13
64	Building Blocks (Crandall)	\$3.00	6	18	3	10	4
65	Pocket Lanterns (One Dozen)	\$9.00	17	51	9	27	10
66	Worcester's Great Illustrated Dictionary	\$10.00	18	54	9	29	10
67	Any Back Volume Agriculturist	\$1.75	3	10	2	6	2
68	Any Back Volumes do.	\$3.50	6	20	3	10	4
69	Any Three do. do. do.	\$5.25	9	27	4	15	5
70	Any Four do. do. do.	\$7.00	12	36	5	19	6
71	Any Five do. do. do.	\$8.75	15	45	6	21	7
72	Any Six do. do. do.	\$10.50	18	54	7	22	8
73	Any Seven do. do. do.	\$12.25	21	63	8	23	9
74	Any Eight do. do. do.	\$14.00	24	72	9	24	10
		(Each add'l Volume at same rate)					
75	Fifteen Vols. XVI to XXX	\$26.25	36	118	18	59	20
76	Any Back Volume Agriculturist	\$2.50	5	15	2	7	2
77	Any Two Back Volumes do.	\$5.00	10	30	4	14	5
78	Any Three do. do. do.	\$7.50	15	45	6	21	7
79	Any Four do. do. do.	\$10.00	20	60	8	28	9
80	Any Five do. do. do.	\$12.50	25	75	10	35	12
81	Any Six do. do. do.	\$15.00	30	90	12	42	14
82	Any Seven do. do. do.	\$17.50	35	105	14	49	16
83	Any Eight do. do. do.	\$20.00	39	120	16	56	18
84	Any Nine do. do. do.	\$22.50	45	135	18	63	20
		(Each add'l Volume at same rate)					
85	Fifteen Vols. XVI to XXX	\$37.50	50	150	25	75	26
86	Farmer's Boy's Library	\$5.00	12	36	6	17	7
87	Farmer's Boy's Library	\$8.25	16	48	8	26	9
88	Farmer's Boy's Library	\$11.50	20	60	10	32	11
89	Farmer's Boy's Library	\$14.75	24	72	12	39	13
90	Farmer's Boy's Library	\$18.00	28	84	14	46	15
91	Farmer's Boy's Library	\$21.25	32	96	16	53	17
92	Any Back Vol. <i>Hearth & Home</i> (Bound)	\$1.00	9	27	5	16	6
93	Any Two Back Vols. do. do.	\$2.00	18	54	10	32	11
		(Each additional Volume at same rate.)					
94	\$10 Library (Your Choice)	\$10.00	14	42	7	28	10
95	\$15 Library do.	\$15.00	21	63	10	40	14
96	\$20 Library do.	\$20.00	28	84	13	51	18
97	\$25 Library do.	\$25.00	35	105	16	63	21
98	\$30 Library do.	\$30.00	42	126	19	74	25
99	\$35 Library do.	\$35.00	50	150	22	87	28
100	\$40 Library do.	\$40.00	56	168	25	99	31
101	\$45 Library do.	\$45.00	63	189	31	114	34
102	\$50 Library do.	\$50.00	70	210	34	126	38
103	\$60 Library do.	\$60.00	80	240	40	149	44
104	\$75 Library do.	\$75.00	100	300	50	174	55
105	\$100 Library do.	\$100.00	125	375	63	210	70
		(A Choice of Good Books. (See Description.)					
106	Smoothing Harrow (J.T. Thomas & Co.)	\$25.00	38	120	19	60	21
107	Beckwith Sewing Machine	\$10.00	12	36	6	25	10

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. Full Description of each Premium sent free.

Fine Lettuce.—Mr. Albert Berdan, gardener at West Hackensack, sent us on May 8th specimens of finely-grown and well-headed lettuce of the Tennis-Ball or some related variety.

Potato-Bug.—L. Oswald, Cape Girardeau, Mo. If the bugs are too numerous for hand-picking, use Paris green, mixed with twelve to twenty parts of flour. Dust it upon the vines while the dew is on. Paris green can be had at the drug and paint stores. Recollect that it consists largely of arsenic, and is a most dangerous poison. Keep it entirely under your own control, and in dusting the vines be careful not to inhale the powder.

Artificial Incubation.—"G. W. C.," St. Genevieve, Mo. All the hatching machines we have seen involve the same general principles, and fail in nearly the same points. Very great nicety is required in apparatus, in order that the degree of heat shall be correct and uniform. Animal heat is regulated with a precision unrivaled by the most cunning appliances. The cost of artificial incubators is considerable, as is also fuel for the lamp, when one is used. The hot-water apparatus involves in its management time and care. Artificial incubation, if free from objections, would be much to be desired, because there would be no necessity of waiting for the spell to come upon the hen, and great convenience in putting the hatching nest wherever desired.

Keeping Hens apart for Breeding.—The following is like many other queries we often receive: "I have a trio of pure Brahmas that have been running with other fowls. How long must I keep them separate to keep the eggs pure?"—Ten days is a safe rule. Most breeders believe, however, that previous impregnations affect slightly eggs impregnated by other cocks for months afterwards. The evidence has not been collected, however, to set this last matter entirely at rest. It is not supposed that the egg germs are directly affected, but indirectly through the organization of the mother. Poultry keepers of a scientific turn will do well to institute a series of experiments to decide this question.

Tea-Plants.—"S.," Zanesville, O., can produce tea plants of our friend P. J. Berckmans, Augusta, Ga.

Purifying the Fowl-House.—"M. C.," Charleston, S. C. After killing your diseased fowls, make the premises ready for the new-comers as follows: Whitewash thoroughly, covering every spot, and filling up every crevice all over the building. Cover the floor by pouring down the last of your whitewash and spreading it in every corner with an old broom. Go over all the perches, and the nests and movable coops and fixtures. Keep everything clean with whitewash.

To Preserve Eggs.—George T. Fisk, Staffordville, Ct. There are numerous ways of preparing eggs to keep them a long time, but all present some difficulty which is hard to surmount. Some oil every egg all over, and they keep as long as the oil remains sweet. They can be varnished or coated with any substance which will exclude air from them, but the slightest imperfection in the coating produces a failure in keeping. We have known eggs kept from the summer, when they could be bought cheap, until midwinter, by packing in salt. Cover the bottom of your vessel with salt, stand your eggs in this, small ends down, then cover with salt, and imbed another layer, until fall, covering the top layer an inch deep with the salt.


Borers.—"J. M. F.," Kirksville, Mo. If the borers are already in your apple-trees, we can advise no external application. They must be killed in their retreats. A wire or sliver of whalebone, a sharp knife, and a gonge and mallet will be required. Sawdust or sunken places in the bark will show you where to work. Open a passage to the channel of the borer, and probe it out. The article upon the use of carbolic soap for the prevention of peach-borers was not from our own experience, but that of Mr. Bateman, and we have entire confidence in any statement that he may make.

Odd Eggs.—Hens seem to be freaky this year. Among the odd specimens of eggs sent us is one from B. L. Hubert, which is as large as one's little finger, several inches long, and looks like a great "wormum."

Scales upon Fowls' Feet.—Several letters are on file, asking us to tell the cause and cure of this trouble. We do not think it is owing to uncleanness of roost and yards, as has been often suggested, but is probably one of the various ways in which a bad state of the general system is manifested. A mixture of equal parts of spirits of turpentine and olive (sweet) oil, put on with a feather, every day, will generally effect a cure.

AMERICAN AGRICULTURIST.

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
& First-rate Things of many kinds?

(See List on page 207.)


You can have One or More of
the Above

THIS MONTH,

By simply soliciting a few of your friends and neighbors to take *American Agriculturist* or *Hearth and Home*, or both of them. The table on page 207 shows how few names are required to get any premium **free** of charge. For years past many persons have started up premium clubs during JUNE and quickly filled them. Last year a lady made up a full list and obtained a Steinway Piano, that saved her **\$625** cash, as she needed one as a music-teacher.

 Read over the list of excellent Premium articles on page 207. Select one or more and you can soon get names enough to secure it free. Over **14,000** others have done so with pleasure and profit.

The Premiums will be withdrawn after June 30th, except where persons are too distant to get this paper by June 1st. At such points enough extra time will be allowed to give them a month for work. Two half-year subscriptions count as one whole year in Premium Clubs sent this month.

 **Many partially made-up premium clubs should be filled this month.**

Applying Hen-Manure.—A correspondent asks, "After hen-manure is prepared for the garden according to your directions in the March number, can I use it freely, allowing it to come in contact with the seeds?"—As a general rule do not allow seeds to come in contact with strong manure of any kind. It is safer to separate the two with a little fine, mellow earth. Some sorts of seeds will bear direct contact with manure, and others will not. Hen-manure, even when composted with peat or earth, is strong stuff.

Setting out New Raspberry Beds.

—During wet weather, this month, raspberry suckers may be taken up and transplanted. We make the rows 5 feet apart, and set out four or five young suckers in each hill, making the hills 3 feet apart in the rows. Press the earth firmly round the plants, and if the work is done in moist weather and as much earth as possible is left round the roots, or, in other words, if the suckers are taken up, as gardeners say, "with a ball," they can be transplanted as easily as cabbage. You save a year's time by this plan. If the ground is rich and you mulch the young plants, they will bear a small crop the next season.

Sheep in England.—The advance in the price of sheep in England has been even greater than in this country. We hear of a Norfolk farmer who bought lambs last fall to eat off his turnips at 30 shillings each (say \$7.50), and sold them this spring to the butcher for 90 to 100 shillings each (say \$22.50 to \$25 each, in gold). We believe he fed about 400 of them, and the profits must be a very pleasant addition to his bank account.

Maggots on Sheep.—In warm, moist weather, maggots are sometimes quite troublesome. By shearing off the wool and washing with sweet whey, they may be destroyed. But a solution of carbolic acid, say one teaspoonful, in a pint of water, or a strong solution of carbolic soap, will kill them without shearing.

Every Physician, Druggist, Lawyer, Medicine-Vender, and Medicine-Buyer should without fail read the report of the "Libel Suit," occupying a 16-column supplement of *Hearth and Home* for April 20th (No. 16). The testimony, the important rulings of Judge Brady in regard to medicines, the exposure of medical quackery, etc., brought out on the trial, are of very great importance to the country, and to every individual. The paper is electrotyped, and can be reprinted. Post-paid copies are supplied at 10 cents each.

Elementary Drawing Book, by John G. Chapman. A. S. Barnes & Co., New York. The works of Mr. Chapman enjoy a well-earned reputation. The examples are numerous and excellent, and the instruction is conveyed in a manner easily to be understood. This book, which costs only \$1.50, would be a capital present for a child that shows a talent for drawing.

Sowing Wheat in the Corn.—"J. G. E.," Camden, N. J., wishes to sow down a piece of land now in corn, to grass, and proposes to sow with wheat and timothy before the corn is removed; he asks how this plan would answer. Not very well. It would be better to cut the corn first, and shock it in rows as far apart as possible, and then plow and sow the wheat and grass seed. Better still would be to sow down with oats in the spring, using only two bushels of seed per acre. We never found oats so thick as to injure grass or clover sown with them.

How to Make Cheese.—"H. M. T.," wants a recipe for making cheese. No directions which would be of use practically could be given in less space than a column of the *American Agriculturist*, for which at present we have no space. Flint's Milk Cows and Dairy Farming, \$2.50, treat of this subject at length.

Mules Wanted.—"C. M. de R.," Portsmouth, N. H., wants one or two pair of mules, and can not find them in New England. He asks if it would pay to go to Pennsylvania after them. He would find but few mules in Pennsylvania, as they are not bred there to any extent. Kentucky and Southern Ohio would be better places. They may be procured in New York City.

To Clean a Cesspool.—"S. J. B.," Ohio, wishes to clean out a vault which has been used for 30 years. We would provide a quantity of dry earth, which we would throw into the vault, and mix with the material to be removed, using diluted sulphuric acid (oil of vitriol) as a deodorizer. The material should be placed on a bed of dry earth as it is scooped out, and more earth mixed with it, until it is reduced to an inoffensive compost. If kept in a dry place, it will be ready to use in a few days.

For other **Basket Items** see page 233.

Guanos.—M. Eckendorff, Erie, Pa., asks several questions about guano, to which we reply: That guano of the best quality is worth \$90 per ton; 150 to 300 pounds may be used per acre on any crop with advantage, but especially on grass, wheat, corn, potatoes, etc.; with stable manure at two dollars per ton, we would rather buy guano at first, and make brown manure afterwards.

Marsh Hay.—"F. F. V.," Louisville, Wis., asks if it would injure the growth of wild marsh-grass to cut it for hay early every year. It will not injure the grass, and it will improve the hay.

Weeds in Iowa.—"J. M. P.," Fremont Co., Iowa, writes that it is difficult to raise timothy and clover, as the weeds choke the young crop before it gets a start. This will be found a difficulty for many years on rich prairies which have been seeded with a variety of the worst weeds a farmer can have to contend with—viz., those which spread from the root. But they will have to be fought down and choked out. We would suggest mowing the weeds often, and keeping them down as much as possible until the grass and clover get a start. Perhaps some of our readers have had experience which might help our correspondent.

Crude Petroleum.—"E. J.," Spring Valley, N. Y., asks where crude petroleum can be procured. It is generally kept at all country drug-stores, or wherever lubricating oils are sold. Its wholesale price in New York is about \$4 per barrel.

Cashmere Goats.—"A. F. L.," Lebanon, Mo., sends us a sample of Cashmere goat's hair, with a request to learn its value. We find there is no market in New York for this wool; the skins, with the fleece on, are bought in a small way, and used for trimming ladies' dresses. It is not likely with the present inconsiderable production that any regular market will be established for the wool, and we would not advise any investing in these animals. Our correspondent thinks his goats a nuisance; some others probably agree with him in this.

A Windmill Wanted.—"J. B. R.," Thomson, Ga., sends us the following brief and pithy letter—viz.: "What do you ask for a windmill?"—Windmills cost all the way from \$100 to \$1,000, or more. A simple mill (see page 177, last month) may be built for much less, possibly \$40 or \$50, that will do light work, as churning, pumping, etc. We do not make or sell them.

Cheap Stamp-Puller.—"A Subscriber" has a field which he desires to free from stumps, and asks if there is not an easier way than to dig or grub them out. Small stumps may be pulled out with a block and tackle and a pair of horses or oxen, and quite large ones if they are partly rotted. For larger stumps, a machine figured in *American Agriculturist* for September, 1871, page 333, will be found useful. It will cost from \$15 to \$30 to make it, including chains.

Why don't the Butter Come?—C. Wade, Fairview, Ky., asks what is the reason that sometimes butter can not be obtained in churns. This is one of those things it is difficult to understand. Our experience has been that it occurs only when cows have been long in milk, and never when they are fresh, and therefore may be due to a change in the quality of the milk; but it only occasionally happens even then. Who can explain it, and say how it may be obviated?

Cabbage Lice.—"M. A. H.," Pische, Nev. Soap-suds, tobacco water, and vigilance are the remedies. Taken at their first appearance, it is but little trouble to exterminate them, but they spread with great rapidity. Break off the lower leaves that are badly infested, and use either of the above liquids on the remainder. Salt is said to be efficacious, but we have not tried it.

Pruning.—"A. B. W.," Mich. Pruning may be done at any time with proper care. See article in March. The most unfavorable season is when the trees are making their spring growth.

Prices of Butter.—"P. W.," of Putnam, Ohio, complains that we "tantalyze Western farmers by such fabulous prices for butter," as Mr. Sargent's \$1.15 per pound. The fact, nevertheless, remains, that the butter in question was (and is) sold for this price. We did not say that others could get the same price. We stated a simple fact of agricultural interest. Would it tantalyze our correspondent if we were to tell him that we know a man who does not do a tenth part of the work that he does, yet whose salary is over \$70 a day? P. W. thinks he can buy as good butter in Putnam, Ohio, for 23c. per pound. We have no doubt it is even better butter, measured by our correspondent's standard. By the standard

of Mr. Sargent's customers it would be considered very poor trash. They pay the price, and they have the right to decide.

To Dye Green.—E. R. Shields, Wasioja, Minn., asks how to dye cotton a permanent green. A really permanent green can not be got with ordinary domestic appliances. It is a nice operation for a professional dyer. A fair green may be got by dyeing blue with sulphate of indigo first, and then immersing the goods in a bath of quercitron bark. Put the bark, tied up in a cloth, into cold water, along with the blue goods; gradually bring the bath to a boil—an hour should be occupied in this process; when boiling, permit the cloth to remain in only a few minutes, or the green will be dark and dingy.

Back Volumes.—M. A. Hull, Nevada. Bound volumes of the *Agriculturist* are \$2.00 at our office, \$2.50 by mail. Volumes unbound \$1.50, or \$2.00 by mail.

A Good Common Cow.—J. Coonradt sends us the following account of what his cow Katy did. She is nine years old, of the native breed, fed on grass in summer, and some ground feed in winter, with corn, straw, and stalks, and in nine months yielded 336 pounds of butter, easily churned, and good. Her largest mess of milk was 14 quarts. Katy did well, and a heifer calf from Katy by a good Jersey bull would be worth having.

Soiling Crop.—T. S. Sturge, Monroe Co., N. Y., asks which is the earliest spring-sown crop he can raise for the purpose of soiling cows. Oats and peas will come in first, then corn. Oats and peas should be sown in succession, at intervals of two weeks.

Hydraulic Cement.—"W. E. P.," Brunswick, Ga., asks what is the cost of hydraulic cement in New York, how many feet of twelve-inch wall one barrel will build, and if stones can be dispensed with and sand substituted?—The price of cement is \$1.75 per barrel. The proportion of sand to cement is three to one for the best work, and as it loses one third of its bulk when mixed, the calculation of wall built is easily made. If no stone is used, give a longer time for the cement to set, and the sand must be sharp, clean, and coarse.

The Moon.—C. W. Cumber, Jr. In years past we have discussed this Moon question, and prefer to use our space for matters relating to the planet Earth. The instances you cite are as old as ignorance itself. When these lunatics have any new points, we shall be glad to hear of them, but this pork and potato business belongs to the past generation.

Stain for a Brick Building.—L. B. Harrington, Bryan, Ohio, wants the best stain for a brick building, and the proportions of the ingredients. We suppose he means paint, as there is no method of staining brick, which would not be washed off by rain, unless it be oil-painting. Venetian red, mixed with raw linseed oil, is used for painting brick-work. Brick-work is often cleaned and the color brightened by rubbing with a soft red brick and water. If any other color than red is wished, the mineral or iron paints and the various ochres might be used in place of Venetian red.

Chicken Cholera.—"T. H. R.," Tenn., writes, Is there any certain cure for chicken cholera?—We know of no certain cure, but consider proper attention to feed, water, dry quarters, and perfect cleanliness as sure preventives. When it comes to the cure for this complaint, great difficulties and uncertainties arise.

To Pack Butter.—"R. H. Thorn, Juno, W. Tenn., wants to know how to pack "May" butter so that it will keep sweet until May following. It is not alone the packing which makes butter keep, although good butter may be spoiled by bad packing; but the best packing will not make poor butter good or keep sweet. Therefore first make good butter. Full directions are given in the *American Agriculturist* of May, 1872, in the "Ogden Farm Papers," for making the best butter. When that is made, it may be packed, using a double allowance of salt for packed butter, in new oaken tubs, which are first scalded, then soaked in brine, and the butter closely pressed in until quite full and level with the edge; then sprinkle a handful of salt on top, and cover with a piece of muslin, dipped into brine; nail down the cover and put away in a cool, sweet cellar or spring-house. It should then keep perfectly for a year or more.

Mineral Phosphates.—"H. C. A.," Brownsville, Tenn., asks what is meant by the statement in the "Agricultural Report" for 1859 to the effect that mineral phosphates may be treated with acids similarly to bones with equal efficacy, excepting that they may contain salts, which are absent in the bones. This is

said in reference to the "Apatites" or phosphatic rocks of New Jersey and New York, which contain fluorine acid, which would of course remain as an ingredient in the resulting superphosphate. The Charleston phosphates have been largely worked since that period, and have furnished superphosphate equal to that from bones. Directions for dissolving bones are given in *American Agriculturist* for April and May.

Phoenix Island Guano.—"J. W. C.," Newtonville, Mass., asks how he should use Phoenix Island guano. As this guano contains less soluble matter than Peruvian, it may be used in rather greater quantities, say 200 to 300 pounds per acre, on corn, potatoes, and tobacco, harrowed in just before planting or spread broadcast on grass.

How to Feed Corn-Stalks.—"E. M. A.," Forsyth Co., N. C., wants to know how to feed corn-stalks. The best way is to cut them up into pieces an inch long, wet them, and sprinkle a little salt and a quart of meal to a bushel of them, and give a bushel twice a day to a cow, with some hay or straw at noon.

Western Farming.—"Western Wilde" writes that he does not agree with the Western farmer who thinks we should not mention peat, bone-dust, etc., but is satisfied that farmers in the West need to give more attention to these and other fertilizers. He says farms in the West are running down fast, and need something to bring them up again.

Pickles.—"M. F. M.," Sioux City, Iowa. We have frequently stated that attractive appearance of the pickles found in stores is due to the use of colorless vinegar. It is called white wine-vinegar, but it is made from whisky.

What is a Maximum Crop of Beans?—Forty bushels per acre have been grown. A farmer in Western New York raised over 1,500 bushels from 60 acres, or over 30 bushels per acre.

Soda for Decomposing Bones.—"A. J. B." asks what kind of soda was referred to in the December number of *American Agriculturist* as used in decomposing pounded bones. It is common sal-soda, and is known in stores as washing-soda.

Iron Flower-Vases.—"Mrs. M. C.," Johnson Co., Mo., has some tops of parlor stoves which she wants to use for flower-vases, and wants to know how they may be painted to look like stone. First beat them to get rid of any grease, then, while hot, paint them with a coat of linseed oil, which when dry cover with a coat of drab or brown lead paint, and before the paint dries sift on them powdered sandstone.

What is Muck?—"A." asks: Is mud or dirt from the bottom of a branch or small run, muck?—No. Muck consists of vegetable matter which has accumulated in a swamp or boggy place by the fall and decay of grass, leaves, or plants which have grown there during a long series of years. Wash often collects in ponds or creeks, and consists generally of sand or earth, with some vegetable matter; but it is not muck. Muck consolidated becomes peat. This is the sense in which the word is used in America.

Hint for Mechanics.—Ed. Skinner, Middletown, N. Y., says by rubbing a piece of chalk on a square the lines and figures are filled up, and can be much more plainly read. This is especially useful for near-sighted persons.

For other **Basket Items** see page 233.

The Department of Agriculture.—The *Maryland Farmer*. It is pleasant to be criticised when it is done in the gentlemanly manner of a correspondent of the *Maryland Farmer*. It is a luxury to which we are not often treated—this having our views controverted in a fair and above-board style. The writer alluded to, reviews our notice of the Report of the Department of Agriculture for 1871, given in our February number. He does the best possible for the Commissioner, but we are not able to see that he invalidates any of our statements. Some portions of the report were so ridiculous, that a mere statement of them was all we needed to make. These awkward matters our reviewer gets over by assuming that they were the work of subordinates, and probably the Commissioner never saw them until they appeared in print. As our critic assumes a Latin name, "Viudex," we will ask him if he is not familiar with the Latin adage, *Qui facit per alium facit per se* ("Who does a thing by another, does it himself")? Would he accept it as an excuse if

we were to say that the article which displeases him was not written by the responsible editor, but by one of the young men in the office? Here is just what is the matter. Mr. Watts is too old to attend to the duties of his office, and his chief clerk is the head and front, the top and bottom of the affair. In the words of the hymn, "he can create and he destroy." Personally we have no objections to Mr. Watts, and never saw him, and never heard of him before he took the office, save in the mismanagement of the Pennsylvania Agricultural College. We have only judged him, as we did his predecessors, by his official acts and publications.

Our position in regard to the Department is this. It has thus far been a disappointment—not to say a nuisance. Let it be either abolished altogether or be put upon a respectable footing. It is yet a problem whether we really need a Department of Agriculture, and that will never be decided until the experiment is made on a respectable scale. No man who can be had for three thousand dollars a year, and is obliged to put his sons and daughters upon the pay-roll in order to get enough to live upon, is fit to occupy the position of Commissioner. We advocate ample appropriations, securing the best men the country affords, and a fair trial of say five years. Then if no good results are perceptible, abolish the Department, and let agriculture look out for itself, just as any other interest does.

Bees Notes for June. — By M. Quinby.

Be sure and put guide comb in every box. The whiter and cleaner, the better. Cut white comb in pieces, an inch square. Dip each piece in melted glue or bees-wax, and stick before it cools. It is very seldom that boxes are filled and finished ready to remove in this month, as far north as this—Montgomery Co., N. Y. When it does happen, be sure to know it, and remove them, putting on empty ones in their places. After they are finished, every day they are left on, renders the combs darker. The best way to get rid of the bees when these boxes are taken off, is to drum them out. It takes time, but it is safe. First lay down some bits of scantling or strips of wood. Lay a board on these, put on the boxes, with a passage at the side or top, so that the bees can pass out directly from the finished box into an empty one, without flying. With a hammer or stick strike the board steadily a few minutes, and all will run out. The boxes containing the bees should be put on the hive in the place of those removed. A number on the hive and box to correspond will prevent putting the bees on the wrong hive when the box is returned. As soon as the bees are out, set away the empty boxes until October in a dry, cool place, if possible. Examine all weak stocks, of which there will be many this season, and supply all with a laying queen at the earliest moment. If you give a weak colony, or any other, brood to raise a queen, it will take six or eight weeks before the bees raised from her will be of any use—in which time the worms might destroy the hive.

Leave no old pieces of comb lying around to breed worms. If no better use is found, either burn or make wax. It takes a larger force to get away from the main body of the hive to work in boxes than to simply store honey in comb furnished ready-made. When honey is extracted, from three to six pounds can be obtained where one of box-honey is to be had.

The first principle of extracting honey from comb is centrifugal force. It can be illustrated by different methods. A pail, or box with a flat bottom, large enough to allow a comb, with cells open, to lie on the bottom, or rather on wire cloth, a little above the bottom, may roughly represent it. If such a machine should be whirled, as a boy whirls a sling, the honey on the lower side of the comb would be forced out, especially in warm weather.

Now, instead of a pail take a barrel. If you make a frame of wire-cloth—tinned or galvanized wire is preferable—as large as the comb, set it vertically in the barrel, close to one side, securing it there—it is plain that whirling the barrel will throw out the honey on the same principle. But the finished machine is a vast improvement on this. A regular machine will empty four combs at one time. As there is no patent legally covering any of them, they can be made by any one having sufficient skill.

They are usually made by constructing a box, large enough to hold four combs, perhaps fifteen inches square by twenty deep. This will fit any sized frame. The box is made of wire-cloth, and outside of this a tin can, large enough for the box to be turned in, and to catch the honey as it is thrown out. The best machines are geared, giving the frames three or four revolutions while the hand makes but one. As most people will prefer getting a good extractor ready made, I will not describe it further.

A knife to cut the sealing from the cell, will be needed. One a little crooked at the end will work much better than a straight one. When ready to operate, choose a day when the bees are busy, doing nothing to them before

ten o'clock, at which time, if there is room for stores, most of the old bees will be out foraging. A bee that comes in laden is not disposed to sting until its load is discharged. Open the hive without jarring it, lift out a comb, and shake off the bees. The few that stick fast can be brushed off with a quill. There is an art in brushing bees. If you make a short, quick motion with the quill, you can throw them off from the comb, not simply roll them over. The latter may make them cross.

Take out four combs at a time. If any is sealed, cut off the sealing with the knife. Set the side from which you would take the honey, next the wire-cloth, and give the machine a few turns. You can see when the honey is discharging, and when it is out—that is, if you have a machine in which the outside is stationary. If that revolves with the rest, as in some extractors, you can not tell much about it. When one side is emptied, turn the other. The brood will not be disturbed, unless turned unreasonably fast. The combs may be returned to the hive. When all are emptied and returned, close up the hive. The process may be repeated in from three to seven days, according to the season. Most bee-keepers can save combs this season to work with.

This extracted honey is the purest that can be obtained, but of this another time.

The Boys and Girls' Pictures.

Award of Prizes.

To the Boys and Girls: Never did a poor Doctor have a more bewildering task before him. Those doctors who practice medicine and have to prescribe for people who have nothing the matter with them except the "whimsies" have a difficult job; but what is that to reading nearly seven hundred stories by boys and girls from five to sixteen? Well, I have done it as faithfully as I could, and with as much care as if hundreds of dollars depended upon the decision. In the first going-over about fifty of each boys' and girls' stories were selected; then these were looked over again, and about twelve of each of the four classes were selected, and at last—there was the rub—the three in each class chosen. The object in offering the prizes was to induce you to exercise your ingenuity in story-telling, so the inventive talent displayed was the first consideration. The next point taken into account after the story itself, was the style, or, as you will understand it better, the way of telling it. The spelling and handwriting, though these were generally creditable, were not much regarded. There are some curious things that I may tell you about if I have time; such as the number of writers who hit upon nearly the same stories, and the number of similar names chosen for the characters. Quite a number who did not receive prizes sent stories so creditable that they deserve honorable mention, which I will try to give next month. The little boy and little girl, too young to write but who dictated their stories to their parents, will hear from me. But now I have only space to add the list of

AWARDS.

Boys between 12 and 16.

- 1st. Cyrus D. Chapman, age 15, Irvington, N. J. Knife.
- 2d. Arthur S. Shumway, age 12, Madison, O. Book.
- 3d. James H. Brewster, age 15, Mt. Carmel, Ct. Book.

Boys under 12. Prize for each, a book.

- 1st. Herbert Alexander, age 10, North-East, Md.
- 2d. Elmer Frail, age 9, Franklin, N. Y.
- 3d. Harry C. Ladd, age 11, Beverly, Mo.

Girls between 12 and 16.

- 1st. Nellie G. Brown, age 13, New Canaan, Ct. Gold Pen.
- 2d. Sarah C. Lyman, age 15, East Hampton, Mass. Book.
- 3d. Julia B. Mansfield, age 15, Twyman's Store (Spottsylvania Co.), Va. Book.

Girls under 12. Prize for each, a book.

- 1st. Carrie M. Wheeler, age 10, Eyota, Minn.
- 2d. Nettie Van Ness, age 11, Boone Co., Ky.
- 3d. Lila A. Ripley, age 8, Hendersonville, N. C.

Of course, as I read story after story I could give each one a prize; but each one has tried, and that has done him or her much good. More than half of the children stated that it was their first attempt at composition. I think it has done some good to induce some four hundred children to write for the first time, and I hope their parents think so too. Now, as to the books to be sent. I would like to suit all, and if the boys and girls to whom books are awarded will send me the name of any work that retails for \$2.00 or less, I will send it. If they fail to do this before June 10th, I will exercise my discretion in the matter, and send such as I hope will please them; but I had rather they should indicate at least the kind of book they prefer. THE DOCTOR.

Roofing Materials.

Many inquiries have been made by our correspondents about roofing materials, and with regard especially to their cost, durability, and ease of application, to which we reply. The roof is the most important part of a building, and should be water-tight and fire-proof, or the whole building is comparatively useless, and in danger in case of a fire occurring near by. The materials for roofing are shingles, slates, tin, and the various fabrics of paper, felt, or other similar materials used in connection with some preparation of coal-tar. Shingles are by far the most commonly used; and when made of pine, split and well shaved, are light, durable, and able to resist rain. But they are becoming scarce and costly, and their cost will undoubtedly increase until it becomes necessary to use some other material in place of them. Sawn shingles make a very handsome roof, but lying very closely, and having a rough surface, they hold the water, and become moldy and decayed very soon unless some preventive measures, too troublesome for general use, are taken. Slates are exceedingly heavy, and are not well adapted for frame buildings unless they are very stoutly built; besides, the cost of freight on them restricts their use to the neighborhood of the quarries or to contiguous lines of railroads. Tin roofs are especially valuable in cities and towns where flat roofs are desirable, and where mechanics can be obtained who can lay them properly. They are probably more costly than any other roof. The most useful roofs for farmers or dwellers in the country, as we believe, are those which can be easily applied without the aid of skilled labor. Some of these forms of roofing are peculiarly valuable for their fire-proof qualities, as well as for their durability, lightness, cheapness, and the ease with which they are laid. Most prominent amongst all these is Johns' Asbestos Roofing, which is light, strong, and practically fire-proof, and being manufactured in rolls of sufficient length to reach quite across the roof, very few joints are made in laying it, and it is not likely to leak. Two men quite unskilled, or only sufficiently skilled to be able to lay one strip on another with a lap of one inch, can cover a large roof in one day. The roofs covered with it do not need much pitch; in fact, they are better to have only so much inclination as to cause the rain to flow off and no more. This saves expense of timber in the roof. The roof once laid is kept in order at a very trifling expense, and will last many years.

A Visit to Mr. Mackie's Jerseys.

BY GEORGE E. WARING, JR., CODDEN FARM.

Having to deliver the address at the Annual Fair of the Housatonic Agricultural Society last fall, I took occasion to visit the beautiful farm of Mr. J. Milton Mackie near by. By correspondence, I have kept myself informed of the condition of the establishment since that time, and the herd of Jerseys which forms its principal feature seems worthy of notice.

There are about thirty, all thorough-breds, several of them imported from the Island of Jersey. They are of various colors, from dark mulberry to creamy fawn. The lightest ones are quite as hardy as the dark, and both are as hardy and healthy, under the same treatment, as the native cattle—bearing the rigor of Berkshire winters with only ordinary care. Mr. Mackie has noticed the same tendency to the

production of cream rather than fat that is characteristic of the race in warmer climates.

Great importance is attached to the "escutcheon" or milk-mirror, and he has one family of ten or twelve females in which every heifer born has a perfect escutcheon. I state this fact without pretending to decide whether it has any certain influence on the product or not. It is my belief that it has a great deal to do with it. Whatever may be the incidental causes of Mr. Mackie's success, it is unquestionably such as he would find it impossible to secure with any other than Jersey or Guernsey cows.

During the past twelve months he has milked an average of eleven cows and heifers of all ages—these and no more. He made in that time 2,547 lbs. of first-quality butter—an average for each animal of 231½ lbs.—and this from cows of which four can be kept on the food needed for three of the larger native cows. Mr. Mackie sells his butter in Boston for 75c. per lb., but of course only a few farmers could get such a price. They could, however, get an advance on regular market rates, and the increased amount of the product would of itself be a great item. So much for the result. Concerning the methods of treatment, we quote the following from a recent letter from Mr. Mackie:

"I can not lay claim to any superior method of feeding. During the winter, good, moderately early cut hay is fed, morning and evening, after having been cut, moistened with cold water, and sprinkled over with equal parts of Indian meal and wheat bran, at the rate of one quart of the mixed grain for each cow. After the cut-feed in the morning, each one has about a peck of sugar-beets, also a little salt. A feeding of long hay is given in the middle of the day. The cows are let out into the yard for water after their morning and mid-day meals. They are carded and brushed every morning. In the stable they stand in stanchions and on a platform. They have the liberty of a warm, sunny yard for several hours every day when the weather permits. On this regimen—they are pastured and fed with sowed corn, pumpkins, or sugar-beets in summer and autumn—the cows are kept in good store or breeding condition.

"The calves are taught to drink milk when they are two or three days old. When about a month old, they are put on skimmed milk, with a trifle of wheaten shorts. The skimmed milk is sometimes continued for a year. The calves do remarkably well on it, being neither over nor undergrown, and well shaped. Almost without exception, I have found the heifers an improvement on the dams. I do not feed my cows with the aim of making the greatest possible amount of milk or butter, but mainly with reference to maintaining a good state of health, in order to raise healthy and improved calves."

HAYING TOOLS.—Thousands of farmers under whose eyes this item will fall will find it peculiarly addressed to themselves. Its object is to induce them to make use of the first stormy day to overhaul their mowing machines, tedders, horse-rakes, and forks; see that every worn part is renewed and every weak part made strong, and that everything connected with them is in first-rate running order, duplicates being provided of such pieces as are liable to break in the field. A dollar spent now may save many dollars in lost time and damaged hay. There is no more unpromising sight than that of a farmer driving five miles to town in the height of the haying season to repair last summer's damages to his hay-rake.

Ogden Farm Papers.—No. 29.

I think I have nothing more useful to say this month than to give an account of my experience with the use of wind-power. Four years ago, after a careful survey of the whole field, it seemed evident that the best way to get water for the stock was to force it up from a never-failing spring well, 800 ft. distant, and 35 ft. lower than the foundation of the barn. The well was the best in the neighborhood, and the only one on the place which could be depended upon in very dry seasons; its depth 17 ft., overflowing, except in very dry weather, when the water recedes to the depth of about 5 ft., and there stands. I went over the whole question of motive power as carefully as I could. A steam-engine at that distance from the buildings was out of the question, and there was never flow enough for any sort of water-power. A caloric engine was advised, but the interest on cost, and the expense for fuel and attendance, made it desirable to avoid it if possible, though its use was not impracticable. I had always had a fancy for self-regulating windmills, and knew enough of the various kinds previously in use to doubt their stability. Just then the Empire Windmill was brought to my notice, and it seemed to obviate one very serious difficulty by the fact that it exposes to the wind in no one piece more than about half a square foot, thus dividing the strain, and by its frequent spaces allowing free passage for the wind. Still, I had never seen one at work, had never heard of its success except from its interested friends, and had generally the consciousness that if I adopted it I should be trying an experiment for the success of which I should get few thanks, while its failure would bring down upon me yet one more "I told you so," and "I told you so" is a form of vituperation of which I had heard enough to have grown slightly weary. However, to water a big barnful of stock in the ordinary way looked so formidable, that I concluded to try the windmill and take the risk.

Its original cost, delivered at Newport, was \$200. The building on which to place it cost \$50 more. With the help of a common mechanic and of the printed directions that accompanied it I put it up myself. The rest of the arrangement—pipe, tank, watering-troughs, etc.—are the same that would have been used with any other power. It is only necessary to say of them that they enable us to water all the stock in the barn almost entirely without labor. The regulating machinery of this mill was rather crudely arranged, and weakened my faith in its durability; at the same time it did its work remarkably well. Neighbors and friends foretold its downfall with every storm, and I have never yet quite outgrown the habit of looking doubtfully as I go over the hill toward the farm to see whether it is still standing, although the great gale of September, 1869, which uprooted large trees, unroofed houses, and did more damage than any storm for fifty years, left the apparatus entirely uninjured, and satisfied all who saw it of its substantial utility.

Through carelessness in attending to such little details as screwing up loose nuts, tightening brace-rods, etc., the mill began, after three years of use, to grow shakily and to rock on its turn-table, so that finally a gale did it serious damage, which it cost over \$50 to repair. Then it ran a year longer without material injury, but the seeds of disease had become deeply seated with it. Loose bolts rattled and loose gudgeons ground away in spite of oil, until finally, after

four years of utility, my Empire Windmill went by the board, nearly a total wreck. Our confidence in its merits had become so great, and such radical improvements in its construction had been made, that we did not hesitate to order a complete new mill to take its place. This has now been in operation for some weeks, and there is every indication that it is safe against all injury except that of the ordinary wear and tear to which all mechanism is subject. The practical question now is, whether Ogden Farm has received a full return for the \$300 its windmill has cost?

To begin with, we have learned how to take care of such machinery, and even the old mill, if we had it new again, would surely last us twice as long as it did. In addition to this, the actual work done has been prodigious. There has been on the place during the whole time an average of seventy head of stock in winter and thirty-five in summer, or an average for the whole time of over fifty head. How much it would cost to pump by hand the water that this number of animals would require in four years my readers can judge as well as I. How much is lost all winter long by turning milking or fattening animals out into a cold barn-yard to shiver over a tub of ice-water few of us rightly understand. In addition to what the stock has required, we have had an ample supply for a large steam-boiler, and for moistening all the cut fodder that has been steamed for the stock. For a year past there has been an almost constant flow of water, fresh from the underground spring, to keep the deep milk-cans warm in winter and cool in summer. Before this, we had all summer a fresh and cooling flow over the concrete floor of the milk-house. This is the water that we have used; besides this, a large amount has run to waste, and the mill has not been working more than two thirds of the time when there was wind enough for it. It is not easy to compute the value of all this in dollars and cents; but when we consider the convenience of watering a whole line of cattle, standing in their stalls, by simply turning a faucet, the economy of not turning them out to water in severe weather, and the advantage of having water always before them at the temperature of the stable; and when, in addition to this, we fairly estimate the benefit of the deep-can system in making better butter, and in making it more easily in winter and in summer, we shall see that a yearly tax of \$1.50 on each animal kept is really of small moment.

At the same time, I believe that this is much more than will hereafter be necessary, for the construction of the new mill is so much more simple—avoiding so many of the objectionable features of the old one—that the chance is very much better that the present machine will last eight years than was the chance of the old mill's lasting four years.

Occasionally, when our water-works have been out of order, making it necessary to haul our water from an adjacent pond or from the house-well, we have been made to realize the importance of the saving they constantly effect.

I have made no other application of wind-power, and am not prepared from my own experience and observation to say anything very definitely in its favor, but I am not at all sure that the economy of a large windmill, consuming nothing but a little oil, would not be sufficient to justify one in substituting it for a steam-engine, costing more at the outset, consuming more oil and lots of fuel besides, and adding somewhat to the rate of insurance. If food is to be steamed, the extra cost of fire to

run an engine is not very great, but for any work such as cutting hay, grinding grain, sawing wood, etc., which may without disadvantage be postponed until a fair wind is blowing, the windmill has advantages that entitle it to careful consideration. This is only a suggestion, however. My positive advice must be confined to the very important question of water supply. But for this it is positive, and I should not hesitate to recommend it in any case where a permanent water-power can not be had.

A correspondent from York, Pa., asks "whether the slatted floor in our pig-pen has been a success or a failure; whether unpleasant draughts from below have been prevented, and whether dry earth can be used to prevent foul smells, at a cost that will certainly pay?" The slatted floor certainly has been of great advantage, especially in a country like this, where straw is too dear to be freely used for bedding. It is the driest floor that I have ever seen, all moisture running directly away. We have not, however, found that the use of dry earth in the pig-pen was a success. It does absorb and destroy foul odors without doubt, but it also absorbs urine, and becomes very wet and very troublesome earth, soiling the swine, clogging up the openings between the slats, and making itself generally nasty. If straw can not be used in abundance I prefer the dry boards. As to draughts from below, we are not troubled by them in the least, for the reason that the cellar is tight all around, and there is no chance for draughts from that source. We have not been especially annoyed by odor from the manure in the cellar. The house is by no means sweet-smelling (as what pig-pen is?), but it is no more offensive than those made on any other plan, and the health of the pigs sufficiently attests the wholesomeness of their quarters.

While advocating the use of slatted floors for swine, I do not especially recommend them for cattle stables with manure cellars underneath. They are advantageous in all of the points previously claimed for them, but they have one serious disadvantage that we did not previously foresee. With a tight floor, manure might be hauled out at pleasure at any time during the

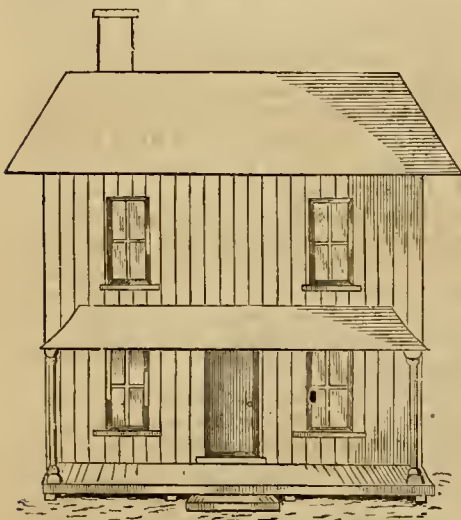


Fig. 1.—CHEAP FARM-LABORERS' HOUSE.

winter, without reference to wind or to temperature. With a slatted floor, on the contrary, a cold cellar means a cold stable, and we are sometimes unable to open the cellar door for months together. Of course the manure is keeping well all this time, but it is accumulating work for the busy spring-time of the year which

it would be a great advantage to be able to avoid. If I were going to rebuild the barn I should adopt a short stall floor with a drop behind it as the best arrangement I know of.

Spring is upon us, butt-end foremost, and winter has hardly left. Everything is fully a month behind, and there is no reason to suppose that we shall be favored with a lengthening of the season at the other end. With us, corn-planting and oat-sowing will come about together. At this time, April 27th, not an acre of land on the farm has been plowed, nor has any considerable amount of out-of-door work been possible. Add to the lateness of the season and the length and severity of the winter the fact that we seem to be entering upon another season of severe drouth, and it will be seen that the prospect of profitable farming is not so flattering as we could wish. However, I won't grumble—that is a common failing of our craft which it may be as well to avoid. It is always too hot or too cold, too wet or too dry, too early or too late, or too something else to suit our ungrateful souls; and we ought, all of us, to be ashamed of ourselves for being so blind to our advantages. With high wages, expensive living, hard work, unfavorable seasons, and no end of

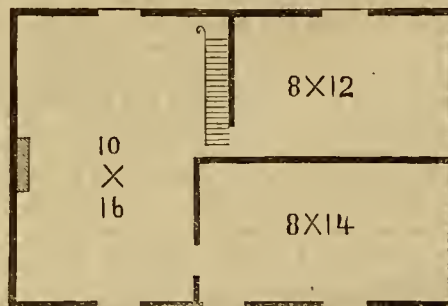


Fig. 2.—PLAN OF LOWER FLOOR.

annoyance to pull us down, we have high prices, good implements, easy transportation, and ready markets to cheer us up, and surely no agricultural population in the civilized world (laborers included) is so well housed, so well fed, and so well dressed, nor held in so good consideration in the community as the millions of dissatisfied, grumbling farmers of America. How it may be in what we are disposed to regard as the uncivilized world we have no means of knowing, but I suspect that the frugal industry and close economy of the cultivators of China and Japan produce as a result quite as much comfort and satisfaction as we get from our spendthrift ways.

Houses for Farm Help.

Doubtless many farmers' wives will gladly welcome this article with the illustrations belonging to it. No harder nor more wearisome work falls to the lot of a farmer's wife than the care of the "help," and the extra cooking involved. It is generally the case, too, that farm laborers are not just exactly the sort of men that we would desire our boys and girls to associate with, and the privacy of the family is interfered with when they are boarded in the house. Every inconvenience is at once avoided by erecting a tenant-house for occupation by the laborers. This also enables the farmer to get the most desirable and steadiest sort of help possible—that of a married man. With such help, all other hands, whether regular or occasional, may be provided for and entertained. The cost of such a house is comparatively trifling when the conveniences are considered.

Figure 1 represents a two-story frame cottage 16x24 feet. Figures 2 and 3 show the arrangement of the lower and upper floors. It will be seen that there are one large room for cooking and eating and two sleeping-rooms on the lower floor, and three sleeping-rooms on the upper

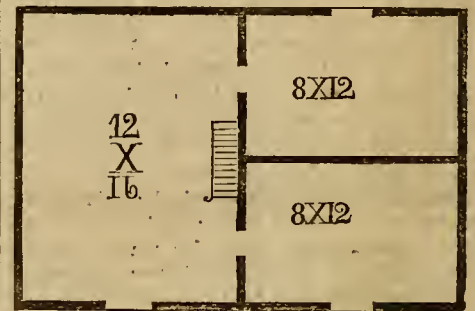


Fig. 3.—PLAN OF UPPER FLOOR.

floor; the large upper room may be used for a sitting-room for boarders. Twelve people may very well find room with provision for perfect privacy and other requisites in such a house. The cost of materials when built of boards, battened, with matched floors, plastered all through, and a shingle or felt roof, will be under \$200. Much of the labor may be done by the farmer himself, as digging the cellar, laying up the stone foundation, and hauling materials. With labor and materials all included, \$250 will be about the total cost. A large interest on the cost will be gained by the relief afforded to the owner's own family, and as much more by the steadier and more regular kind of labor to be secured. If money is to be spared for a more sightly building, that shown at fig. 4 might be adopted. The inside arrangements are the same, but the outside is made more ornamental, and is very much improved by the garden planted around it. It is worthy of consideration here whether it would not be of great benefit to those farmers who regularly keep hired men, to make it an object for them to retain their places permanently, and make them comfortable by providing them facilities for having gardens, a stable, and a cow and a pig of their own, as is done almost always on English farms. In that country, while farmers hold their farms mostly as ten-



Fig. 4.—LABORERS' HOUSE ORNAMENTED.

ants, and would seem therefore very liable to occasional or frequent removals, yet on the contrary the same family very often remain for generations on the same farm, and have grandfathers, fathers, and children working for them at one and the same time. Under such circumstances it is an object for them to surround themselves with those little comforts and conveniences which on the whole make up much of the pleasure of living.

Longhorned and Polled Cattle.

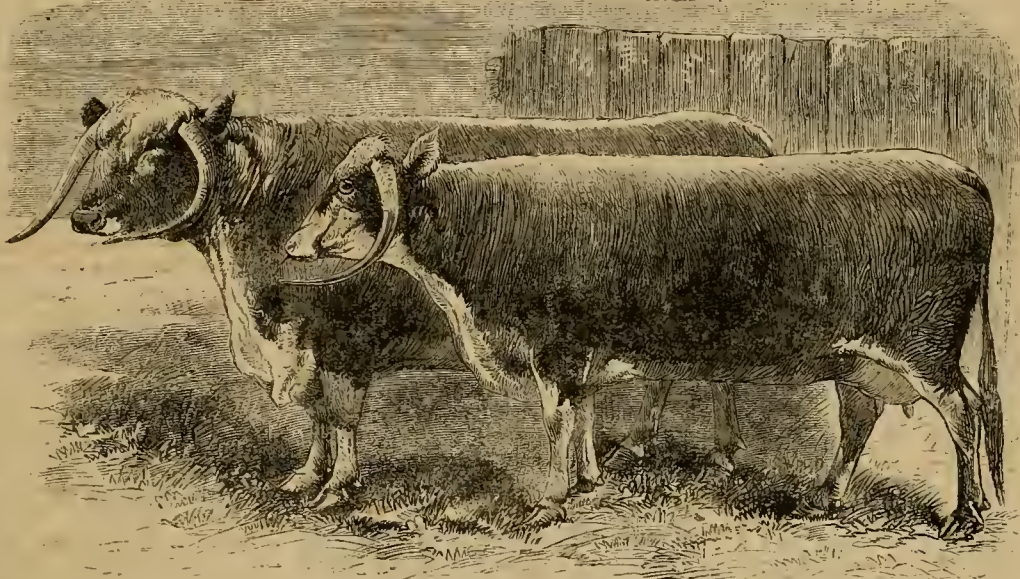
A hundred and fifty years ago, in the western part of Yorkshire and the eastern part of Lancashire—two adjoining northern counties in England—there existed a breed of very large-bodied, coarse-boned cattle with a very striking peculiarity in their horns, but which, having some favorable points, were about that time taken hold of by breeders and subjected to a course of improvement. Specimens of the breed were removed to the county of Leicestershire, and in a short time the well-known breeder, the first Bakewell, whose skillful efforts resulted so favorably for English stock, took hold of them, and in a few years succeeded in producing a great change for the better. The large, bony frame was covered with

flesh, and the form became more rotund and shapely. The natural aptitude of these cattle for feeding assisted largely in making the efforts of the breeders successful, and very soon they became favorably known, and much prized for feeding, as the improved Leicesters. At this period they were characterized by their fine head, thin neck, deep chest, low brisket, loin narrow at the chine but wide at the hips, fleshy thighs, and in general a round carcass, with ribs well covered, and a thick mellow hide. The horns, however, were still their most striking peculiarity, being about two feet long on the bulls, and often three and a half on the oxen and cows, fine and tapering, and hanging downwards by the sides of the cheeks. They became a favorite stock amongst the graziers, and at public sales so long ago as 1790 brought prices which would be thought large even at this time—viz., \$400 on an average of fifty head. When it is considered that this stock possessed, along with their other good qualities, that of early maturity, it is strange that they should so soon have disappeared from view behind the then rising Shorthorn. But the Durhams or Shorthorns coming then into fashion soon displaced the more ungainly Longhorns, and for some

years past the native county of the improved Leicesters has not contained a single herd of this breed. In their ancestral home, too, in Lancashire and Yorkshire, they have also given way to the more fashionable breed, but whether anything has really been gained in the change is doubtful, when it is remembered that this old

of America. As a curiosity, and as one of the ancient races which has done good service in its time, it is worthy of note. And yet it would not be at all surprising to see this stock come again into prominence, if in no other way than as a means of procuring a cross on the Shorthorn, hints being occasionally given by

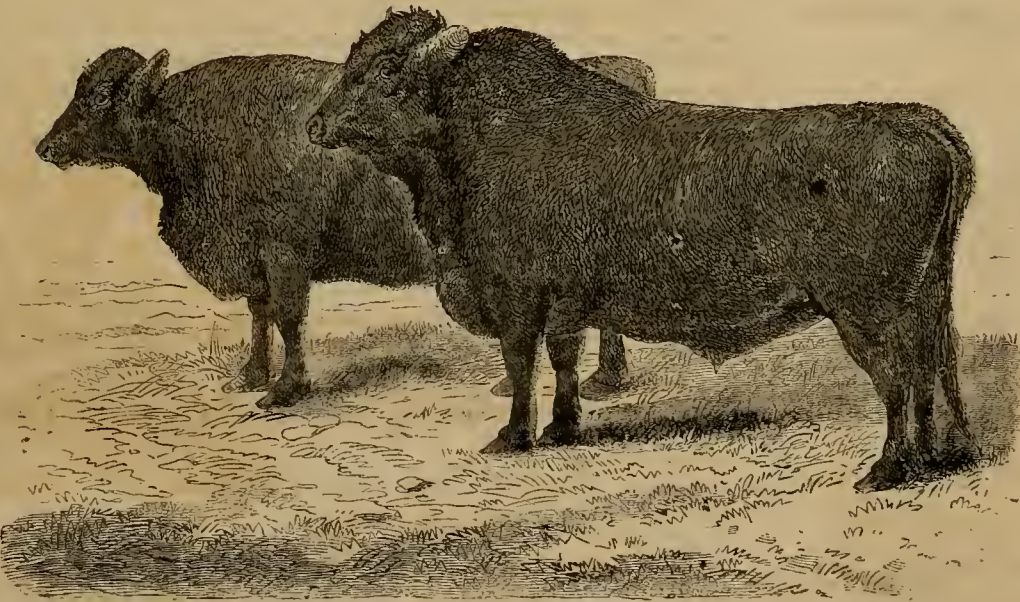
breeders that such a cross might be desirable. In striking contrast to the Longhorns stand the no-horns or polled cattle, both in the matter of horns and general figure. We lately described the Scotch or Galloway polled cattle, and now present an illustration of the English or Norfolk and Suffolk breed of polled cattle. This race of cattle owes its origin to the introduction of the polled Galloways into the counties of Suffolk and Norfolk, where they have been for long periods, and are now, brought in



LONGHORNED CATTLE.

large droves for the purposes of feeding for the market. Having excellent qualities as beef cattle, the bulls were crossed upon the native stock of those counties, which although excellent milkers, were deficient in form, having, according to the eminent breeder Bakewell, "a back like a roof of a house, with a belly of an exactly opposite character," giving them just the points which would be undesirable in a beef stock but desirable as milkers. The cross resulted in improving their form without injuring

their milking qualities, and building up a race of brownish red and brindled cattle which have gained a reputation in England as producing the best butter which goes into the London market—and this in spite of the imperfect modes of dairying prevalent amongst the Suffolk farmers—and also of being fair beef stock. Still, dairying being the main object for which this stock is bred, and the absence of horns being equally desirable to the Suffolk dairymen, care has been taken for many years to



NORFOLK AND SUFFOLK RED POLLED CATTLE.

being owned by the Duke of Buckingham. It is not probable, however, that in the race for superiority, at least so far as fashion is concerned, the Longhorns will ever supersede the more favored Shorthorns, which seem to have taken a firm hold on breeders, especially those

breed their stock so as to perpetuate these desirable qualities. This care has led to success, and the race has long enjoyed the reputation of producing the best milking cows in England. Not infrequently cows of this breed give in their prime eight gallons of milk daily, and six gal-

lons daily is a common product. This large production is also sustained during a lengthened season. As this stock is now being introduced into this country, it would be well to note that amongst Norfolk and Suffolk farmers the greatest attention is paid to the health and condition of their cows, and to the production of proper feed for producing milk. Cabbages and turnips are raised largely for fodder, and it is not uncommon to see the cows tethered in the fields and feeding on these crops. With equal care in their management, and with our improved dairy system, we should expect this stock in the hands of American dairymen to produce butter of a quality equal to that of the Jerseys.

Walks and Talks on the Farm.—No. 102.

“Your Walks and Talks,” writes John Johnston, “are capital; but how you are going to get eight tons of barley straw from five acres I can not understand. I suspect it must be a mistake in the printer.” Is not that a pleasant way of putting it? Criticism tempered with compliment! But there is no mistake about the matter. I have raised over 500 bushels of barley on ten acres, and expect to do still better, and I have no doubt there was 16 tons of straw. True, I did not weigh the straw. But did I not weigh with my own hands both grain and straw and chaff of Mr. Lawes’s first experimental crop of barley in “Agdell-field”? and have I not a right to trust my judgment? Mr. Judd, who has since visited it, will recollect the field—and the facts, are they not recorded in the Journal of the Royal Agricultural Society, Vol. XVIII, Part II?

The barley was not manured. The field was in turnips the previous year. On Plot 1 the turnips were grown without manure; on Plot 2 they were manured with superphosphate alone; on Plot 3 they were manured with superphosphate, potash, soda, ammonia-salts, and rape-cake. After the turnips were grown, the plots were each divided into two parts. On one part the turnips were carted off, and on the other part they were eaten on the land by sheep. The following was the result:

	Plot 1. No manure.		Plot 2. Superphosphate for turnips.		Plot 3. Mixture of artificial ma- nures and rape-cake.	
	After turnips carted off.	After turnips fed on the land.	After turnips carted off.	After turnips fed on the land.	After turnips carted off.	After turnips fed on the land.
Grain per acre, lbs.	2,681	2,734	1,676	2,526	1,943	2,569
Straw per acre, lbs.	2,992	3,182	1,989	3,264	2,463	3,674
Grain in bushels of 48 lbs., bus.	55½	57	35	52½	40½	53½

I do not propose to discuss these results. I only give them to show that I was not so wild as Mr. J. supposed when I estimated that five acres of barley at 50 bushels per acre would give eight tons of straw. Or, in other words, that the crop would consist of six tons of grain and eight tons of straw and chaff. I am well aware that it requires very rich land and the best of tillage to produce such a crop.

The largest yield of grain in Mr. Lawes’s barley experiments was 3,696 lbs. per acre, or exactly 77 bushels of 48 lbs. per bushel. This was the sixth crop of barley in succession, every year on the same land! The plot was manured every year with salts of ammonia and superphosphate. The yield of straw on this plot

was 3,687 lbs. per acre. Two years before, however, one plot, dressed with salts of ammonia, superphosphate and sulphate of potash, soda, and magnesia, yielded 5,487 lbs. of straw per acre and 3,539 lbs. of grain, or a little over 4½ tons of total produce per acre. I only mention these facts to show what can be done. But I am well aware that not one farmer in a hundred believes them. When I told the Deacon that the barley on “Agdell-field” at Rothamstead weighed 57½ lbs per bushel—that I weighed it myself, that the bushel was not moved or shaken while being filled, and was struck off level—I could see that he did not believe it. And when my first crop of barley on this farm was 12 bushels per acre, weighing less than 40 lbs. per bushel, I can imagine that the good Deacon after church the next Sunday, when talking to his brother farmers under the shade of the maple-trees, might in reply to an observation remark: “An excellent sermon.—Yes, he thrashed last week. Wheat, 15 bushels per acre. But he did not sow that. Oats rusted—only 8 bushels per acre. Not worth thrashing. Barley, 12 bushels. Took it to the city. Couldn’t sell it. Had it ground for the hogs.” After a pause: “Well, they want it.—Yes; an excellent sermon.”

After Ezra Cornell visited Mr. Lawes’s experimental farm, in company with Mr. Judd and others, he wrote an elaborate paper showing that the crops, though large, would not pay. He went to a chemist and druggist, and ascertained what the ingredients which Mr. Lawes used would cost. He doubtless thought the argument a good one. He overlooked the fact that if Mr. Lawes wanted to ascertain the effect of potash it was necessary to separate the potash from other ingredients, and that this is a costly operation. But if Mr. Lawes proved that potash was good, Mr. Cornell, as a practical farmer, need not buy pure potash. He could use ashes, kainit, or any other article that would furnish potash in the cheapest form. Mr. Lawes used ammonia on one plot, potash on another plot, and soluble phosphates on another, and on other plots he used all three mixed together in different proportions. To do this, it was necessary to use these articles in an expensive form. But having ascertained that ammonia, phosphoric acid, and potash are the most valuable constituents of all manures, then it is no longer necessary to go to a “chemist and druggist” and pay high prices for them. We, as practical farmers, have only to study out for ourselves the cheapest form in which we can get these substances. It may be by following the land, or growing clover, or buying bran or cotton-seed cake and feeding it to animals; or by buying ashes, bone-dust, superphosphate, guano, dried blood, fish, or fish guano, castor-pomace, hair, horn shavings, hide or leather scraps, salts of ammonia, or nitrate of soda, according to circumstances. He is the wise farmer who accepts the teachings of true science, and uses them to his own advantage. Lawes’s experiments have been worth millions of dollars to the farmers of the world. They did not pay directly. He never expected they would. I can recollect his buying a quantity of rice (in order to ascertain the effect of carbonaceous matter), and grinding it into a fine flour, and then sowing it on the land. How the farmers laughed! But it was not many years before they presented him with a testimonial in the form of a new laboratory.

I asked our path-master the other day if I might work a day or two on the road at this

season (April), and have it deducted from my tax. I wanted to let off the water. I am assessed more days’ work than any other four men in the district, and am very anxious to have a good road, and have offered to double my tax if the others will, and make the bed of the road dry and firm by letting off all the water. But no. We must “work out” our tax in the old way. I am assessed eighteen days’ work. Some time in June I am notified that to-morrow they are going to “work on the road.” A man and team and scraper, or plow or wagon, count three. I send three teams and three men for two days, and the tax is paid. They do not half work. The path-master has had no experience in managing men. He does not know how to plan the work. To get rid of them, he sends a couple of teams to draw gravel, and they do not get back until half-past ten, and they think there is not time to draw another load before noon. Another team is started to plow along the side of the road, and the team with the scraper lies idle waiting until this is accomplished. There are stones to be picked up before the ground can be plowed. When this is done the plow is finally started. The ground is dry and hard. One man drives, another holds, and one or two more ride on the beam. The horses are overtaxed, and have to rest every few yards. The men rest too. All this time the scraper is waiting. By and by it starts, with one man to drive and another to hold the scraper. The plow is still going back and forward, and every bout it has to wait for the men with the scraper to get out of the way, and when the scraper comes back for another load it has to wait for the plow. And so the work goes on. Our path-master is an intelligent, industrious, and successful farmer. He is not to blame. It is the fault of the system. Fifty men, even if the work is well planned and properly executed, can not make as good a road in one day as one man can in fifty days.

Mr. Root has written an article for the Rural Home advocating the non-drainage of swamps in Western New York. He thinks it will not pay to drain them. “There are occasional exceptions,” he says, “when such lands are in the vicinity of cities, and can be made very valuable for garden uses, and thereby beautify the face of the country when it is desirable to bring them under improvement, but for the ordinary purposes of farm cultivation it is quite different. Nothing short of a thorough system of under-draining will fit these lands for profitable cultivation. . . . That large tracts of waste lands have been profitably reclaimed in the vicinity of large Eastern cities is no argument that the same course should be profitable here. The Hackensack salt meadows, near Newark, N. J., reclaimed at a cost of about \$185 per acre, are now valued at \$1,000 per acre; and yet if those lands were lying in this vicinity, and were wanted for only ordinary farming purposes, their value would be hardly equal to the cost of reclamation.” That is to say, they would “hardly” be worth \$185 per acre. Coming from such a man as Mr. Root, and published in one of our most respectable agricultural journals, such sentiments are calculated to retard the operation of our new drainage law. Those of us who are endeavoring to drain our swamps meet with sufficient opposition already, and have a right to expect moral support and sympathy from all intelligent friends of agricultural improvement. Mr. Root seems to forget that these swamps render the whole vicinity for miles around unhealthy. I could wish the malaria

arising from one of them might get hold of him and shake him three times a week, with an extra squeeze on Sunday, until he changes his sentiments. For a farmer to write such an article, at a time when few days pass that we are not called to mourn the loss of some friend or neighbor from spotted fever, is monstrous. The physicians in the city are fearing a great increase of disease. But, if possible, the country is more filthy and more unhealthy than the cities. And it will continue to be so until we drain our land.

It is ridiculous to talk of \$185 per acre as the cost of draining our swamps. After a good outlet is secured, most of the swamps that I am acquainted with could be drained for \$10 per acre. The land is quite porous, and a drain, if deep enough, is effective to a far greater distance on each side of it than in our firm, upland soils. Mr. Robert J. Swan, of Geneva, N. Y., who has laid *sixty-one miles* of underdrains on his farm of 344 acres, found that he required double the number of drains on the upland that he did on the lowland. Had he drained the upland first, the probabilities are that the low land would have needed little more than a few main drains. As it was, the draining of the whole farm cost less than \$20 per acre—and it is probably one of the best drained farms in the State.

The great error in draining low land is in not making the open ditches or outlets deep enough. I have heard farmers say that they did not want a ditch so deep that they could not drive across it! They must either give up this notion or be content with wet land. Hitherto, a farmer who wanted to drain was almost certain to find that he could not get sufficient fall on the low land without doing more or less ditching on the adjoining farms. And he would be pretty sure to meet with opposition. But the new drainage law in this State puts a new aspect on the matter. The friends of improved farming have so far triumphed. It is now too late for any man to oppose the draining of swamps.

Of course, it is far better and cheaper to do the work by mutual consent, and share the expense according to the benefit. And one of the best effects of the law is that it favors this result. When some stupid, stand-still neighbor finds that you can not only compel him to let you drain through his land, but that he can be made to pay a portion of the expense in proportion to the benefit the ditch will do him, and that if he compels you to ask for the appointment of commissioners, the legal expenses will probably be more than the actual cost of the work to be performed, he will be very likely to withdraw his opposition. He knows that if he does not you can proceed according to the law and beat him. The law is just in principle, and in the end public opinion will sustain it. If the proposed ditch injures your neighbor you must pay him for the damage; if it benefits him as much as it does you, he must pay half the cost.

Last year I raised three acres of Yellow Globe mangel-wurzel. The crop was a capital one, averaging at least a thousand bushels per acre. Part of the piece was on land that when I took the farm was so swampy that the cows mired in it nearly the whole summer. I have been only able to drain it partially, owing to the water setting back from the creek. I could do nothing more than cut an open ditch through it eighteen or twenty inches deep. I have one shallow underdrain in it laid on boards through a quicksand, but, with this exception, all the drainage it has is from the main ditch and a few

furrows made with the plow and hoe. On this swampy land thus partially, I might say miserably, drained, the mangels were the best in the field. You need not tell me that our swamps are poor, and will not pay for draining. They have been receiving the wash from the uplands for centuries, and are the richest parts of the farm. In fact, it is from these rich, alluvial soils that I look for the means of making manure for the upland portions of the farm. Innumerable instances might be mentioned where farms have been brought to a high state of fertility principally from the judicious management of the low land. But it is not necessary to cite them. The men who prefer to shake with the ague rather than to drain their swamps are beyond the reach of argument.

"Can footrot in sheep be cured?" asks a correspondent. "I am told that it can not, and my experience seems to confirm the opinion." It is certain that not one farmer in ten ever does cure an affected flock. And the reason is that they do not dress the whole flock, and stick to it until every particle of the virus is killed. The farmer who thinks he can not kill Quack grass would be very apt to think he could not cure footrot—and we might quote any number of cases to sustain his opinion. This kind of negative evidence proves nothing. If you try to get rid of Quack, you must kill every root of it, or it will grow and spread, and in a few years the land will be as foul as ever. And so will footrot. You may *nearly* cure it, but if the virus is not completely destroyed the disease will break out again. It is so with scab in sheep. The only way to cure it is to dress *every sheep*. After shearing, it is an easy matter to cure the scab, as the sheep can be dipped every week or ten days until the cure is certainly effected. Nothing is better for this purpose than a strong solution of carbolic soap. It would be well if we all dipped our entire flock of sheep and lambs every spring and fall. We should then seldom hear anything of the scab, and ticks would be abolished. I bought a barrel of crude carbolic acid for \$15, and use it very freely as a disinfectant. A quart of carbolic acid and a gallon of petroleum is a capital thing to use as a paint or wash on all the wood-work about pig-pens, hen-house, etc. It is death to every species of vermin except rats and mice, and I imagine they do not love it. I do not myself object to the smell, but I suppose others do, as I have heard my men call it "diabolic" acid—perhaps, however, this was only a mistake in chemical nomenclature.

This spring I washed the trunks and large branches of all my apple, pear, and cherry trees with a mixture of soap, carbolic acid, and lye from wood ashes. It killed every bit of moss, and has greatly improved the appearance of the trees. I smear the roosts in the hen-house with this and am not troubled with lice. It is a capital thing to wash pigs with. And for a dip for sheep nothing is equal to it. It kills every tick, and if used strong enough and often enough it is said to be a certain cure for the scab—and I think there can be no sort of doubt about it. It is the most penetrating substance I know anything about. I have used the crude acid alone mixed with water—say a quart of acid to six gallons of water—for dipping sheep, but prefer the soap.

For footrot, this crude carbolic acid is the cheapest and most effective remedy. But I prize it not so much as a cure as a preventive. I have no footrot among my sheep, and no symptoms of it, but I wash the feet of every sheep and

lamb two or three times a year with this acid simply as a preventive. Sheep are frequently driven along our roads that have footrot, and the most careful farmer may get the disease into his flock. Where sheep are sent to a common resort for washing, I would wash their feet with carbolic acid before they were sent, and again at shearing time. With a small brush the acid is quickly applied.

I have just finished harrowing my wheat with Thomas's harrow (April 19th). I harrowed it first the way of the drills, then crosswise, and then after sowing the clover seed we went over it again lengthwise. The field is as smooth as a barn-floor—and almost as bare. It seems pretty hard treatment, but on examination I could not find that it pulls up any of the plants. On the lighter, sandy portions of the field the plants look as though they were smothered. But we shall see. The Deacon's wheat is on an adjoining field of the same character of land, with only a fence between. Both fields are in full view from the public road, and if he beats me I shall be able to throw the blame on friend Thomas and try again. At present the Deacon's looks full as well as mine. But my land is pretty well drained, while some portions of the Deacon's is not—and if we should have a wet May and June I may come out ahead. So far, it has been one of the best seasons for wheat on wet land I ever knew. They say, "Poor farmers do well once in seven years," and this may be the one. The ground is dry, and very few of the underdrains are running. Generally at this season they are taxed to their full capacity.

Hay-Making.

The importance of the hay crop can not be overestimated. Not only are grass and clover at the basis of our method of agriculture, but the hay as an article of fodder is our great dependence during the feeding season. It is therefore important that it should be gathered in such a condition that its nutritious properties should be retained in the highest degree. Generally our hay crop is gathered so late that it has lost much of its value. This was clearly shown in a late instance, when some American hay was sent to the English market, and on being sold at Liverpool brought ten dollars per ton less than was then current for English-grown hay, the loss of value being solely due to its over-ripeness. We could not have a fairer test, for there are no better judges of the value of fodder than English feeders, who have learned by many years of experience. We may take it for granted that hay not in the barn by the end of June has lost one fourth of its money value. This is the true light in which to view it. Clover, then, should be cut before a head has turned brown, and timothy, orchard grass, or red-top before fairly in blossom. When cut in its best condition, still much of its value depends on its curing. Its greatest value is preserved when dried in the shade. It should therefore be cured in the cock, and not allowed to be exposed to the hot sun for a longer time than to completely wilt it. If dried more than this, the leaves of clover will become crisp and break up readily, and a mass of dry, hard stalks only be left. Our practice has been to cut up to ten o'clock in the forenoon, leave until four in the afternoon, then gather into cocks before the dew falls, and by six have all raked up and cocked, and if there is probability of rain to cover with caps. As soon as ten o'clock the

next day has arrived, open those cocks which were made on the previous day—or two days may elapse without any injury—and as soon as they are all opened, by merely throwing over

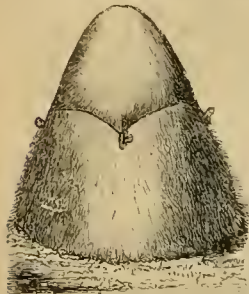


Fig. 1.—HAY-COCK AND CAP.

and loosening a little, commence to load and draw in until four o'clock. The exposure during loading and unloading removes all superabundant moisture, and it goes into the barn or stack without losing a leaf, and with many of the blossoms still opening. By providing ventilators, as in figure 3, the moisture remaining and the heat of the fermentation pass off without any injury or doing any more than thoroughly curing the hay. With such hay, we have made butter of a high golden color in January and February in no wise inferior to that made in June. The cocks should be made high and narrow. The moist hay soon commences to ferment, and if put up at four o'clock will be found quite warm at ten o'clock at night; but the heat easily passes off at the sides, and carries the vapor from the hay with it. Fig. 1 shows the form in which we have built



Fig. 2. PEGS.

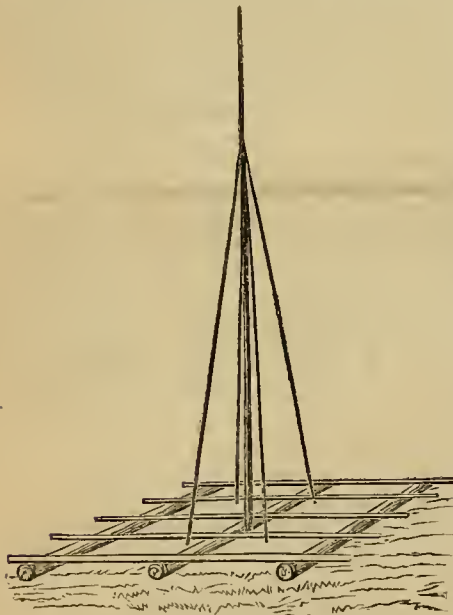


Fig. 3.—FOUNDATION FOR A STACK.

the cocks, and the mode in which we have been used to cover them. They may be made large enough to contain 200 pounds of hay, or eight to a load. The cap is merely a square piece of sheeting, which may be procured of any width from a yard up to two yards, but a cap a yard square may be made to do good service, and will cost about twelve cents. The ends are hemmed, and at each corner an eyelet hole is worked, in which a loop of small cord is fixed. Pegs are to be made, either of a piece of shingle or of a twig, cut as figure 2. Hay thus protected may stay in the field for a week without injury, and in windy weather the tops of the cocks will not be blown off.

Stacking hay requires more care than is generally given to it. If stacks can be made rain-proof the expense of buildings is saved. They may be built in this way and so finished off that

there will be no waste in using the hay. A stack-yard to which cattle or hogs can not gain access, and near the barn or stables, is the best.

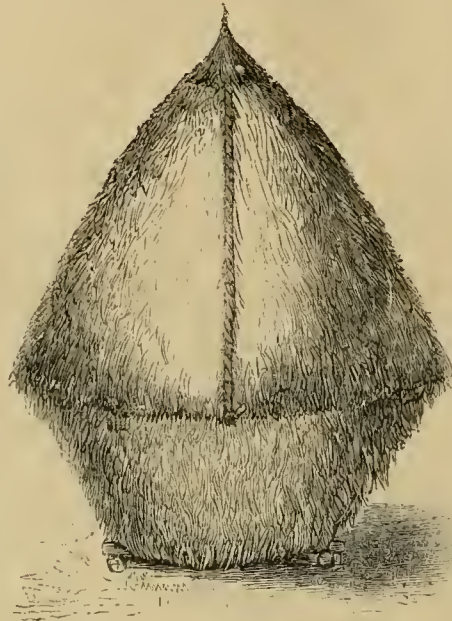


Fig. 4.—PROPER FORM OF STACK.

Here foundations (fig. 3) should be provided to raise the hay from the ground, on spots somewhat elevated so that water will not collect beneath them. The pole in the center should be set in the ground firmly; it will be a guide in building the stack, and will keep it from settling sideways and toppling over. The form shown in fig. 4 will be found perfectly rain-proof if the hay is well raked off from the sides as it is narrowed in, and the cap at the top neatly put on and kept tied closely to the post as the hay settles down. By making the stack quite steep the rain gets no chance to enter, and runs off freely at the eaves. In building, it is best to keep the hay well trodden down, and time is saved by having an extra hand on the stack for this express purpose. A ladder will be needed for the finishing off. A large sheet is very useful to have in readiness to cover the stack until it can be properly finished off. A straw rope should be passed across the top in two directions, to prevent the wind blowing the top loose, which would allow rain to enter, and should be tightly pegged down at the eaves. A straw rope may be twisted with a crank hooked at one end, as in fig. 5. This simple machine may be fastened to a fence-post or the post of a shed or barn. Any kind of straw or coarse hay may be used, but it should be well wetted previously to using it. One man feeds the straw, walking backwards, and a boy or girl

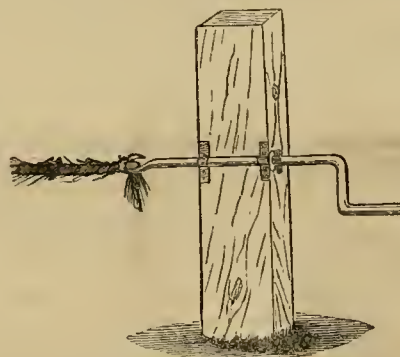


Fig. 5.—TWISTING STRAW-ROPE.

may turn the crank. Other contrivances for twisting a rope will readily suggest themselves.

Large Cows vs. Small Ones.

It is a very important and by no means a settled question, whether (other things being equal) large or small cows are the most profitable. It is not a question between different breeds, but between large and small animals of the same breed.

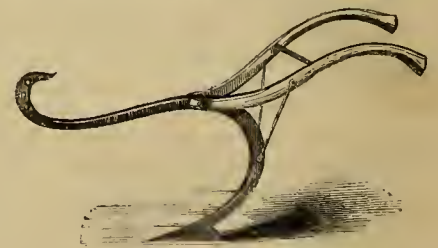
The following experiment, made in Germany, has a direct bearing on the question, so far as the production of milk is concerned. It does not necessarily apply with reference to the production of butter. Four Dutch cows were selected, two heavy (weighing together 2,112 lbs.) and two light (weighing together 1,537). The two pairs were kept separately, but they were fed exactly alike, each receiving as much green lucern as they would eat. The actual consumption of food, by weight, was recorded every day. At the end of sixteen days the following results appeared:

1. The weight of the animals was unchanged.
2. The heavy pair had consumed 4,921 lbs. of lucern, being 14⁹/₁₀ lbs. per day for each 100 lbs. of their live weight; while the light pair consumed 3,859 lbs., or 16 lbs. per day for each 100 lbs. of their live weight.
3. The heavy pair produced 272 quarts of milk, or 8¹/₂ quarts per day for each cow, while the light pair produced only 192 quarts, or 6 quarts per day for each.
4. The heavy pair produced 6 quarts of milk for each 100 lbs. of lucern consumed, and the light pair only 5 quarts.

It is to be remarked that these animals seem to have been enormous feeders and very poor milkers. We would like to see a report of a similar experiment with Ayrshires in the same condition, as to pregnancy, etc.

A Subsoil Plow.

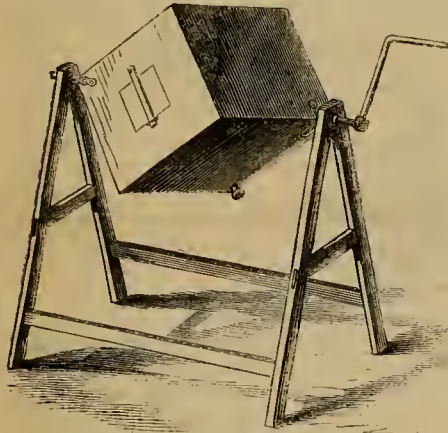
The benefits to be derived from subsoiling are so great and varied, that no farmer should hesi-



A CHEAP SUBSOILER.

tate to provide himself with a subsoil plow, and use it on every possible occasion. We give a cut of a very simple and cheap plow which can be made by any blacksmith for a few dollars. It is made of 1/2 x 2 1/2-inch bar iron, with a simple shovel-scare, six inches broad. The handles are fastened with screw-bolts to the beam, and braced. The uses for such an implement are many. One horse can draw it when a depth of five or six inches only is taken, which is sufficient for a commencement. A field may be subsoiled wholly by taking furrows one foot apart, and two acres a day may be gone over. If run in the rows in which corn, potatoes, turnips, or beans are to be planted, and across in the check rows, great benefit will be derived. Used constantly in these ways, the farm will soon be completely gone over, and the soil loosened to a depth of twelve or fifteen inches. In a few years this loosened subsoil will become mellowed, and may gradually be brought to the top and mixed with the surface soil, and all the

advantages of deep plowing be gained without any of the evil effects which are so often experienced when the raw subsoil is suddenly brought up. A correspondent from Quincy, Ill., sends us the sketch from which the engraving has been made, and in sending it asks if it



A CALIFORNIAN CHURN.

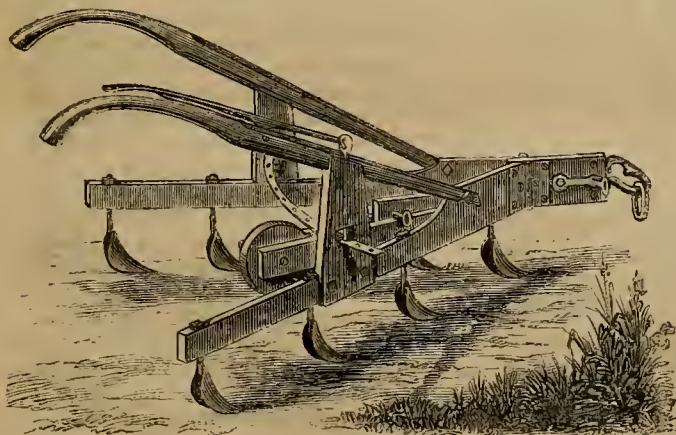
pays to subsoil, and when it should be done—questions which are sufficiently answered above.

A Californian Churn.

A "Subscriber" from Yuba City, California, sends us a sketch of a churn which, he says, is in common use in his locality, and which he recommends to "J. P. C.," Dayton, Ohio, who lately inquired for a good one. It is a square box, hung on a frame by two corners, diagonally opposite to each other, and is turned by a crank, as shown in the illustration. A hole from which the buttermilk is drawn is made at one corner, and is closed by a peg. An opening for putting in the cream and removing the butter is made on one face of the box, and is closed by a bar, sliding across it. When the butter is made, the buttermilk is drawn out by removing the peg. Cold water is turned in, and the butter sufficiently washed and gathered by slowly turning the churn. In using a churn with so many corners, much care should be taken to keep it perfectly clean and thoroughly sweet.

A Cultivator with an Adjustable Wing.

John L. McColley, of Wood Co., Ohio, sends us a model of a movable wing cultivator which he made three years ago on a hint from the *American Agriculturist* that such a machine



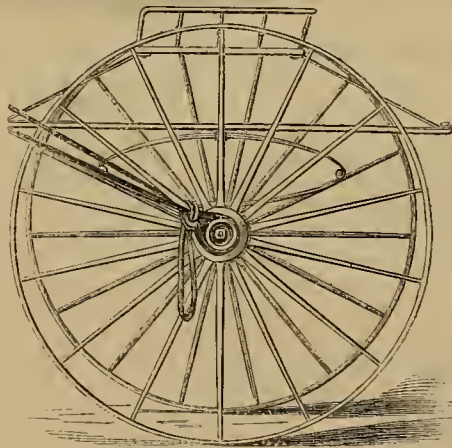
ADJUSTABLE-WING CULTIVATOR.

was practicable and would be useful. With it he cultivates corn in rows that are of irregular

width, as almost all corn-rows are necessarily, more or less. He has used it for three years, and finds it a very useful implement, and desires to give it to the public through our columns. It is four feet long from point to heel, the handles three feet nine inches. The wings are hinged to the central piece by means of common wrought-iron butts. The central piece carries a wheel at its hinder end, and is pivoted so that the wheel can be depressed and the depth of working be thereby regulated. The spread of the wings is lessened or increased at will by pushing or drawing in of the handles, and they are kept stationary when desired by the adjustable bar, which passes through a slot or opening in the right-hand wing. This bar is flat, and is punched with several holes, into which a pin is pressed by the movement of the small handle hinged to the handle of the right wing. This small handle is kept elevated by a spring, and thus the pin is retained in its place and the wings prevented from spreading. By pressing down on the handle, the pin is raised and the wings can be spread or drawn in. The teeth are seven in number, three on each wing and one on the center. They are made in any desired shape, fixed to half-inch round iron stocks which pass through the wings, and are fastened with a nut so as to be removed when necessary. The different parts are all clearly shown in the engraving, where they are drawn to scale, which is three quarters of an inch to a foot.

To Fasten a Horse.

Where there is no hitching-post handy, a



MANNER OF HITCHING A HORSE.

horse may be safely tied in the following manner—viz.; Take the reins and pass them round underneath the hub outside of the wheel, and give them a hitch on to one of the spokes, as shown in the above cut. If the horse starts, the reins are drawn up, instantly checking him, and as soon as he commences to back they are instantly loosened. It is quite impossible with this method that a horse can go when he is not wanted to. The plan here presented is not a new one at all, and we believe a fixture to attach to the hub to hold the reins has been patented, but it in no wise interferes with the method itself, which, though very simple, is very effectual.

Loading Hay.

The more skillful a farmer or a farm laborer is in handling his tools the more valuable is his work. Time is saved, and the "useful effect," as mechanics would say, of his work is in-

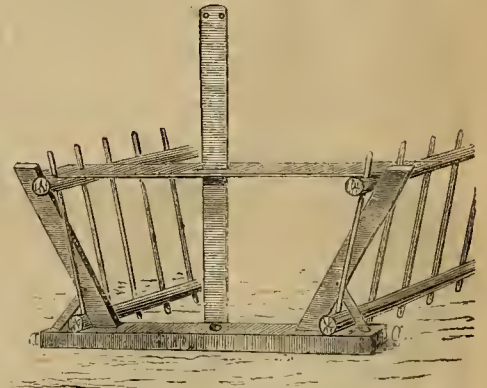


Fig. 1.—HAY-BOLSTER.

creased. Now, there is nothing more valuable in a farmer's work than rapidity and effectiveness at any time, but more especially at harvest time, when so much depends on the sudden changes of the weather. Thus, in loading hay or grain upon the wagon, it is important that it be done quickly, and in such a manner as to economize space, for it is scarcely possible to get more hay or straw at a load than a team will draw, and very often not half a load is made by reason of faulty loading. A farmer needs good hay-racks in the first place. Another needed thing is a bolster of a good shape on which to place the rack. We figure a bolster especially adapted for a hay-rack. It is made of a stout piece for the bottom of sufficient length to fit the wagon, and 4 x 4 inches thick. Standards of 3 x 3 are mortised in an outwardly sloping position near the ends of the bottom piece, fitting closely and pinned tightly. Short braces are then mortised in at *a, a*, fig. 1, fitting loosely, so that they may be easily removed and held in their places by pins, also easily movable. A hole is bored in the bolster for the king-bolt which retains it in its place. To place the rack, which is made of two ordinary hay-ladders, remove the braces (*a, a*), put the ladder in position as shown in the engraving, replace the braces, and put in the pins to retain them.

The ladders may be made of spruce poles, which are light and strong, peeled, and bored at distances of two feet apart, with three-quarter-inch holes. In these holes are placed the rungs of hickory or white-oak, which should be tough



Fig. 2.—HAY-LADDER.

and strong because they are needed to be light. The upper part of the rungs project six or eight inches through the upper pole, and wrought nails are driven into each pole and through the rungs to keep them in their places. The ladders may be made fourteen or sixteen feet long, and are kept spread by means of a stout board at each end, in which are bored holes to receive the ends of the rungs over which they are placed. A long, narrow slot is made in this board, through which is passed another narrower piece of board which stands up in front of the load, and is used to carry the lines on, so that they will not annoy the leader nor trail on

the ground. Holes are bored in the upper end to receive the lines, where they can always be reached in a moment when wanted. Another rack for hay, which permits the wagon to be turned round in a very small space, is shown at fig. 2. This rack is made of four bars, instead of two, and with fewer rungs; and when put together a piece of the lowest bar is cut out so as to admit the wheel when turning. This improved rack is sent us by a correspondent, "W. A. F.," of Cleveland, Minn., and is well

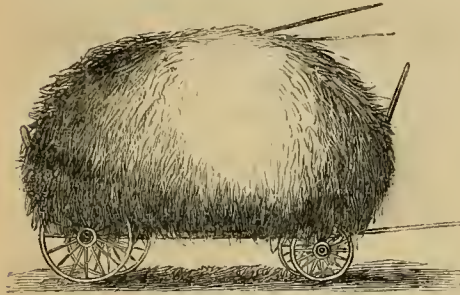


Fig. 3.—HAY BADLY LOADED.

worth using by those who need to turn sharp corners or in a small space. But the rack is nothing unless one can put the hay in properly. Few men load hay correctly. Most often the load is unevenly balanced, or not sufficiently spread out, and it either tips over, or only half a load is made. Fig. 3 shows this very common mode of loading. The hay within the ladders should be well tramped down, and kept hollow in the center until filled to the top. Then the corners should be built first, and a good forkful placed so as to bind them. Then the sides built in regular order from front to back, each forkful lapping the previous one, like a scale on a fish or shingles on a roof. This will enable the hay to be easily unloaded. The load should be gradually widened and lengthened with each layer of hay or grain, and the center kept hollow, and the load bound by a

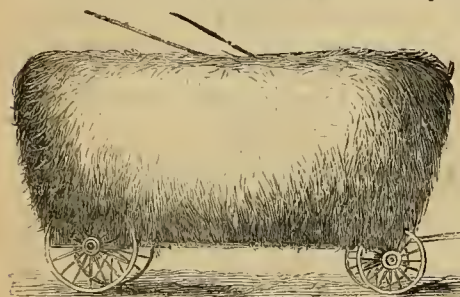


Fig. 4.—HAY PROPERLY LOADED.

row of forkfuls along the middle. Thus the size of load is restricted only by the quantity the horses can draw or the rack bear. If well built and balanced, it may be carried out eight feet wide and more than twice as long, and sixteen to twenty hundred of hay easily taken at a load. The shape of the load will be similar to figure 4, which is one that can not upset, nor can any part of the load fall off. The forks should be stuck in the hay with the handles sloping backwards, as in fig. 4, and never forwards, as in fig. 3, which is a highly dangerous position when driving into a barn, as they might catch against the beams of an overway and cause serious mischief to the driver.

Cultivation of Fodder-Corn.

Notwithstanding the lateness of the season, the main crop of fodder-corn will generally have been planted before this number reaches its readers. It is, however, not yet too late to

plant and secure a full crop to be cut up in September. As the corn will stand in the drills too thick for much good to be done by hand-hoeing, the cultivator should be made to do double duty. If the land is of such a character that Thomas's Smoothing Harrow can with safety be run over the ground the moment the corn first begins to break through the surface, it will materially lessen the work of cultivation, and will considerably increase the crop, giving the corn a good start in advance of the weeds. If the corn has been planted two inches deep, there will be little danger of disturbing it by a harrowing that will completely eradicate all surface weeds.

Generally, owing to the press of other work, the corn crop is apt to be put off with less cultivation than it really needs. It ought to be thoroughly cultivated at least four times (going twice through each row every time). This work should be commenced as soon as the rows can be distinctly seen, and the last cultivation should be given after the crop has grown to such a size as to leave barely room for a short whiffle-tree to pass between the rows. Indeed, it is impossible to produce a first-rate crop, unless, by frequent stirring, the soil is kept loose and open. If the foregoing directions are followed, the corn will soon completely shade the ground, so that late-germinating weeds will make but little growth.

Immediately after the last cultivation it will be well to sow broadcast three quarters of a pound to the acre, of Purple-top, Strap-leaved turnip. These will make a fair growth between the time of cutting up the corn and the setting in of winter. If the corn is to be used for soiling, it may be profitably cut when from three to four feet high, and much of this will produce a second growth of considerable value. This, and so much of the first growth as has not been cut, should be allowed to stand until the latter part of September, or until after it has fully tasseled. It should then be cut up and bound in small stooks to cure. After so standing for ten days or two weeks, four stooks should be bound into one, the bases being broad, and the tops closely tied with two bands, so that they will not be disturbed by violent winds. According to the experience of many farmers, fodder so prepared may be safely stored in the barn, or in stacks, in the latter part of November. It is our own custom to leave it standing in the field until needed for use, hauling in only one load at a time. Our last crop kept perfectly in this condition until the middle of January, and its value for feeding was fully equal to hay, ton for ton.

How to Ring a Bull.

The only safe way to handle a bull that is at all inclined to be unruly—and most good bulls are so inclined—is by a ring in the nose. Clamp rings, having a couple of knobs which press into the nostrils, are by no means to be recommended, except for occasional use. It is best, always, before the animal is a year old, to put a good stout copper ring through the cartilage of the nose. This will last him his lifetime, and if he is fastened in his stall with a good, sound chain snapping into it, we may be sure of his making no serious attempt to break loose. When taken out for service he can be safely handled at pleasure. The old-fashioned plan of burning

a hole in the nose with a hot iron is cruel and difficult. We long ago adopted for this work the use of the trocar, a surgical instrument similar to that used for "tapping" in dropsy and for "hoove" in cows. It is a sharp-pointed, round dagger (the point three-sided), carrying a silver-plated shield reaching

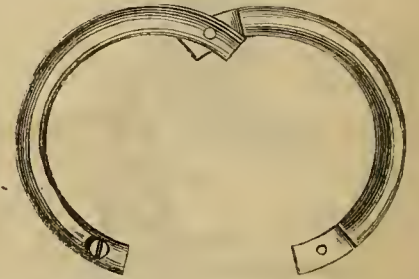


Fig. 1.—BULL-RING, OPEN.

from the upper part of the point to the handle; the two parts are shown separately in figure 2.

The sheath being on the dagger, the whole is easily pushed through the nose, its sharp point piercing it with so little pain, that one man can easily hold the head still. The dagger is then withdrawn, leaving the sheath in the hole. The ring (shown open in fig. 1), is then inserted into the end of the sheath, which is slowly with-

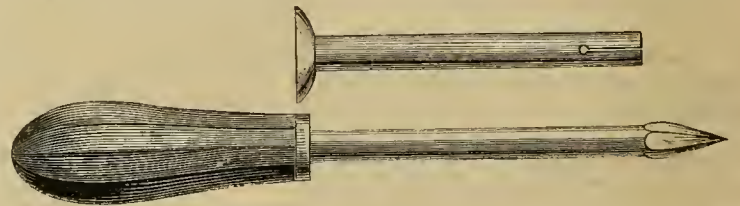


Fig. 2.—TROCAR AND CANNULA.

drawn, leaving the ring in place. This is then closed and fastened with its screw. These rings are so well made, that both the hinge and the screw are perfectly smooth and almost imperceptible—turning freely through the hole, which, having been made with a three-cornered cut, will be more sensitive against a pull than the smooth burned hole. Indeed, it is sometimes necessary, with the latter, to take the ring out after a time and repeat the burning, to make the cartilage sufficiently sensitive for the ring to be effective in managing the animal. The engraving on page 220 shows the manner of inserting the ring.

What We Know about Beans.

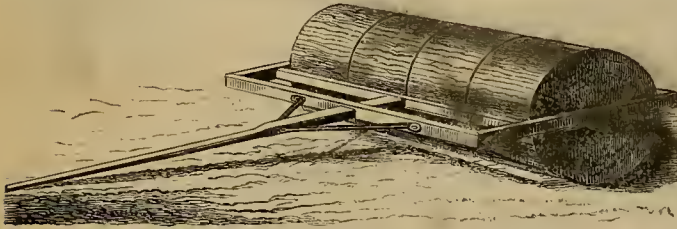
We have had some experience in raising beans, and much observation. We are planting nearly twenty acres the present season. For some years past, taking one year with another, they have been one of the most profitable crops raised on the farm. They occupy the land only eight or ten weeks, and are harvested in time to sow winter wheat. No special skill or peculiar treatment is necessary in raising them, but some care and experience are required to harvest them. The real point is to have the land clean, mellow, and in good heart. The old saying, "too poor to raise beans," has led many astray. They have planted beans only on such land as was not considered rich enough or clean enough or dry enough to raise corn or small grain crops. And the result in nine cases out of ten is just what any one might expect—abundance of weeds, a light yield, and an inferior or mildewed sample of beans, fit only to feed to sheep. In fact, we have seen beans so mildewed that any sensible farmer would be afraid to feed them out to his animals without steaming them.

A crop of beans of thirty bushels per acre that has to grow and mature in so short a time, must have a liberal supply of available food, and the soil must be in the best possible mechanical condition. We are aware that a fair crop of beans is sometimes raised on soil so hard, that it would seem that the roots could not penetrate it. But a maximum yield can not be expected unless all the conditions of growth are favorable. The most common mistake is in trying to raise beans and weeds on the same land at the same time. We have seen part of a field of beans cultivated and hoed, and another part, equally

highly profitable crop. On land so thoroughly prepared, the Marrow will probably prove the more profitable variety, as it commands an extra price, and produces a large quantity of haulm of great value as fodder for sheep or cows.

A Home-made Roller.

A "Farmer" wants a description of a simple roller. We illustrate one which is made of a log, cut into sections, two feet long, that it may be more readily turned round. The log should be at least two feet in diameter, of heavy wood, such as oak or hard maple, and the sections should be sawed very true, so that the ends will work freely and not bind against each other. The sections are bored through the center with an auger an inch and three quarters in diameter, and the holes should be bored from each end to the middle, where they should meet; they can be made more true in this way than by boring through from one end. The axle is an iron rod of one and a half inch diameter. Washers, half an inch thick, should be placed between the sections. The frame should be made of heavy stuff, at least four inches square, so as to gain weight, and a driver's seat may be put on. When built, the sections should be raised from the ground, and planed smooth and true.



ROLLER MADE FROM LOGS.

good land, left uncultivated, and the latter produced less than one third of the former. The extra cost of pulling the beans out of the weeds was more than it would have cost to cultivate and hoe them. The beans on the weedy land did not mature properly, and could not be sold at any price. The most profitable crop of beans we ever raised was on a two-year-old clover sod, plowed in June, turning under clover equal perhaps to more than half a ton of hay per acre. The beans were drilled in immediately after the land was plowed and harrowed. We had a rain shortly afterwards, and the beans came up and grew rapidly. They were cultivated four or five times, but needed scarcely any hoeing. The yield was over twenty bushels per acre, and the beans brought \$3.25 per bushel. The land, after the beans were off, was plowed and sown to winter wheat, and produced a good crop. This was merely a lucky hit.

The largest yield we have ever had, was on land plowed twice in the fall and again twice in the spring, with the free use of the cultivator and harrow for the purpose of killing Quack. This year we are preparing our land for beans somewhat in the same way—a two-year-old clover sod, mown the first year for hay and afterwards for seed, the next year pastured with sheep. In the fall it was plowed and left rough for the winter. This spring it was harrowed as soon as the surface was dry enough, and before all the frost was out underneath. It was then, a few days later, cultivated and harrowed, first with a forty-tooth harrow, and afterwards with a Thomas harrow. This made the surface as fine as a garden. The field will be plowed again, harrowed, cultivated, rolled if necessary, and worked until it is as clean and mellow as we can make it. The seed will be drilled in rows two feet six inches apart, and from three to five beans in a hill, 15 inches apart.

It may be said that the crop will not pay for such an amount of work. We think it will. If it does not, we will report. It must be recollected that the soil is exposed to the ameliorating influences of the atmosphere for nearly eight months before the crop is planted. And after it is planted the land is constantly stirred with a cultivator. By this mode of culture beans become a "fallow crop." The land is just as clean as if it had been summer-fallowed, and if the land is rich enough or can be manured, an excellent crop of wheat may be expected. In this way beans can be made a very useful and

should be bored from each end to the middle, where they should meet; they can be made more true in this way than by boring through from one end. The axle is an iron rod of one and a half inch diameter. Washers, half an inch thick, should be placed between the sections. The frame should be made of heavy stuff, at least four inches square, so as to gain weight, and a driver's seat may be put on. When built, the sections should be raised from the ground, and planed smooth and true.

What is a Fallow?

There is considerable discussion among farmers as to whether it is better to summer-fallow for wheat, or to sow a spring crop, such as oats, barley, peas, or beans, to be followed by wheat. Figures are given and arguments used *pro* and *con*. But so far as we have observed, all the writers on this subject fail to tell us what a fallow is. One farmer in Western New York, who has written considerably on the subject, advocates breaking up a clover sod, in June, with a three-horse plow, ten inches deep; then harrow, roll, and cultivate, to keep down the weeds and mellow the surface. This is all that he does. The land is only plowed once. We have no doubt that good crops of wheat are frequently raised in this way. We say nothing against the practice. But we insist that there is no propriety in calling it a "summer-fallow."

The essential agricultural and chemical point in fallowing is, to plow the land for a crop, and then not sow it until the season following. This is the real significance of a fallow. It involves the idea of "rest," and at the same time cleans the land. There are various modifications in the manner of working the land, but there can be no true fallow where the land is not kept bare and without a crop for a whole year.

We are not arguing against the plan we have alluded to of preparing land for wheat. All we ask is that things should be called by their proper names. In England the most common method of raising wheat is to plow up a clover sod, and immediately drill in the wheat. This Western New York plan differs from it merely in this: the land is plowed six weeks or two months before sowing instead of six days or two weeks as in England. Let those adopt the plan who like, but do not call it a "summer-fallow."

A summer-fallow, or in other words, a true

fallow, aims to expose the soil as much and for as long a time as possible to the decomposing or "weathering" influence of the air, the sun, the heat, and the frost. No crop is grown to abstract plant-food, but on the other hand means are used to develop plant-food from the latent resources in the soil. At the same time we aim to mellow and clean the land. We do not aim to check the weeds. We endeavor to make them grow, in order that we may kill them. This the summer-fallow gives us an unimpeded opportunity of doing. By plowing the land early in the fall we cause many weeds to germinate that usually infest our wheat fields. The spring plowing not only destroys these, but starts thousands of weeds that usually infest our spring crops. These are destroyed by the cultivator, and others spring up to be killed at the next plowing. We thus get rid of millions of weeds. It may be that the first crop will not pay the cost of such a summer-fallow, with two years' interest on the value of the land, but on any good, strong, loamy soil, no cleaner than our farms usually are, it will prove highly profitable in the end. A tenant farmer, or a farmer who intends to sell at the first opportunity, or one whose necessities are such that he can not afford to wait, may well be excused from resorting to some method of culture that will hold back the growth of weeds for a single crop, but this should not prevent him from understanding that there is a better way, whenever his circumstances enable him to adopt it. We would most earnestly recommend the young, intelligent readers of the *American Agriculturist* to study out this matter for themselves and endeavor to master all the principles involved in summer-fallowing. They will find it better to thoroughly work and clean their land than to adopt any temporary makeshifts for checking weeds.

A GOOD LITTLE FIG.—A friend of the writer had a litter of pigs farrowed August 20th, 1871. The sow was a young common white one, and of small size. The boar was a young thoroughbred Essex. One of these pigs was killed April 2d, 1872, when he was 226 days old, and he weighed (dressed) 187 pounds. His form and condition were simply perfect. This is evidence (so far as any single instance can be) of the advantage of the Essex cross.

Our American Cuckoos.

BY ERNEST INGERSOLL.

The Cuckoo (*Coccyzus Americanus*) is one of the most beautiful of our birds. His form is slender, and elegantly proportioned. His whole upper plumage is a rich, glossy drab-brown, with greenish reflections, and is peculiarly fine and compact in its texture; beneath he is pure white, with long, silky thigh-feathers. His tail seems disproportionately long, yet it adds wonderfully to his graceful carriage.

His brother, the *C. erythrophthalmus*, is slightly smaller, and where the bill of the other is yellow his is black; his distinguishing feature, however, is a bare, wrinkled skin around the eye, deep red, whence his Greek specific name, which means "red-eyed."

One walking in May in retired woods, or where, along the border of a quiet stream, the drooping willows brush the alders' tops, and both together lean far over the shaded water, will hear as from a disembodied spirit, *ko-ee, ko-ee, ko, ko, ko, ko-k-k-k-k-k*, beginning slow and distinct, then rising louder, and gradually growing more rapid, until it runs all to-

gether, and seems to cease from mere lack of breath. It is the Yellow-bill, but you can neither see him nor fairly locate the sound. It is full, clear, and reverberating, yet has a weird, wandering character, which eludes your grasp, but irresistibly allures you to search it out. His song continues through the whole summer, though perhaps not so frequently rendered as during the mating season. You may hear it in warm, still nights for hours together; especially clamorous before a storm, Virginia farmers think.

Besides his loud rattle, he will sit on a low branch, and with a peculiar swaying motion of his body plaintively repeat the syllables *ko-koo, ko-koo, ko-koo*, which seem to be a love-song, addressed to his mate not so often as to himself. The Yellow-billed Cuckoo comes to us, along Lake Erie, the last week in April, and the Black-billed soon follows. Wintering in Mexico and the West Indies—where the Black-billed is known as the St. Domingo Bird—they spread over all the Eastern United States, as far north as Boston, where, it is said, the first-named is becoming rare. The males arrive some ten days before the females, and spend the time very amicably and busily, seeking the retired portions of the woods and the thickety banks of small streams. There one bird will take possession of a tree, and never leave it until every branch has been thoroughly explored; and lively must be the insect which escapes his sharp eyes and still sharper beak. Their taste is varied and their appetite always good. The abundance of different insects which make the trees their home, and deposit their eggs which hatch out larvæ under the bark or upon the leaves, particularly the canker-worms which infest the apple-trees, furnish their chief subsistence. Occasionally they treat themselves to berries; and luckless snails and small frogs find themselves in rather than on their bill of fare. If their epicurean habits stopped here, well and good; but they are accused, and justly too, I fear, of sucking their neighbors' nest-eggs. It is not infrequent to find shells indented by a bird's beak and emptied of their contents; sometimes left in the nest with others uninjured, but oftener lying on the ground under it. The many broken eggs which we find strewn about in the woods must, partially at least, be ascribed to the Cuckoo's depredations, though the Blue-jay is not less guilty.

A week or so after the first appearance of the males the females arrive. The busy food-hunting of the males ceases immediately, and they

devote themselves with all ardor to the females, courting them with the greatest assiduity, and wooing them by all the means in their power.

eggs in the nests of other birds; more generally (it is my opinion) in each other's nests. But they do not seem to intend to abandon them to the charge of a foster-parent, but rather to usurp the nest for their own use, being a little lazy perhaps. The eggs of the Cuckoo vary greatly in size—even those of the same "lay"—so that it is puzzling sometimes to determine whether they really are genuine; and it is said that you may often find one egg fresh, while the rest are more or less added, or even hatched.

One of the worst reputations in the animal kingdom is borne by the European Cuckoo, for its nefarious habit of leaving its eggs to the care of other birds, and building no nest of its own. Our Cow-bunting is equally wicked, and rumor says our Cuckoos do the same, but we have seen that this is not so, for both species build a nest and attend closely to home duties. Notwithstanding his piratical course of life, the American Cuckoo is an arrant coward, and small birds, when defending their homes, will whip him beautifully. Dr. Samuels tells us that he saw a Blue-bird drive a Yellow-bill into a barn, and keep him there, standing guard outside; and so badly scared was the Cuckoo, that he allowed the Doctor to catch him, preferring to fall into the hand of the enemy within rather than face the danger without.

Despite their bad habits and cowardly dispositions, I love the Cuckoos. They come early and stay late. They are lively and industrious, and their call is to me one of the most pleasing of sylvan notes. Then, too, they have a sort of well-bred air about them, and there is a charm in their carriage and flight, which, together with their rich dress and elegant form, makes them two of the most attractive of wood-birds, among which choice is so difficult.



THE BLACK-BILLED CUCKOO.—(*Coccyzus erythrophthalmus*.)

At this time the most obstinate battles take place between the jealous males for the possession of some coveted lady bird; but before long they all pair and commence building. This



USING THE TROCAR IN RINGING A BULL.—(See page 218.)

happens about the 15th of May in ordinary seasons. The nest is sometimes fixed on the horizontal branch of an apple-tree; usually in a solitary crab, thorn, or cedar, in sequestered woods. It is merely an almost level platform of twigs, intermixed with soft weeds and maple blossoms. That of the Yellow-bills can be seen through, it is so scant; but the Black-bill's is more compact, and contains more flowers. On this almost flat bed the two to four eggs are laid. These are uniform greenish blue, darker in the case of the Black-billed than of the Yellow-billed species, and of a size proportionate to that of the bird. There are some curious facts in connection with their nidification.

As if unable to break away altogether from the inscrutable nature of their foreign congeners, both Cuckoos sometimes lay one or two

Spatium (*Levisia rediviva*).

One of our friends holds a very comfortable doctrine. He says if one really wishes a thing, he will get it; if what he wishes does not come to pass, it only shows that he does not wish with sufficient earnestness. Our experience with the Spatium is a partial confirmation of our friend's peculiar belief. Having long known the plant by description and from dried specimens, we had a strong desire to see it in the living state, and had written to friends in the far West, in the hope of obtaining it. Just as we had ascertained the address of one who knew the plant and could send it, and were about

writing for it, a messenger came from one of our considerate seedsmen, bearing the very plant. The *Lewisia* was discovered on Lewis & Clark's expedition, and was named by Pursh in honor of its discoverer. The specific name *rediviva* (that lives again) was given on account



SPATLUM.—*Lewisia rediviva*.

of its remarkable vitality. The herbarium specimens brought home by Lewis were planted in a garden in Philadelphia, where they grew for a year, and some specimens collected by Douglas were planted in London, and grew, but for a short time only. The engraving shows the plant of about the natural size, though the root grows much larger than we have represented it. The narrow, succulent leaves grow in clusters, from the center of which the flower-stalks arise; these each bear a single rose-colored flower, which, like the Portulacas, to which it is closely related, remains open only during sunshine. The leaves die away soon after the flowers open, and the above-ground career of the plant occupies but a few weeks. The root, which is large for the size of the plant, is interesting as affording an important article of food to the Oregon Indians, who call it "Spatlum," or "Spæt'lum." It is also known to the French Canadians as *Racine amere*, or Bitter-root. The root is covered with a dark-colored bark, but the interior is white and consists largely of starch. The roots are boiled and used by the Indians as food, and though bitter, are very nutritious. It is said that three ounces of the dried roots will be sufficient provision for a man undergoing great fatigue. We do not know the exact range of the plant. Our specimen came from Montana. It has been found in Colorado, and is abundant in Oregon.

The Holly-leaved Cherry.

While botanizing some years ago upon the Pacific coast, we saw what at a little distance appeared to be a fine clump of Holly. A closer inspection showed that it was a cherry, with

leaves so exactly like those of the Holly that the name given it by Nuttall, *Cerasus* (now *Prunus*) *ilicifolia*, the Holly-leaved Cherry, is properly bestowed. The plants we met with were directly upon the shore of San Diego Bay, and were not more than six feet high. Farther inland, upon the hill-sides, within the mountain range, it becomes a small tree of twelve or twenty feet in height. The bark is gray and roughish, and the wood close-grained, tough, and somewhat reddish in color. The engraving shows a twig with the leaves and flowers of the natural size. The leaves are thick, smooth, and ever-green, like those of the holly, and armed with very sharp teeth. The flowers, like those of our common Wild-cherry, are in racemes, and are succeeded by a small fruit, which is said to be bitter and astringent. We have another Ever-green Cherry in the Southern States, *Prunus Caroliniana*, which is absurdly enough called "Wild-Orange," and both belong to the same section of the genus as the Cherry Laurel of Europe. The Holly-leaved Cherry seems to be confined to the southern portion of California, but would probably grow in most portions of that State, and would doubtless serve for ornamental hedges and all other uses to which Holly is put. We know of no attempts at cultivating it at the East, and we think its success here is doubtful. Still, we should like to make the experiment, and will do so if some of our

friends about San Diego or Santa Barbara will mail us a few seeds as soon as they are ripe.

What Varieties Come True from Seed?

BY PETER HENDERSON.

An intelligent correspondent from Burlington, Vt., asks the question given above. He queries still farther, and says: "An apple-seed produces an apple-tree, but a Baldwin apple-seed will not produce a Baldwin apple-tree. Wheat of any variety produces the same; seed of a scarlet variety of Verbena will not always produce its like. Why this anomaly?" The "why" of the matter can not be told, but a few general rules may be useful. Seeds of plants found in the wild state, in their native habitats, almost invariably produce a progeny identical with the parent, and many species, even after they have been subjected to long years of cultivation, never appear to change seemingly in the slightest degree. Other species under cultivation quickly develop varieties entirely different from the original, and become what is technically termed "broken." Thus the original species of our well-known Verbena is indigenous to South America, having a comparatively small scarlet flower. From this, and probably some other species hybridized with it, we have the gorgeous

and varied coloring of the variety of to-day. But it took many years to produce these, for we can well remember in our early gardening days there was no white, and the furor that took place in the floricultural world when *Verbena leucoides*, the first white, appeared.



THE HOLLY-LEAVED CHERRY.

It was far from being an attractive plant, but the color was novel, and single plants were sold by the florists of that time at a price that would now buy a hundred. The Verbena, then, is one genus whose species have given us innumerable varieties. The Chrysanthemum, Dahlia, Fuchsia, Geranium, Pansy, Petunia, the Rose, and many others, are also familiar examples where the original species has "broken" from what may be termed its primary condition into ever-changing variety. Thus changed, it is probable that their seeds will never produce two individual plants exactly alike any more than two identical human faces or forms are produced. It is probable that all species of animals and vegetables, under long years of domestication and cultivation, would ultimately "break" from the original type, though we know that in some species this tendency sooner develops than in others. It is not to be wondered at that amateur horticulturists, like my Vermont friend, are puzzled at what looks like inconsistency in nature—why she refuses to produce always again his Baldwin apple or his Rareripe peach, his Striped Petunia or his Double Carnation, yet gives him back seemingly identical with the parent his corn or his wheat, his tomato or his cabbage, or in flowers his Mignonette or Alys-sum. I say seemingly, for it may be doubted if they are identical, only that the variation is so

slightly marked that it escapes notice. Many whose experience in such matters should have taught them better are always confounding plants raised from cuttings or slips with those raised from seeds, and can not see why the plant raised from the slip or root of a White Dahlia, or the tree raised from the graft of a Baldwin apple, should be always identical with the plant or tree from which they are taken, while the seeds taken from either would not produce the same. Any cutting from a root or a branch, whether rooted itself or engrafted on another stock (except in rare cases of sports), will be identical with that of the original form from which it was taken; in fact, it is only a *separated part of the same plant*, while the plant raised from seed is a distinct individual.

The Evergreens.

From the number of inquiries we have had, the effects of the cold of March upon evergreens were truly disastrous. Even in close city yards, where the exposure is greatly less than in country places, the trees have not escaped. We have noticed Red-Cedars in the spot where they had grown from the seed, for twenty years or more, apparently quite killed, and a hemlock in its native locality badly injured. It often happens that a severe winter will brown evergreens, and they will after a while more or less completely recover, but the foliage in most species is at present of a very disheartening white color. We have been many times asked if the injured trees will recover. An examination of our own specimens gives but little hope. The spring has been an unusually dry one, and it is likely that this has put beyond recovery plants that might otherwise have recuperated.

Lawns and Lawn-Mowers.

With lawns sown this spring an encouraging green surface will be presented. Upon a close examination, it will be found that all that is green is no more grass than that that glitters is gold. Especially upon old ground will it be found that weeds are the rule and grass the exception. Shepherd's-purse, Carpet-weed, Land-wort, Mouse-ear, and a host of other humble weeds will go to make up what at a little distance appears like a good beginning for a lawn. If examination shows here and there a spear of grass, there is no need of being discouraged. Mow away at it; the weeds will soon get tired of it, while the grass if it is fairly started will do all the better for it. A few mowings will perceptibly diminish the weeds, and though the surface may not be so well covered as it first appeared to be, the grass will soon take possession. In July comes the worst enemy of all, the Purslane or "Pusley." A lawn made upon ground formerly in cultivation can hardly escape this pest. Here, too, the remedy is to mow, and often. If the Purslane is allowed to get too large, mowing will be found tedious work. The succulent Purslane will stick to and clog the machine; it will collect upon and cover the roller with a pasty mass that will fall off in flakes, which must be removed or they will kill the grass beneath them. During midsummer we would mow only so often as is necessary to keep the better of the Purslane. When the cool nights of autumn come, then the grass will make rapid progress, and with a little reseeded of the thin spots a good turf will be established before winter. The first season will be a constant struggle with weeds, and unless the fight is well

kept up success can not be hoped for. Perennial weeds will appear in the following years, but these give but little trouble if the grass is mowed sufficiently often. Should any of these weeds get large enough, they may be removed by means of a spud (an implement like a chisel) or a long knife. Docks must be pulled when the ground is moist, as cutting is of no use.

The introduction of lawn-mowers has rendered the establishment and keeping of lawns a comparatively easy matter. There is now a variety of these implements in the market, varying in price from \$12 to \$30 for the hand-mowers. Of several that we have tried, we give decided preference to the Excelsior. It is simple in its mechanism, requires but little power to propel it, and does its work well. There are some popular patterns that we have not tried, but it is not easy to see how the Excelsior can be excelled.

Hydrangeas—The Otaksa.

The old *Hydrangea Hortensia* is well known for its large snowball-like clusters of flowers, which are rose-colored or blue, according to the soil in which it is grown. At New York and southward it is measurably hardy, but in colder localities it is grown as a house plant, being planted out during summer and taken indoors for the winter. A more beautiful plant is the Japanese *Hydrangea Otaksa*, an old species, but only recently introduced into our cultivation. The general appearance is like that of the old *Hortensia*, but the flower-clusters are even larger, and slightly suffused with pink when indoors or with insufficient light, or with blue when fully exposed. Each flower has a small lavender-colored center, and the effect is very bright and pleasing. The flowers remain for a long time before decaying. The plant blooms when very small, and a specimen only a few inches high, with a flower-cluster nearly a foot across, presents a singular appearance. Our specimen, received from Olm Brothers, flowered most profusely. It will probably prove as hardy as the older species. But having but one plant, we did not care to test this point. It will prove a very popular plant, whether for house culture or for garden decoration.

The Grape-Vine in Summer.

Perhaps the most serious difficulty the vine-grower—whether he has a single vine or a thousand—has to contend with, is mildew. The trouble with this is that its approach is so insidious that the mischief is done before the inexperienced cultivator has detected the presence of the enemy. A discolored spot upon the upper part of the leaves is seen, in a few days this becomes brown, and the leaf, if severely attacked, curls up and dies. Mildew not only attacks the leaves but the fruit-clusters and the young wood. It may be arrested if attacked in time. The vines should be frequently watched, and if grayish patches appear upon the under side of the leaves, upon the stems of the bunches, indeed if they are found anywhere, apply sulphur immediately. Do not wait until the next day, nor even the next hour, but apply at once. So certain a remedy is sulphur, and so very apt are vines to be attacked by mildew, that many grape-growers find it to their advantage to pursue a systematic sulphurizing, whether indications of mildew are visible or not. The vines are dusted as soon as the leaves expand, when they are in flower, when the ber-

ries are of the size of peas, and when the fruit begins to color. This is done regularly, and if any signs of mildew are seen in the intervals, sulphurizing is immediately resorted to.

Flowers of sulphur is the form in which it is used, and it is best applied by a bellows. There are blowers and other implements in use, but a properly-constructed bellows, such as may be had at the implement and seed stores, is the most convenient for applying it. The bellows having a curved nozzle allows the under-sides of the leaves to be dusted, which is very important. The application should be made on a dry day, and if the rain should wash away the sulphur soon after it is applied, the dusting should be renewed. One, with a little practice, can so manage the bellows as to throw the sulphur in a fine cloud of dust, which will settle upon and cover all parts of the vine with an evenly distributed but almost imperceptible coating. Next in destructiveness to the mildew come the hordes of insects. The most effectual remedy for the majority of these is hand-picking. Old vines especially are disposed to push out adventitious buds and form branches where they are not needed. These should be rubbed off.

How to Get Good Raspberries.

Comparatively few people ever eat a really good raspberry. To have this delicious fruit in perfection you must raise it in your own garden and take a little pains with it. We do not now propose to go into the general subject of planting, pruning, and managing raspberries, but simply to throw out a few hints that may be of practical value at the present time.

Raspberries require very rich land, and it is not too late to fork in some well-rotted manure between the rows. If this can not be obtained, sow about three pounds of some good artificial manure to the square rod, and work it into the soil with a pronged hoe. A spade should never be used among raspberries. Keep the ground as clean and mellow as possible. Weeds pump up large quantities of water out of the soil. Suffer none to grow. And recollect that a raspberry sucker that is not needed is simply a weed, and should be treated accordingly. You want four strong suckers to each plant to form canes for next year. All the rest, unless needed to form new beds, should be killed as soon as they show themselves. This is a very important point in raising large, delicious raspberries. As dry weather approaches, the land having been repeatedly stirred to kill weeds, mulch the ground thickly with the clippings of the lawn or other material, to prevent the evaporation of moisture.

Thorns for Hedges—Thorn Seeds.

Every spring we have numerous inquiries concerning raising thorns from the seed and the forming of hedges from them. These questions are put mainly by persons from the old country, and we can well understand that they should desire to have their beautiful and familiar Hawthorn hedges in their new home. We have answered these questions very often in the "Basket," where perhaps they may have been overlooked, and we now reply to the many letters received this spring in a more conspicuous place, in the hope that one answer will serve for several. In the first place, the seeds of the European thorns, as well as those of our native species, are very slow of germination, and they

never, or rarely, come up the first year after planting. The seeds, after being separated from the fruit or "haws"—which is done by bruising and washing—are "stratified," *i. e.*, mixed with an abundance of earth and placed in a heap, covered with several inches of earth. In this situation the seeds are exposed to the action of frost during the winter, and are kept moist all summer, and if sown on the second spring will germinate freely.

The objections to Hawthorn as a hedge-plant are that it has a slow growth, it comes in leaf too late, and drops its foliage too early. In our hot summers it soon assumes a dull, half-dead, and unsightly appearance; and, more serious than all, it is liable to the attacks of a great number of insects. These objections apply in a greater or less degree to our native thorns, though some of these do much better than the Hawthorn. The best of our Northern species is the Cockspur Thorn, *Cytisus Crus-galli*; the Pyracanth Thorn is a fine evergreen hedge-plant in the warmer States, and its white-fruited variety has been considered perfectly hardy at the North before the past winter. We do not know how it has fared elsewhere, but our specimens have all the leaves destroyed, and the plant, the first week in May, shows no signs of life. We can not recommend our readers to use any of the thorns for hedges except by way of experiment. Our two reliable hedge-plants as yet are the Osage Orange, and, where that is not hardy, the Honey Locust.

Apple-Worm Traps.

"Old Apple-Jack" is disposed to ridicule Mr. Wier for patenting so simple a thing as his apple-worm trap. It puzzles us to see how a pomologist and nurseryman, whose whole business depends upon unpatented processes which have been freely contributed to the general stock of knowledge by generations of disinterested workers, could patent such a thing. But people look at things from different points of view; and though no one doubts Mr. Wier's right to patent this contrivance, all the money he will receive from it will not be an offset to the credit that would have been accorded him had he offered it as his contribution to the cause of pomology. Our correspondent, "O. A. J.," thinks he has a contrivance which in his opinion is much superior to that proposed by Mr. Wier, and he thinks he would like to see anybody patent it. He uses strips of sailcloth, a foot in width, and long enough to encircle the tree; to these he fastens two buckles at one end and two straps at the other. Two or three of these are made for each tree. One is buckled tightly around the tree; over this number two is put, with five or six small twigs between it and number one; then number three is put on with some more small sticks and buckled tightly over number two. It will be seen that this leaves all around the tree a number of enticing crevices or recesses into which the worm can crawl to make its chrysalis. The bands are readily taken off and the captives destroyed.

Transplanting Beets and Turnips.

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

The lateness of this season will have crowded together all manner of farm work, and will in many cases have induced the planting of smaller fields of mangold-wurzel than would have been planted under more favorable circumstances.

It may not yet be too late to remedy the defect in many cases. Where the seed has been sown in the usual way, there will be at least five times as many plants as can be allowed to grow. Every one of the extra plants may be made useful by being transplanted into well-prepared rich land, and a good crop may be obtained if the transplanting is postponed even until after an early hay harvest, though, as all transplanting is the most successful when done in damp or wet weather, odd half-days may be devoted to the work in the intervals of haying. The land in which the plants are to be set should be thoroughly fine, thoroughly clean, and thoroughly manured. When the plants are from $\frac{3}{4}$ of an inch to one inch in diameter they may be drawn from the seed-bed, trimmed of their upper leaves and tap-roots, and set out at intervals of $2\frac{1}{2}$ ft. by $1\frac{1}{2}$ ft. Their subsequent cultivation is the same as though they had grown from the seed where they stand. Full directions for transplanting were given in the Ogdon Farm Papers last year, and last month on page 184. This will not be quite so satisfactory as though the plants had been raised expressly for the purpose of transplanting, and the preparation of the land systematically commenced earlier in the season, but it opens the way for many an over-driven farmer to increase a crop which he has been prevented from planting as largely as usual.

It is still early enough to start a seed-bed of ruta-baga turnips to be transplanted about the middle of July, and after ample experience and observation in the matter, we do not hesitate to recommend such a course to all who desire to raise this crop, assuring them that they will find the result better and the labor of cultivation very much less than in the ordinary plan of planting the seed on the ground where the crop is to stand.

Chrysanthemums.

Chrysanthemums are generally allowed to have their own way, and are treated like other herbaceous perennials. Most of them are hardy, and when the clumps get too large, they are divided with a spade. All the care they get in most gardens is a stake, to prevent them from being blown about by the autumn winds. This rude treatment answers very well where the effect of color is all that is desired, and no regard is had to the shape of the plants or the perfection of the individual flowers. Towards autumn some of the smaller roots are taken up, and potted for blooming in the house. They bloom, it is true, but the plants are sorry-looking objects—a cluster of long, leafless stems, with a few bright-colored but half-developed flowers at the top. The only way to have a satisfactory show of chrysanthemums in the house—and nothing can be more cheery—is to begin now with young plants. Those grown from cuttings this spring, and consisting of a single stem, are the most suitable. These can be kept in pots from the beginning, but it is less trouble to grow them in the border until the buds are set, and then pot them. Having a plant with a single stem, its growth can be readily controlled by pinching. When the top or growing point is stopped by pinching, branches are developed in the axils of the leaves below, and these branches themselves can be induced to branch by pinching their extremities. With a little care a handsome bushy form can be produced, which, when covered with flowers, presents a striking contrast to the ragged things we usually see. The first point is, to get a good, strong, healthy plant to

operate upon, keep its foliage free from plant-lice and caterpillars, and when it has reached the desired height, the stopping may be commenced. The Pomponé or small-flowered sorts are very satisfactory when grown in this manner. We hope to return to the subject again.

Prospects of Cranberry Culture.

Shall we, who have suitable lands, continue to plant cranberry vines? This question is often asked by intelligent men who have good cranberry lands, and know that large sums have been invested in plantations the last five years. Some tell us that the season of high prices has gone by, and the business is over-done. In the Philadelphia market reports in February, 1868, they were quoted at \$24 per barrel, and in 1869 at \$32. In New York some were sold at \$35. It is probably true that this fruit may not reach these extreme figures again, but we see no reason to doubt that the raising of cranberries will continue to be always a paying business. The same fears were felt in regard to planting apple orchards, many years ago. Yet the average price of good winter apples is not diminished but rather increased. The demand outstrips the supply, and the orchard in all those districts where the apple flourishes, is one of the most lucrative branches of farming. The culture of cranberries is yet in its infancy. In 1869 the production for the whole country was estimated at 75,000 bbls., of which two thirds were produced in New Jersey. These, at ten dollars a barrel, would only be worth three quarters of a million of dollars, and if distributed among the people would give less than a quart to each family. This certainly can not be regarded as an adequate supply of the fruit. It might be increased thirty-fold, and still not give a bushel to each family of our own people. But the market is by no means confined to this country. The fruit keeps much better than apples, and can be shipped on sea voyages round the world. Europe has nothing to compare with our fruit in quality, and large quantities are marketed there. The consumption of this fruit in our own country is rapidly increasing and is likely to increase. In many families it has ceased to be a luxury. It is as much a part of the winter supplies as apples or potatoes. No roast is complete without cranberry sauce. It is one of the most palatable and wholesome of our native fruits, and is likely to maintain its place in any thrifty family where it has once been introduced. In looking at this question, we are to consider that there is but a very small portion of the land that is adapted to its cultivation. It demands as the conditions of uniform success peat, sand or gravel, and water for flowage, in juxtaposition, and these are rarely met with. There is peat enough, but it is not near the sand; or, if the sand or gravel is convenient, it is not where it can be flowed on short notice. Then climate has a good deal to do with success. The fruit is exceedingly sensitive to frosts, and grows best in lands liable to early frosts. The best region for the cranberry is a narrow belt along the sea-shore from Cape Cod to the mouth of the Delaware. Here the sea breeze keeps off the frosts, and the crops mature with great uniformity upon tracts that can not be flowed, except in winter. It is this exemption from frosts mainly that makes the plantations on Cape Cod and in South Jersey so profitable. More than three fourths of all the cultivated cranberries in this country are grown on this very narrow belt, and there is no doubt they can be grown cheaper here

than in any other part of the country. But in this favored belt only a very small fraction of the land is suitable for cranberries. The wild vines are found in all the Northern States, in swamps and peat bogs, and mature some fruit, but good crops are exceptions to the general rule. This uncertainty, we think, must always discourage planting in these regions. This, of course, must operate as a heavy premium upon the cultivation of the fruit in the narrow limits, where good crops are the rule and failures the rare exception. But even here there is much careless investment of capital. Plantations are made upon bogs that can not be graveled or sanded, and in places where they can not be flowed. Of course, crops will not be satisfactory in these plantations, and they will run out for want of care. This should encourage the opening of new plantations where all the conditions of success are present. We know of very shrewd business men, who have studied this subject thoroughly, that are still making investments in good cranberry land and in plantations. There is one very remarkable quality about this fruit, which encourages the planter. It requires no manure, and where the work is thoroughly done there is very little expense in keeping a yard in good order. The annual flowing supplies all the wants of the plant, and old vines bear as abundantly as those recently planted. There are natural bogs on Cape Cod that have been in good bearing condition for over sixty years. Those farmers who live in the favored belt and have good cranberry land are perfectly safe in developing it. The crop can hardly fail to become a paying specialty in all this region.

Cold-Frame Cabbage Plants.

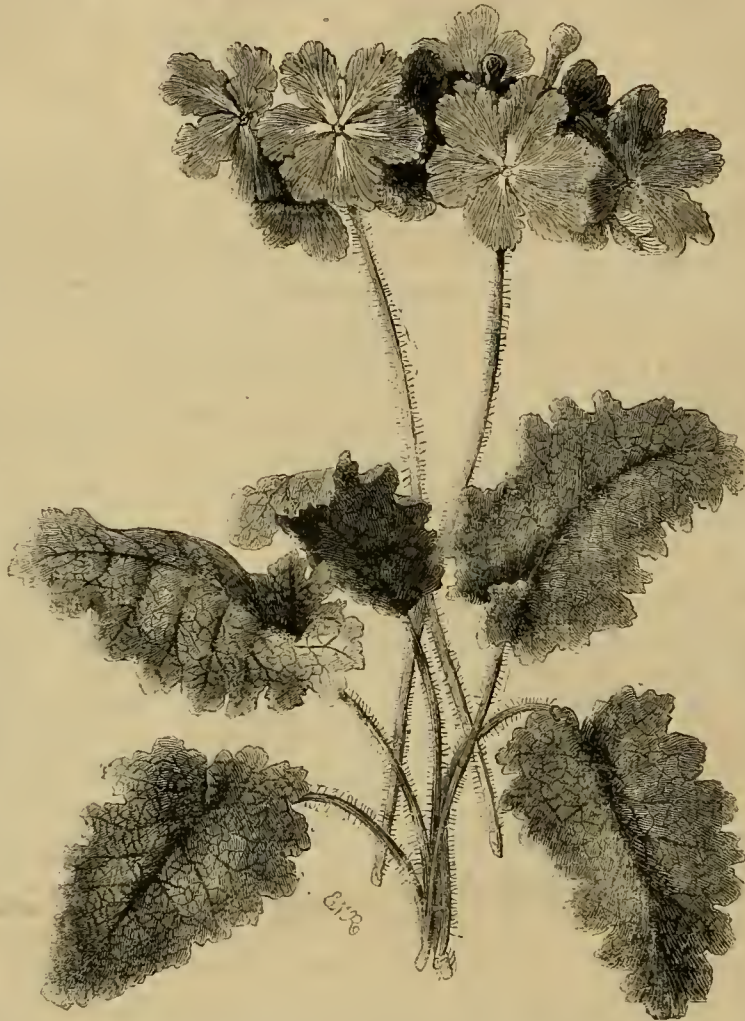
This article contains information that it will



Fig. 1.—CABBAGE PLANT NOT TRANSPLANTED.

pay our horticultural readers to lay to heart against the "pricking out" days of next No-

vember. The winter, as we all know, has been exceedingly severe, and it commenced in full force as early as November 28th—fully three weeks ahead of time. Our cabbage seed had



A NEW PRIMROSE.—(*Primula cortusoides amena.*)

been mainly sown September 20th, in some unoccupied frames (for want of space elsewhere), and the weather had been so unfavorable that they had made but little growth. Because of their small size the pricking out had been deferred, and the frost caught us with only a part of the crop replanted. There was nothing for it but to put on the sashes and save the bulk of the plants as they stood in the seed-bed. At this writing (April 15th) they are all alive, and they look pretty well—until they are pulled and examined, when it turns out that *not one* of them is safe to plant. They are all split in the stem, as in figure 1, and plants thus affected will make loose heads. Of those which were pricked out, as in figure 2, not one is so affected. They had not quite such a firm foothold, and so their leaves are a little more scarred with the effects of the hard frosts, but their stems are short and firm and their hearts are sound. There are about 20,000 of the injured plants, and we have had to decline orders for over \$250, which they would have just about filled. What is nearly as bad, we shall have to buy several thousands to make out the quantity needed for our own fields. The moral of this unfortunate tale is as follows: Sow your cabbage seed from the 1st to the 5th of September, instead of from the 15th to the 20th; if they are inclined to grow too large because of a late autumn, pull them up and lay them in by the heels to check their growth; be sure to have them all pricked out in the frames by November 20th.

A New Primrose.

When we say "a new Primrose," we mean that it is new to our cultivation. The old Primrose of poetry, which includes the Cowslip and Polyanthus, seems to be passing out of cultivation; it is difficult to find more pleasing early flowers. Perhaps the introduction of a more showy kind will revive the taste for the old sorts. The plant we have figured comes to us from Japan as *Primula cortusoides amena*, and under this name it has just appeared in our catalogues. Our engraving is from one of the original stock sent from Japan by Mr. Thomas Hogg several years ago. Whether it is a native of that country is not quite certain. *Primula cortusoides*—the Primrose resembling Cortusa, a related plant—has been in cultivation for a great many years, but it is only recently that its varieties have been taken up by florists. The engraving shows the leaves and flower-clusters of the new variety reduced about one third in size. A strong plant makes a large tuft of leaves and throws up several vigorous flower-stalks, which bear from five to twelve flowers. The lobes of the corolla are beautifully "crimped" and delicately veined. The colors vary from pure white to rosy purple—the specimen from which our drawing was taken, was of a charming lavender color. The plant has proved quite hardy near New York, and we hope to be able to class it among our hardy herbaceous plants. It is said to seed very freely in Europe; if it does so with us, it will soon be sold at prices which will make it popular. There is another new hardy Primrose, *Primula Japonica*, which we hope to flower and figure. The seeds of these Primroses often lie dormant for a long time before they germinate. We have seen some accounts of their not coming up



Fig. 2.—CABBAGE PLANT TRANSPLANTED.

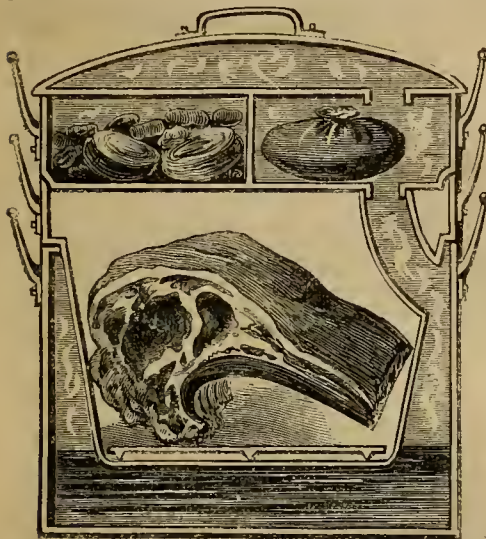
until the second year. The seeds of these Primroses should be sown as soon as they ripen.

THE HOUSEHOLD.

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

The Warren Cooking Pot.

In the Household Department for January of last year we gave a description and engraving of the Warren Cooker or Warrener. Our knowledge of it was obtained from having partaken of a dinner at the house of a friend, where an imported utensil of this kind was used. The article gave rise to so many inquiries as to lead to the manufacture of an improved form of the Cooker in this country. The parties making it, no doubt find it to their interest to advertise it, and we think it is generally kept in household-furnishing stores. Cooking in this apparatus is entirely different from steaming. The



SECTION OF THE WARREN COOKING POT.

meat is placed in a closed vessel, which is surrounded, top, bottom, and sides, by steam, but no steam comes in contact with the meat. The cooking goes on at a temperature slightly below that of boiling water, and no amount of stupidity or carelessness can dry up the meat. There is neither steam nor water to extract the juices, and the vessel being tightly closed, the flavor can not be dissipated. Gravy is formed, and it is just what gravy should be, the juice of the meat. We have used this Cooker continuously for several months, and would on no account go back to the old method of baking in an oven. We have only used it for plain joints and roasts. These are cooked until within a short time before serving, when they are placed in a hot oven for a few minutes, for the surface to brown, except where boiled mutton is required, when it is served just as it comes from the Cooker. The meat is always thoroughly done, never dry, but always juicy and flavorful. Since its use was instituted, there have been no complaints of the butcher, and we who live in the country often have abundant cause of complaint. A small roasting piece of beef can be had rare-done and juicy, which is next to impossible with a stove oven. Veal is a meat that requires long cooking to make it digestible, and when done sufficiently in the ordinary way it becomes dried and stringy. By the use of the Cooker the slow cooking can be prolonged until the veal is thoroughly done, and the subsequent browning in the oven can be given without perceptibly drying it. We only give such points as are within our experience; the circulars accompanying the Cooker give directions for several compound dishes which we have not yet tried. The Cooker is provided with a chamber for steaming puddings and vegetables, with no extra heat. The illustration here given shows the American form of the Cooker, in section. First there is an outer vessel, containing water in its lower part. Next is an inner vessel which holds the meat; between this and the outer one is a space filled with steam. A pipe, shown at the right hand, conveys the steam from this space to the steaming chamber above, but no steam goes into the place

which contains the meat. A double or hollow cover, its cavity filled with steam, incloses the whole. When the steamer is not used, the cover fits directly over the meat compartment, and an opening in it fits upon the steam-tube before mentioned. After the meat is put in, all that is required is to keep the water in the outer vessel boiling. The meat does not shrink, and it is claimed that there is a saving on this account of two ounces in the pound. The larger Cooker is of sufficient capacity for a good-sized roast, and a second size is made to suit small families. We regard the Warren Cooker as one of the greatest household improvements yet introduced, and worthy of general adoption by those who desire well-cooked meats.

Home Topics.

BY FAITH ROCHESTER.

My dear good girl, my domestic, my servant, had been gone a month, and my hands were more than full of work.

I have not written anything on the servant-girl question, I believe, but this subject interests me very much. My sympathies are quite as much with the servant-girls as with the mistresses. We do well to remember that the papers, in which all these questions are discussed, if at all, are conducted by the representatives of education and capital, and ignorance and shiftlessness have not much chance for a hearing. We are all of the time blaming trees for inclining hopelessly in just the direction the little twigs were bent in childhood. We might better be engaged in looking after the little twigs of humanity around us now, doing our best to prevent their getting some wretched twist that will make good their chances for lives of poverty, incapacity, and crime.

But my "girl," of whom I began to speak, was a real treasure in the house, an element of peace in the family, a "helper" indeed. Her only trouble seemed to be the separation from her own particular friends. Reading and writing were unknown arts to them all, and as Greta left a lover behind in coming beyond visiting distance, to live with me, it is not strange that she suffered some from homesickness. If mistresses would remember that their hired girls have ties of family and friendship, that they love to make friends and to be approved, they might find some of their difficulties removed.

But my good girl was gone, and ere this she is probably married. I was kneading bread, with a child at work at the table, on each side of my bread-board. Some housekeepers could never stand that. But a bit of dough is such a fascinating plaything for a child that I can never refuse it—unless I am decidedly "cross"—in which case repentance is sure to follow. Each child has its own round stick for a rolling-pin, and its own bits of earthen and tin for baking dishes.

Bother? Yes, of course. But it is worse bother to have children unhappy. Once make up your mind that everything *can not* go on like clock-work where there are children in the family, and that the children's happiness is a matter of considerable importance, while *their real, lasting welfare and usefulness* is, or should be, the chief end for which the farm and shop and household are kept running, and then this subject of "bother" will be properly considered.

Well, we three were making bread. The baby had waked and called for mamma, and papa, coming in just then, had taken her up and brought her along to oversee the baking operations.

"I don't see how in the world I can write for the *Agriculturist* this month," I said. "It would be for the June number. What topics would be especially suitable for June? Please suggest."

And he very kindly did so. I asked him to write them down, and he did, saying that I could make them over as I pleased. But I am fain to copy them down just as he left them, though he has omitted from the notes some excellent things he said about the connection between a farmer's (or any other person's) health and ability to work, and the quality and cooking of his food.

Not wishing to draw needlessly upon the sympathies of any one, I may say that since that con-

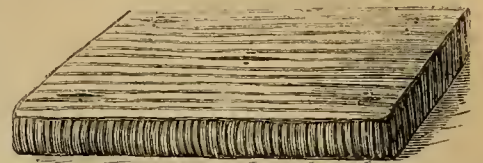


Fig. 1.—STRAW BED.

versation, two weeks ago, the family force has been augmented by the helpful hands and clear head and kind heart of a relative—for in this region kind household helpers are very difficult to get. [We may say here, as it will answer several questions, that Mrs. Rochester lives in Minnesota.—Ed.]

Here are the notes:

RELATION OF THE HOUSE TO THE FARM.—June is a busy month for the farmer and for the farmer's wife. The growing crops are to be looked after, corn to be cultivated, new ground to be made ready for late potatoes and ruta-bagas, and in the latter part of the month hay harvest begins. The success of these various field operations depends in no small degree upon the administration of the commissary department. The effort of the farmer is to get in a fall day of well-planned labor, and to this end he must have breakfast over and his workmen and teams started in the early morning, and must have a good nourishing dinner promptly at noon.

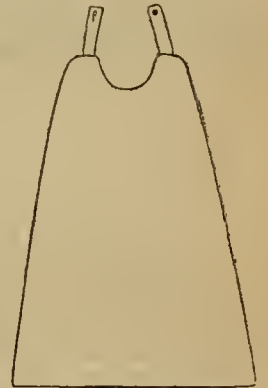


Fig. 2.—TABLE BIB.

But in order to secure this, some matters require his attention in the house. It is his place to see—

- 1st. That there is an abundant store of provisions, suitable for the food of the working force of the farm.
- 2d. Plenty of help in the kitchen. If he fails to secure the necessary help in the house, he should reduce his farming operations accordingly.
- 3d. Ample supply of water, and well-seasoned, properly-prepared wood just at hand.
- 4th. It depends upon the master of the house (using this term as we do "mistress of the house") to start the day. His getting up early makes it easier for every other member of the family to rise.

MR. ROCHESTER.

"Very good!" said I, "I am rather pleased that your first help in these 'Topics' should come in the shape of hints as to men's duties in the household department. If there are men who need such suggestions, they may be able to receive them with better grace from a man than from a woman. There are men who 'never allow a woman to dictate' to them, you know."



Fig. 3.—BIB.

STRAW BEDS.—Most people who use feather beds in winter, put them away in the summer and sleep on straw beds. These should be very full, and they will not be found hard or uncomfortable by any except the sick or aged, and usually not even by them. Our grandmothers, who wove their own linen-ticking, used to call nine yards of three-fourths-yard-wide linen a bed tick pattern, but the modern bed requires cloth a little wider. Good striped ticking is best. The best form is box-shape (fig. 1), with four small holes near the corners, in the upper side, and one longer one in the middle. This admits of adjusting the straw all over the bed more easily than in case of a single slit. Each one

may be fastened by a single strap under one side and a button, or by narrow tapes. Oat straw is the best. It is more soft than wheat or rye straw. To make it lie evenly, do not be contented to pull the straw up light, simply, but pull it from the higher parts into the lower ones, until the bed is of even thickness in different parts. It is aggravating to find the same hollows in the same spots night after night. Never fill them up by stuffing pillows or other articles under the mattress or under the lower spots in the bed, as I have seen bed-makers do. There is no trouble in making an even bed, if care is taken in stirring it. A mattress, or a comforter, or at least a bed-quilt, should lie between the straw bed and the sheet. Husks are preferred to straw by many; they are cleaner and more durable, but nervous people are sometimes much annoyed by the rustling of the husks.

CHILDREN'S BIBS.—Common napkins do not serve the needs of children under six or eight years, at table, so well as bibs that may be tied or buttoned around the neck. They should be long enough to tuck under the table, or to cover the child's lap. A small gore in front, with a band of right length, secures a good fit around the neck. I give a pattern (fig. 2), for those who need it.

Bibs much like this are used for teething children. They are usually made of marseilles, or diaper-linen, and are lined. They may be scalloped and embroidered, or simply bound with braid. Some babies have them pinned down in front and behind with pretty little gold or fancy bib-pins. Here also is a pattern (fig. 3), for the baby's bib, but it admits of variation. The table bib may be kept with the table napkins. A child should be encouraged to keep its bib clean and neat.

FLOATING ISLAND.—Having just learned a new wrinkle in making this ornamental and delicious form of custard, I am led to give the full recipe here, as I do not see it in any late numbers of the *Agriculturist*, and am not sure as it has appeared there.

One quart of good milk. Heat this, add sugar "to the taste," and when nearly boiling, pour in the yolks of six eggs, thoroughly beaten, stirring briskly until the custard is cooked. Flavor as you like. Turn this into a suitable deep dish, and set it in a cool place. Beat the whites to a very stiff froth, turn them into a colander (here you have the "wrinkle" which was new to me, but is old to some), and pour boiling water through the foam, shake it together, and turn it carefully upon the custard. You may scatter bits of jelly over this, or not, as you please. All custards should be cold when eaten.

To separate the whites from the yolks is a tedious process, unless you know how. Then it is simple enough. Break the egg through the middle with a quick rap against the edge of the dish. Holding it over the dish, put your thumbs into the crevice, and pull the egg open into two cups. The yolk settles itself into one, a part of the albumen or white spills into the dish, and you can easily pour the rest off, turning the yolk from one shell-cup to the other, being careful not to break it, until it is free from the white. Then turn it into the dish in which you will beat the yolks. Many persons have no idea what a "stiff froth" is, and stop beating the whites when they have just begun to foam.

ABOUT USING THE MOP.—Mrs. L. H. O., Wayne Co., N. Y., writes: Where one has a hard-wood oak or maple floor, strong hot soapsuds may be freely used. If, on the contrary, the floor is pine and nicely painted, it will need painting two or three times a year, if hot or even cold strong soapsuds is used. Hired girls and washerwomen often make sad havoc with the paint, soaping and even scouring with hot ashes. With a clean mop and clean soft warm or hot water, first run the mop all along the mop-boards, in the corners, on the thresholds, over the oilcloths and zines, in the pantry, and all the particular places. Change the water before it assumes a muddy appearance. Draw out the table a little, and run a clean mop behind that. There is no need of breaking one's back, stooping down, if both mop and water are quite clean. It is the sign of an untidy woman to see

grimy, dirty thresholds, mop-boards, and corners. It was the custom of the Dutch women living in those counties in the eastern parts of New York, and bordering on the Mohawk, to wash the floor on their hands and knees, with a linen bag. This laborious manipulation was called "filing." Whole houses of uncarpeted floors were thus made to shine and glisten by these industrious women.

Another Flour-Box.

In March last we gave a plan for constructing a flour-box. One suggestion of this kind is quite sure to bring out others, and we have received from "L. B. H.," Bryan, O., an account of the manner in which he fitted up two flour-boxes in a house that he recently furnished. He sends us sketches and the following description:

I first formed a base, 5 inches high and 17½ inches wide. I placed one standard between the

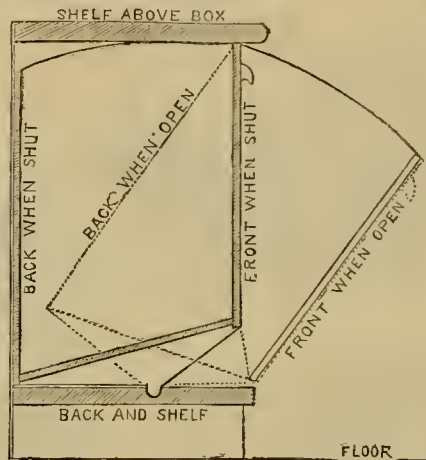


Fig. 1.—DIAGRAM OF FLOUR-BOX.

boxes and one outside of the two boxes; they were 17 inches wide, 36 inches high, upon which I placed a shelf, 18 inches wide, which formed the base of a cupboard. I cut the end pieces (fig. 2) of the boxes 26½ inches long and 16 inches wide. I made a line, ½ inch above the bottom end, and on that line, 5½ inches from the front edge of the board, made a point and struck an inch circle, to form a foot (a) to hold the box in place. I measured up the front edge from the line mentioned 3½ inches, and made a point (b). I drew a line from that point to the center of the inch-circle; I sawed it to the circle, and sawed also from the back edge on the line first mentioned to the circle, leaving a foot 1 inch wide by ¾ long. I cut a furrow across from the two lower corners on the inside of the end-pieces, to receive the bottom. From the top on the back edge of the end-piece I measured down 1½ inches, and rounded the end to that point. I used ¾ lumber for front and back, rabbeting it to ½ inch. I measured from the front of the dividing stands in 6 inches, and with an inch-gauge I cut a socket or place for the foot to rest in the base-shelf, being particular about bringing the face of the box and the dividing stand even when the box was shut. Cast handles were put on with screws, the feet were placed in the sockets, and the boxes were completed. The boxes will stay open or shut, as desired.

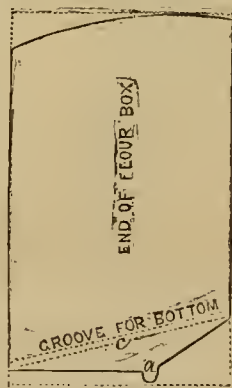


Fig. 2.—END-PIECE.

COCOANUT PUDDING.—By Lizzie H.—Grate one cocoonut, and mix with five rolled crackers; pour over this mixture a pint and a half of scalded milk, add one pint of cream, six eggs—whites and yolks

beaten separately—and sugar to taste. Eat cold, with cream and sugar. Nice for Sunday's dinner.

How to Use Strawberries.

The strawberry is a fruit of such delicate flavor that it is best enjoyed fresh from the vines, either with sugar alone, or in the favorite form of strawberries and cream. All forms of preserved and canned strawberries are in point of flavor so much inferior to the fresh fruit, that they are among the most unsatisfactory of preserved or canned fruits. For the full enjoyment of strawberries, they should be allowed to remain upon the vines until thoroughly ripe; hence those purchased in market are seldom in their best condition. To allow them to bear transportation they must be picked as soon as they are colored, and before the slight softening that indicates full ripeness takes place. It is only those who grow their own fruit that can have them in this condition. After picking, the berries should be placed in a refrigerator to become somewhat cool, though not too cold. The fruit for the table should never be washed. Straw should have been placed around the vines in sufficient quantity to keep the fruit perfectly clean. Strawberries that have to be washed are only fit for preserves.

Canned or rather bottled strawberries, while never good representatives of the fresh fruit, can be made much superior to those generally met with by a little care in the selection of the varieties. The Wilson, on account of its acidity and firmness, is better than any of the soft varieties, and its deficiency in flavor may be in part overcome by using the juice of Russell's Prolific, Brooklyn Scarlet, or other high-flavored variety for the syrup.

STRAWBERRY ICE-CREAM is liked by many, and it allows the fruit to be used in a form which presents a pleasing variety. A quart of berries is sprinkled over with half a pound of fine white sugar. After standing for three hours, the berries are mashed and the juice strained. Add another half-pound of sugar to the juice, and a quart of fresh cream stirred in gradually. Freeze in the usual manner. This may be varied by adding to the cream when it is partly frozen a pint of unsugared berries, and when this is done it is necessary to add an extra cupful of sugar to the juice that is pressed from the first berries, and mixed with the cream.

STRAWBERRY SHORTCAKE is generally popular, and we have heretofore given recipes for it. We now give one from Marion Harland's "Common-Sense." We have not yet tried it, but we have generally found her approved recipes excellent. She takes 1 quart flour, 3 table-spoonfuls butter, 1 large cup sour cream or very rich lopped milk, 1 egg, 1 table-spoonful white sugar, 1 teaspoonful soda dissolved in warm water, 1 salt-spoon of salt. Chop up the shortening in the salted flour as for pastry. Add the eggs and soda to the milk; put all together, handling as little as may be. Roll lightly and quickly into two sheets, the one intended for the upper crust fully half an inch thick, the lower less than this. Lay one crust upon the other, and bake. While warm—not hot—separate them. Lay upon the lower a thick coating, several deep, of strawberries; sprinkle powdered sugar over them; cover with the upper crust.

KEEPING HAMS.—"E. R. A. S.," Hardinsburgh, Ind., sends the following: After your meat is well smoked, procure some clean, dry ashes, and have some water handy; take down the hams, moisten them a little so that the ashes will stick, put the ashes on them, and give them a good rubbing, and hang them up again. Any person trying this will find that the meat will keep sweet and nice, and will not be troubled with any insects on the hams. I have put mine up in this way for three seasons, and find it does well.

ORANGE PIE.—By Lizzie H.—Take the pulp and juice of two oranges, with a little of the grated peel, three eggs, one cup of milk, and one of sugar. Stir the sugar with the yolks, and add to the orange juice; next add the milk, and then whites of eggs.

BOYS & GIRLS' COLUMNS.

The Picture Prizes.

Well, children, the first of May was the day named, on which all the prize stories must be in. So on that day we took an account of stock, and how many do you suppose there were? Seven hundred—lacking ten! Yes, just six hundred and ninety letters to be opened and assorted, and afterwards read. These are divided up as follows: Boys twelve and over, 244; boys under twelve, 81; girls twelve and over, 240; girls under twelve, 103. Besides these there were 22 letters, which were either without addresses, or of which the writers failed to state their ages, which of course don't count. As it is quite impossible to read through all these letters in time to announce the successful ones on this page, you will have to turn to the "Basket" columns for the information, as that part of the paper goes to press a week later than this.

As there are but twelve prizes, of course there will be 678 of my youngsters who will not succeed this time, but we shall by and by have some other offers, at which they can try again. I have only read a portion of the letters, and am glad to see so many say that they write for the sake of the exercise. I was quite amused in looking over the letters that came with the maps, some time ago, to see that some insisted that Aunt Sue and myself must be the same person. This being denied, now several wish to know if I am not Uncle Tim, who writes in *Hearth and Home*. To this I must answer, no. Uncle Tim attends to his boys and girls in *Hearth and Home*, and I to mine in the *Agriculturist*, and neither of us ever "change works," or write in the department of the other. It is very odd to be obliged to insist that I am not some one else, and I hope that the youngsters will be satisfied with the declaration that I am "The Doctor," and do not appear under any other name.

Six hundred and ninety letters of all sizes of paper and envelopes, and written in every variety of hand, from the printing hand of the little one first using the pen, to the handsome script of the young master or miss, who evidently uses the pen with ease and grace. What an exhibition these letters would make! It would quite heat the patching and darning exhibition, in interest to young people at least. Then, if we could have all the six hundred and ninety boys and girls together, to see it, what a gathering it would be! The National Conventions would be as nothing to it. I can not hope to see such a meeting of my youngsters, but must content myself with going to them separately through the medium of the *Agriculturist*.

THE DOCTOR.

Insect Friends and Enemies.

If people know more about the ways of insects, they would not work so blindly when they try to get rid of them. Every one knows that insects do much damage to plants, but every one does not know that all insects are not injurious. There are many insects that do not feed upon plants at all, but eat other insects. This being so, the farmer or gardener who kills all the insects he sees, really does himself a wrong. Children should watch insects and learn to know one from another. You can learn much about the habits of insects without books, and when you become interested in the subject you will wish to become better acquainted with them, and perhaps will like to take up Entomology, as the study of insects is called. The artist who drew the picture which we have called "The Defender of the Herd" has taken some well-known facts of insect life as the foundation of his picture, and then used a little imagination to make it more striking. You have doubtless all of you seen plant-lice, or *aphides*, as they are sometimes called. You will not have to go far to find them; probably the first rose-bush will have altogether too many upon it. They are not confined to rose-bushes, but are found now and then upon almost every common plant, and the young shoots of fruit-trees are often completely covered with them. They are usually green, but are sometimes dark-brown or blackish. These little fellows are shown in the picture very much enlarged. They lead a very curious life; each one has a long, sharp bill or proboscis, which it thrusts into the tender leaf or stem, and sucks away at its juices. Once anchored in this way it seldom moves, and as they are frequently as thick as they can stand, you may be sure that the plant suffers. Each one of these plant-lice has two tubes at its rear end, from which it gives off a sweet juice, which often drops upon the leaves of the plant and upon the ground, and is called *honey-dew*. The ants are very fond of honey-dew, and not only eat that which the plant-lice let fall, but they go among them and secure the drop before it leaves the insect. It is said that the ants will even tickle the plant-lice with their feelers, to make them "give down" the desired drop. We never saw the ants do this, but we have seen them very busy among the *Aphides*, and if you watch them carefully, you

may be able to find out whether those who have made this statement are correct. At any rate, the *Aphides* have been called the "Aots' Cows," and the ants are considered their friends. But the *Aphides* have their enemies, which cause much havoc among them. The larva or grub of the well-known Lady-bird or Lady-bug is one of these, and the larva of several other insects feed upon the plant-lice. Of course, you know the different forms which most insects go through. When hatched from the egg we have the *larva*, commonly known as caterpillar or grub. After this has reached the proper age, it rolls itself up, often spinning a web or cocoon, but frequently taking on only a hard skin, and remains in this *chrysalis* or *pupa* state, some insects for months and others for days only, and finally comes out as butterfly, moth, beetle, etc. Well, one of the enemies of the plant-lice is the larva state of the pretty red and black Lady-bugs. It is a very lively, lead-colored grub, with red and yellow spots, and is very fond of making a breakfast off of the ants' cows. The artist has shown the *Aphides* and a destructive grub making an attack, and has represented the ant in the act of defending his flock. You probably will not succeed in seeing ants doing just this, but if they are intelligent enough to milk their cows, we should not be surprised to learn that they defend them from enemies in their own way, which may not be the way the artist has imagined, but probably one that will answer as well.

Aunt Sue's Puzzle-Box.

Now, children, old and young, get your dictionaries, and square some word of six letters, without any foreign word or proper noun. H. H. Clarke has sent a six-word square: who else will do so?

RIDDLE.

Half of me is senseless sound,
Yet therein my whole is found.
Rising from off the ocean deep,
I rouse the sailor from his sleep,
But soothe the landsman's list'ning ear,
And mourners' saddened thoughts oft cheer.
Now let me rise from o'er the land,
The sternest tyrant stays his hand,
Aye, princes, potentates, and powers
With trembling watch the laggard hours:
Reverse my half, (when cut asunder)
To rostrum and pulpit I furnish thunder;
A very fruitful source of ill—
Riot and noise, though sprung from "still."

BESSIE.

ANAGRAMS.

- 1. Burn near swan least.
- 2. O not fired cane.
- 3. Real men count.
- 4. Send, in belief.
- 5. Citron instead.
- 6. Send Roc.
- 7. Fine fable.
- 8. Eat trifles.
- 9. I hate a tab.
- 10. I can't hoc.

ARITHMOREMS.

- 1. 900250551501180250.
 - 2. 3001171601900.
 - 3. 50050300500900150.
 - 4. 75008050016011400500.
 - 5. 100011900250250150.
 - 6. 500111001601180.
 - 7. 40080500900160.
- CLAUDE S. FARRINGTON.
MINNIE.

DIAMOND CROSS-PUZZLE.

The center letters, horizontal and perpendicular, are the same.

- 1. A vowel.
 - 2. A foreign word for love.
 - 3. Inactive.
 - 4. A continent.
 - 5. A printer's implement.
 - 6. A luxury.
 - 7. An article.
- R. T. ISHESTER.

EQUIFOCAL WORDS.

Find one word which will express the various significations given. Thus: "A corner—to fish with a bait." Ans.—Angle.

- 1. Deportment — dexterity — direction of a letter — a speech — to accost.
 - 2. Vile in man — what he must stand upon — indispensable to his house — a game.
 - 3. What many do in cities — a thin plank — a sailor's duty in close combat.
 - 4. Part of a stage-coach — profit — advantage — the point of discussion in a "swap" — an article of dress.
 - 5. A lever — a thicket — a plant — a tool.
- JOHNNIE.

NUMERICAL ENIGMA.
(A very easy one.)

I am composed of 10 letters.
My 8, 9, 10, is a weight.
My 7, 5, 6, is a spirit of grain.
My 1, 2, 3, 4, is to cleanse,
My 3, 2, 1, is a carpenter's tool.
My 1, 5, 10, 7, is what birds fly with.
My whole is a city.

E. L. C.



THE DEFENDER OF THE HERD.

PL.

Eb wols ot prisome dan kique of formerp.

ANSWERS TO PUZZLES IN THE APRIL NUMBER.
PUZZLE.—Grain, rain, brain, ain, io, ne.

ANAGRAMS.

- 1. Ancestors.
- 2. Researches.
- 3. Concentrated.
- 4. Intelligence.
- 5. Centarics.
- 6. Accumulators.
- 7. Eufrafranchise.
- 8. Resplendence.
- 9. Flourished.
- 10. Restricted.

CROSS-WORD ENIGMAS.—1. Orange. 2. Country.

SQUARE WORDS.—(I shall tell next month who sent the most squares on "PLOW.")

- 1. P L O W
- 2. M A R K
- L O V E
- O V E N
- W E N T
- A G U E
- R U D E
- K E E P

PL.—Of all studies study your present condition.

ARITHMOREMS.

- 1. Vaccinate.
- 2. Variety.
- 3. Granite.
- 4. Dietator.
- 5. Alexis.

REBUSES.—424. Depend not upon fortune, but upon good conduct.

- 425. Vice is infamous though in a prince, and virtue honorable though in a peasant.
- 426. Cape Henlopen.

A PROBLEM.

J. TEACKLE sends us an old puzzle which may be new to some of you, and will give amusement to those who are fond of working out problems. I dare say W. P. SMITH will have it all figured out mathematically in no time.

This is the story. Twenty men (ten black and ten white) were out at sea when a storm arose, rendering it impossible to carry more than ten men aboard with safety. A council of war was held, and it was determined to throw over every fifth man. The white sailors arranged them in such order that "every fifth man" should be a black man. How did they manage it?

Thus they stood:

—and surely nothing could look less methodical, but by that arrangement you will see that every black man is doomed. Now I will give you the *formula* by which they were arranged, but you must find out the "why?" for yourselves. "A gray owl did eat a snake." The vowels (including y) are black men, the consonants white men.

AUNT SUE'S NOTICES TO CORRESPONDENTS.

JA-CE-PE-ES.—"Twelve brothers and sisters"! Do you have to chalk yourselves, to know which is which? The same "AUNT SUE," and glad to be "Dear" to "thousands."

ARAX.—I do not remember the location of all my correspondents, so can not inform you; don't remember any just now.

GUSTAVUS M.—So your "father will take the *Agriculturist*."



[COPYRIGHT SECURED.]

OUT FOR A BATH.—FROM A PAINTING BY F. S. CHURCH.—Drawn and Engraved for the American Agriculturist.

tourist and *Hearth and Home* as long as he lives." Long life to him!

EDWIN C. P.—Use only fair English words in "squaring."

MERRY THOUGHT has squared the word "care" 123 times, changing one word every time; it took 1,968 letters to write the squares with, and is certainly the most carefully written document I ever received.

H. H. M.—You can always tell if your answers are "right," by comparing them with the list of answers when they are published.

J. M. S.—Sorry not to oblige you, but it is contrary to our rules to advertise for correspondents.

PLowBOY.—Thanks for your rebus, so beautifully drawn; I am only sorry you did not select some other subject.

MINNIE T. E.—I do enjoy "a hearty laugh," but it is generally *with* folks, not *at* them.

GLAD to hear from Richie B. A., M. L. L., Anstin W. S., Claude, C. H. J., A. M. R., Johnnie, Ben S. S., Robt. W. M., and Nellie Bache.

Thanks for puzzles, etc. (though some may be looking for thanks in *Hearth and Home*) to J. S. Van O., Jacques, Claude, Annie, Alice H. P., Fred. A. S., Minnie, Hattie K., E. M. Brown, Orren P. A., Jacob N. R., and Mary Jacobs.

Out for a Bath.

When we saw Mr. Church's painting called "Out for a Bath," it seemed so funny, that we wished all the boys and girls could have a laugh at it, so we had an engraving of it made, and here it is. Some pictures that we give you

are intended to be instructive, and others are put in merely as pictures, to interest and amuse. The artist has represented three young snipe making their first acquaintance with water. Young birds are not, as a general thing, very handsome, but young snipe in their unfledged state, with their ridiculously long legs, are comical enough. Many artists can paint birds and give a correct representation of their forms and colors, but few succeed in giving them much expression. In this group we have a great amount of expression. A bath is evidently quite a new thing to these snipelets, and they hesitate before venturing in. The one on the left, more courageous than the others, is testing the water with the tips of his toes, while the rest await the verdict with most comical interest. See, too, how finely the sedges and other plants are represented. We think this a very clever and amusing picture, and hope that all our young readers do too.

The Smith AMERICAN ORGAN CO.

Respectfully announce to their musical friends that they have now ready a few

NEW INSTRUMENTS,
Beautiful in Appearance and Delightful in Tone.

They will be glad to send engravings and detailed descriptions to dealers and others who are interested. One of these new styles, containing **THREE SETS OF REEDS**, is believed to be the

FINEST PARLOR ORGAN

yet made in this country. It has a COMPLETE NEW REGISTER of a lovely and sympathetic quality, and is capable of producing very delicate effects.

Correspondence solicited.

CATALOGUES FREE on application. Address

THE SMITH AMERICAN ORGAN CO.,
TREMONT ST., BOSTON, opposite Waltham st.

What the N. Y. Weekly Tribune says, May 8th, 1872:

"We know whereof we speak when we pronounce the **Universal Clothes-Wringer** one of the best labor-saving inventions of the age. It not only economizes time and strength, but is a great saver of clothes by preventing the twist and strain of hand-wringing, and, when it is screwed on a **Doty Washer**, Monday loses all its terrors."

It will pay you to send to Porter Blanchard's Sons, Concord, N. H., or to any dealer in first-class dairy machinery, for the circulars of their excellent churn.

Every one who intends to buy a Watch this year should write for our Price-list of Waltham Watches. We send them everywhere at the lowest New York prices. Send for the Price-list now, and read it at your leisure. When you write, mention the *American Agriculturist*.

HOWARD & CO., No. 865 Broadway, New York.

TIN-LINED LEAD PIPE

is a **Block-Tin Pipe** heavily coated with solid lead. It is the best and cheapest Water Pipe when strength and durability are considered. By its use iron-rust, lead and zinc poison are all avoided, and general health promoted. Price, 15 cents a pound for all sizes. Circulars and sample of pipe sent by mail, free. Address the **CORWELLS, SHAW & WILLIAMS Mfg Co.**, No. 213 Center Street, New York. Also manufacturers of Block-Tin Pipe, Sheet Lead, Lead Pipe, Solder, etc. Orders filled at sight.

SAFE AND DESIRABLE MUNICIPAL BONDS

OF KANSAS, MISSOURI, COLORADO, and WISCONSIN, having from 5 to 20 years to run. Principal and interest payable in New York City. For sale at prices that will pay over 12 per Cent on the investment. First-class Investment Securities always on hand. Call or send for descriptive circular.

THOS. P. ELLIS & CO.,
Bankers, No. 14 Pine street, New York.

"To Save Money,"
Spend it in buying good

Cable Screw Wire
Boots and Shoes. Try them.

The Woodruff Portable Barometer.

The best in the world. Also accurate Thermometers of all kinds. Made by **CHARLES WILDER**, Peterboro', N. H.

MOWER AND REAPER, combined, Wood's, new, for sale. Address **G. TIMPSON**, Box 243, Williamsburgh, N. Y.

ARE YOU GOING TO PAINT?

MORE THAN

100,000 HOUSES

HAVE BEEN PAINTED WITH THE

AVERILL CHEMICAL PAINT IT IS THE BEST

In the world for exterior work upon Cottages, Villas, or Buildings of any kind, whether built of brick, wood, or iron. It is a liquid, ready for use, and requires no oil thinning or drier. Purest white, and any desired shade can be had in packages from one gallon upwards.

Sample card of beautiful colors, and recommendations from owners of the finest residences in the country, furnished free by the

AVERILL CHEMICAL PAINT CO., 32 Burling Slip, New York, or 118 Superior Street, Cleveland, Ohio.

L. HATFIELD, AGENT, 131 Portland Street, Boston, Mass.

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ROBERT SROEMAKER & CO., N. E. corner 4th and Race Streets, Philadelphia, Pa.

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GEO. W. PITKIN, 120 1/2 Michigan Avenue, Chicago, Ill.

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JAMES S. BOOTH, 151 Griswold st., Detroit, Michigan.

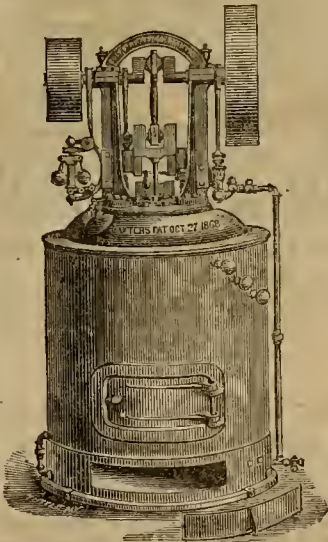
P. S.—The superiority of these Paints has already brought numerous worthless imitations in the market. We caution the public against using them.

Baxter Steam Engine,

Manufactured by

COLT'S PATENT FIRE-ARMS MANUF'G CO.

HARTFORD, CT.



ENGINE READY FOR USE.

THE **BAXTER STEAM ENGINE** is manufactured by Colt's Patent Fire-Arms Manufacturing Company of Hartford, Ct., whose reputation for exact mechanism is well known, and who fully guarantee their work.

Every Boiler is tested under inspection of the Hartford Steam Boiler Insurance Company, and by them guaranteed and insured.

We therefore feel justified in claiming that, in points of mechanical construction, safety, and durability, the Baxter Engine has no equal, while in simplicity of construction, economy of space and fuel, it stands without a rival.

SIZES, FROM 2 TO 10 HORSE POWERS.

Hundreds of them are now in use in Farms, Shops, Stores, etc., etc., and giving entire satisfaction.

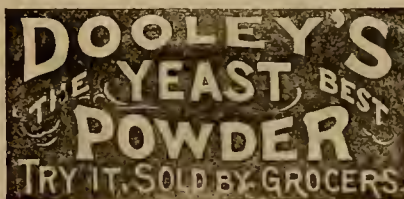
The most Economical Engine in the World.

Call and see them, or send for Circular and Price-list to

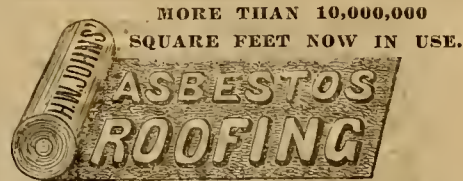
WILLIAM D. RUSSELL,

Office of The Baxter Steam Engine Co.,

18 Park place, New York.



For simplicity, beauty, durability, cheapness, and effectiveness, we sincerely commend that Queen of dairy implements, the Blanchard Churn.



MORE THAN 10,000,000 SQUARE FEET NOW IN USE.
ASBESTOS ROOFING
FIRST PREMIUM (MEDAL) AWARDED IN 1870, AND INDORSED BY CERTIFICATE FROM THE AMERICAN INSTITUTE IN 1871 AS

"The Best Article in the Market."

The "Asbestos Roofing" is a substantial and reliable material, which can be safely used in place of Tin, Slate, etc., on steep or flat roofs, in all climates, and can be easily and cheaply transported and applied.

Descriptive Pamphlets, Price-lists, Terms to Dealers, etc., by mail.

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[Established in 1838.] 78 William st., N. Y.

The Tribune Buildings have been covered several years with the Asbestos Roofing, which has proven entirely satisfactory. We prefer it to Tin.—Eds. N. Y. Weekly Tribune, May 8th, 1872.

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MELODEONS.

The Oldest, Largest, and Most Perfect Manufactory in the United States.

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Now in use.

No other Musical Instrument ever obtained the same popularity.

Send for Price-Lists.

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Or **CHICAGO, ILL.**

THE

Philadelphia Lawn - Mower.

BEAUTIFUL LAWNS may always be had by using this perfected Mower. We make eight sizes, ranging in price from \$15 to \$150. Our new 14-inch Mower weighs but 33 lbs., and our new 16-inch only 41 lbs.—about half the weight of those heretofore used, and the labor of working them is reduced in like proportion. Our Pony Mower is also perfect. Send for Circular describing all fully.

GRAHAM, EMLEN & PASSMORE,
Patentees and Manufacturers, 631 Market St., Philadelphia.

A NEW COLONY IN KANSAS!

At "SKIDDY," in Neosho Valley, on MISSOURI, KANSAS, AND TEXAS RAILWAY.

Under the auspices of the NATIONAL BUREAU OF MIGRATION.

THE AMERICAN COLONIST AND HOMESTEAD JOURNAL.

Containing maps, with full particulars as to the Organization of the Colony, the Lands, Productions, Climate, Wood, Water, etc. SENT FREE, on application to **S. R. WELLS**, Sec'y N. B. of Migration, 389 Broadway, New York.

Mothers, why do you neglect to buy

SILVER-TIPPED SHOES

For your dear little children? They never wear through at the toe.

BEE-KEEPERS Send 10 cents for the *Bee Journal*, 3 months, post-paid; \$1 for one year with best Bee Book. *Bee-keepers Magazine* one year, and balance of this year's *Journal*, \$1.50. Specimen No. 1, containing Chromo—in five colors—of Honey Flowers and Italian Bees, 50 cents. Address **H. A. KIRK & Co.**, 14 Murray st., New York, or 11 S. Canal st., Chicago, Ill.

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Catalogue, priced and illustrated, sent free.

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MANUFACTURED BY ADRIANCE, PLATT & CO
 STYLES, SIZES & PRICES TO SUIT ALL FARMERS
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is so well known among grain-growers generally, that it needs no extended heralding in print. As manufactured by us, it is the only Reaper that will save the entire crop when badly lodged.

We warrant it to cut any grain that grows, and in any condition.

A pair of ordinary horses and a boy to drive it will cut from 10 to 20 acres a day in the most satisfactory manner. Send for illustrated pamphlet.

C. C. BRADLEY & SON, Syracuse, N. Y.

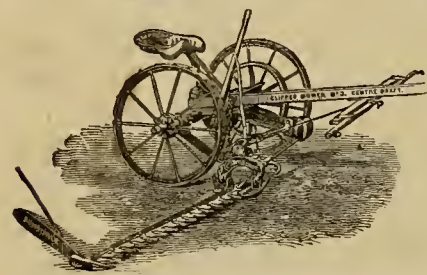


TWO GOLD MEDALS

AWARDED THIS MACHINE.

THE BEST IN AMERICA.
 Gardner's premium Railway Horse Power and Thresher and Cleaner, received, THE FIRST PRIZE at Great National Trial, at Auburn, N. Y.

For "Slow and easy movement of horses, 15 rods less than 1/4 miles per hour, Mechanical Construction of the very best kind, thorough and conscientious workmanship and material in every place, nothing slighted, excellent work, &c.," as shown by official Report of Judges. Treshers, Separators, Planing Mills, Wood saws, Seed Sowers and Planters, all of the best in market. Catalogue with price, full information, and Judges Report of Auburn Trial sent free. Address: MINARD HARDEK, Cobleskill, Schoharie Co., N. Y.



The uniform success of the Clipper Mowers in the field, the testimony of every farmer who has used them, that they are the lightest in draft, the most durable, and the most economical machine for the farmer to buy, fully substantiates what the proprietors have always claimed—that the Clipper is the Best Mower in the World.

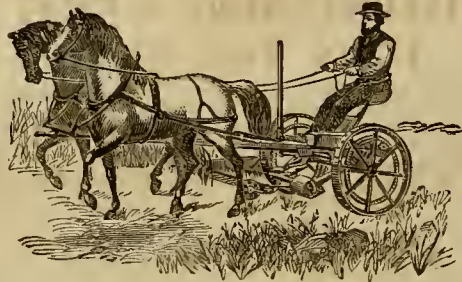
To the No. 4 size is attached the Dropper (cutting 5/8 feet, with separate Finger-Bar for reaping), constructed with great improvements—in fact, perfected; and in point of efficiency, strength, lightness of draft, and symmetry of proportions, it is, as a Reaper, also unequalled. Farmers! see it before you buy. Pass your own judgment upon it. Look at its many improvements possessed by no other machine. Remember, it is fully warranted. Send for Pamphlet. THE CLIPPER MOWER & REAPER CO., P. O. Box 6, 175, 154 Chambers st., New York.

THE SUPERIOR HAY SPREADER.

Farmers, be sure and examine the only perfect Spreader ever put into the field. The SUPERIOR is acknowledged by all to be the only Machine that will spread, disentangle, and turn over all grass passed over. It is the neatest, best built, and only true working tedder. Send for Descriptive Circular, and read the numerous testimonials received.

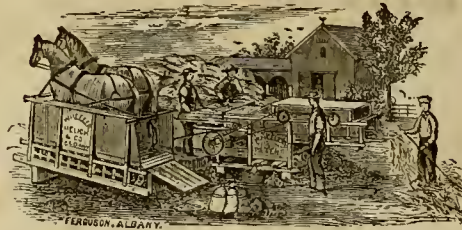
JAMES FRAZER, Gen'l Agent, Newburgh, N. Y., and for sale by NEW YORK PLOW CO., Beckman st., New York.

WOOD'S CELEBRATED HARVESTING MACHINES.



Greatly Improved for 1872.
 Send for Descriptive Catalogue.

Address
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 Or 30 Cortlandt st., New York.



New York State Agricultural Works,
WHEELER, MELICK & CO.,
 PROPRIETORS, PATENTEES, AND MANUFACTURERS OF
RAILWAY CHAIN AND LEVER HORSE POWERS,
 Combined Threshers and Winnowers, Overshot Threshers, Clover Hullers, Feed-Cutters, Sawmills, Horse-Rakes, Horse Pitchforks, Shingle Machines, STRAW-PRESERVING RYE THRESHERS, etc.
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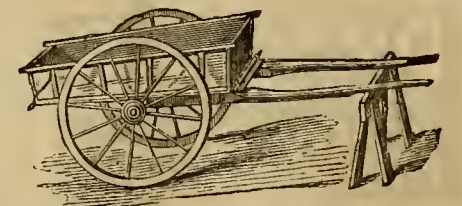
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FARM CARTS AND WAGONS



Always on hand and made to order. Also every description of Heavy Cart and Wagon for city and country use and for shipping. Illustrated Circulars free by mail.

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BULLARD'S HAY-TEDDER.



Spreads from behind the wheels, and does not run over the grass after it is spread, as ALL others do. The only Tedder that will take up the grass from the bottom. Is light draft, never "winds" or clogs. With this machine, hay can be cured and put in the mow the day it is cut.

The "AMERICAN AGRICULTURIST" says: "Bullard's Tedder surpasses those previously introduced in strength, handiness, and ease of draft."

Union Mowing Machine.

Important Improvements for 1872.

Improved STEEL-Teeth Sulky Hay-Rakes. All goods warranted.

NASH & BRO.,
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SUPERIOR

HAY SPREADER.

Price at New York, only \$55!

The only machine that spreads, disentangles, and turns over all the grass. Forks easily elevated and depressed. Send for Illustrated Circular to

NEW YORK PLOW CO.,
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Double Harpoon Horse Hay-Fork.

Highest Award and Bronze Medal at the New York State Fair and Trial in 1870.

Thirty Premiums in 1870.

Indorsed by 1,000 Farmers in 1870.

Descriptive Catalogue Sent Free.

PENNOCK MANUFACTURING CO.,

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N.B. Received several hundred Premiums in 1871.

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FOR SHEATHING, PLASTERING, ROOFING, DEAFENING, AND Carpet Lining.

Samples and circulars sent free, by **ROCK RIVER PAPER CO.,** Chicago; or, **B. E. HALE & CO.,** 55 and 58 Park Place, N. Y., Sole Agents for Eastern States.

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After this date, all letters requesting information in regard to the Diseases of Vegetation, especially such as are caused by Insects, must contain a fee of \$2.00 to insure attention. Plantations will be visited and examined, and advice given on subjects connected with Entomology, at rates proportioned to the scale of fees adopted by special physicians and consulting chemists.

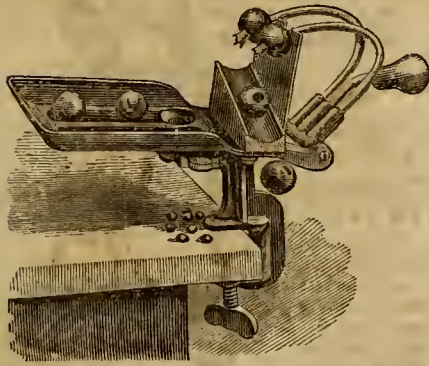
FRANCIS GREGORY SANBORN,
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FOR SALE.—FINE FARM—108 1/2 acres, well improved, good water, timber, fruit, small fruit, etc., in Morgan County, West Virginia, near the celebrated Berkeley Springs. Good market for vegetables, poultry, etc. Fine chance to make money. Description given on application. Price \$2,500. Address **WILLIAM EPPINGER,** Berkeley Springs, Morgan Co., W. Va.

\$100 to 250 per month guaranteed sure to Agents everywhere selling our new seven-strand WHITE PLATINA CLOTHES-LINES. Sells readily at every house. Samples free. Address the **GILARD WIRE MILLS,** Philadelphia, Pa.

AGENTS and Peddlers for our Press and Strainer. Presses and strains jams, jellies, herbs, vegetables, lard, tallow, meats, cheese, etc.; quick and profitable. Over 50,000 sold in a few localities. Every family wants it. Circulars free. **LITTLEFIELD & DAME,** 102 Wash. st., Boston, Mass.

The Family Cherry-Stoner



A practical machine for removing the stones from cherries without mashing the fruit has long been needed, and can now be supplied in a limited quantity. They are sold at wholesale by

Sargent & Co. and Russell & Erwin Mfg Co., New York City. A. B. Shipley & Son, Philadelphia, Pa. Smear Bros, Baltimore, Md. Greer & Lahr, Wheeling, W. Va. H. W. Lentkemeyer, Cleveland, O. Howell, Gano & Co., Cincinnati, O. Sidney Shepard & Co., Buffalo, N. Y. Buhl, Ducharme & Co., Detroit, Mich. Layman, Carey & Co., Indianapolis, Ind. Netherland & Hart, Louisville, Ky. Seeburger & Breakey, Chicago, Ill. E. C. Shinnons & Co., St. Louis.

On receipt of \$1.00, I will send one machine from New York by express to any address.

D. H. GOODELL, Antrim, N. H.,
Sole Manufacturer.

P. S.—I am also sole manufacturer of the Lightning Peach-Parer, Turn-Table and Lightning Apple-Parers, etc.

"NILSSON ELASTIC."

The most beautiful, elegant, and comfortable Garter ever worn—combining healthfulness and economy with durability and elegance of design. Patented Aug. 16, 1870. Large profits for Agents. Samples sent prepaid on receipt of 25c. for silver, and 35c. for gold-plated. Address all orders to the
HELIIX WIRE CO., Bridgeport, Ct.

VINEGAR, Quick! Cheap! Pure! As my plan of making is the best, persons are fraudulently selling Descriptions which I give away. Send three cents to A. D. STRONG, Ashtabula, O.

AGENTS wanted to sell household articles needed by every one. Address PLUMB & Co., Phila., Pa.

AMERICAN SUBMERGED PUMP.

"The Best Pump in the World."

Our Agents report over \$300,000 worth of property saved from Fire this year by these pumps, being the most powerful force-pumps in the world, as well as **Non-Freezing**.

See October number, page 295, also the Premium-List, page 393, of the *Am. Agriculturist*. This paper never deceives the farmers. See notice in February number, page 45. Try one. If it don't do the work claimed, send it back and get your money, as we warrant our pumps to do all we claim for them on our circulars.

Send for circulars or orders to the **Bridgeport Mfg Co., No. 55 Chambers St., New York.**

An order for nine No. 1 Pumps secures an exclusive town agency.

AMERICAN SUBMERGED PUMP. General agent for Illinois,
ALFRED A. RUMBLE,
No. 318 North Centre St., Bloomington, Ill.

FARMERS, DO YOUR OWN ROOFING.

For 3/4c. per sq. ft. get a roof that will last fifteen years. Cheap, Light, and **Fire-proof.**

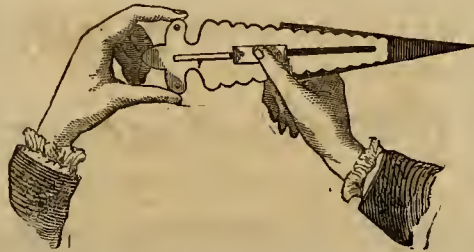
Send for Circulars to **R. S. DARE & CO.,**
Mastic Slate Roofers and Roofing Materials,
223 Dock st., Philadelphia.

EARTH-CLOSET COMPANY.

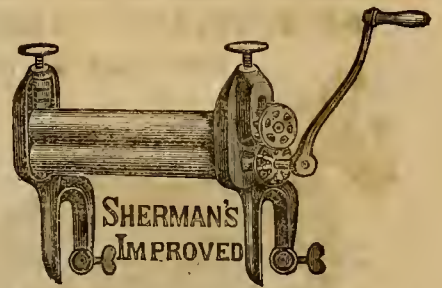
MOULE'S PATENT.

The simplest and cheapest effective Earth-Closet yet made. Call or send for Circular.

EARTH-CLOSET COMPANY,
31 Cortlandt st., New York.



The Lancet can be sharpened like an ordinary knife. Samples mailed post-paid on receipt of 50 cents.
DOOLITTLE MANUFACTURING CO., 599 Broadway, New York.



The manufacturers claim that the Sherman Wringer is superior to all others for the following reasons:

1st. It has all the capacity of any Clothes-Wringer, and is more Compact, Simple, and Durable than any other Wringer.

2d. The Frame is of nicely Galvanized Iron, and can not rust, rot, swell, or shrink.

3d. The Rolls are of Solid White Rubber, and are made under Moulton's Patent, wired on to the shaft, which makes them very durable.

4th. The Springs are made of Car-Spring Rubber, and possess much more elasticity and durability than the Wood or Iron Springs commonly used. And these springs are so arranged, that it is almost impossible, in any ordinary use, to throw the Cog-wheels out of gear.

5th. It may be applied to any Tub, Washing-Machine, or Barrel more readily than any other Wringer.

6th. It is warranted, in every particular, TO BE THE BEST CLOTHES-WRINGER MADE.

HALEY, MORSE & CO.,

31 Cortlandt st., New York.

THE PROTEAN LANCETTE.

Experience teaches that to secure for an article the favor and patronage of the LADIES, it must combine beauty and elegance of design, with practical utility. The favor with which our modification of the **BUTTON-HOLE CUT-TER** has been received, predicts that no Lady's Work-Basket will be regarded as complete without it. It is also an admirable Envelope, Leaf, and Paper Knife.

DIRECTIONS.

To extend the Lancet, hold the instrument as illustrated by the engraving; then, holding it as you would a pen, with the cutting edge from you, insert the point (where you wish to commence the button-hole) until you are stopped by the gauge. Be careful not to extend the point too far at first, but cut and try until the hole is a sufficient size to allow the button to pass through; then observe at what point the slide is on the scale, that you may be able to retain the size.

The **PRESERVING POWDER** is warranted as healthful as **Common Table-Salt.**

If the **Farmers and Fruit-Growers of the United States** will take hold of this method—either separately or by clubbing together—and put up their fruit for the market in kegs and barrels, it will find a **Ready Market and Sale** at good prices, and make **Millions of Dollars** annually to farmers of the United States that is now entirely lost. The fruits thus prepared will become a staple in the markets, as **Butter** now is in **Kegs and Firkins**. All the **Produce Commission Merchants** of all the large **Cities** will be glad to aid you in the sale of the **Fruit** thus prepared.

Every family putting up fruits, etc., for home use should try the **PRESERVING POWDER**. It will preserve any and all kinds of fruit, etc., at about one half the cost in time, trouble, and expense of the air-tightening method, and give the additional advantage of using the fruit as wanted from time to time from large jars or vessels.

Get it from your Grocer. If they have not got it they will get it for you. Price **One Dollar per Package.**

For the proof, or further particulars, try the Powder, or address

L. P. WORRALL, Proprietor, No. 153 Chambers Street, New York.

GUARD AGAINST THE COMING FAMINE!

FARMERS, be sure and preserve all your surplus fruit crop **this year**. It will be wanted in all the towns and cities of our country **next winter**, and will bring you a good price. And why so? Because the general fruit crop itself will be **short this season**, and the price of fresh fruit for canning will necessarily be high, and because tin cans for canning fruits have advanced about fifty per cent in price this spring, which must necessarily cause a large advance and high price for canned and preserved fruits next winter, and almost as surely cause a **very short supply**. Farmers of the interior (having little or no market for their fresh fruit) are urged to make up the full supply—which they can **cheaply, reliably, and profitably** do by using the

American Fruit-Preserving Powder,

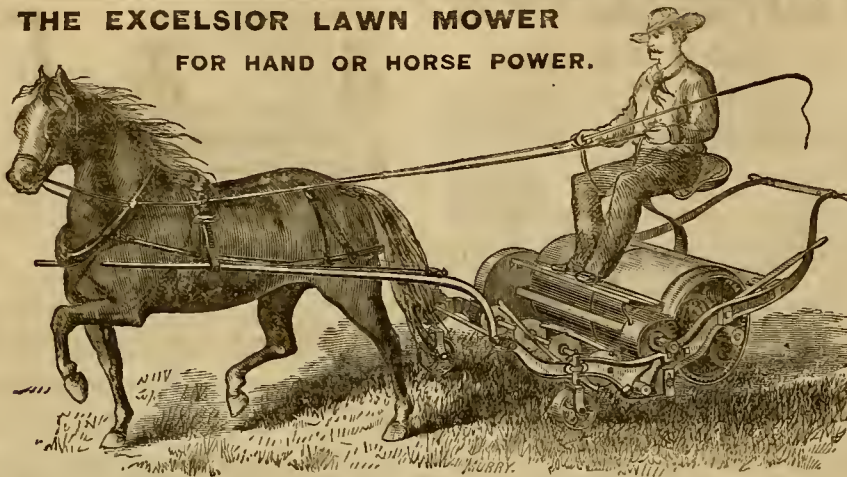
and thereby keep the fruit in large **Earthenware or Stoneware Jars and Wooden Kegs and Barrels**, by simply corking or bunging them tight enough for shipment, and they will reliably keep during the year round, or longer, or for shipment to any part of our country, or, no doubt, to any part of the world. We have kept fruits by this method in store during **Four Years** without the least fermentation.

Only two to four or five ounces of sugar required to each pound of fruit, to suit the taste, or the fruit will keep just as reliably with less sugar, or without any sugar. However, it is always better to add a little sugar at time of preserving.

The **PRESERVING POWDER** will cost but a trifle for each quart of preserved fruit.

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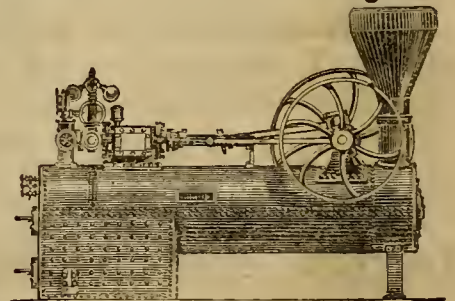
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The Poultry Bulletin.—Our contemporary and neighbor began its third year in April by appearing in an entire new dress, now as an octavo magazine, with cover, and embellished with many excellent engravings. We value the Bulletin highly as an exchange, and commend it to our readers.

Uneven Pulling of Teams.—We have received several letters on this subject, to which we reply generally, that it does not follow, because the double-tree is not even, that one horse is pulling more than another; neither does it follow that both horses are pulling exactly alike. The question was originally made, whether one horse must necessarily be drawing more than an equal part of the load, and we replied, no, and still hold to that opinion, as a general principle. There are many contingencies, which might occur, in which the draft would become unequal, but they don't affect the question on principle.

Hens - Houses.—“Subscriber,” Alleghany City, Pa. In a series of articles entitled “The Egg-Farm,” the whole subject of raising poultry for profit has been thoroughly discussed. The series began in May, 1871, and extend through twelve numbers. The questions you ask are fully answered there. We could not reply to your inquiries without writing a long article.

To Dissolve Bones.—“A Reader,” Stamford, Ct., asks us how to dissolve bones. A Boston paper (of which the editor is a chemist and therefore ought to know) says, “Bones may be dissolved in the following manner: take one barrel of finely-ground bone, mix it with a barrel of good wood-ashes in a heap on the barn-floor, during the mixing add gradually three pails of water. It must not be made too moist, and will be ready for use in a week. It needs to be used in small quantities, as the superphosphates.” “Bones may also be dissolved by using 50 pounds of sulphuric acid, mixed with 3½ gallons of water to 150 pounds of ground bones, in a similar manner to the above.” This is in the proportion of 33 pounds of acid to 100 pounds of bone. If the ground bones are quite fresh, 22 to 25 pounds of acid have with us been found sufficient.

Arkansas Moving.—A farmers' club has been organized at Little Rock, of which H. Brady is Secretary. He writes us that the club would be glad to open correspondence with other clubs, and also to receive from dealers in implements, stock-raisers, etc., their catalogues and circulars for the use of the club.

Unfermented Grape-Juice.—“D. L.,” Portsmouth, O. We know of no work upon this subject. We suppose grape-juice may be bottled, like other fruit juices, upon the same principle that fruits are canned and bottled.

Iodine Ointment.—“M. Van D.,” Martindale, N. Y., asks how the iodine ointment mentioned in *January Agriculturist*, page 6, is made. Twenty grains of iodine, four grains of iodide of potassium, water six drops, lard one ounce troy. Rub the iodine and iodide of potassium together with the water and then with the lard until well mixed, and preserve closely from the air. It should be used soon after mixing.

All about Colorado.—“Q.,” desires to inform “G. E. S.,” that the colonies of Greeley, Longmont, and at Evans are, in their own estimation, “cities” of no small importance; that “he can earn his bread with the sweat of his brow in Colorado with the greatest satisfaction;” that the “average of crops gained there is double that of Pennsylvania or New York, except oats;” that the climate is fine, and that it must be a good farm in either of those States which will compete with them.” But “all their crops must be irrigated.” We have not space for the whole letter.

Potato-Starch.—“D. M. H.,” wishes us to give him the process of making potato-starch and the amount of product of a bushel of potatoes. The process consists in rasping the potatoes to a fine pulp, and washing it on a strainer with cold water, which is permitted to pass through and carry the starch with it into shallow vats where it is deposited; after which, the water is drawn off and the starch dried. One hundred pounds of potatoes will produce about seventeen pounds of starch, or more or less, according to the variety.

Vegetable Gardening in June.—This most unusually backward season has upset the calculations of most persons who have their garden “made” and out of the way before June. Do not be discouraged. It usually happens that what is lost at one end of a season is made up at the other, and it rarely fails that the average comes right. Many things usually sown earlier can yet be put in with a fair prospect of a

good crop. We enumerate some things as a reminder. Beans of all kinds. Beets, both early and late sorts. Cabbage, Cauliflower, and all of that tribe. Carrots, in garden or in field. Sweet Corn. Cucumbers, Melons, and Squashes. Early Peas may be put in for a late crop, planting them deep, so that they may resist drouth. New Zealand Spinach, Okra, Herbs of all kinds, and even potatoes, if they have not already been planted. At this late season weeds will be abundant, and the young plants require extra care to keep them clean. We have often found it the case that things sown the first of June did as well as those sown earlier, which had to contend with long cold storms in May.

How to get a Farm for Nothing.—A young man, who is now teaching school, would like to have a farm, worth \$5,000, and writes to ask where he can borrow the money to buy it with. Now, a school teacher ought to have a better idea of things than to dream of the possibility of doing such a thing as he desires, and lest there may be others who might have an equally foolish idea in their scanty brains, we just say to such young men, Go West, go anywhere where a dollar can be earned, and spend only half of it, and lay by the rest until something has been saved. If \$100 only has been thus saved, it will go far to show that that man will be able to pay a debt he may contract, and he may risk doing it; if he can not thus save \$100, how can he ever hope to pay \$5,000 out of his own hard labor alone.

Kidney-Worms in Hogs.—“W. H. B.,” Turpentine rubbed on the back or wood-ashes given in the feed is often used with good effect for this complaint.

How to use Swamp-Muck.—“J. W. S.,” had better use muck in his stables, or compost it with stable manure, than to spread it raw upon his field.

How to Feed Grain to Oxen.—T. Bell, Osage Co., Kansas, asks how he shall feed corn to his oxen otherwise than in the ear; when fed in the ear they won't eat hay. Probably the best way would be to get the corn ground and chop the hay with an ax into short lengths (if there is no hay-cutter), and wet it and sprinkle the meal on it. If this can not be done, feed hay first and give the corn afterwards, and sprinkle salt water on the hay as an inducement.

Early Lambs.—Edwin Black, of New Jersey, writes; “I raise early lambs for the New York market, and want to get them to weigh 50 pounds as soon as possible. Will the lambs from a Cotswold ram and a Merino ewe fatten as soon as from a South-Down ram?” Perhaps the quality of the meat from the South-Down may be better, but the lambs from the Cotswold will weigh the most at a given age. The great point is to get a pure-bred ram, and one that has a tendency to mature early rather than to attain a great size. Feed the ewes liberally, and let the lambs have a plentiful supply of meal and sliced mangels in a trough, separate from the ewes.

Compost-Heaps.—A Maryland farmer asks how to build a compost-heap. Pile all the materials, stable manure, sod, sea-weed, straw, stalks, etc., in layers, but do not put ashes or lime in at all; when they have heated, commence at one end and turn all over, and mix, and let it heat again. It will soon rot under this treatment. Spread ashes and lime by themselves directly on the field.

Burning Stumps.—T. Greenwood, Miss., says it is a bad practice to burn stumps without wholly destroying them, as when charred they are preserved from rotting.

Garget.—A “Subscriber” asks for a cure for garget or caked bag. The udder should be fomented with warm water, and rubbed with ammonia water (or common hartshorn) and sweet oil several times a day; the rubbing is probably of more effect than the liniment. A quart of sliced poke-root fed with some potatoes has effected a cure. But it is generally the case that care previous to calving will prevent this troublesome complaint. Let cows coming in be watched, and if the bag becomes too full it should be relieved by drawing off the milk at once.

How Many Eggs in a Year?—“D. B. S.,” Brooklyn, N. Y. Eight or nine dozen is a very good average yield, indeed, for hens, taking good, bad, and indifferent together. It is all very well to talk about 150 to 200 eggs per head per annum, and about 25 to 30 quarts of milk per day from a cow, but it is extremely foolish to expect such things to happen generally. There is a wonderful difference in the laying capacities of different breeds, and feeding and management affect prolificness, so that no estimate can be made that will not fall very wide of the mark in many cases. It takes about 36 quarts of corn to feed a fowl of average size and appetite,

a year, with a considerable amount of other things, which it must either forage for, or be furnished with, if shut up. It is a marvel that so many as 100 eggs can be manufactured from the rations of one fowl, and the ordinary waste of the system be repaired at the same time. Individual birds that produce 150 eggs, or upwards, in a year, have the power of digesting and assimilating more than an ordinary quantity of food, without which such feats of laying could not be performed. In many cases when ten or twelve dozens of eggs are laid in a year, a part of the food and vital force of the last part of the year preceding is employed, it having been stored up in the system, and also profuse laying sometimes reduces flesh and strength so that the fowl is obliged to feed heartily, without laying, for some months after, in order to recuperate.

Steaming Feed.—“J. W. R.,” Hardock, Pa., asks if a wrought-iron cylinder boiler, eight feet long and eighteen inches in diameter, will steam feed for fifty cows and thirty hogs. Such a boiler will be amply sufficient, with a chest made steam-tight to contain the feed.

Navicular Disease.—“L.,” writes, he has treated his horses according to Prof. Coleman's method, and made them worse, as follows: pared the heels, leaving the frog and toe, expecting that the frog would sustain the pressure, and kept the foot moist. Also, according to another authority, with benefit, as follows: pared the toe as low as possible, trimmed the frog, cleaned out the inside of the hoof, and left the heels high, thus throwing the pressure on the rim of the hoof, and using liniment on the sole and around the coronet or upper edge of the hoof.

Strawberries on Bushes.—H. Sanford. We have already given our opinion of that article which makes strawberries grow upon bushes, three and four feet high. Don't believe it.

Test for Bone-Flour.—Jacob Duntun, Philadelphia, asks for an approximate test for the purity of bone-flour. Bones contain about 45 per cent of organic or combustible matter. If bone-flour is rendered dry, it should contain then about 55 per cent of incombustible matter, or ash. But this varies somewhat, according to the different kinds of bone; nevertheless it will be sufficiently accurate for an approximate test to calcine the sample, and note the amount of matter left after burning; if much greater than 55 per cent, mineral matter has probably been added; if much less, flesh or other animal matter.

Carbolic Acid.—“Yours Respectfully.” This is generally kept by druggists. We can not answer about the other.

Double-Furrow Plows.—H. Symonds, St. Louis de Gonzague, uses a double-furrow plow on light soils, which is drawn by one pair of horses, doing the work of four horses with the ordinary plow. In the Western country these plows will doubtless come into extensive use, but on rough or stony lands they are of too heavy draft for a common team.

How to Treat Manure.—“E. B.,” Carlton, Wis., has more straw than he can use. How can he work it up into manure? His cows eat all the horse manure. By bedding his stock up to the knees, and removing the litter every two weeks, and sprinkling plaster on the stables when any smell is perceived, the straw will become saturated, and should then be piled in a square heap, and allowed to heat and ferment, and occasionally turned over. Thus much straw may be used up. The horse manure is much more valuable in this way than as food for cows. If salt is given the cows in the yard, they probably will not eat the manure.

Feeding Bearded Straw.—“F. S. F.,” asks if feeding the straw of bearded wheat is injurious to cattle or horses. He has lately lost a horse, which his neighbors think died in consequence of feeding on it. We have heard of sheep and horses suffering from this cause, and can easily believe that irritation in the coats of the stomach may arise from feeding bearded straw. However, we have known horses fed on cut rye straw or fodder, and have permitted our cattle and sheep access to bearded straw, without noticing any ill effects. Had the stomach been opened, the doubt would have been solved.

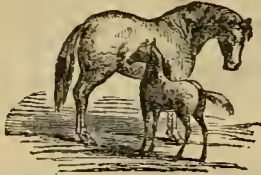
Cutting Clover.—George Burr, Ohio, asks if he can cut two crops of clover hay and get a crop of seed in the same season, on good, rich land, well manured. We never knew this to be done and doubt its possibility. A rich soil will give heavier crops, but can not hasten maturity so much as to ripen the seed after two cuttings. But three cuttings for hay may be made.

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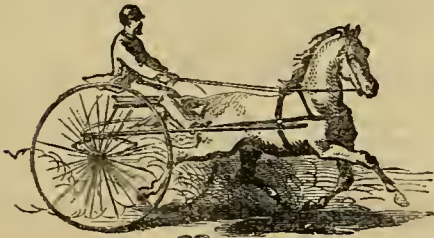


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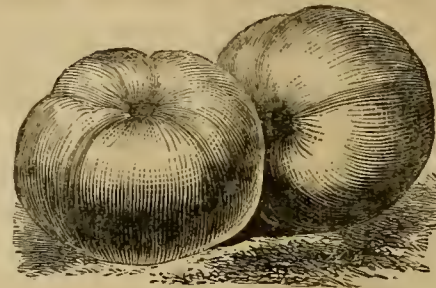
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[*Daily Evening Times* (Bangor, Me.).

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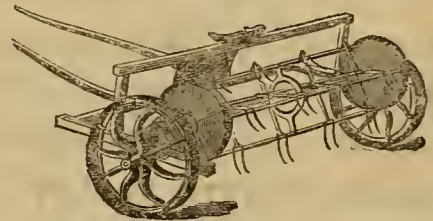
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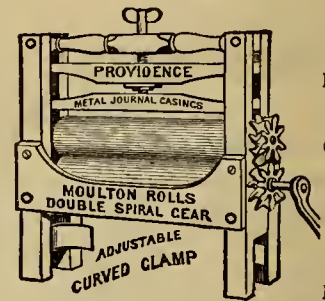
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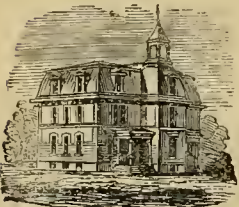


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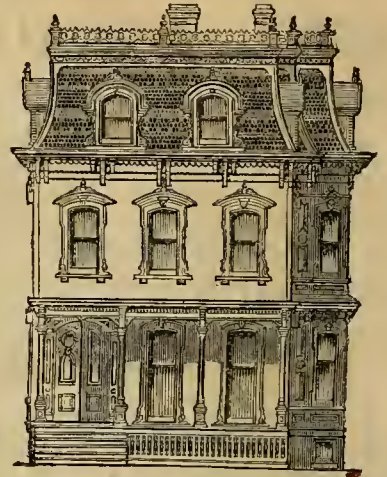
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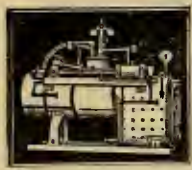
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Calendar for July.

Table with columns for Day of Month, Day of Week, Sun rises, Sun sets, Moon rises, and locations: Boston, N. York State, Wiscon., Iowa, and Oregon; N. Y. City, Philadelph., New Jersey, Penn., Ohio, Indiana, and Illinois; Washington, Maryland, Virginia, Kentucky, Missouri, and California.

PHASES OF THE MOON.

Table with columns for MOON, BOSTON, N. YORK, WASH'N., CHA'STON, CHICAGO. Rows include New Moon, 1st Quart., Full, and 3d Quart. with times in D., H., M., and ev. or m.

AMERICAN AGRICULTURIST.

NEW YORK, JULY, 1872.

We hope all the readers of the American Agriculturist are striving after improvement—aiming to be better this year than they were last, and to have their farms, their gardens, their houses, bars, fences, machines, implements, tools, and everything about them in better order and improved condition. We hope they are earnest men, active, industrious, energetic; men who control circumstances and do not let circumstances control them. To such men the present season, though one of the most discouraging in some respects we have had for many years, will teach and enforce an important lesson, and one which we shall all do well to heed. Slipshod, slovenly farming sometimes produces a paying crop, and the fact is eagerly seized by those who are opposed to an improved system of farming, and used as an argument against those of us who advocate more thorough cultivation, draining, and manuring. But this year poor farming certainly will not pay. Wages are high, and the crops on thousands of carelessly-worked farms will not more than pay the expense of harvesting and thrashing. On many good farms the profits will be small, but at any rate those of us who are aiming to make our land clean and rich, and do not over-crop, have no reason to feel discouraged when we compare our crops with those of our neighbors who adopt a makeshift system of farming. The season is a bad one, and the crops light, but poor as our prospects may be, they are far better than they would have been had we made no effort to improve our farms. The difference between good and poor farming the present year is most striking. You see a piece of wheat that will yield 30 bushels per acre, and on the other side of the fence a field that will not pay for harvesting. On the neglected farm we have stunted meadows, poor clover, yellow oats, and sickly-looking wheat, and we say it is "the drouth." Nothing flourishes but weeds. These pump up and evaporate nearly or quite as much water per acre as would make the difference between a wet season and a dry one. No wonder the crops suffer for want of rain. There is seldom a year, we repeat, when there is such a marked difference between a weedy, neglected, run-down

farm, and a clean, well-cultivated one. Let the good farmers take courage. Their labor is not in vain.

Hints about Work.

The great aim of the farmer must be to make the labor he employs, as well as his own and that of his teams, more effective. To do this requires much study. A man may work hard and accomplish little. He does not plan well, or he lacks system and order. Another lays good plans, but lacks energy sufficient to carry them out in all their details. It is a great thing to know when to work and when to let others work. In haying and harvesting, a farmer who employs a good many men should rarely undertake any steady work. He can accomplish far more by attending to the little details than by using up all his strength in pitching or binding. He should always be present, ready at any moment to lend a hand where his work can be most effective. He should be able to see at a glance that every important bolt in a machine is tight. He should know the weak spots in all his operations, and be prepared for all emergencies. He should realize that the weakest link determines the strength of the whole chain. In the innumerable details of farm work this weak link is sometimes in one thing and sometimes in another, but it is always somewhere. In one field it may be in the reaper and in another the binders; sometimes it is the pitcher, sometimes the unloader, or on the stack or mow. It is always somewhere, and the farmer should look out for it, and be prepared to strengthen that point.

Bigger Crops per Acre.—But it is not merely in the details of farming operations that we should aim to render our labor more effective—we must more than ever strive to get larger crops per acre. High wages will compel us to raise larger crops or not to raise any. It costs no more to plow and plant and cultivate an acre of potatoes that will yield 300 bushels than one that yields less than one hundred, and where there are many weeds little if any more to dig them. It may cost twelve cents a bushel to dig potatoes in the one case, and only four cents in the other. A field of wheat yielding less than ten bushels per acre, and so full of thistles that it is almost impossible to bind it, will cost more to harvest it than a clean crop yielding thirty-five bushels per acre. And the same principle holds good with all our crops.

Weeds.—We have one of the best climates in the world for killing weeds. Our hot summers and dry winds will take the sap out of even a thistle or quack-root, or a plant of purslane, if we only use the means necessary to discover its connection with the soil. The English farmer is obliged to spend in ordinary seasons far more labor to kill quack than is required here. We ought to have the cleanest farms in the world. And yet it is not too much to say that on thousands of farms in the United States the weeds run away with half the profits. We again and again urge the readers of the American Agriculturist to make an earnest effort to kill the weeds, and to make thorough work of it.

Summer-Fallows on strong, clayey land are often the best and cheapest means of killing weeds and enriching the soil at the same time. A true summer-fallow is preparing land for a crop, and then not sowing it until the next season. It cleans the land and concentrates the plant-food, which is rendered available in two years into manure for one crop. Instead of raising two wheat crops of fifteen bushels each, it enables us to raise one crop of thirty bushels, and cleans the land at the same time.

Fallows for Wheat.—A true summer-fallow is seldom seen. Our so-called summer-fallows for wheat are a modern invention, and often a very useful one. They are of two kinds. One is plowing under a clover sod in June or July, and then keeping the surface clean by the free use of the cultivator and harrow, and sowing the wheat without again plowing. The other is to plow in June, and cross-plow as soon as the sod is partially rotted. Then harrow thoroughly, and cultivate until the sods are pulled to pieces and the weeds all killed. Then plow

again and sow. In our climate, such a fallow frequently makes the land in splendid condition for wheat. Our chief objection to it is that the land is not exposed for a sufficient length of time to the ameliorating influences of the atmosphere. Whatever system is adopted, let the work be thoroughly done. Not a weed should be suffered to get a breathing spell. We should aim to induce every weed seed to germinate, and then kill the young plants. Roots of thistles, quack, etc., should be killed by exposing them to the sun. If the plants commence to grow, not a leaf should be allowed to get to the surface.

Fallows for Grass.—It is sometimes a great convenience to break up a meadow or pasture in July and re-seed it about the first of September. A still better plan is to break it up the fall previous or early in the spring, and thoroughly subdue the grass and weeds, and make the land as mellow as a garden; but we have found much benefit by breaking up in July and making the surface mellow by repeated harrowing and cultivating. Sow a peck of timothy seed per acre the last of August or first of September, and such other grasses as may be desired. Roll after seeding.

Cultivating Corn.—To hill or not to hill is still an open question, but no one doubts the advantage of thoroughly and repeatedly cultivating the corn crop. In the pressure of other work, however, many neglect to use the cultivator as freely as would be for their interest. Let the cultivators always be in readiness, so that when there is an hour to spare during haying, it may be profitably spent in the cornfield. It never pays to use a poor cultivator or to set a careless man to cultivate, as the hard spots that need it most, will be apt to be left unstirred. Our own plan is to throw dirt enough to the plants to smother small weeds in the hill.

Hay will be late this year, and the crop light. Make the best of it. See article on another page.

Harvesting Wheat.—Cut as soon as the kernels cease to have any milk in them, but not earlier. Bind carefully, and set the sheaves up firmly, so that they will not blow down. Much wheat is lost from careless shocking. If the weather is threatening, it is a good plan to cap the shocks with a couple of sheaves. If the wheat is to be thrashed as it is drawn in, it should be allowed to stand in the shock until the kernels are quite hard and dry, otherwise the wheat will be sure to heat in the granary, and in any case it will be necessary to turn it over occasionally. Wheat that is put in a stack or barn, may be drawn earlier. Thrust the hand into the middle of the sheaf under the band, and if there is no feeling of dampness, draw in at once, provided there is no dew or rain on the sheaves and the butts on the ground are dry. If the butts are damp, push over the shocks and expose the butts to the sun or wind for an hour or so ahead of the pitcher. If you are short of barn room, put two good men on the bay, and let every sheaf be properly laid in courses and pressed firmly together. A man who understands his business, can get one third more wheat into the barn than if the work is done carelessly. When wheat is once safely in the barn, it is a great mistake to thrash too early. The straw and wheat will both be better if allowed to remain for a month or two, or at any rate until the wheat is through sweating. The most economical way to draw in wheat is with three wagons, one man to pitch, one man to each wagon, to load, drive, and unload, and two on the bay. The "weak spot" is in not having the horses start promptly the moment the last sheaf in the shock is on its way to the load. It not unfrequently happens that more time is occupied in getting the wagon from one shock to another than in pitching the shock. A good pitcher, if the loaders understand their work, will send home a load every fifteen or twenty minutes, or $1\frac{1}{2}$ to 2 acres an hour of a fair crop of wheat of say 28 to 30 bushels per acre.

Barley.—A good crop of barley that ripens evenly, is not difficult to manage, but a poor, weedy crop, part green and part so ripe that it "crinkles" down, will tax a man's ingenuity and patience to get it into the barn without loss and in proper condition.

Our own plan is to cut with a self-raking reaper. Sometimes, when the straw is heavy, we bind it into sheaves. This is decidedly the better way. As a rule, however, we cure it loose, merely turning the gavels once in the forenoon and once in the afternoon, and putting into cock before night all that was cut in the forenoon. We think it is well to let that cut in the afternoon lie undisturbed as left by the machine until the next morning, when it should be turned once or twice, and drawn in, if ready, in the afternoon. It is very important to cure it thoroughly, and not to draw in while any dew is on it.

Peas.—We have tried many ways of harvesting peas. They can be pulled with a revolving wooden rake, but it is slovenly work. They can be "rolled" with a scythe into small heaps. With a short scythe they can be mown into swathes. Last year we cut a very heavy crop of peas and oats that was badly lodged, with a Johnston Reaper. It did the work to perfection. Pea straw, when well cured and not over-ripe, makes excellent fodder. Turn in an hour after cutting, and keep turning, so as to cure rapidly and avoid unnecessary risk of rain.

Animals.—In the busy, driving season of haying and harvesting the live-stock on the farm is very apt to be neglected. Be on your guard against this. Make it your personal business to see that the horses, cows, sheep, and pigs are attended to. Especially see that no animal suffers for want of water.

Sheep, especially the English breeds, do much better for a frequent change of pasture. After weaning turn the ewes into a rather poor pasture, and examine them every two or three days, to see that their bags are not caked. Draw out the milk from those that are much distended. Let the lambs be put in the best pasture you have, and also give them half a pound of oats or bran each per day for a week or so—the longer the better. If any scour, give them half a pint of milk-porridge, made with wheat flour, or in severe cases five to ten drops of landanum. Change the pasture as often as possible. If not already done, dip the lambs in a solution of carbolic soap, to kill ticks, etc. If there is the slightest symptom of footrot, dress the feet of every sheep in the flock with crude carbolic acid. Smear the noses of the sheep with tar to keep off flies.

Cows should have good pasture, plenty of water, and access to shade and shelter. If they have a little grain or bran, it will be a great help to them.

Cows, unless the pasture is unusually good, should have a feed of corn-fodder twice a day. If very succulent, let it wilt a little before feeding. A quart or two of corn-meal per day, fed in connection with the corn-fodder, will make the latter as nutritious as the best grass.

Take Care of your own Health, and of that of your family. See that the cellar is scrupulously clean. Whitewash frequently. Use chloride of lime freely about the sinks, sewers, etc. Recollect that dry earth is a capital disinfectant, and is cheap in the country. We have an idea that there are out-houses that would not be quite so offensive if half a load of earth was shoveled into them every few weeks.

Work in the Horticultural Departments.

The showers of June have started a fresh growth of weeds, and it is only by constant cultivation that they can be subdued. During a dry season, much good can be done to plants of all kinds by keeping the soil well stirred. Never allow the work of weed-killing to get behind, for when weeds are once established it is very difficult to kill them, except by extra expense in time and money.

Orchard and Nursery.

The fruit crop promises to be very large, and ample preparations must be made for harvesting and preserving it as fast as it ripens. Provide plenty of baskets, barrels, crates, etc., for transporting the fruit to market.

Thinning.—If growers would only take the time to thin out their fruit, the remainder would bring a much higher price, more than enough to pay for

the time and trouble expended, and they would besides be more certain of a crop every year. Where a tree is allowed to perfect all the fruit it sets, it becomes exhausted, and requires one or more years to regain its vigor.

Peaches.—Those ripening prematurely should be marketed, as they usually bring a good price.

Grafts.—Pinch back the most vigorous shoots, to prevent their breaking off in high winds.

Budding usually commences this month, or at least as soon as there are well-formed buds to be had, and when the bark of the stock will lift easily.

Insects.—Watch the trees for late broods of caterpillars, and if the trees are infested with borers dig them out as soon as discovered.

Black-Knot.—Cut out and burn on the first appearance, for if not destroyed it soon spreads over the entire tree, and finally throughout the orchard.

Slugs must be dusted with powdered lime.

Seeds.—Gather cherry-stones and mix with sand, to prevent drying. Many seeds of ornamental trees require to be sown as soon as ripe. Keep the rows of young seedlings clear of weeds.

Suckers should be rubbed off as soon as they make their appearance, as they injure the looks of the tree, as well as interfere with its growth.

Fruit Garden.

Grape-Vines.—Keep the new canes well tied up, to prevent them from being broken by high winds. Rub off all superfluous shoots as soon as they start. If mildew makes its appearance, use sulphur freely, applying it with a bellows made especially for the purpose. Do not allow young vines just coming into bearing to bear more than a bunch to the cane at their first fruiting.

Currants and Gooseberries.—These require but little attention, except to look out for insects, if they were properly pruned, so that plenty of light and air can reach the fruit to prevent mildew.

Strawberries.—New plants are best propagated by striking runners in small pots plunged in the soil. As soon as the plants are well rooted, they may be set out in permanent beds, and next season will produce a good crop. The old beds should be kept clear of weeds. If they were properly mulched last spring they will require but little attention.

Raspberries.—Old canes which have got through bearing must be cut out, and the new growth tied up to stakes or to a horizontal wire stretched along the row. Three or four new canes are enough to leave for fruiting next season.

Blackberries.—The new growth for bearing fruit next season must be kept in proper shape by pinching the shoots, none of which should be over five feet high, and the laterals cut back to 18 inches.

Dwarf Trees of whatever shape must be kept pinched back, and will need a good deal of attention during the growing season. Thinning is especially necessary in dwarf trees, as the best fruit is grown by allowing only a portion to perfect itself.

Preserving Fruit.—When one has an abundance of fruit, it is desirable to dry and can as much as possible, as it will keep for many years if put up in cans and jars perfectly air-tight.

Kitchen Garden.

Keep the soil constantly occupied with some crop, and give the land plenty of manure, to prevent exhaustion. The land cleared of spinach, early peas, or potatoes, may be used for growing turnips or late cabbages. Weeds should be kept under, taking care not to allow any to run to seed, and in a few years the ground may be cleared of most weeds.

Beans.—As soon as the vines have reached the top of the poles, they should be pinched, to induce their early bearing. Bush sorts may be planted in any cleared spot in the garden.

Beets may still be planted for late crops.

Cabbages and Cauliflowers.—Transplant the late sorts from the seed-bed, using only the most vigorous plants. They ought to be set out in well-man-

ured ground, and hoed often. Sprinkle the plants with air-slaked lime when the dew is on; it will tend to prevent injury by the cabbage-worm.

Carrots.—Thin out as soon as they are well up, and keep down all weeds until the tops are so large as to prevent working between the rows.

Corn.—Sow early sorts this month, as they will usually give one picking at least before the frost.

Cucumbers.—Sow the Long Green variety for pickles, using plenty of manure.

Egg-Plants need warm weather as well as plenty of manure, and an occasional watering of liquid manure, to enable them to bear profitably. Place hay or straw under the fruit, to keep it from touching the ground.

Endive may be sown for late salad, if it is used.

Herbs are best when grown as a second crop. They should be sown in beds or boxes, and afterwards transplanted; they do best when set out late.

Leeks, where the plants are too thick to remain, may be transplanted into a rich soil. Six inches is near enough to have them grow well.

Melons.—Keep the soil stirred until the vines cover the ground, and pinch back where they grow too vigorously.

Onions.—Keep the ground between the rows stirred often, and a dressing of salt and ashes will be of benefit; if too thick, thin out.

Potatoes.—The ground occupied by early potatoes may be planted with late cabbages or turnips. The green tops should be turned under with the plow, when they will decay rapidly.

Rhubarb.—As soon as fruit becomes plenty, allow the rhubarb to rest, cutting off the flower-stalks as fast as they appear, as they exhaust the plants.

Sweet-Potatoes, whether in hills or in ridges, must be hoed often, and the vines not allowed to root.

Squashes.—Hoe often until the vines cover the ground, and after this pull out the weeds which appear above the vines.

Tomatoes do best if trained upon trellises, as in this way they ripen more evenly. If trellises can not be made, brush, or some hay laid around each plant, will keep the fruit from contact with the ground. Pick off the green caterpillar, which destroys the foliage and young fruit.

Weeds.—The constant use of the hoe and rake is necessary to keep the weeds under, and if they are not allowed to grow higher than an inch, weeds can easily be destroyed with a sharp rake.

Flower-Garden and Lawn.

Lawns will need to be mowed once a week, in order to keep them in good condition. A large lawn may be cut quite easily with a lawn-mower; small hand-mowers are now very common and quite cheap. Any perennial weeds that make their appearance should be pulled out; the annual ones are easily destroyed by constant mowing.

Edgings around paths or flower-beds must be cut with the edging-knife, and the weeds and grass pulled out of the paths.

Stakes.—Many plants require support in the shape of stakes and trellises; these should be inconspicuous in color, and concealed as much as possible.

Climbers.—The new growth of Wistarias and other climbing plants ought to be trained, so that it may not be broken by high winds.

Dahlia.—Tie up to stakes as soon as the plants are tall enough to require it. Water if needed.

Roses.—A very neat and pretty way of training roses is to peg them upon the ground, so that the branches cover the entire surface. Pegs 6 or 8 inches long, with a hook at the end, are easily made, or willow-twigs, bent double, may be used in fastening down the shoots.

Bulbs.—As fast as the tops dry up and turn yellow, dig them up and place in a dry place to ripen off, and when thoroughly dry, store in a cool place, where rats and mice will not injure them.

Seeds.—Gather as fast as they ripen, and after the seed-pods are dry, clean the seed, and place them

in papers labeled with the name and date. Seeds of perennials should be sown as soon as ripe.

Greenhouse and Window Plants.

Shading and watering are the principal things to attend to in the greenhouse. Shade must be supplied to camellias by means of cloth screens, or whitewashing the glass. Give plenty of water to hanging baskets. Look after insects, and see that none are allowed to get a foothold in the houses. To destroy red spider, keep the air constantly moist. Make cuttings of all plants needed for winter blooming, in order that they may become well established before winter. This is a good time to look after a supply of potting earth, and for turning over the pile already prepared.

Commercial Matters—Market Prices.

Gold advanced to 114 1/2, closing June 13th at 113 1/2. Movements in Breadstuffs have been on a more extensive scale, particularly in Corn and Oats. The receipts of Corn have been very heavy, and receivers have been free sellers, reducing prices materially, and leading to a brisk business, in the main for export, though in part for home-trade purposes, and on speculative account. The arrivals of Corn on Wednesday, June 12th, were extraordinarily large, having exceeded 617,000 bushels, much of the amount "out of condition," rendering contract deliveries difficult and unusually unsatisfactory to operators. The dealings in Wheat have been comparatively moderate, shippers having given most of their attention to Corn, though prices were quoted lower. Rye and Barley have been in request, but much easier in price. Oats have been in fair demand, but quoted cheaper. Provisions have been less active; hog products have held their own well as to value. Beef nominally unchanged. Butter and Cheese closed dull and heavy, with buyers reluctant to operate freely at even the reduced figures, particularly for shipment. Eggs closed about steady, but very quiet. Hops, lower and less urgently sought after. Hops held firmly, but inactive. Few desirable lots were available at the close. Wool ruled quite dull, in the main, but toward the close attracted more attention, chiefly to meet the more urgent requirements of manufacturers, on the basis of previous quotations. Domestic has been in very light supply, and holders have been firm in their views. New clip arrives slowly from all sections. The offerings of foreign, particularly of other than prime to choice grades, have been comparatively liberal at the ruling figures, holders meeting the demand with promptness, the principal dealings having been in Cape. The final adjustment of the tariff has tended to stimulate purchases. Tobacco has been in good demand, largely for export, at steadier prices. Seeds have been dull and irregular in value. A Butter and Cheese Exchange is in contemplation, in the interest of receivers and dealers. The following condensed, comprehensive tables, carefully prepared specially for the American Agriculturist, show at a glance the transactions for the month ending June 14, 1872, and for the corresponding month last year.

Table with 5 main sections: 1. Transactions at the New York Markets (Receipts and Sales for Flour, Wheat, Corn, Rye, Barley, Oats); 2. Comparison with same period at this time last year; 3. Exports from New York, Jan. 1 to June 12, 1872; 4. Stock of grain in store at New York; 5. Receipts at head of tide-water at Albany each season to June 5th.

CURRENT WHOLESALE PRICES.

Table of current wholesale prices for various commodities including Gold, Flour, Wheat, Corn, Rye, Barley, Hops, and various oils and fats, with prices listed for May 14 and June 14.

New York Live-Stock Markets.

Table showing New York Live-Stock Markets data, including weekly ending prices for Beef Cows, Calves, Sheep, and Swine, with totals for the month and previous weeks.

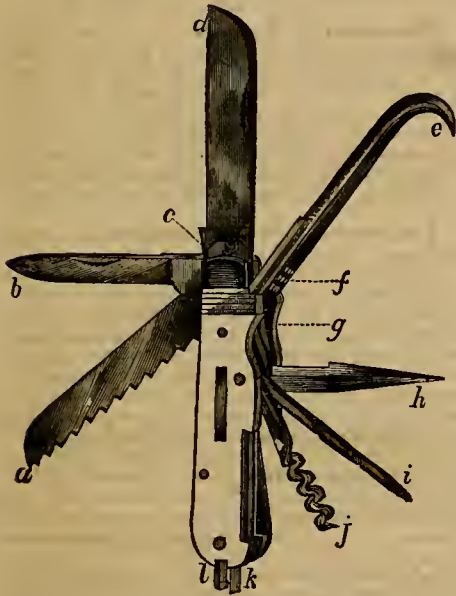
Beef Cattle.—Cattle have been coming forward unusually free this spring, good markets encouraging shipments. Texas is giving us many cattle, no less than 3,160 arriving from that State during the past month, some of them made fat by feeding in Missouri. The demand has been very good, and prices gradually worked up until last Monday, when 5,310 were on sale and a dull trade was the result, some stock holding over. Hot weather was unfavorable. The railroads have been taxed to their full capacity, to bring stock forward, and there is talk of advancing the freights. Late rains make tall grass, and there is quite a demand for stock cattle, largely selected from the wholesale markets at Buffalo and Albany. Just at the close the feeling is heavy, but probably this dullness will be of short duration. Prices are not very much lower, but sales are slow.

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

Table showing price ranges and average prices for Beef Cattle, Milk Cows, and Calves, including details on fatness and market conditions.

ing season was over. Prices have gradually settled, and the market closes decidedly dull. Of course the prices of sheep are all given for shorn lots. Lambs have a wide range, some poor lots of 37 lbs. selling at 8½¢, common to fair Ohio, Virginia, and Kentucky at 10¢. @ 11¢; fair to prime Jerseys and State at 11¢. @ 11½¢, a few extras of 60 lbs. reaching 30¢. Poor to medium sheep are quoted at 5½¢. @ 6¢. ♂ D.; fair to good at 6½¢. @ 7¢., and choice 7½¢. **Swine.**—Hogs still come forward too fast for any improvement in prices. They have continued quite uniform during the entire month. The Western country is said to be full of hogs, made by a bountiful crop of corn last season. Live are worth 4¼¢. @ 4½¢; city-dressed Western, 5½¢. @ 5¢.

SPECIAL PREMIUMS STILL OFFERED.



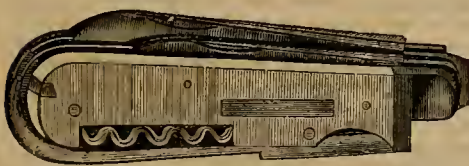
MULTUM IN PARVO KNIFE, OPEN.—WEIGHT 2 OZ.

The General Premium List closed July 1st. The following Special Premiums are continued until further notice:

The Multum in Parvo Knife for 8 subscribers to *American Agriculturist* at \$1.50 a year; or 4 subscribers to *Hearth and Home* at \$3.00 a year; or 5 subscribers for one year to both the above papers at \$4.00 a year. (Knife sent post-paid.)

The Beckwith \$10 Sewing Machine for 12 subscribers to *American Agriculturist* at \$1.50 a year; or 6 subscribers to *Hearth and Home* at \$3.00 a year; or for 10 subscribers to both papers at \$4.00 a year.

N. B.—Two half-year subscribers in all the above cases may count for one full year in a Premium Club List.



MULTUM IN PARVO KNIFE, CLOSED.—3 inches long.

Pump for a Deep Well.—“A. S.,” Mercer Co., Pa., has a well 40 feet deep, and wishes to know the best pump for it. The American Submerged Pump is calculated for wells of this depth; the price is \$15, without the pipe. The Bridgeport Manufacturing Co., 55 Chambers st., New York, are the manufacturers.



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 Volume Thirty are now ready. 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.

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.

Potato Queries.—When a branch of a rose-bush that has usually borne white roses bears red ones, we call that a sport. When a shrub that usually bears green leaves pushes out a twig upon which the leaves are all veined with yellow, we call that a sport. When a potato that usually bears long and white tubers produces a short and red one, or one that differs in any marked manner from the ordinary character of the variety, we call that a sport of the potato. There is no proof that the impregnation of the blossoms of a potato plant with the pollen of another variety will effect any change in the tubers of that plant.

Northern Pacific R.R.—A Good Record.—“Investigating committees” have been the order of the day during a year past, and in most cases their necessity has been proved. A notable exception has occurred in the case of the Congressional Committee directed to examine thoroughly the affairs of the Northern Pacific Railroad Company. The report completely vindicates the officers and agents of the Company, and is in every sense very satisfactory. The work is thoroughly done, in the best manner, and no one is found dipping his own hand into the treasury, directly or indirectly, by means of contracts or supplies furnished.

Veterinary Education.—“Orphan Boy,” Waverley Heights, Pa.—Write to New York College of Veterinary Surgeons, Lexington ave., near 33d st., New York, for circular.

Lane's Beet.—“Subscriber,” Chattanooga, Tenn.—This will grow where other root crops will succeed. There is no more seed to be had, and you can not try it this year.

Asparagus Bed.—“A. A. B.,” Ontario.—Spring is the most convenient season for making an Asparagus bed. You will find directions at the proper season in our hints under Kitchen Garden. When well set, the bed will, if properly cared for, last many years.

Large Immigration.—Ten thousand immigrants landed in New York on Monday, May 20th. This is the largest number that has ever arrived in any one day.

Ginseng.—“A. E. T.,” Havre de Grace, Md.—Ginseng is the root of *Aralia quinquefolia* (*Panax quinquefolium* of the older botanists), a plant which grows in rich, moist woods, especially in mountainous districts. It is comparatively rare in the Eastern States, but is still abundant in some parts of the South and West. The root is from three to nine inches long, and as big round as one's finger. It has a peculiar aromatic and a some-

what sweetish and mucilaginous taste. Medicinally, it is of no value save as a mild aromatic. The Chinese Ginseng is the root of *Panax Schinseng*, and is highly valued by the Chinese, it being sometimes sold for its weight in gold. The word ginseng in Chinese signifies the “Wonder of the World,” and we do not wonder at it, as it has power, according to the Chinese physicians, “to make old people young,” and to “render a man immortal, if anything on earth can do so.” As our Ginseng is not essentially different from the Chinese, and probably quite as efficacious, it is exported in considerable quantities to immortalize the Celestials. We have not known of any attempts to cultivate it for commercial purposes.

Fairs in August.—Our regular list of fairs is published in September, as the majority occur in that month and later. We have received notice of two which take place in August, which are: Boone Co., Mo., at Columbia, Aug. 27-31, and Mahaska Co., Iowa, at Oakaloosa, Aug. 27-30.

Double-furrow Plow.—The double-furrow plow is no new invention, as is often supposed. It was in use in England 200 years ago, seventy years ago the first patent was taken out for improvements on the old form, sixty years ago several patterns were made by different makers, and now they are said to be used by ten thousand farmers in Great Britain.

We Give it up.—We have again and again requested that persons making inquiries to be answered by mail, should inclose only the return postage. Heretofore we have, when 25c., 50c., \$1, etc., have been sent “for information,” returned the amount minus the three cents for postage. We find that this costs altogether too much time and trouble. If people will disregard our repeated request, we give notice that while we have no information to sell at any price, we can not bother with making return change. If they put in more than a three-cent stamp, it is so much money thrown away. We wish it to be very distinctly understood that we do not accept the excess over the amount required for return postage as a compensation, and that we incur no obligation whatever in retaining what we have frequently requested should not be sent.

SUNDRY HUMBUGS.—An unusually light job we have this month, for though we have the basket full of letters and circulars, those referring to swindles not previously exposed in these columns belong largely to one class—the “Queer” operators.... At Bridgeport, Ct., in the “Land of Steady Habits,” they have a Mammoth Lottery, got up with no little ingenuity in the use of printer's ink, and pretty well calculated to draw in the dollars from the Micawber class, which is large everywhere. It is claimed that every payer gets his money's worth, to start with, and, in addition, a chance in a Grand Distribution of more than half a million dollars' worth of all sorts of things, such as houses, lots, engravings, carriages, pianos, shawls (\$850 to \$1,000 each), oil paintings (\$500 each), point-lace collars (\$40 each), a \$125 saddle, \$20 family Bibles, etc., etc., etc., etc.—a grand *melange* of gifts surely—when all the tickets are sold, amounting to “several hundred thousands!”—we don't know how many hundreds of thousands! Lots of indorsements of the manager are printed from Mayors, Congressmen, etc., down (or up) to “respectable citizens.” Probably “several hundred thousand” people will rush in with their \$1, \$2, and \$3 each. Sensible people will buy what they want at regular prices. If we granted all that the manager claims for this scheme, we should still advise all people to let it alone severely. Lotteries, and all schemes and games of chance, are bad in their influence. They cultivate a proclivity to look for chance fortune, rather than to honest effort and industry. Every person who invests a dollar in any chance scheme—be it lottery, gift enterprise, or otherwise—is positively and permanently injured thereby.... Thomas D. Thorp, the note swindler described last month, offers at 737 Broadway cigar Revenue Stamps at one fifth their value, on the pretense that his cousin is in the Government printing-office at Washington, and supplies him with extra sheets surreptitiously printed. He, of course, pockets all the receipts, and is not come-at-able when sought for. We have received a lot more of his swindling \$965 “notes” scattered over the country, as described last month.... A chap at Charlotte, Mich., calling himself F. A. Ellis & Co., successor to J. V. Johnson, is, or recently was, offering disgusting books, pictures, implements, etc. The good people of Charlotte, if there are any there, should clear out this disgraceful nuisance; parents should guard their sons from getting his numerous circulars, and only those who believe there is “honor among thieves” will forward money for his “goods,” if they are themselves depraved enough to want them for use or sale.... A Missouri subscriber writes that he sent 25c. for some fine watermelon seeds advertised in

New York City, and instead of the seeds received some tickets and circulars of L. T. Pardee & Co., the watch and jewelry operator of Binghamton, N. Y., who pretends to give you \$25 watches, etc., for \$2.24, which he don't. . . . We would gladly believe that every postmaster in all the country was too much of a man (or woman, as the case may be) to give any response to the solicitations of the Pittsburg man who offers such glowing financial returns to each one who will aid him in "gosing" the people with a new medicine. Every person who in any way, directly or indirectly, aids in the distribution of any patent, or specific, or secret remedies, is an enemy to his race. . . . All "Surgical and Medical Institutes" at New York, Chicago, Milwaukee, Philadelphia, and elsewhere, which advertise medicines, books, prescriptions, recipes, marriage guides, cures for private diseases, etc., are humbugs, and should be let alone. . . . PUT NO CONFIDENCE in any one of the hundreds of thousands of certificates of cures effected by this, that, or the other medicine. A large part of them are manufactured; another part come from persons who imagined themselves sick, and having recovered while taking some medicine, and in spite of it, are ready to praise it as their preserver or curer; and perhaps in one case in a hundred thousand some simple remedy happened to meet an individual want. But, even were all genuine and true, it would be no guarantee at all that the same medicine would not be even harmful to you. . . . The million people, more or less, who are looking for fortune from some deceased relative in England, and spending their money in advertisements and agencies, would be far more likely of success in life if they eschewed these hopes, and followed their honest callings. We have heard a great deal about expected fortunes from wealthy deceased relatives abroad, but can not recall a single instance where anything substantial was ever received. . . . The "Spanish Policy" at 22 West 4th st., alias 16 South 5th ave., New York, conducted by a chap under the name of A. B. Norton, alias Isaac Winchell, alias N. A. Persouin, alias James Allen, is a pure, numitigated swindle. . . . The "Queer," or pretended sellers of counterfeit money, still work vigorously. The safety of this swindle, because those who hold correspondence with operators can not appear against them without self-ermination, makes it more attractive than any other. The operators pocket all the money sent them, and have no expenses except for circulars. When they can get a line from any person, even of inquiry, they pursue a system of terrorism and threats of exposure, often getting hush-money in this way. We have before us an amusing assortment of such letters from one of these swindlers, who calls himself E. C. Haines, 688 Broadway, to a subscriber at Whitehall, Mich., and others. Of course, no one needs to heed the raving, scolding, or coaxing of such villains. As the N. Y. P. O. delivers no letters to swindlers, and is pretty sharp in discovering them, one operator (Elias) sends out slips under many names, such as John H. Kinkhead, David Curran, Henry Oatman, Lennel Haines, Joseph Hoffman, E. W. Tarrant, Herman Andrews, James Moore, Ezra Whitcomb, Martin Bowker, Rollin Burdick, Darius Driscoll, etc., all at No. 22 West 4th st., New York; alias M. Keating, No. 10 South 5th ave., alias James Moore, 305 W. 20th st. All the above fifteen different names are appended to the same circular offering counterfeit money, and each claiming that he had sole charge of engraving the plates on which the Government greenbacks were printed!

Lock for Bob-Sleds.—"A Subscriber" wants a description of the best lock for bob-sleds.—This will be timely a month or two hence, and possibly before then some of our readers will give us sketches or drawings of some new kinds which we can publish. There is a great variety of them in use.

To Keep Cistern-Water Pure.—"A Reader" asks how to keep cistern water from becoming stagnant (or impure) during the dry summer weather. We never found any difficulty in keeping water sweet during the summer months in a cistern to which a filter was attached similar to that described in March, page 96. If there is no filter, put into the cistern a bushel of fresh pounded charcoal, inclosed in a clean bag.

Farms of a Thousand Acres in New York.—"G. E. M." wishes to know if there are twenty-five farms in the State of New York, each possessing a thousand acres of tillable land. According to the census of 1870 (advanced sheets of which have been published) there are 36 farms of 1,000 acres and over in that State. If this does not fully answer the question, it is all the information we have on the subject.

Haw or Hooks.—"W. L. H.," Elizabethtown, Ky., has some valuable cows troubled with haw or hooks, which is an inflammation of the membrane which sweeps and clears the eyeball. Some of his valuable

cows have died.—It is doubtful whether this is the sole cause of the trouble; very probably there is general disturbance of the health, and the help of a good veterinary surgeon should be sought. Generally bathing with cold water, in which a dram of sulphate of zinc to a pint is dissolved, with a dose of cooling medicine, as a pound of Glanber's-salt, is sufficient to reduce the inflammation. The membrane, though much swollen, should not be cut off, as is sometimes done.

Poke-Root.—"C. L. Hill, Glasgow, Fla. (?), asks if garget or pokeweed, mentioned in the *Agriculturist* of July, 1871, is what is generally called poke-root.—Yes. It has a long, thick, fleshy root, and is a tall, branching plant, bearing clusters of dark purple berries.

Castings.—"X. Y. Z.," Elizabethtown, Ky., wants to know where he can get some small castings made.—At Louisville, Ky., which is in his neighborhood.

How to Warm Cream for Churning.—"Reader," Theresa, N. Y., wants to know how to warm his cream for churning, and what temperature is best for it, and what temperature is best for setting milk for cream to rise?—As good a way as any, where there are no other conveniences, is to have a shelf near the stove, and a few hours before churning set the cream-jar on it, and stir repeatedly until it is of the same temperature as the room, or about 62 degrees. Milk should be kept at about 55 degrees when set for cream, and the temperature should be uniform.

Petrified Squash.—"J. T. Ewbank sends us from Salado, Texas, a fossil known in that country as a "petrified squash." It, however, belongs to the animal kingdom, and is a very beautiful fossil Echinus, living forms of which are found upon our coasts, and are known as Sea-urchins and Sea-hedgehogs.

Walnuts.—"E. N. N.," Mount Joy, Pa.—Plant the walnuts in the fall where they are to grow, or keep the nuts in sand until spring.

Changing the Color of Hair.—"I. C.," Aiken, S. C., wants a method of changing the color of white spots of hair which grow over healed sores on his horse. We know of none, although we have heard of several, one of which is to rub hot, melted lard on the spots, but we have no confidence in it. If there are any effectual methods, we should be glad to hear of them.

Why Butter won't Come.—"J. M. B.," Quasqueton, Iowa, says his experience is, that if cows go too long without salt, the churning takes more than twice as long, and when this happens with him, the boys are scolded and sent for the salt-box, and next time the butter comes in reasonable time.

Clark's Compost.—"F. Hunt, Manchester, N. H., writes about a notice of Clark's Compost in the *Agriculturist* for May, and states that he believes Mr. Clark to be an honest man. We readily believe in the honesty of this opinion, as a man may sell a poor compost at a high price and yet honestly believe he is doing no wrong. But having paid Mr. Clark his price for the secret, and also having strictly kept the engagement made in purchasing it, we do not see there is anything to prevent us from considering it not worth the money asked for it, or from advising others to lay out five dollars in a more profitable manner.

Hay Conveyer.—"A Subscriber," Seneca Co., Ohio, asks if there is any better hay-conveyer for unloading in the barn than that figured in the *Agriculturist* of 1865, page 212. This was the Halstead hay-fork attachment. Since then the Human Conveyer has been introduced, which seems to us to be an improvement in some respects.

Sandford Corn.—"Northern New York" asks if we would recommend the Sandford Corn for that locality. Generally there is no good done by going from home for seed corn. It is the easiest crop to improve by selecting seed and good cultivation. We don't like the Sandford corn much.

American Fruit-Preserving Powder.—In answer to inquiries regarding this article advertised in *American Agriculturist*, we will say that we have advertised it each year for the past four years; and, before inserting the first advertisement, we investigated the matter, and satisfied ourselves that it was harmless and efficient. Since that time, and during the past three years, some of our associates have used the Preserving Powder, with satisfactory results, and esteem it a very valuable and praiseworthy article. As to keeping fruit in wooden kegs and barrels, that is a new feature, and

claimed for the first time in our last issue. We have not so tested it ourselves, but have every assurance of its truthfulness. As to the healthfulness of the powder—it is as healthful as common table-salt.

Refuse Hops.—"H. W.," Lafayette, Ind. These are considered by our market-gardeners as equal in value, load for load, to the best stable manure for all gardening purposes. We do not know that they have been used for potatoes.

Peas and Oats.—"F. S.," Akron, Pa., asks some questions about peas and oats as a mixed crop, to which we reply that they may be sown as late as June or even July, and make a good crop of fodder which may be cut and cured like hay. Two and a half bushels of oats and one and a half of peas of the earliest kinds, if sown late, are sufficient seed for an acre. If ripened, the grain may be threshed together and either chopped for feed, for which it is excellent, or separated, if desired, in the fanning mill. This mixed crop is nothing new, having been grown in Canada and in Scotland for years.

Personal.—People do make some odd queries; the following will serve as a specimen: "Will you please inform your readers what sound Col. Waring gives the *a* in his name, whether that of a *in war*, or a *in ware*; also, whence the title 'Colonel'?"—Just for the fun of the thing we will answer that the Colonel's name is pronounced as if it were spelled Waring, and the "whence" of the title Colonel is four years' hard service in the army. He is married and has been vaccinated.

American Horticulturists for Europe.—Our contributor, Peter Henderson, Esq., sailed for Europe on the 22d ult. He proposes to pass a few months in Great Britain and on the Continent, where he hopes to obtain a respite from business and the correspondence with which he is overwhelmed. On the same date there sailed by another steamship line, B. K. Bliss, P. T. Quinn, and Josiah Hoopes, all well known in the horticultural world. These gentlemen go upon a tour of observation and pleasure, and will no doubt bring back some interesting experiences.

Cabbage-Flies.—A correspondent in Brampton, Ontario, writes: "I saw to-day a (to me) novel method of getting ahead of, or rather getting over, the Cabbage-fly. The seed-bed was made on a scaffold raised on posts about five feet from the ground. The plants were about one and a half or two inches high (this is not New York latitude), and were absolutely untouched by the fly, while others, sown at the same time on the ground, within a short distance, and otherwise treated exactly the same, were nearly destroyed. I do not know how to account for it, unless the jumps of the insect are limited to a certain height, and these plants were beyond its reach."—This is not a new device, and our correspondent has suggested the cause of its success.

Camellias.—"E. C. B.," Beaufort, S. C.—Camellias can be grown from seed. There is no probability that the produce will be like the varieties from which the seed was taken, any more than with roses or other plants far removed from their natural state.

The Drive-Well.—"Farmer," Lexington, Tenn., asks if this is a humbug. He wants a well, but is afraid to try one of these until he knows something about it. It is no humbug, but a very useful thing under some circumstances. Where the water is within twenty feet of the surface, it is a cheap and convenient well. We have used one and know. It is patented.

Insects.—"E. P. S.," Clinton, N. Y. To answer your queries in full would require a treatise. Briefly, then. Air-slaked lime is the best thing we have tried for the green cabbage-worm. . . . The insect which bores into the stem of the cucumber is not the one that feeds on the leaves. It is the grub of a moth. We know of no remedy after the grub is in the vine. The parent insect may probably be kept away by sawdust, wet in carbolic soap-suds, but we have not had occasion to try it. . . . Frequent washing, particularly of the under-side of the leaves, will drive off red spiders. . . . We never tried introducing a remedy into the body of a tree. Have no belief in its utility. Borers in apple-trees can be probed out. Open a hole by means of a knife or gouge, and run in a wire probe.

Machine for making Nets.—John Gordon, Oregon, wants a machine for making "seines" and other nets.—There are machines of this kind, but we do not know who makes them. Makers should advertise, as doubtless there would be a demand for them.

Other Basket Items on page 273.

Celery.—"A. G. J.," West Cleveland, O. We know of no special manure for this crop. The market gardeners near New York grow celery as a second crop. The ground is heavily manured for early cabbages, and when they are off, the celery goes in without additional manure. Sometimes ashes, floor of bone, or other stimulating manure is strewed along the rows, in order to give the plants a good start. A dressing of salt may be useful in keeping the ground moist.

Red Spiders.—"Subscriber" has a bed of stocks which are badly injured by the red spider. He says "dampness has no effect upon them, as it has rained nearly every day since the plants were placed there."—The spiders naturally work upon the under side of the leaves, where they are sheltered from the rain. Use a syringe, by means of which the under surface of the leaves can be wetted with a solution of whale-oil soap or common soft-soap.

Seeds of Forest Trees.—T. F. Healy. With the exception of White and Red Maple and Elm, which should be sown in June, seeds should be planted in the fall, or properly kept in sand during the winter, and then planted in early spring. We can not tell you the best varieties unless we know whether you wish the trees for shelter, fire-wood, lumber, or ornament.

A Cook-Book.—"A Subscriber" writes: "Will you recommend through the columns of your paper a good, sensible, reliable cook-book?" The "easiest" cook-book we know of is "Common-Sense in the Household," by Marion Harland. It can be sent from this office for the price, \$1.75.

Those Patent Gates.—H. C. Blake, Louisa Co., Iowa, writes on behalf of several of his neighbors, stating that two men are going about claiming five dollars from each farmer who has a gate similar to the one figured in the *Agriculturist* as early as Nov., 1834, for the right to use this gate, which they say is patented. It may be patented; we have met men in the country selling rights, but the patent is invalid, and the claim should be resisted, for the gate has been public property for fifteen years at least. It is worth while for the farmers to consider whether some restriction should not be put on the issue of patents for inventions, so called, which are utterly devoid of novelty, and make a move in the matter for their own protection.

Bees, their Management and Culture.—We have received the advance sheets of a little work, by Mrs. Tupper and Savery, of Des Moines, Iowa, entitled, "Bees, their Management and Culture." It is devoted mainly to the ways of Italian bees, and to explaining the more difficult methods—to ordinary bee-keepers, at least—of managing artificial swarming, and increasing the production of honey. Mrs. Tupper is a bee-keeper, and what she knows of them has been learned by handling and observing them.

The Mahaleb Cherry.—J. Beachy, Preston Co., West Va.—The Mahaleb Cherry is a native of the mountain regions of Southern Europe. It differs from any of those cultivated for their fruit in having the flowers in racemes or strigs, after the manner of our common Wild Cherry. When young, the tree grows freely. You can ascertain whether the stocks you have purchased are the Mahaleb or Mazzard by the odor of the bark, which in the Mahaleb is very strong and peculiar.

Rape or Coleseed.—"S. T. H.," Leroy, N. Y.—Rape will flourish on a great variety of soils, provided they are clean, rich, and mellow. It is useless to sow it on cloddy, poorly-prepared land. Thorough cultivation previous to sowing the seed is absolutely essential to a good crop. Sow from three to five pounds of seed per acre, broadcast, and harrow in with a light harrow. Two bushels of plaster per acre will be beneficial. We presume the seed can be obtained at the Rochester or Buffalo seed-stores. We got our seed last year from R. H. Allen & Co., New York.

Thomas's Smoothing Harrow.—"H. V.," Mendocino Co., Cal., asks if Thomas's Smoothing Harrow is useful to harrow in grain. Yes, excellent.

Grapes in Indiana.—"W. A.," Logansport.—What you describe is apparently the grape-rot. We do not know of any cure for it. The best course is to get such varieties as do not rot in your soil and locality. You do not say what your varieties are.

Chester White Pigs.—"A Subscriber," Watertown, Ct., asks who is the most enterprising and active breeder of Chester White pigs. If he wants the

most trustworthy one amongst these breeders, possibly he may not be the most enterprising and active. Sometimes most enterprising and active men come to grief and bring their customers there too. The names of breeders who we have reason to believe are honest and trustworthy, will be found in the advertising columns. No other names are admitted.

Treating Hen-Manure with Sulphuric Acid.—"A Subscriber" asks whether hen-manure is benefited by treating with sulphuric acid. Not at all. It is as soluble as guano, and may be used in exactly the same manner.

Pondrette or Superphosphate.—"T. J. S.," Watertown, Ct., asks which is most valuable to apply with the seed, double-refined pondrette, or superphosphate. We believe from our experience that 100 pounds of superphosphate is equal to 1,000 pounds of pondrette as sold in the market, but we would rather use Peruvian guano at \$30 a ton, in preference to any other fertilizer, to be drilled with the seed.

Tanning Buckskins.—Seth Fuller, Bond Co., Ill., sends a method of tanning buckskins, viz.: take a skin, either green or well soaked, and flesh it with a dull knife; spread the skin on a smooth log and grain it by scraping with a sharp instrument; rub nearly dry over the oval end of a board held upright. Take the brains of the deer or a calf, dry by the fire gently, put them into a cloth and boil until soft, cool off the liquid until blood-warm, with water sufficient to soak the skin in, and soak until it is quite soft and pliable, and then wring out as dry as possible; wash in strong soap-suds and rub dry, and smoke well with wood smoke. Instead of brains, oil or lard may be used, and the skin soaked therein six hours. This is called "Indian tau."

Growing Grass.—"A Would-be Scientific Farmer" wants a few facts relative to the growing of heavy crops of grass. He thinks it equally possible to make six to eight tons of hay from one acre here as in England or Scotland. If he thinks so, why does he not try to do it? We have seen some good hay crops made in Great Britain, but certainly none so heavy as six tons per acre, and we have not so favorable a climate for grass as they have in that country. Still we are very certain that our average hay crops might very well be doubled in yield by attention to preparing, seeding, and manuring the soil in the best possible manner, and by making use of irrigation wherever practicable.

How to use Tallow Scraps.—A farmer has a quantity of tallow scraps which he is trying to decompose for manure, but they are insufferably offensive and he proposes to mix lime with them; how will that answer?—Very badly for the manure, and his sense of smell too. The only proper method is to mix earth in sufficient quantities—say five or six loads to one of scrap—to absorb all the odors, which it will do most completely if enough is used. They might also be spread on the field and at once plowed under, and the ground again plowed for a fall crop early in September.

Ayrshire Cows.—An Ayrshire cow (Lizzie, 562, A. H. B.), wined in Pennsylvania, is said, by her owner, to have given in seven consecutive days in March 27½ pounds of milk, from which was made 11 pounds 14 ounces of butter; the feed was hay and two quarts of oats and corn-meal per day. On grass she now gives 23 quarts of milk per day. The secret of the large milking of Ayrshire cows is that for scores of years they have been raised specially for this purpose by selecting for breeding stock only the produce, both male and female, of the most productive cows.

An Acre.—Our acre is the same as the "statute acre" of Great Britain, equal to 4,840 square yards. But it is a difficult matter in Great Britain to know what an acre is, for there are there in common use the Irish and Lancashire acre of 7,340 square yards, the Scotch of 6,104, the Cunningham of 6,253, the Cheshire of 10,240, the Derby of 9,000, the North Wales of 3,210, the Welsh (the "erw," however that may be pronounced) of 4,330, the Leicester of 2,308½, the Westmoreland of 6,750 yards, and others in still further variety; the same peculiarity exists with regard to miles. And yet we can not abide the little indefiniteness of our shillings.

Spavin.—"P. C.," Blairstown, Iowa, has a colt with an enlargement on the "hough" joint, which he lately blistered according to the advice of a horse-doctor, who called it "oscular joint." The swelling now grows harder. It would probably be best to use iodine ointment rubbed twice daily on the swelling, which is doubtless an approaching spavin. This may effect a cure. If this has no good effect, and the colt is

not lame, we would let it alone unless some really good surgeon can be procured to attend to it.

Quince and Pear Trees.—"O. Y. Z.," Mowqua, Ill. Quince as well as other fruit trees require such a soil as will produce a good crop of corn or potatoes. Stable manure, well decomposed, is useful. We should not use hen-manure on fruit-trees, but reserve it for corn and other quick-growing crops. Ashes never come amiss for pear or other fruit trees. Salt has been found useful as a special manure for quince. Mulching is beneficial to all newly-planted trees. Some growers prefer to have their quince-trees in a bush form, with several stems from the base. We prefer a single trunk. In either case it is necessary to look out for borers, and if they get into the trees, dig them out.

The Doctor's Talk about the Prizes.

You see, youngsters, that we for reasons stated could not get this prize matter into the regular Boys and Girls' pages, so we have to come over here among the old folks. I will get the printer to put a good big dash at the top of this to separate it from the talk about mowing machines, sick cows, and the like—matters important enough for grown people, but perhaps not quite so interesting to most of you young ones.

Well, the old Doctor has been happy. He did not think that so many of his boys and girls would use their eyes and put down what they saw. How the letters did come in! Twenty, forty, and sixty a day, and how many times did I sit up late looking them over, and in imagination taking walks with you! I have been in the grand old forests of Oregon, I have looked at the early spring flowers of Maine, I have seen the lizards and the Yellow Jessamine in Georgia, and I have watched for gophers in Kansas. I can tell you that I enjoyed it all, and those of you who do not get prizes will know that your letters were read and your lists looked over, no matter how small they were. So many pleasant letters there were, and such a kindly feeling—it almost makes an old fellow feel glad that he has no children of his own, and can take into his affections so many boys and girls whom he has never seen and never may see. So many touching letters, too! One poor little thing was taken down with measles, and had to leave her list incomplete. One boy, who sent a very good list, had to work all the time, and could only put down such animals as he saw while engaged in his farm labors. Some dear little chicks, too young to write, printed their lists. Such a good spirit, too, in most of the letters, ever so many saying that if they did not get a prize they were abundantly repaid for their trouble in the pleasure they had in making up their lists. You have all had a good time, and the only one who feels badly over it is the Doctor. I am so sorry that I can not give a prize or a personal acknowledgment to every blessed one of you. As in former cases, some who do not receive prizes will hear from me, and those who have sent plants to be named will be duly answered.

You will recollect that this time the prizes are all books. So I wish the prize-winners to tell me what book they would like that retails for \$3 or less, or at least say what subject they would like the book to treat of. I was glad to find that those who asked for book prizes for the stories selected works on botany and similar subjects.

There were in all a few over 570 letters.

Now for the prizes, which have only been determined on after long examination, comparison, counting, and much deliberation. If the prizes were twenty for each class, it would not be difficult, but where there are only three, you can imagine how hard the task must be.

Girls between 12 and 16.

- 1st. Lonie L. Batcham, Painesville, O.
- 2d. Josie Bell Stewart, Lowell, Mass.
- 3d. Mary J. Sinclair, New York City.

Girls under 12.

- 1st. Marian Hayward, Ayer, Mass.
- 2d. Alice L. Keith, Bridgewater, Mass.
- 3d. Alice Campbell Hotchkiss, New Hamburg, N. Y.

Boys between 12 and 16.

- 1st. Abraham Resh, Enterprise, Pa.
- 2d. Emis Dubois, Waverley, N. Y.
- 3d. G. E. Shiras, Newcastle, Pa.

Boys under 12.

- 1st. Willie B. Marlatt, Manhattan, Kas.
- 2d. Oscar M. Messenger, Baraboo, Wis.
- 3d. Wellington Woolfolk, Woolfolk's P. O., Va.

There are a number in each class to which I wish to give honorable mention, but as I write at the last minute, I have not time to do it here.

Now let us all enjoy ourselves quietly during the hot months, and be ready for more fun when the cooler days and longer evenings come.

THE DOCTOR.

Other Basket Items on page 273.

Good Reasons.

The large class of Advertisements and of paid Business and Editorial "Notices" constantly rejected from the *American Agriculturist* and from *Hearth and Home*, if admitted, would alone supply tens of thousands of dollars to each journal every year. This lack of an income which is received by most other journals, is a good reason why such journals should have a large paying circulation, and would even justify comparatively higher subscription rates.

The readers themselves could, and in most cases would, pay more to find the desired information and reading matter in journals free from advertisements of patent medicines, humbugs, unreliable persons and things. They have less fear of being cheated themselves, or of having their children corrupted or led astray.

As the subscription rates of *American Agriculturist* and *Hearth and Home* are not higher, but on the contrary are lower, than those of most other journals prepared at similar expense, will not the readers take pleasure in doing something towards increasing the circulation? Can not each of our present readers influence the subscription of one other person, to begin with July 1st, in accordance with notices elsewhere? The publishers will appreciate the favor,

Honey-Dew.—"J. M. S.," Strawberry Plains, Tenn.—The article referred to should have stated that there are two kinds of Honey-dew—one exuded by plant-lice, as there described, and the other an exudation of a sugary liquid from the leaves themselves. The article told the truth, but was at fault in not telling the "whole truth."

Department of Agriculture.—"G. W. F.," Nashua, N. H.—The Report from which we quoted was that of the Commissioner, which is published in the form of a small pamphlet. The large volume, containing the reports of the subordinates and miscellaneous matter, will come later.

Chufas.—D. C. Webb, Macon Co., Ill.—The Chufa, or Ground Almond, is a nut-like tuber of a sedge, the *Cyperus esculentus*. It will grow in your climate, and may be sown in spring in drills like beans. Their chief use is for feeding swine, which will root them up. They have not met with much favor. The tubers are usually kept at the large seed-stores.

Canada Thistles.—"R. E. G."—It would be much easier for you to send a specimen of your thistle than for us to describe it that you would know it from all others. As to extermination—we know of nothing better than frequent cutting off the tops. If this be thoroughly and earnestly attended to it will destroy the thistles. Half-done, it will not.

Cotswold vs. South-Down Sheep.—"Why do you recommend Cotswold sheep instead of South-Downs?" asks a New England farmer. "Is not South-Down mutton better than Cotswold?"—"We think it is better. But we can not sell it at any higher price. At the "West End" of London there is a class of epicures that will have no mutton but South-Down, and they will pay two cents a pound more for it than for Cotswold or Leicester mutton. But here, as yet, there is no difference made in the price. Mr. Law's experiments proved that English farmers could afford to sell Cotswold mutton for two cents per pound less than South-Down—and this before the recent great advance in long wool. We recommend Cotswolds, therefore, because their wool is in great demand at high prices, and because a pound of mutton can be produced from a Cotswold at less cost than from any of the South-Down breeds.

Pigs on Clover.—"M. B. R.," Windsor, Mo., asks the following questions: First. Will hogs injure the clover or the trees if permitted to pasture in an orchard? Second. Will kitchen-slop fed to fattening swine make the pork soft, and should they be finished off on corn in the ear and cold water? Third. How can we prevent a young heifer from kicking?—Hogs do sometimes goaw the bark from young trees in orchards, and if the clover is eaten close they will often kill it by biting out the crowns of the plant. Kitchen-slop is not fit food for fattening swine, excepting given as a drink only; they may be finished off on corn-meal made into mush and fed cold, and yield the firmest of pork. A young heifer may be cured of kicking by gentle treatment and avoiding anything that will frighten or irritate her.

A Dyspeptic Horse.—We are asked what it is best to do with a horse that "does not seem to be well, while not actually sick. He looks forlorn, eats but little, and seems to have no life or spirit in him either for work or play."—"The very best thing to do with such a horse is to take his shoes off, and let him have two or three months' absolute rest at pasture. If he can not be spared, work him moderately, and be particular in regard to feeding, watering, and grooming. Let him have one full day's rest at least once a week. If you must work him on Sundays, let him rest Saturdays. Give him bran-mashes enough to keep his bowels moderately loose. If in spite of this he is costive, give a pint of linseed oil at night, and let him rest the next day. Let him have hay-tea to drink. Humor his appetite. Find out what he likes best, and let him have as much as he will eat up clean, and then remove all food from the rack and manger. See if he will eat boiled barley. If so, nothing can be better for him. Groom thoroughly, and make him as comfortable as possible. Let him have a lump of rock-salt to lick. Give green food if possible, as it is more easily digested than hay; but if this can not be had, eat his hay into chaff, and soak it in as much water as it will absorb for twelve hours. Then mix a little bran or oat-meal with it, and let him have as much as he will eat up clean, and no more. Never work him hard immediately after eating.

No Doubt about it.—An old farmer in the West writes us that his neighbors do not believe in "book-farming," but that the reading of agricultural papers is having a good effect on the rising generation. "I see it sticking out in my own boys," he says; and it will stick out more and more. It is one of the hopeful signs of the times.

How to Boil Barley.—Soak it for twelve hours in about twice its own bulk of water. Then boil, in the same water, until the kernels burst open. We know of nothing that will fatten a horse that is only moderately worked sooner than boiled barley. Add a little salt to the barley, and mix it while hot with an equal quantity of cut hay. It should be cooked fresh every day in warm weather, and fed before it gets sour.

Hay-Tea.—Steep some cut-hay in boiling water for two or three hours; pour off the water, and give it to the animal to drink, either warm or cold, as thought best. It is a capital thing for horse, cow, calf, sheep, or pig. Clover hay is best.

Measuring Corn.—E. B. Hill, Jasper Co., Ill., gives another rule for measuring corn in the crib—which is to take 4,032 cubic inches of ears for a bushel of shelled corn, equal to three half-bushels of 2,688 cubic inches to a bushel. If any one likes that bushel, the rule will do for large Western ears.

Judson Branching and Egyptian Corn.—The proprietors of both these swindles have come to grief. Judson has been compelled to pay \$750 and costs of suit in an Illinois court, as damages to a dealer whom he had victimized, and the Egyptian-corn man who swindled so many farmers a few years ago, has now got his deserts, although indirectly, by having been sent to the penitentiary for several years for robbing the mails while postmaster in Virginia.

Market Value of Hen-Manure.—"Geo. E. H.," Lowell, Mass., has a quantity of hen-manure, mixed with loam, which has been sprinkled in the house to keep it clean, and has no use for it; at what price could he afford to sell it?—If there is no more than half of it loam, it ought to be worth about one cent per pound, but the value will depend altogether upon the proportions.

Green Manuring Crop.—Geo. K. Morris, Macon Co., N. C., asks if lupines make a better crop to plow under than clover. We do not know of any advantage to be gained in sowing lupines over the crops ordinarily in use for this purpose. Better use peas than lupines, and clover in preference to any other crop.

White Specks in Butter.—"A Reader" asks why white specks come in the butter. There are several causes. One is too quick churning, which leaves many butter globules unbroken, the skins of which consist of caseine, or cheesy matter, and are left in the butter, but these are very minute, and are scarcely seen, though they are soon smelt. Another is, the cream is allowed to stand too long, and the milk becomes curdled and partly separated from the whey; the particles of curd remain in the butter, and being insoluble, can not be all washed out. These specks are large, and spoil the look as well as taste of the butter.

Please tell your Neighbors

All for \$2.

READ THIS.

Subscribers can have the *American Agriculturist* and *Hearth and Home* from July 1st to the end of the year for \$2.

OR

They can have the weekly *Hearth and Home*, which is now a superb, Illustrated Journal of the highest and best order, for \$1.50 from July 1st to the end of the year.

It will pay.

N.B.—Special.—New subscribers for *Hearth and Home* coming in now, if they specially desire it, will be supplied with the chapters issued prior to July 1st, of Edward Eggleston's most popular new American story, "The End of the World," capably illustrating Western life. This will, with the remaining numbers, give them the whole of the story complete. This, with the great number of splendid illustrations and great amount of excellent reading matter, will be found the best and cheapest family journal in the country.

Will not every present reader take pleasure in mentioning the above to their friends and neighbors, and each aid us in securing one new reader to begin July 1st?

. The previous chapters of the Story will only be sent when specially asked for.

Hide-bound.—"A Farmer" wants a remedy for hide-bound in a colt. The immediate cause should first be ascertained, as there are several. Generally impaired digestion, costiveness, cold, overfeeding, starvation, or anything which will affect the health unfavorably, shows its first effects in hide-bound. Remove the cause, and the trouble will cease. Bran-mashes with a little sulphur, given daily, and scalded oats or soft cut feed will work a cure, unless something serious in the matter, when proper advice should be taken.

Ringed Hogs.—"M. B. R.," Windsor, Mo., wants the best method of preventing hogs from rooting.—A ring in the snout is the best preventive. A horseshoe nail put through the snout, and the point twisted around the head (of the nail), makes a good ring.

A Mistake.—"S. P.," Iosco Co., Mich., writes that he has followed engineering all his life, and now has settled down on a farm in a new and poor location, on sandy soil, overgrown with scrub-pine and whortleberries six inches high, and he asks what artificial manures he shall use to grow crops of flax, or mustard, as clover does not take well.—This poor engineer is off the track worse than he ever could be on a railroad, and if he escapes a smash-up, will be fortunate. A man who can not choose a farm with judgment, can not succeed as a farmer, and is far better off as a passably good engineer than as a certain failure on a farm, if one can call such a piece of land as he describes, a farm at all. Our advice is, to give the land to some one, if he can, or to keep it for a huckleberry patch and go to engineering again, or, if he wants a farm, to buy good land.

Hybrid Corn.—"Experimenter" asks if corn can be improved by mixing distant varieties, and procuring hybrids. We think it can. We once planted some rows of Pennsylvania gourd-seed corn amongst rows of early Canada, and had a mixed corn which had larger ears than the early Canada, and ripened earlier than the Pennsylvania corn, which we thought an improvement.

Other Basket Items on page 273.

Steamed and Boiled Bones.—Wm. Ashberry, London, Canada, asks if it is true, as stated in "Morton's Farmers' Almanac" (English), that "fat as an element in bones has no fertilizing qualities whatever."—This is correctly stated. But steamed and boiled bones lose by the process, not only fat, but some gelatine, which is a positive loss of nitrogenous matter, and as fat is in no way injurious it is better to have raw bones as a basis for fertilizers.

Clover as a Fertilizer.—"Interrogator," Hempstead Co., Ark., asks if when clover is used as a fertilizer it should be used exclusively for that purpose, or should meadow and pasture come in rotation.—Where the soil is poor, and clover has been sown with a special view to a green manuring, we would plow in the whole bulk; but when the system has become established the clover is mown and lightly pastured and assisted with gypsum and lime, and becomes only an aid to the general course of manuring.

Mixed Grasses in Arkansas.—"O. J." wants our opinion as to whether clover, bluegrass, timothy, red-top, and orchard grass would succeed in Arkansas.—We do not doubt of their success if sown on suitable soils. Red-top needs a moist soil, and all the rest need soil of fair quality at least.

Measuring Corn in the Crib.—S. Fuller, Greenville, Ill., gives a rule for measuring corn in the crib as follows: Multiply length, height, and breadth of the crib in feet together, then by $4\frac{1}{2}$, and divide by ten; the result is bushels of shelled corn. This may do for some localities, but as ears and shelled corn bear as many relations to each other in quantity as there are localities and sorts, the safest way is to reduce the contents of the crib to cubic inches, and take 2,750 of them for a bushel of ears.

Kansas Agricultural College.—This College has, thanks to the efforts of its friends, been put on a thoroughly satisfactory footing as an agricultural institution, and promises to be of the greatest value to the farmers of that State. Amongst other important improvements, a veterinary hospital has been established, where diseased animals will be treated by a veterinary surgeon at only nominal charges. Prof. Detmers is in charge.

A Drain Wanted.—A "Subscriber" wants a method of diverting a flow of water from a cut in a hill-side where a road passes through it. The water constantly oozes from the bank. There is no help but digging a drain along the upper side of the road until the springs are cut and the water carried off in a covered drain where it will not overflow the road in winter. In similar places, drains have had to be cut seven feet deep to intersect the flow of water, which is necessary to make a perfect job.

Fencing Pastures.—"Inquirer" wants to know if we think it economical to fence a farm into fields in order to pasture cattle therein on clover or peas.—We do not. If special crops are grown for fodder, it is far more economical to cut and carry these crops to the yard or pen where the cattle may be fed, and thus save manure and the expense of fencing, and prevent the waste of feed by trampling underfoot.

What shall we do with our Bones?—"A Subscriber" living on the prairies of Nebraska, sees quantities of bones bleaching on those vast fields, where they have been left by luckless buffaloes and horses, and knows there are no bone-mills around, and no money to start them.—If we were in his case we would gather those bones and burn them, and crush them into powder, and spread them on the fields. They have but little animal matter left to be lost by burning, and they may be crushed very easily when burnt thoroughly. Thus they may be very profitably used.

Mustard in the Southern States.—"D. E. S.," of N. C. We do not think Mustard will make good fodder. It is very succulent, and would be difficult to cure without losing the leaves. But we have had no experience on this point. The white Mustard is not so "hot" or pungent as the black, and grows larger.

Pennsylvania State Fair.—The Pennsylvania State Agricultural Fair is to be held this year at Erie, beginning September 19th, and lasting three days.

Steam Plowing.—The Adams Co. (Ill.) Agricultural Society having offered a large premium for the best steam-plow and road steamer, it is expected

that the question of the practicability of steam-plowing on the prairies will receive a somewhat satisfactory test. Two steam-plows are already entered to contest for the premium, which will come off on the 2d September, and more are expected.

"Venus's Flower-Basket."—In February last we published a description and engraving of the singular sponge-structure known as Venus's Flower-Basket. Since then we have received from Messrs. Greenleaf & Anthony, No. 104 Court street, Boston, a much finer specimen than the one from which our illustration is taken. We learn from a friend that Messrs. G. & A. import largely of foreign curiosities, and that during the summer they open a branch establishment at the now much-frequented Martha's Vineyard.

Another of the Family.—A farmer in New Hampshire may thank the author of "What I Know about Farming" for a valuable discovery. He was "plowing deep" most likely "while sluggards sleep," and plowed up a petrified Indian, seven feet seven inches long. It belongs to the family of the Cardiff giant.

Land for Sale.—The impression is rife that land is rarely for sale in England; on the contrary, the chief advertising mediums of England are plentifully furnished with announcements of sales of estates, farms, and lots of all sizes, from single roods and acres up to immense estates, so that it would seem the possession of land is only circumscribed by the ability to purchase it, there as elsewhere.

Steam Cultivation.—An extensive English farmer, who has long practiced steam cultivation, thus testifies to its advantages: On two fields he has grown fifteen crops of grain, wheat, and beans in succession, without a fallow, and last year's crop of wheat was forty bushels per acre; on two other fields he has grown fifteen successive crops of wheat, the last crop quite equaling forty bushels per acre. Under horse cultivation the average crop of these fields was twenty bushels. The total cost of preparing the land for the seed is only \$1.00 per acre. Much similar testimony is now coming in.

English Agriculture.—An idea of the position of agricultural labor in England may be gathered from the fact that lately some laborers "struck," and refused to use double-furrow plows on a farm, for the reason that they tended to reduce the need for men. When brought up in court on complaint of their employer for not obeying orders (thus punishable in Great Britain) they were fined ten dollars, and costs two dollars, each. The judge said, this thing must be put down, or farming must come to a dead stop, which shows that across the Atlantic "their ways are not our ways."

American Pork.—Fifty thousand tons of American bacon and pork were imported into England in 1871, and seventeen thousand tons in the first three months of 1872, and the last hog has not been killed yet.

Fine Grinding.—We are asked whether our correspondent's miller is correct when he advises him to have his corn ground very coarse, because "if he grinds it fine, it kills the strength of the meal."—He is entirely wrong—except for his own interest. He can grind four times as much coarse meal in a day, as he can of fine, and so can make more money. The finer the grinding, the more digestible the meal—the more of its nutriment will the animal appropriate. The "strength" of the meal lies, not in its granular texture, but in its chemical composition, and this is not affected by grinding. Very fine meal is more apt to heat than that which is coarser, but this only implies more care in keeping.

Beet-Root Sugar in New Jersey.—The Legislature of New Jersey has passed a law to encourage the manufacture of beet-root sugar in that State, by exempting from taxation for ten years any factory with the necessary machinery, which may be put into operation after April, 1872.

Exportation of Shorthorn Cattle.—The importation of thorough-bred stock has been so very common for many years past, that it seems as though we had turned a very sharp and sudden corner when we come to write of the exportation of them. But it is a fact that at last American breeders have arrived at that point when English breeders send commissions here to purchase our choice stock at hitherto unheard-of prices. Mr. Richard Gibson sailed on Saturday, May 25th, on board the steamer Oceanic, of the White Star line, with a pair of Princess cows, purchased from Mr. Alexander, of Ky., for an English gentleman, at a price, as we understand, of \$18,000 for the pair. Besides these Mr. Gibson takes

out some other choice stock on his own account. It is a matter encouraging to all engaged in breeding stock, that the character of American cattle has become so well established; for although there are but few breeders who can hope to realize such handsome prices, yet the fact that some do receive them, makes it much easier for all others who raise good stock to realize fair and remunerative prices also, and thus all our stock takes a lift together.

Plants Named.—"Susie M.," Hickory Creek, Mo.—The flower sent is *Erythronium albidum*, or White Dog's-tooth Violet, a very pretty plant for garden cultivation. Wish you would send us a few bulbs by mail. . . . J. A. Hubbard, jr., Champion, N. Y.—The weed that is so troublesome to you is the Plantain-leaved Everlasting; its botanical name is *Antennaria plantaginifolia*. As it is a perennial, the best remedy is plowing up the grass lands where it is abundant, and planting some crop which requires hoeing.

Liquid-Manure Cart.—Mrs. S. J. S., Mendota, Ill., writes to ask if there is a cheap way of saving and spreading liquid manure. In the *Agriculturist* for May, 1872, directions were given for making a cistern for saving and tank for spreading it.

Chicken Cholera.—John J. Keating, Washington, Iowa, has lost a great many fowls by cholera, both this year and last summer, and wants a remedy. This probably arises at first from too much green food, in which case it may be remedied in the start by giving chalk or magnesia in the food; alum-water is also useful, or a small quantity of sulphate of iron, given in the drinking water. When very bad, ground rice, boiled in milk, fed slightly warm, has been found beneficial.

Lime-Kilns.—"T. S. G.," Brevards, N. C., wants a good plan for building lime-kilns. A long article, with illustrations, was published in *Agriculturist* for September, 1871, on this subject.

At what Age should Young Mules Work?—"A. S.," Mercer Co., Pa., asks at what age may young mules do light farm work.—At three years old they may do such light work as cultivating corn, or harrowing, or drawing light loads, but the work should really be light until they are a year older. At two years they might be taught to work by drawing an empty wagon.

Flax Fiber.—"W. W.," asks where he can dispose of a quantity of flax fiber or tow. Doubtless in New York or Philadelphia. Write to any of the produce commission agents advertised in *American Agriculturist*.

Bee Notes for July.—By M. Quinby.

So few bees are left in the country this season, that every one having them should manage to secure every pound of honey possible. Be sure and know the first day a box is finished, and take it off at once. It is unnecessary to wait until every cell is finished, because the bees will continue to find room for just a cell more around the outside, and keep adding. Economy, as well as the beauty of the honey, would dictate taking it off as soon as it can be called full.

This is the month to examine for foul brood, or three weeks from swarming. The matter has been fully described heretofore in the *Agriculturist*. So much has been done towards getting rid of it, that we hope yet to completely eradicate it. Those troubled with it, or those in sections where it is, should be energetic, and neglect no case at the right time. Catch the moth, as before recommended, in dishes of sweetened water set among the hives at night.

Queens are raised easier this month than earlier. In rearing them artificially, we wish to get as nearly as possible what we would have when reared in the natural course of swarming, or what we would ordinarily get when a colony loses the mother queen. The eggs in the abdomen of a healthy queen are probably all alike, yet the eggs deposited in worker cells make workers, in drone cells make drones. Sex is probably decided in the act of laying. The eggs that are laid in worker cells may produce queens; those laid in drone cells never do. When the egg has hatched, and the larva has been fed beyond a certain time as a worker, it can not be changed to a queen. Bees, when deprived of their queen, seem to think that the first thing necessary towards replacing her is the queen-cell, and they commence several. When they have grubs of the proper age, the queen-cells will be commenced over those first, or over those just a little too far advanced to be changed perfectly, if they happen to be suitably located in the hive. If these are not to be had, they commence over drone-cells, or cells of bread, or even empty cells. If a full colony is left destitute, several queens will be started at the right age—per-

haps a few may be too far advanced, others may be started several days later.

The Alderney Breed of Cattle

BY AN AMATEUR BREEDER.

The Channel Island breed of cattle, popularly known in this country as "Alderneys," consists of two classes of the same breed. The Guernsey is the larger of the two, usually of a light fawn color, patched with white. The Jersey class is smaller; and the color to which more attention has been paid is a dark, or, as the Scottish say, "dun" deer, and is popular in England, no doubt in consequence of its more aristocratic appearance. The Alderney is essentially a cream-and-butter-producing breed, giving more milk, and of richer quality in proportion to its size, than any other cow; the best have been known to give from 10 lbs. to 14 lbs. per week. This merit gives them their place in live-stock, either for dairies near fashionable towns like Brighton, or as cows for the park and the villa paddock, combining in the highest degree utility and ornament. The dairies of great cities are chiefly supplied by cows of the Dutch or the Shorthorn cross, which give large quantities of comparatively poor milk, and when dry fatten easily for the butcher. This is not the place of the Alderney, which, in England at any rate, is essentially the gentleman's cow.

Writers on the subject, copying one another, assume that, because the Channel Islands were once a dependency of Normandy, the Alderneys are an offshoot of the Normandy breed; but few breeds could have less resemblance. It has also been suggested that they are an offshoot of another good dairy tribe, the Ayrshires; but Ayrshires are much more like a small Shorthorn cultivated for milking purposes. At the great International Exhibition of live-stock in Paris in 1855, where nearly all the ox tribe of Europe were represented, the late Fisher Hobbs, of Boxted Lodge, Essex, a very good judge, came to the conclusion that the true ancestors of the Ayrshires were Danish, and that the Alderneys were more probably descended from some Swiss mountain breeds, of which many specimens were there exhibited—dark and light fawn in color, and fine in head and horns.

At the present time there is no doubt that in England, where the principles of selection have so long been successfully applied to horned stock and sheep, finer specimens of the Alderney have been produced than in their native islands.

For many years the farmers of the Channel Islands, while sternly prohibiting any importation of bulls, have made the rearing of heifers for the English market a profitable part of their business; but it is only within a comparatively recent period that they have learned from English breeders the advantages to be derived from a careful selection in obtaining symmetry as well as milk.

Amongst English breeders who have shown what could be done towards obtaining the best points of a milking cow by applying Bakewellian principles of selection, Mr. Philip Dauncey, of Horwood, near Winslow, Bucks, occupies, or rather occupied, the most distinguished position. For nearly half a century he devoted his attention to obtaining great milking qualities, symmetry, constitution, and a uniform fawn color without white. His success placed him at least half a century in advance of the Channel Islanders. When in 1867 Mr. Dauncey retired from stock-farming, in consequence of his advanced age, his sixty-nine cows and heifers produced £3,285. Mr. Marjoribanks gave over one hundred pounds for his cow "Landscape," and Mr. Walter Gibbey just under that sum for the heifer "Ban."

Mr. Dauncey produced a breed much more hardy than the original Channel Islanders; his stock lying out on the pastures throughout the year. The imported Alderneys are delicate, and on first introduction require slight shelter in the cold weather, but they soon afterwards become acclimatized.

A decided improvement has taken place in Alderneys since 1833. The Jersey Agricultural Society was founded in that year, under the presidency of General Thornton, the Lieutenant-Governor. The council of the Society drew up a scale of points from the examination of the best specimens of the animals then in the island, thirty of which were assumed to constitute perfection. Some years later, this table was revised and settled as follows:

SCALE OF POINTS FOR BULLS.

Article	Points.
1. Head, fine and tapering.....	1
2. Forehead, broad.....	1
3. Cheek, small.....	1
4. Throat, clean.....	1
5. Muzzle, fine, and encircled by a light color.....	1
6. Nostrils, high and open.....	1
7. Horns, smooth, crumpled, not too thick at the base, and tapering, tipped with black.....	1

8. Ears, small and thin.....	1
9. Ears, of a deep orange color within.....	1
10. Eyes, full and lively.....	1
11. Neck, arched, powerful, but not too coarse and heavy.....	1
12. Chest, broad and deep.....	1
13. Barrel, hooped, broad, and deep.....	1
14. Well-ribbed home, having but little space between the last rib and the hip.....	1
15. Back, straight from the withers to the top of the hip.....	1
16. Back, straight from the top of the hip to the setting on of the tail, and the tail at right angles with the back.....	1
17. Tail, fine.....	1
18. Tail, hanging down to the hocks.....	1
19. Hide, mellow and movable, but not too loose.....	1
20. Hide, covered with fine soft hair.....	1
21. Hide, of good color.....	1
22. Fore-legs, short and straight.....	1
23. Fore-arm, large and powerful, swelling, and full above the knee, and fine below it.....	1
24. Hind-quarters, from the hock to the point of the rump, long and well filled up.....	1
25. Hind-legs, short and straight (below the hocks), and bones rather fine.....	1
26. Hind-legs, squarely placed, and not too near together when viewed from behind.....	1
27. Hind-legs, not to cross in walking.....	1
28. Hoofs, small.....	1
29. Growth.....	1
30. General appearance.....	1
31. Condition.....	1

Perfection..... 31

No prize shall be awarded to bulls having less than 25 points.

Bulls having obtained 23 points shall be allowed to be branded, but can not take a prize.

SCALE OF POINTS FOR COWS AND HEIFERS.

Article	Points.
1. Head, small, fine, and tapering.....	1
2. Cheek, small.....	1
3. Throat, clean.....	1
4. Muzzle, fine, and encircled by a light color.....	1
5. Nostrils, high and open.....	1
6. Horns, smooth, crumpled, not too thick at the base, and tapering.....	1
7. Ears, small and thin.....	1
8. Ears, of a deep orange color within.....	1
9. Eye, full and placid.....	1
10. Neck, straight, fine, and placed lightly on the shoulders.....	1
11. Chest, broad and deep.....	1
12. Barrel, hooped, broad, and deep.....	1
13. Well-ribbed home, having but little space between the last rib and the hip.....	1
14. Back, straight from the withers to the top of the hip.....	1
15. Back, straight from the top of the hip to the setting on of the tail, and the tail at right angles with the back.....	1
16. Tail, fine.....	1
17. Tail, hanging down to the hocks.....	1
18. Hide, thin and movable, but not too loose.....	1
19. Hide, covered with fine soft hair.....	1
20. Hide, of good color.....	1
21. Fore-legs, short, straight, and fine.....	1
22. Fore-arm, swelling, and full above the knee.....	1
23. Hind-quarters, from the hock to the point of the rump, long, and well filled up.....	1
24. Hind-legs, short and straight (below the hocks), and bones rather fine.....	1
25. Hind-legs, squarely placed, not too close together when viewed from behind.....	1
26. Hind-legs, not to cross in walking.....	1
27. Hoofs, small.....	1
28. Udder, full in form—i. e., well in line with the belly.....	1
29. Udder, well up behind.....	1
30. Teats, large and squarely placed, behind wide apart.....	1
31. Milk-veins, very prominent.....	1
32. Growth.....	1
33. General appearance.....	1
34. Condition.....	1

Perfection..... 34

No prize shall be awarded to cows having less than 29 points.

No prize shall be awarded to heifers having less than 26 points.

Cows having obtained 27 points, and heifers 24 points, shall be allowed to be branded, but can not take a prize.

Three points—viz., Nos. 28, 29, and 31—shall be deducted from the number required for perfection in heifers, as their udder and milk-veins can not be fully developed; a heifer will therefore be considered perfect at 30 points.

In 1866 the Jersey Herd-Book was started, and in 1868 the Committee of the Royal Agricultural Society of Jersey called attention in a report to the advantageous results of

careful breeding as practiced by Mr. Dauncey and others in this country. In a subsequent report in December, 1871, the committee acknowledged a yearly grant from the State of Jersey of £50, to be applied solely in premiums for bulls, to check the exportation of good animals from the island.

In England, whole-colored Alderneys, whether dark or light fawn, are decidedly the most esteemed. We believe justly so, and in corroboration of this view we quote from an article by Gisborne in the Quarterly Review of 1849 and 1850:

With few exceptions, quadrupeds in a state of nature are self-colored; and we are not aware of any wild animal whose colors are patchy or glaring. The British wild cattle are of a dingy white, with tawny ears. The cattle of mountainous countries, which have been very inaccessible to agriculture, are always of self-colors, black, red, or dun. The queer little cow, which within the memory of man had a pure existence in Normandy and the Channel Islands, and which, being celebrated for the richness of its milk, came to our markets under the name of an Alderney, was fawn-color with tawny ears.

Amongst the herds maintained purely for profit, Mr. Dumbrill's, of Ditchling, near Brighton, is one of the most remarkable. Mr. Dumbrill, who has always adhered to the Jersey breed, keeps one hundred cows, divided into herds of twenty-five each, for the purpose of supplying his wealthy neighbors with butter and cream. In the Brighton market, during the two seasons, there is a demand for the very best of everything in the way of eating without regard to price. In April, 1862, Mr. Dumbrill read before the Farmers' London Club a paper on "Dairy Management," containing practical information of great value to the owners of either trade or fancy dairies.

Another breeder of Alderneys, who bears a name almost classical in the history of agriculture, is Mr. C. H. Bakewell, of Quorndon, near Derby, who has a small but select herd, and which is managed in a profitable manner. His average annual return has been from 220 lbs. to 240 lbs. of butter per cow.

This country is well off for breeds of meat-producing beasts, as clearly shown by your articles on Shorthorns, Herefords, Devons, Longhorns, and others. To breed Alderneys with success, in my opinion, no attempt should be made to combine meat-producing with milk-producing qualities. The Alderney breeder, therefore, must be satisfied with an animal almost equal in elegance to a deer, rich in cream, and bountiful in butter of the finest quality. All, however, do not think alike, and an attempt is now being made in a fine herd near London to attain this object. No doubt one great drawback to the Alderney as a gentleman's cow is that, when barren, it is often impossible to fatten her, causing thereby considerable loss. But from this herd last year a cow which had been milked for two years, was, after three months' feeding, sold in Watford Market by auction for £26 10s. to the butcher; and it remains to be proved whether or not this is an exceptional case.

Heifers kept until three years old before breeding will be larger in frame, but the gain in size is obtained at a sacrifice of dairy qualities, and with increased difficulty in getting them to breed. Alderney heifers should be so managed as to calve at not later than two years and a half old.

Most of the agricultural societies are now offering prizes for Channel Island cattle. The Royal Agricultural Society has recently made classes for both the Jersey and the Guernsey, on the principle that Judges who prefer the one, may not do justice to the other. This arrangement will, it is to be feared, make the entries in each class very small, particularly so in the Guernsey class, as in this country Guernseys are not numerous. The Bath and West of England Society has of late years secured very good entries for its Alderney classes; and amongst local shows, Essex has been successful in cultivating this truly elegant breed, stimulated perhaps by one or two local breeders, of whom the most successful exhibitor for the past few years, and particularly last year, was Mr. Walter Gibbey, whose bull "Banboy" took first honors at the Royal Agricultural Show, Bath and West of England Show, and the Essex Show at Romford, where also his cows "Duchess" and "Milkmaid" were equally successful.—*London Field.*

The Meadow-Lark or Meadow-Starling.

Upon the first page will be found an engraving from an excellent study by Mr. Herriek, showing Meadow-Larks of both sexes in various positions. This is one of the best known of all birds, as it is found from one end of the country to the other. While it is generally known in the Northern States as the Meadow-Lark, it is farther South called the Old-field Lark. It was

until recently supposed that this species extended wholly across the continent, but naturalists make the bird that extends from the great central plains to the Pacific, and from Texas to Washington Territory, a different species—the Western Lark. Our Eastern bird is *Sturnella magna*, while the Western one is called *Sturnella neglecta*, but when ornithologists come to describe the characters which distinguish the two, they are forced to admit that the differences are very slight. Prof. Baird, our highest authority, says: "To sum up the preceding remarks, it may be stated that the real difference between the species lies in the greater tendency to narrow transverse bands upon the upper surfaces, especially of the middle tail-feathers." He adds that all observers have attested to a remarkable difference between the notes of the bird found in the West and that of the East.

The Meadow-Lark is a very familiar bird, and does not seem to mind the "inroads of civilization;" indeed, it is not rare to meet with them within the limits of New York City. Notwithstanding the numbers of young vagrants that go about the vacant lots shooting everything that has life, the note of the Meadow-Lark is occasionally to be heard. What a sweet note it is, and what a pity that its song is so soon—almost abruptly, ended! It is hardly necessary to describe so familiar a bird; its yellow breast, marked by a broad black crescent, is familiar to all who roam the fields. When startled, it flutters like a young bird, and seems a long while in making up its mind whether to flee or not. The bird builds its nest in a cavity scooped out at the base of a tuft of grass, and lays four or five eggs at a time; these are white, blotched and dotted with reddish brown. The opening to the nest is only large enough to admit one bird at a time. The male and female both take their turn at sitting.

The birds gather in flocks in fall for their migration southward, and return singly or in small flocks in the spring.

The flesh of the young bird when fat is highly esteemed, but the old birds are said to be tough and of a disagreeable flavor. In the fall they are generally to be found in the city markets.

Ogden Farm Papers.—No. 30.

"It droppeth like the gentle rain from heaven upon the place beneath." How gentle it was! How softly it dropped, and how all nature thanked heaven for its merciful quality! How the place beneath drew the soothing balm into its thirsty pores! Shakespeare must have gone through a long, unseasonable drouth like ours, to have learned that simile for the unstrained "quality of mercy," and every farmer in our wind-burned districts must have felt its fitness, as the long-delayed and thrice-welcome rains of May came at last, to make him forget how dry and sad the world had been. It is no small part of the compensations of a farmer's life, to be able to enjoy to the full the blessed, fructifying showers of spring, with which nature heals the winter's scars and clothes field and forest with the promising green of early growth, and humbly to pay the tribute of his warmest gratitude for the "early rain" which melts our mother earth into life, and gives its value to all our work, its fulfillment to all our hope.

After four years of contention with the curse with which the earth-skinning of my predecessors had blighted every inch of our little farm—robbing it of its plant-food, puddling its clay to a water-holding firmness, and leaving its surface

to weeds and moss—I had at last, by dint of draining, and manuring, and plowing, and cultivation, got one of its nine-and-a-half-acre sections well laid down to grass. I had done my part, and nature must do the rest. There is a point where the most assiduous farmer must patiently sit down and wait for the hidden hands of warmth and air and moisture, to take up his work and carry it on to completion. I had reached that point, and could only wait and hope. Through long weeks I waited for the hand that never came, and hoped for the completion that seemed, every day, farther and farther away. March was colder and more savage than winter itself, and the late dry warmth and high winds of April seemed to sap the very fountains of growth. The first half of May had only rain enough to feed the drying winds, and even the grass of old meadows shivered and thirsted and stood still. But at last it came, the gentle rain from heaven, and hope grew high and completion marched on apace, until now the early days of June see my new meadow glorying in the fulfillment of the promise that never fails. The old curse is removed, and we rejoice in a fertility that I trust bad farming shall never again destroy.

Those who think we have a rosy time with the so-called high prices we receive for thorough-bred stock, do not, perhaps, understand that the picture has another side. High prices come after an effort which it costs some risk to make. A neighbor who saw me shipping a young Essex sow, bearing her first litter, rolled up his eyes when I told him she was sold for \$75, blandly remarking that he would sell me a bigger sow than that, and a first-rate one, too, for \$15. He was still more astonished a few weeks later, when I showed him a boar that I had just bought at auction for \$140, and on which expenses and commissions amounted to about \$20 more. "Well!" said he, "that beats me, and I don't see how you are going to get out of it." "Why," said he, "that hog is worth just about \$30." In one sense that was his value, but in another it would be difficult to fix his real worth. He is a very good pig, indeed, good enough to satisfy any breeder. Of this I felt confident before I bought him, but the reason why I bought him—and I gave my agent an order to buy at a much higher price, if necessary—was because he had the reputation of being the best Essex boar in the country. I might perhaps have got as good an animal for much less money, but I could not afford to let Lord Lyons II, *with his reputation*, go to another breeder. If there were not this necessity for keeping up the good name and fame of a herd, the breeding of thorough-bred stock would indeed be an enviable business; but no matter how much bad luck we have in the way of death, abortion, unsatisfactory progeny, and all the other ills a breeder knows, which affect the income most seriously, the *outgo* is sure and unfailling.

I am often asked by enterprising farmers whether I would advise them to pay a very high price for some thorough-bred animal. Advice in such cases must depend on the circumstances of the inquirer. If he can afford the investment, and if his object is to establish the foundation of a fine herd, I do not hesitate to advise him to pay whatever he must for the best animals (and those in the best repute) that he can find. The foundation may be very costly, when viewed by itself, but measured by the scale of its results, the case is bravely altered. One hundred dollars is a deal of money for a small farmer to pay for a Jersey bull-calf, but that calf will prob-

ably become the progenitor of twenty or more good dairy cows, and there can be no question that they will be worth, on the average, a good deal more than \$5 a head more than they would if sired by a scrub or grade bull. Two yearling heifers (not akin) of really first-class Jersey stock, both with calf to different bulls, may cost, if very choice, \$500. Supposing them each to have a bull-calf, or that their heifer-calves be exchanged for bulls (not akin) we have the foundation for a herd that may within a few years number fifty animals, all thorough-bred, and of distinct strains of blood. These animals will be worth, on an average, nearer \$50 than \$10 each, more than the same number of common stock.

A retired merchant, who pays \$500 for a cow for his lawn, and for the sake of Jersey cream for his coffee, commits a great extravagance, but a farmer buying the same animal to improve his stock for practical dairy purposes, makes a wise and prudent investment.

My own experience tends to show that the great sale of thorough-breds and high prices is to practical farmers, and not to "wealthy" men. The latter class are fast learning that good grades or thorough-breds without pedigrees are as good for their purposes, and the farmers are learning equally fast, that while they can not disregard quality in making their purchases, pedigree is the *sine qua non* of successful breeding.

Occasional letters received, asking for information about Jerusalem artichoke, remind me that I owe some amends to readers of the *Agriculturist* who have taken my advice to adopt this as a root crop. It is all very well so long as you want artichokes; they grow easily and anywhere, and produce enormously of nutritious roots, but if left in the same ground, they finally crowd it so closely as to make very small tubers, and then it becomes desirable to rotate them out of office. In this part of the programme I have signally failed, and any one who will show me how it is to be done, shall have my hearty thanks. I believe that they might be in time fed out by hogs, but as my patch is in the center of a farm without interior fences, this is impracticable, and I have tried plowing, mowing, freezing, pulling, digging, and hand-picking to no purpose. I have now over about a quarter-acre not less than ten robust plants to the square foot—the very worst weed I ever had to contend with. All that I have heretofore said in favor of this plant is strictly true. I did not know until now how true is the other side of the story, and I would advise no one to try it, except in a patch where hogs can be confined if necessary.

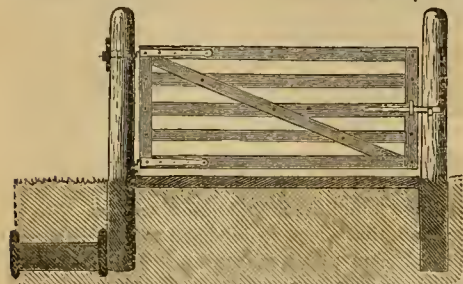
It is not pleasant to enter the lists of so free a fight as that now raging between the deep-plowers and the shallow plowers. Indeed, I think that each is right according to his success or failure under certain circumstances. But it is undoubtedly safest to advise all enterprising young farmers to leave well-enough alone, until they have found, by actual experience on their own land, that deeper plowing will not be injurious. One plowing, ten inches deep, has cost me already four years' use of eight acres of land, which, had I left its vegetable soil at the top and its "pizen" clay at the bottom, would have given me a fair return for the seed and manure and labor I have thus far squandered upon it. Four summers' heats and four winters' frosts, with manure enough to have made the adjoining land highly fertile, have hardly had an appreciable effect in overcoming the detestable impoverishment of the very unfertile sub-

soil we brought to the surface. I am now struggling to get it down to grass and clover, with some prospect of a fair catch. If we could once get it in good clover, the battle would be won, but how or when that can be done yet remains to be seen. As the case now stands, I might better have given \$100 per acre, and kept the plowing within six inches of the surface.

This means, understand me, that deep plowing on *that soil* is a failure. It does not mean that on your soil and your neighbor's it would not be a most brilliant success. Horace Greeley and Paschall Morris believe in it thoroughly, and they are right. The farmers in Salem Co., N. J., disbelieve in it most thoroughly, and they are right too. Circumstances alter cases, and we have here only a striking illustration of the fact that in farming, more than in almost everything else, there are few rules of universal application. It is this fact that has brought so much popular discredit on what is known as book-farming, and it shows that the discredit has not been altogether unmerited; but the trouble is, not that the art of agriculture may not be reduced to writing, but that the efforts thus far made in that direction have been incomplete. Soil, climate, seasons, and all their endless changes, have so much to do with success and failure in every case, that he is a bold man who, knowing the extent of their influence, would attempt to lay down rules for anything like general application. Yet, with all the discredit that has come upon it, merited or not, nothing has gained so sure a foothold, has wrought within a short time such marked results, and promises for the near future to meet with such general acceptance, as book-farming. Little by little we are learning vital truths, and we are learning to apply them in practice. Whenever we strike the right track there are thousands to follow us who will never turn back. If we hit upon a wrong road, there are thousands to hoot at us and to warn us away. The hooting is not amiable, nor pleasant to hear. It is neither kindly meant nor judiciously administered. It comes from the meanest and most churlish of our guild, but in spite of that it does good, and we end, unless we are foolish enough to be discouraged, by establishing some new truth or demonstrating some old one, or setting some good example that shall win to its way all those better men of our profession whom the worse ones inevitably follow.

A Farm Gate.

"F. R. S." sends a drawing of a farm gate, which he says can not sag. It is suitable for a field or barn-yard gate. As will be seen by the

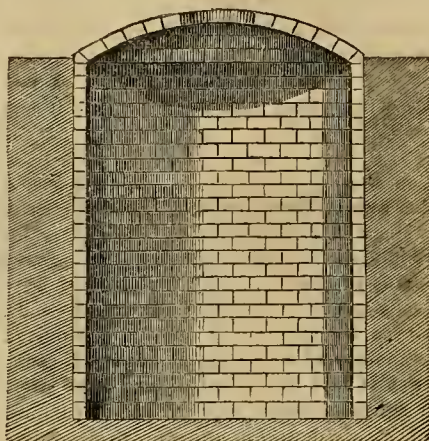


A NON-SAGGING FARM GATE.

engraving, the back of the foot of the gate-post is braced by means of a block of wood wedged up tightly against the earth, and a sill being placed just beneath the level of the ground between the posts, and also wedged tightly, there can be no sagging. This, though by no means new, is a very simple and cheap gate.

A Cistern for Liquid Manure.

The preservation of the liquid refuse of stables and cow-sheds is of more importance than is generally supposed. In the vast majority of



CISTERN FOR LIQUID MANURE.

cases this is allowed to run to waste, when, if means of saving it were applied, a large amount of very valuable fertilizing matter, in a convenient shape, could be procured at a trifling expense. This material, when fermented, contains a large proportion of ammonia, so much so, that it is necessary to largely dilute it with water, or to mix dilute sulphuric acid with it to prevent its evaporation. A simple system of drains, with a receiving tank, is all that is necessary to preserve it, and if the drains are extended to the neighborhood of the kitchen, the liquid refuse of the house might profitably be saved as well. The construction of the tank, or cistern, is the principal item of expense and consideration. In reply to a subscriber, who requested a plan of such a cistern, we give the one here represented, as being cheap, substantial, and of a permanent character. It is built of brick (the wall is half a brick thick), laid in cement, with the bottom cemented. A cistern 12 feet deep and 10 feet in diameter, holding 6,500 gallons, may be built at an expense of \$50.

Will Draining injure Lowland Timber and Grass?

A singular lawsuit is now pending in Northern New York. By authority of an Act of Legislature, a commission has removed an obstruction in a river for the purpose of preventing the overflow of a large tract of swamp lands, and facilitating their drainage. The law provides that the cost of the work shall be assessed on the lands in proportion to the benefit received. Singularly (or naturally, according as the owners of these lands are honest or dishonest) those whose swamps are reclaimed, set up the plea that the drainage is a positive injury to the wood and grass grown on them. In the trial of the case the evidence has very clearly shown that, as was to be inferred, the benefit of such withdrawal of surplus moisture is marked and decided. Swamp-maple, Black-ash, Elm, Tamarack, etc., are all demonstrated to have been materially improved by drainage. There

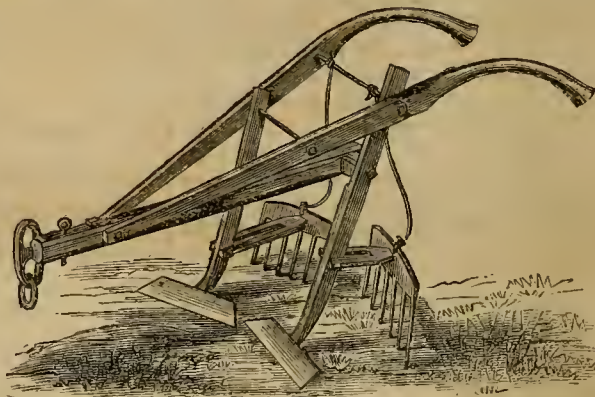
was produced in court a cross-section of a Black-ash tree, having 42 yearly rings. The first 14 of these—produced before the drainage of the ground on which it grew—measured only an inch and a half in diameter, while the remaining 28 rings—produced since the drainage—added nine inches to the diameter of the tree. The change from the stunted to the vigorous growth was immediate, the very first ring after the improvement measuring *threetimes* as much as the last of those before it; and this proportion was maintained during the whole 28 years.

The evidence was equally conclusive in the case of all the trees under consideration; they were all immensely improved by being allowed to grow under the more favorable conditions consequent on draining. The fact is that these trees do not grow on wet lands because they prefer excessive moisture, only because, having more power to withstand it, they are not crowded out by other varieties as they are in dry land.

Another point set up was that over-wet lands produce better grass than drained lands. This is too absurd to merit discussion, and we can not doubt that the decision of the court will be such as to indicate the usefulness of what the best farmers regard as the most important improvement in farming—that is, draining.

A Rake-Cultivator.

"L. McC." writes us about corn cultivation. He has had a long experience as a farmer, which has shown him that corn needs only shallow cultivation. The destruction of weeds and the mellowing of the soil are all that is needed; any deeper stirring interferes with and injures the roots. He has abandoned the double shovel-plow or cultivator, and has changed it into the implement here figured, which he calls a rake-cultivator. After removing the shovels, he fixes in their place two blades of saw-plate fourteen inches long. These are attached to heavy tire-iron shanks, which are bolted to the standards. The rake-heads are made of 2 x 4 in. oak, with teeth of one-inch iron, sharpened at the point, and are hinged to the standards by bolts passing through and fastened with a nut. Cords are fastened to the rakes, by which they may be raised from the ground if any obstacle is in their way. The implement cuts off all grass or other weeds at two inches below the surface, and the rakes pulverize the soil and render it fine and mellow. When corn is planted in check-rows, and such an implement as this is used to cultivate it, weeds have no chance,



A RAKE-CULTIVATOR.

and the knives may be made by going twice in a row to cut them out close to the corn, and render hand-hoeing unnecessary. For root crops it would be found equally serviceable.

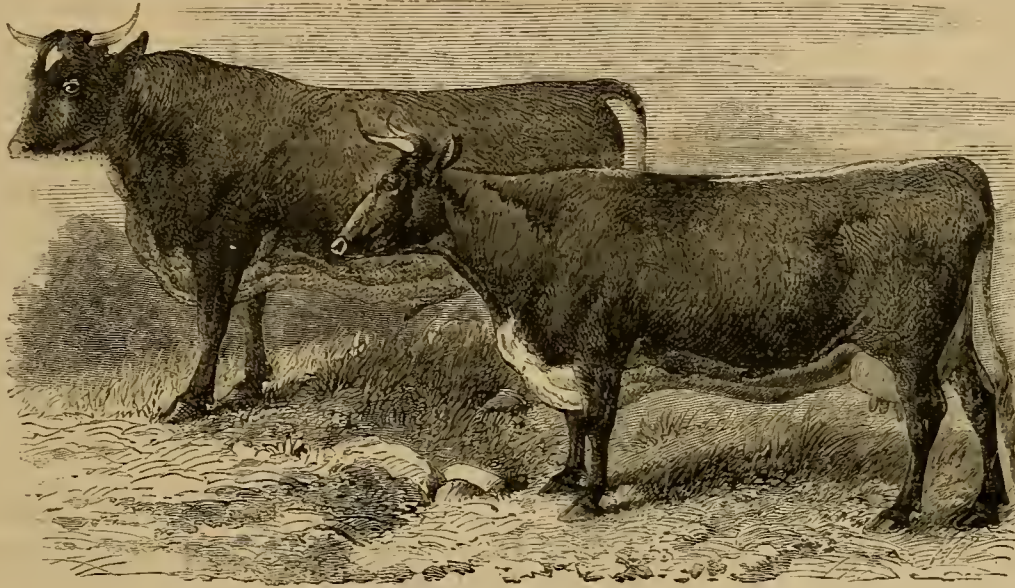
Glamorgan Cattle.

The once prominent and favorite Glamorgan race of cattle is fast disappearing; in fact, it may be considered as already extinct, for it is said that to procure a pure-bred bull would now be an impossibility. Its day drew to a close as that of the Shorthorn dawned. Its character and history, however, are both interesting. The well-known dairy trademark "Welsh tubs" had its origin in connection with these cattle, and was brought hither by the Welsh farmers who were driven from their occupations in their native country by the advance of iron and coal mining and smelting of iron and copper ores, at and around the well-known towns of Swansea and Merthyr-Tydvil, and who consequently emigrated to the United States. The

Glamorgan cattle were noted for the excellence and quantity of the cream they furnished, and "Welsh tubs" were highly thought of in the English markets. These cattle were one of the very ancient races whose origin was matter of tradition only; and were, when in their prime, jealously guarded by the Welshmen from admixture with other breeds. In size, they were classed amongst the large breeds. Their color was a rich brownish red, with a peculiar white stripe along the back and on the belly. Amongst the bulls, black very often replaced the brown color. The skin was a rich orange-yellow, the horns small, fine, a little curved towards the points, heads fine, neck tapering, and the carcass fattened on grass yielded from 800 to 1,200 pounds of choice beef. Probably this race reached its prime sixty years ago, and necessarily receded as agriculture began to advance from that period, and stall and grain feeding took the place of grazing. It was found then more profitable to feed Shorthorn steers, which would on the same food produce one half more beef. The finishing stroke

came when the previously flourishing meadows were torn up by mines and roads and covered with great heaps of refuse from furnaces, and the few remaining dairies became completely broken up. As a race which has passed its point of usefulness it has almost disappeared, and will soon be forgotten, and exist only in the records

of the past. However, it is quite probable that to the influence of this race the present excellence of the cheese dairies of Gloucester, an adjoining county in England, is due, for the Gloucester cows show a striking relationship to the ancient Glamorgans, but they too are also passing away, but one herd of pure stock now being in existence. Thus, in agriculture as in other



GLAMORGAN CATTLE.

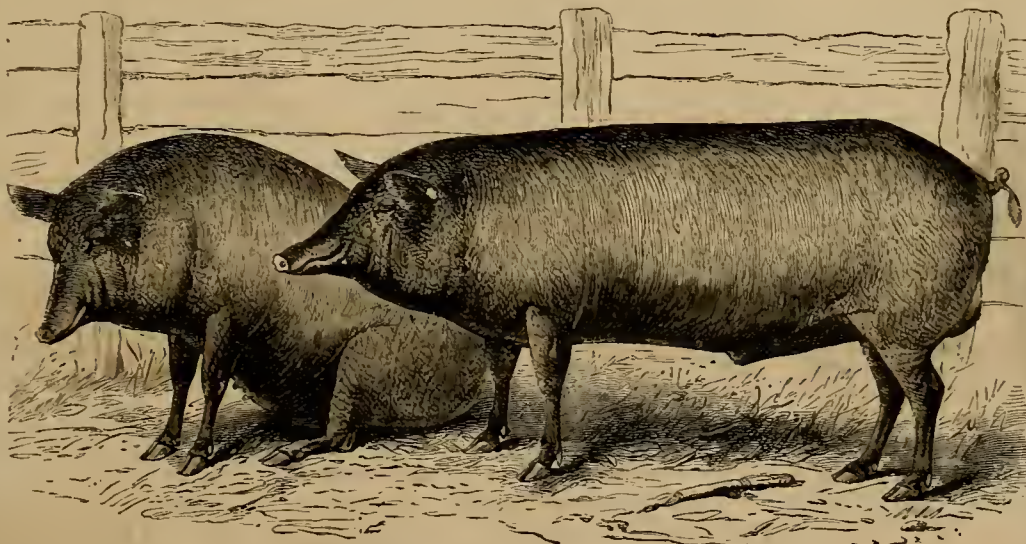
matters, improvement makes short work with anything that stands in the way, and when once it has reached that point that it no longer "pays," place must be given to something new.

The engraving is redrawn from one of a series of admirable cattle portraits by Mr. Harrison Wier recently published by the "London Field."

The Neapolitan Pig of Sorrento.

BY A. B. ALLEN.

The Peninsula of Sorrento, forming the southern boundary of the Bay of Naples, in



NEAPOLITAN BOAR AND SOW.

Italy, is one of the loveliest and most favored spots on earth. It abounds with delicious tropical fruits, and grain and vegetables of a superior kind. But among its rare and varied products, perhaps nothing excels in its way their justly celebrated breed of pigs. These animals pass under the general name of Nea-

politan throughout Italy, and are said to have been perfected in the same way as the equally celebrated Berkshires were in England—that is, by a cross of the black or rather dark-colored Siamese or Tongway boar on the large, coarse females of the country. But the Berkshires, varying from the former in possessing a much greater proportion of lean meat to fat, give in their

produce the finely marbled, lean, tender, juicy hams and bacon so much sought after; while the Neapolitan pig abounds in pork of the delicacy and flavor of a well-fed six-months-old chicken.

The Neapolitan pig attains about the same weight full-grown as the Berkshire; but is generally longer in the barrel, thinner in the hams, shoulders, and face, with a more peaked nose, and ears turning forward rather than pricked up—thus giving him a more rangy style than any

other of the improved breeds. His bones and limbs are very fine, and smoothly rounded off with an uncommon fullness and delicacy of flesh. His color is a pure dark slate, and he is almost entirely destitute of hair. These are the general characteristics of the present fashionable style of breeding. Some of the pigs, however, differ a little from this description, in having a shorter nose and fuller face, and they are occasionally seen with pricked-up ears, like their male ancestor the Siamese.

Traveling north of Naples, the pigs become coarser, and show more hair. Some are of a nearly black color instead of slate; others have

large dark-colored spots on them, alternated with a dirty white or light ash color; others, again, have the front of the body of the latter color, and the hind part dark, or *vice versa*; or the whole may be slate, with the exception of a white sheet or belt round the body. Such pigs are also found on the Swiss Alps and other parts of Europe, but they do not rank as the pure improved Neapolitan of the Sorrento type. The Neapolitan pig is very docile, easily kept, fattens at any

age, and matures early. Being almost entirely destitute of hair, they suit a warm climate better than a cold one; still, when tolerably sheltered, they winter as well in our latitude as any other of the improved breeds. They make an excellent cross on common swine, especially if these are somewhat coarse and slow to mature.

These pigs are very docile, and much petted by the Italian peasantry. They even train them occasionally to guard and drive their sheep, and in this way they supply the place of shepherd-dogs. The people think so much of them as to have conferred upon them the title of *Cittadini di Sorrenti*—that is, citizens of Sorrento! Whether with this title they also add the privilege of the ballot, and admit them as representatives in their municipal councils, we are not informed; but this much we might infer, judging from their sleek, round forms and polished limbs, that they at least enjoy a due "share of the spoils" of this highly favored and fertile region. Perhaps if introduced among us, and made citizens of New York, they might prove as creditable to it as some others who of late years have favored us with their ballots and counsels. We think at least that they would keep us clear of the garbage which is now allowed to fester in our streets, polluting the atmosphere, and threatening us with the cholera, typhoid fever, and other deadly plagues.

[The engraving is from life of a pair of Neapolitans imported by Mr. Allen.—Ed.]

Walks and Talks on the Farm.—No. 103.

"It seems impossible. It is so contrary to nature."

So said a friend when I told him that a ewe would sometimes kill a new-born lamb by pawing it in order to make it get up.

It is hard to tell, I replied, what is and what is not contrary to nature. Did you ever think if anything could tax infinite power and wisdom what it would most likely be? It seems to me that it would not be creating the world, but rather in providing occupation for its millions of inhabitants, generation after generation. Men are always trying to get along with as little labor as possible. They have sought out many inventions. And yet the more discoveries they make, the more "labor-saving" implements are employed, the more work there is to do. This is the grand central law of the world, as pervading and fundamental as that of gravitation. The world was made for man, and what we call the laws of nature all tend to give him employment. It is most wonderful how, in the minutest things, these laws are contrived to encourage and stimulate us to work and study, or to punish us if we are indolent and stupid. Weeds are a curse, but when an energetic farmer goes intelligently and perseveringly to work to clean his land by repeated plowings, harrowings, and the free use of the cultivator and hoe, the weeds are not only destroyed, but the soil is enriched at the same time. The curse is converted into a blessing. Burying decaying animal and vegetable substances in the soil prevents them from polluting the atmosphere with offensive and deleterious gases. But this is not all. We get rid of a nuisance and enrich the land at the same time. Yonder swamp is now undermining our health with its malarious exhalations. The doctors tell us we can not be healthy until we get rid of the water, and draining will not only remove the malaria, but give us in addition many acres of the richest land in town.

It is certainly a "law of nature" that if we want any good thing we must work for it. You think no one doubts this simple truth; but in point of fact there are thousands of people, and I am sorry to say not a few farmers, who act as though they did not believe it. They are constantly trying to raise good crops without

using the means. "Why don't you sow that field to wheat?" asked the Deacon. "It is no use sowing wheat on it until it is drained, and I can not drain it until I get an outlet through your farm." The reply was a characteristic one: "I have known it to produce a good crop of wheat."

And so, because once or twice during the last forty years some good wheat had been raised in spots on that field, there was no necessity for draining it! Not a word was said about the numerous failures. The prizes are remembered, the blanks forgotten, and the good Deacon would have me keep on buying tickets in this agricultural lottery, while ten dollars per acre of honest industry expended in draining would double the value of the land.

If we could get at the real truth, I am inclined to believe that the main reason why the Deacon and others object to underdraining is a sort of indistinct feeling that it is "contrary to nature." If he would look at it in the right light he would find that plowing is at least equally so.

The canker-worm is making frightful havoc in many apple orchards. It was thought by some that the intense cold of the past winter while the ground was free from snow, would kill the chrysalids; but such was not the case, or at any rate there was plenty of them left, and I am glad to say that the farmers in this neighborhood are fully aroused to the importance of taking means to check the spread of this terribly destructive insect. The plan which seems to be simplest is to scrape all the rough bark from the trunk of the tree, and then take strips of paper about six inches wide and paste them round the trunk about three feet from the ground, and then put tar (*not* gas-tar) on the paper. The females have no wings, or none that I can see, and as they crawl up the trunk in the evening after a warm day in winter or spring are caught by the belt of tar and die. I have seen hundreds caught in this way on one tree. This is the only time to fight them successfully, unless it is after they have attained their caterpillar growth and descend to the ground. Some of the caterpillars come down the trunk, and might be caught with tar or killed with carbolic soap; others let themselves down with a silken thread to the ground. Now, can not some plan be contrived for killing these caterpillars before they burrow into the soil? If my orchard was affected, I believe I should spread from one to two bushels of slaked lime on the ground under every tree, just before the caterpillars began to descend, which in this section is in July. If this did not kill them, it would at any rate be valuable as a manure. As I understand the matter, they all leave the trees pretty much at the same time, and it would be worth while to keep a roller with Thomas's harrow attached behind going up and down the orchard for a few days.

The drouth is getting to be quite alarming. The winter wheat does not look as promising now (May 15th) as it did a month ago. I have not seen a good whole field of wheat this spring. There are many fields that will not give back the seed. The immediate prospects of farmers at this moment are anything but bright, though I still think that we are pretty sure of good prices in the near future, and those farmers who have their land in good condition will get pay for their pluck. It has required more than ordinary faith in good farming to sustain any one in doing much in the way of

improvement for the past two or three years. I am inclined to think there never was a time when farmers were employing so little labor on their farms. In this section, men never were so scarce nor wages so high. I do not recommend any one to spend money in building or similar improvements, but I feel sure that those farmers who make special efforts to clean and enrich their land will get their reward.

In 1868 one of my neighbors had a heavy field of clover. He commenced plowing it under for wheat in June, but the ground was hard and the crop so large that he abandoned the job. The clover dried up on the land, and formed a kind of mulch that kept the ground moist, and the clover commenced to grow through it. Sometime in July the whole was turned under, and the field afterwards sown to wheat. It was a noble crop. After the wheat, the field was planted with corn, and it was the best piece of corn I saw that year. The next spring it was sown to barley, which was also heavy, and then, last fall, the field was again sown with wheat, and I have not seen a more promising crop this season.

We have just weighed (May 15th) a couple of our grade Cotswold-Merino lambs. One, born March 2d, weighed 51½ lbs., and the other, born March 4th, weighed 54 lbs. At the same time we weighed some of the thorough-bred Cotswold lambs. They were all born within a few days of the grades, say from the 1st to the 8th of March. The weights were respectively, 48½ lbs., 50 lbs., 48½ lbs., 47½ lbs., 46½ lbs., and 48½ lbs. each. These thorough-breds are the perfection of the article. I do not believe there are any purer or better bred Cotswolds. They are all from the Mapleshade flock, imported by Mr. Wing, and, as I understand the matter, they were selected from the best flocks in England, without regard to cost. I never saw handsomer lambs than those whose weights are given above. And yet the grades, tested by the scales, beat them as early lambs for the butcher. The advocates of cross-bred animals are welcome to these facts, though I fear they will make a bad use of them. What they really prove, and all they prove, is the great benefit to be obtained from using thorough-bred rams on cross-bred or common ewes. What many say is: "Cross-bred sheep are the best; I want none of your fancy thorough-breds." It is lucky that mules will not breed, or Spanish Jacks would be kept only by the few who know something of the principles of breeding.

One of my neighbors has just driven past with a load of wheat. He has a strong wagon with four-inch tires, and rigged for three horses abreast. I stopped him to pay my respects and thank him for a good example. I have for years advocated the use of three-horse teams for *all* agricultural operations—plowing, harrowing, cultivating, rolling, drawing in hay, and for marketing the crops. We must study to economize labor. This man had on 108 bushels of wheat, and he thought it would "overrun" enough to weigh 110 bushels. The road was good, and the horses certainly showed no fatigue. In fact, when he left me, they trotted along gayly, and the man looked quite jolly mounted up on this high load of wheat. He got \$2.30 per bushel for it, or say \$253 for the load.

I have contended ever since last harvest, in the columns of the *Agriculturist*, that wheat would bring a high price this summer. I based

my opinion principally on the fact that Mr. Lawes's experimental field showed that the wheat crop of England was decidedly below the average, and that consequently there would be an active demand for export. I know too, or think I know, that our surplus is rarely as large as is estimated. Our population is rapidly increasing. Taken as a whole, we are the most active and industrious people in the world. Just now, especially, there is a great demand for labor. We work hard, get high wages, and require and will have abundance of good food. A man earning his \$1.75 to \$2.00 a day on a railroad can afford to eat bread from the best white-wheat flour. Few of us realize how much wheat forty millions of people will eat in 365 days. Just after harvest every year, the millers, speculators, railroad bulls, and newspaper correspondents all unite to exaggerate the yield of the wheat crop. Wheat may not bring a price equal to the actual cost of production; but no matter, farmers are urged to sell—and *when wheat is low* we are all more inclined to sell than when it is bringing a high price. Last fall we sold freely, and large quantities were shipped abroad, and as soon as the surplus was got rid of, and the remaining wheat was in the hands of those able to hold up go prices to a point far higher than the price abroad would warrant. We sell our wheat to the English at less than the cost of production, and make our own consumers in the end pay the loss!

I am not prepared to suggest a remedy. I leave that to abler men. But one thing I feel certain of, farmers need not abandon their business on account of temporary low prices. There is a chance for us yet. Let us study to raise good crops, improve our stock, keep up the fertility of our farms, vote for honest men, and we need have no fear that the country is going to the dogs, or that agricultural products on the whole will not sell for what they are worth.

We want to raise *better* wheat, better beef, better pork, better mutton, better cheese, and better butter. The best is the cheapest, and I think consumers are beginning to find it out. I am told that the demand for the choicest white-wheat flour is by no means confined to the wealthy. One of our large Rochester nurserymen tells me that his men, almost without exception, prefer to buy the best flour they can get, even at the almost extravagant price asked for it. They find it "goes farther," and is really cheaper than common brands of flour that can be bought for two or three dollars a barrel less money. The millers tell me, further, that it is exceedingly difficult at all times to find really choice, pure white wheat.

I am well aware that it is a very discouraging thing to take pains to raise a good article, and then have to sell it at the ordinary price. This is the fate of all who are ahead of the times. I do not believe I could get a cent a pound more for choice Essex pork from a Rochester butcher than for common pork. It is not yet sufficiently known to bring what it is intrinsically worth. But we must bide our time. I sold half a dozen well-fatted grade Essex pigs to a Rochester butcher, who packed them down. A farmer up the valley bought 50 lbs. of the pork, and in a few weeks he came again and said he "wanted some more of that pork, as it was the firmest, sweetest, and best he ever ate." "And," said the butcher, as he told me the story, "when you have any more pigs to sell I would like to buy them."

We must continue to raise a good article, and

as soon as the consumers get acquainted with it the butchers will pay something near what it is worth. I notice that the last Irish Farmers' Gazette quotes "Limerick middles 66s. to 68s. per cwt., American middles 36s. to 40s. per cwt." In other words, Limerick bacon brings 14½ cents per pound, and American 8½ cents. In a previous number, among the "Imports into Dublin during the week," I find the following item: "2,970 tons Indian-corn." I suppose that corn is used, at any rate to a considerable extent, to feed Irish pigs. And so the reason why our pork is not as good as the Irish is not owing to the food. Confessedly, there is nothing better than Indian-corn for making choice pork. Why, then, should our pork sell for 8½ cents and the Irish for 14½ cents per pound? It seems to me that this question is of vital importance to Western farmers and pork-packers.

The London Mark Lane Express says that a Norfolk farmer "sold off his farm, this spring 1,497 half-bred hoggets for £5,700," say \$31,190.40, or \$20.83 per head. For so large a flock this is a very high average.

The English papers have a great deal to say just now about the "meat supply." They seem to be seriously alarmed, and are discussing plans for getting preserved beef from South America and mutton from Australia, just as some of our Eastern papers tried to frighten us farmers with statements in regard to how cheap beef could be brought from Texas. For my part, I never was a bit frightened about it. I would like to see every one provided with cheap meat. The interests of the country demand it; but I am sure that the only cheap meat to be had is *good meat*. This apparently cheap meat is the dearest meat in the market. If the English could get this cheap mutton from Australia they would not eat it. Within a year or two past, with good, choice beef in New York, Boston, Philadelphia, and other large cities higher in the retail markets than in London, thousands of sheep were slaughtered and boiled down for the hogs and for tallow. I wish this matter was understood. Many of our farmers are deterred from paying more attention to the improvement of their stock from an idea that we shall be flooded with cheap meat from the new States and Territories. Depend upon it, nothing of the kind will ever permanently occur. You can not get good beef, mutton, and pork *anywhere* without paying some attention to the introduction of improved breeds and giving them constant care. The only way to get cheap meat is to breed animals that mature early, and feed liberally and regularly.

When I say cheap meat, I do not mean meat that sells for less than we are now paying. I do not think good meat will ever sell for less money per pound than now. What I mean is, that we should aim to produce meat so intrinsically good, that even if it sell for more money per pound it will be far cheaper than the low-priced meats are now. I am sure that this can be done. I have paid considerable attention to this matter for some years, and had I time could give facts to sustain this assertion. Taking into consideration the large percentage of water, bone, tallow, skin, gristle, and other uneatable or indigestible parts of our average meat, it is not too much to say that it is not half as nutritious as a skillful breeder and feeder can make it. Those who wish for cheap meat should look for it in this direction, and not from the half-wild animals of South America or Texas. Leaving out inside fat, there is more digestible nutriment in a well-bred, well-fed nine-months-old Essex or Berk-

shire pig than in the biggest wild hog that ever was killed—or in half a dozen three-year-old landpikes sometimes seen in the Southern States, and not entirely extinct at the North and West.

"But why did the ewe kill her lamb?" Perhaps because it was weak, and she was a believer in Darwin's doctrine of the "survival of the fittest." Perhaps because it was high-bred and of great value, and "nature" wished us to know that if we want good things we must look after them. If a good long-wooled or South-Down sheep gets on to her back, she will, if undisturbed, lie there until she dies. I do not know that this is any less mysterious or unnatural than it is for her to accidentally paw her lamb to death. If we have good stock, we must give it daily, almost hourly, attention.

Why High-priced Eggs do not Hatch.

High-priced eggs do not always hatch, for we have tried them and know. We set two dozen under orthodox hens of amiable disposition, that knew how to stick to the nest, and did it for twenty-three consecutive days. It wa'n't the fault of the expressman, for they did not come by express. They were not old. We *knew* the yard where they were laid, and they were fresh eggs. There was a twelve-pound rooster with the hens that laid them. And the result of the hatching was one thorough-bred Buff Cochin chick. Now, there are twenty reasons why they did not hatch—beginning with this, that the hens were kept confined in too small yards. We do not know what physiological laws are violated that hens kept in close confinement do not breed well. Perhaps it is because they are fowls of the air, and need a good deal of that article and plenty of mother earth to make them thrifty. The fact is pretty well established in the experience of poultrymen. There is no trouble of this kind with hens running at large. They steal their nests in hay-mows, under the barn, under the shed, in the woods, in out-of-the-way places with no protection at all, and nearly every egg hatches until frost comes. But with the fancy breeds, as they are called, come small yards, that several varieties may be kept upon the same place, and here trouble begins. All sorts of causes are alleged for the failure of the eggs to hatch. The expressman is roundly abused. The breeder is dishonest. He may be only ignorant, and over-anxious to sell eggs at six dollars a dozen. If small yards are not a good reason for infertile eggs, we will bring forward the other nineteen. The moral is: It is safer to buy high-priced eggs after seeing the fowls. CONNECTICUT.

How to Raise Roots.

To raise roots the soil must be well prepared. By whatever means it may be done, it should be brought into a rich and mellow condition to a considerable depth. A rich mellow surface is not alone sufficient for beets or mangels or other long-rooted varieties; they need to find not only sustenance, but an easy entrance into the soil for their penetrating roots; and for our climate probably beets and mangels are the best adapted and most easily cultivated. The chief requirement of a root crop being clean, mellow soil, a preparation during the previous summer and autumn is best. A stubble plowed early and well harrowed will soon show a large crop of weeds, which when all have started to grow

should be deeply turned down, the surface finely harrowed, and left to produce another crop, which the frost will destroy in its infancy. The

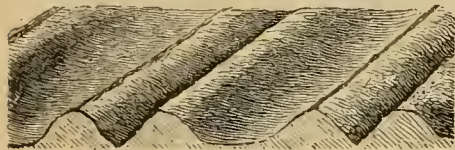


Fig. 1.—LAND IN RIDGES.

land should be ridged before the winter sets in, and left in this state until spring. Fig. 1 shows the shape in which these ridges may be made. There is a large surface of soil brought under the mellowing influence of the weather, and this is precisely what this crop needs. In the

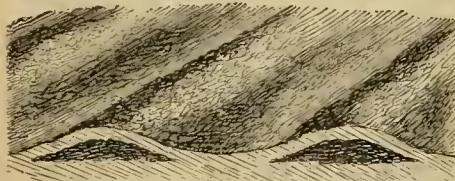


Fig. 2.—RIDGES MANURED AND SOWN.

spring these may be leveled with a heavy harrow, and again opened in their proper places at distances of twenty-eight to thirty inches apart. If there has not been sufficient manure to spread twenty loads per acre broadcast in the fall to be plowed under, eight loads at least of well-rotted manure should be spread in the drills in spring. Fresh manure is not suited to roots, as it causes an unshapely and imperfect growth. With a light plow the drills may be then closed and the manure covered. The soil is then to be harrowed, and rolled if possible with a grooved roller, to suit the shape of the flat ridges, which when completed ready for sowing should be shaped like fig. 2. Before the last harrowing a dressing of fine bone-dust, of two hundred pounds up to a thousand pounds per acre, should be given, the quantity depend-



Fig. 3.—RIDGES AFTER FIRST PLOWING.

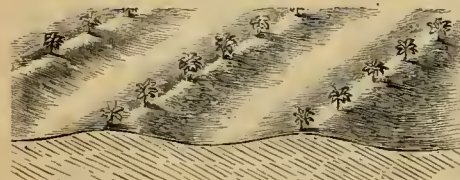


Fig. 4.—AFTER HAND-HOEING AND SINGLING.

ing on the amount and quality of the barn-yard manure or other considerations.

The seeding should not be delayed many days after the ground is fully prepared, and should not be later than early in May for mangels, and late in June for ruta-bagas. A hand-drill is a very convenient machine for sowing the seed, and, costing but little, will be found worth the expense in the saving of time and seed. Two pounds of ruta-bagas and five of mangels, of which the Yellow Globe is probably the best, is sufficient for an acre. As soon as the seed has started and the rows can be seen, a

light furrow with a one-horse plow should be thrown from the plants on each side, bringing the ridges into the shape shown in fig. 3. This destroys all the weeds excepting just in the row, which will be cut out in the first hand-hoeing. This process is performed by striking out with the hoe all the plants excepting two or three in spaces a foot or eighteen inches apart. The shorter distance will tend to give more and smaller roots, scarcely lessening the crop in weight, but increasing it in value, a well-grown, moderate-sized root being better feed than a coarse overgrown one.

After the hoeing the plants are singled, leaving but one at a place. During all these processes most of the accidents which affect the crop have been safely passed over, and there is little danger in leaving a single plant to grow. If needed, some of those removed may be replanted in vacant spaces by cutting back the root and top slightly when transplanting. When these processes are completed the ridges have the appearance shown in fig. 4, and the crop thereafter needs nothing but proper cultivation. But this is absolutely needed; neglect is fatal. Better cultivate one acre well than ten badly. One acre of mangels has yielded over two thousand bushels, but ten acres

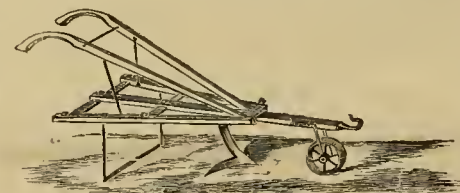


Fig. 7.—HORSE-HOE FOR ROOTS.

neglected would not do as well as that. Therefore the hoe must be kept going. Any efficient horse-hoe which will scrape the surface, and can be brought close to the row, will answer. One of the best we have used is Shares' horse-hoe, fig. 6, with which the weeds may be cut out within an inch of the crop. Another very useful and easily made implement is shown at fig. 7. The blades are simply narrow plates of steel bent to a right angle, which cut an inch or so beneath the surface, and will work very close. The share at front stirs up the surface in the center of the drill, and helps to guide the machine. Both of these implements may be spread or contracted as the covering of the ground by the crop makes it necessary. But whatever tools are used, the utmost thoroughness must be adhered to until the ground is shaded. When mature, the crop is prepared for gathering by removing the tops with a sharp hoe, as shown in fig. 5. At a single blow, struck where the line is drawn in the figure, the top is severed, and the leaves if gathered furnish a large amount

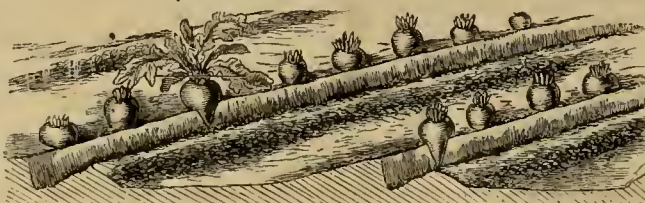


Fig. 5.—PLOWING OUT THE ROOTS.

of useful fodder. After this has been done, a plow is run along one side of each row, and a furrow thrown away from the roots, leaving

them as in fig. 5. A harrow run across the rows in the right direction easily draws them from the soil and leaves them on the surface,

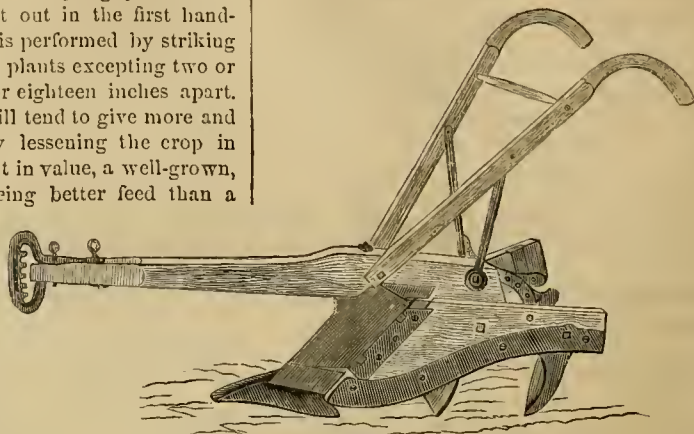


Fig. 6.—SHARES' HORSE-HOE.

where with the root-scoop (fig. 8) they may be rapidly gathered into carts or wagons. Sugar-beets, being very tender and easily damaged, should not be harrowed like mangels, but be carefully gathered by hand or with the scoop.

CURING CLOVER.—A New England correspondent writes: Now that the manure made from a ton of clover hay is proved to be worth about seventeen dollars, we ought to give clover a larger breadth upon the farm, and use the best methods of curing. Cut in the blossom, as it should be, it is full of juice, and requires several days' sun to make good hay of it, and much of its value as fodder is lost by breaking off the leaves. It saves much labor, and makes a better fodder, to put the clover into cocks after two or three hours' of exposure to the sun. Turn the cocks bottom side up the following day. The third day it may be stored in the barn, in alternate layers, with old hay, or straw, or salt hay. There should be at least as much as one fourth of the bulk of the old material. This will absorb all the moisture of the clover, and preserve it in the best condition in the mow. Cattle will eat clover-hay cured in this manner in preference to all other. Of all methods I have tried, this gives the best satisfaction.



Fig. 8.—ROOT-FORK.

The Turnip-Fly.

The small flea-beetle known as the Turnip-fly or Cabbage-fly is exceedingly destructive to all kinds of turnips when the plant is in its earliest and tenderest state. Very often the crop is totally destroyed, and resowing is made necessary when the proper means of destroying the beetles are neglected. As they are really troublesome only during a short period, and until the plants have put forth the rough leaves, one of the best preventives consists in having the soil rich and

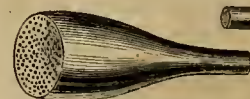


Fig. 1.—LINE-DUSTER.

well prepared, that the crop may push forward rapidly. A method of destroying them is by passing along the rows a bag of fine light cambric or paper-muslin, made as in figure 2, and fastened on to a forked frame. The beetles



Fig. 2.—BAGGING THE TURNIP-FLY.

when disturbed jump into the bag, and a shake given to it occasionally gathers them to the bottom, where they may be destroyed. A dressing of lime in fine dry powder is effectual in preventing their ravages. The lime should be slaked dry, and if slaked with water in which carbolic acid has been dissolved is still more effectual. The lime-duster (fig. 1) is made

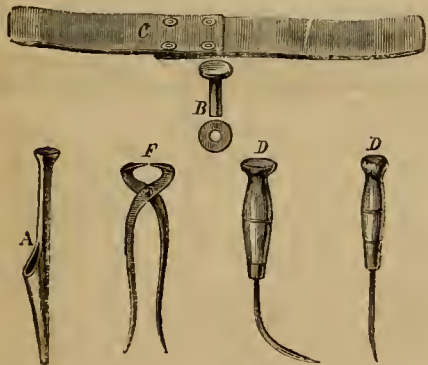


Fig. 1.—TOOLS FOR REPAIRING HARNESS.

of tin, with holes punched in the end, and a wooden handle fitted into the neck, by which it may be carried along the rows and the plants dusted. This should be done while they are wet with dew. By these means, with sow-



Fig. 2.—BENCH AND CLAMP FOR HARNESS.

ing an extra quantity of seed, the crop may be carried safely beyond the period of danger, after which the little pests give no trouble.

Repairing Harness.

Harness is a costly necessity, and as a matter of economy should be kept in good order, carefully repaired as soon as the least damage or wear is noticed, and be thus very easily made to last double the time it would if neglected. The materials for repairing should be always on hand, and be kept in a tool-box specially appropriated to them. This box is best connected with a work-bench as a drawer placed beneath it, where it may be readily reached by the operator. Figure 2 shows a harness work-bench, which is provided with a clamp for holding the work and a drawer for tools and materials. These consist of a ball of hemp, a piece of shoemakers' wax, a few bristles for making waxed-ends, a punch (A, in fig. 1) for making rivet-holes, some rivets and burrs (B) for splicing straps (as shown at C), sewing awls of two kinds (D, D), one with an eye to carry a thread in a similar manner to a needle, and having a strong curve, the other less curved and eyeless, a few very stout needles with large eyes, a pair of pincers with sharp jaws to cut off the ends of rivets (as shown at F), a light hammer to clinch the rivets, and a small block of iron, weighing a pound or two, to use when clinching rivets, unless a flat-iron, which will answer admirably, can be borrowed on such occasions. Furnished with all these appliances, there is no reason why a harness should go unrepaired over one night, and as "a stitch in time saves nine," it will be found very profitable to be ready to put in that stitch just when and where it is wanted. Figure 3 shows a method of sewing a loop for a tug or strap, which is sometimes found a difficult job. It was sent by a correspondent who forgot to attach his name, so that we do not know to whom we are obliged for it. He says it has been found of great use to him. He first places the awl as at a, fig. 3, passing through both strap and loop, and then (as at b) passes the awl in a contrary direction, so that both holes unite in one at the top. This enables the thread to be sunk below the surface of the loop, saving it from wear. The complete stitch is shown at c. Another method which we have used is shown at d. The needle-awl is passed through the strap, and comes out at the side of the loop, the thread is put through the eye, and the awl is brought back and the stitch drawn tight. With the common awl and two waxed-ends with bristles, a double stitch may be made which is very strong.

Grow Turnips.

Roots are always valuable as an adjunct to the winter supply of hay. This all farmers will confess. The extent to which they may be made useful as a substitute for hay few American farmers notice. Those who have already started a good breadth of beets and of ruta-baga turnips are fortunate. Those who have not done so should at once set about increasing their supply. It will do to plant ruta-bagas until

July 10th—the earlier the better of course—and by doing so we may insure a good crop that it will be very convenient to have for use late in the winter. Remember, that for this crop no other manure is more valuable than bone-dust—say 100 lbs. per acre in the drill at the time of planting, and the same amount or more broadcast after the crop has been thinned out, to be immediately covered with the hoe or cultivator.

From July 25th to August 10th (better at the earlier date) is the time to put in "round tur-

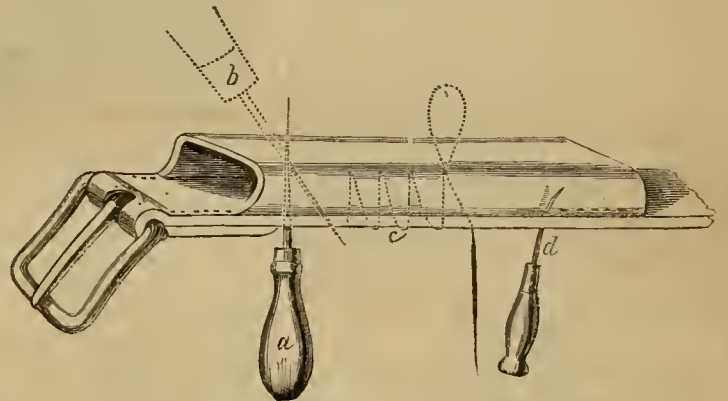


Fig. 3.—METHODS OF MAKING STITCHES.

nips," the best variety being the Strap-leaved red-top. These are not of much value after the first of January, but before that time they are excellent food for all neat stock and for sheep and swine. For milch-cows they must be fed sparingly, and only immediately after milking, else they will affect the taste of the milk and butter. However they may be used, they will help out the scanty winter's supply of hay in a most satisfactory manner.

A Simple Hay-Press.

We have received many inquiries about the hay-presses referred to in an article in the American Agriculturist of April, 1872. We now give a drawing of the one more particu-

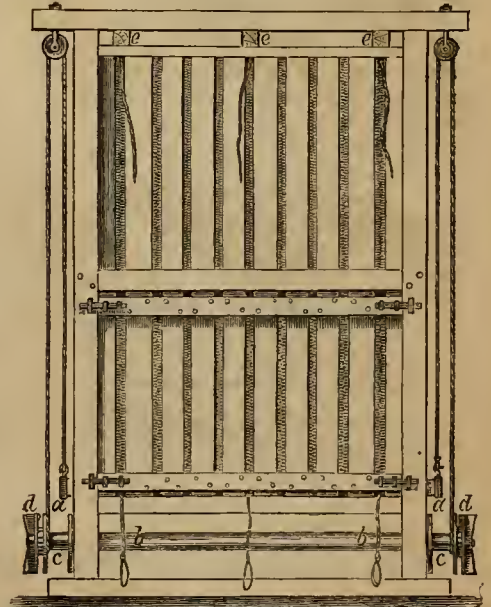


Fig. 1.—HAY-PRESS—SIDE VIEW.

larly referred to as being of very moderate cost, and able to bale four tons of hay in a day with the labor of two men. It consists of a frame of oak or other hard wood, four feet wide (inside of the posts) on the side (shown in fig. 1) and three feet on the end (fig. 2). The height is eight

feet. The frame consists of four corner posts, a sill, a cap-piece, and two girts on each side and end. The lower girts are placed a foot from the sill, and on them rests the movable bottom (fig. 3), on the middle cross-bar of which is fixed two hooks, seen at *a, a*, fig. 1. At *b, b*, fig. 1, is shown a roller which works in boxes bolted to the posts on one side. This roller is furnished with guides (*c, c*), which confine the rope as it is wound up, and a ratchet and catch to keep it in position when turned by the lever shown in fig. 2. This lever fits in slots in the wheels (*d, d*), which are preferably of cast-iron, and as it is pressed down turns the roller and winds up the rope, which passes through a pulley-block at the top of the frame and raises the movable bottom. At the top of the frame are shown the ends of some loose bars (two or three are sufficient), *e, e, e*. These are slipped in over some loose boards placed on the hay when the press is filled, and confine them to their place when the press is worked. To work the press, it should be brought near the mow or

by its elasticity. A bale of hay made in this manner needs no slats or sticks of wood at the corners, and will weigh about 180 pounds. A

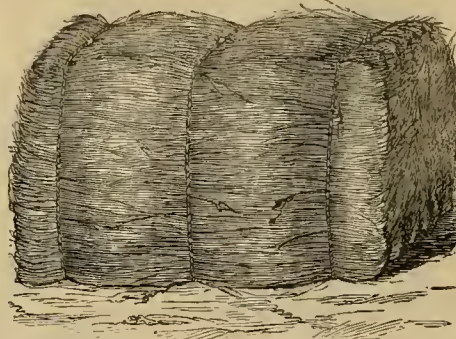


Fig. 4.—HAY-BALE WITHOUT LATHS.

common wooden screw, similar to those of the old-fashioned cider-presses, may also be fitted into the frame to work the press, but it is more cumbersome in working, and occupies more room than the roller.

Besides this sort of press, there are several more powerful, which may be worked by a two-horse power, and will bale ten tons per day. Their cost is \$100 and upwards. As by the process of baling, hay can be transported by rail at reasonable freights, when unbaled hay can not be moved unless by wagon, it is seen how easily a much increased value is given to this important product; this as well as straw, which is subject to the same conditions, always bears a high price in large towns and cities, while a hundred miles distant it may be comparatively valueless to turn into money.

What Lands will it Pay to Drain?

Our readers do not need to be told that we are firm advocates of underdraining. We believe that judiciously done it is the most profitable improvement that we can make. At the same time, we have narrowed down our ideas of what is judicious in draining, until we have reached the following conclusion:

It is not judicious to spend money in draining land that needs draining, so long as we can use the money to good advantage in the better cultivation of other good land that does not need draining.

In other words, we believe that the true maxim for the improving farmer is: "Be thorough as you go." Don't improve the whole farm at the same time—gradually getting the worst lands into condition to pay half their expenses—but (unless the working capital is a large one) confine yourself to land that will pay full expenses—and a profit. If a field that is otherwise the best of the farm fails to do as well as it ought because it needs draining, then drain it by all means, and when it is dry manure it and cultivate it thoroughly, and continue to devote to it all the manure and care for which it will pay a good profit. When it is in such good condition that more money can not profitably be spent on it, then take up the next best field and improve that. If it needs draining, then drain it; but if not, then, instead of draining some other field, let the draining wait, and use the money to make this land as good as, under the circumstances, it will pay us to make it. And so go on—being thorough as you go—devoting the first investment to the best land, and the next to the next best, and letting the character of the land determine whether the in-

vestment shall be in drains, in manure, or in labor, or in all three of these.

It may pay very well to underdrain land at a cost of \$70 per acre, when the effect will be to increase the hay crop from 1 1/4 ton to 2 tons. The 3/4 ton is an addition to a crop that we must go to the expense of making, and if hay is worth \$20 per ton it will pay a profit equal to about twenty per cent of the cost of the draining. But it will not pay to spend this amount to underdrain waste land for the sake of raising its produce from nothing to one ton per acre—for such a crop would pay no profit.

The old saw is right in saying that he is a benefactor of the human race, not who makes a blade of grass grow where none grew before, but who makes two blades grow where one grew before. If the old saw-master had been a high-farmer, he would have given even greater praise to him who made three blades grow where two grew before; for the reason that in this case the extra yield would have been produced at less cost of labor, leaving more labor for other productive work.

When this principle shall have been adopted, then we shall see underdraining much more largely resorted to. But farmers soon sicken of draining swamps to let them lie waste, because it won't pay to manure and work them at the expense of the better parts of the farm.

The Southern Park-Gate.

Dr. Gilbert, of Memphis, sends us a drawing of a park or plantation gate, which he says is "the only perfect gate, and the most economical one ever invented—plumb, immovable, and unchangeable. It can not sag; admits wagons loaded with cotton or hay; keeps out thieves; and is very valuable for stock and stable-yards near cities." The size of the opening is 10 ft. by 14 ft. The posts should be of cedar or locust, the brace straps of oak, and the other parts of light stuff, well seasoned. This gate is prevented from sagging by means of the diagonal rod across the top, in the middle of which is a screw by which it may be drawn up



SOUTHERN PARK-GATE.

tightly when needed. The gate-post turns in a cup in the sill. A small quantity of blacklead and tallow in this cup will cause it to turn easily and without creaking. The hole in

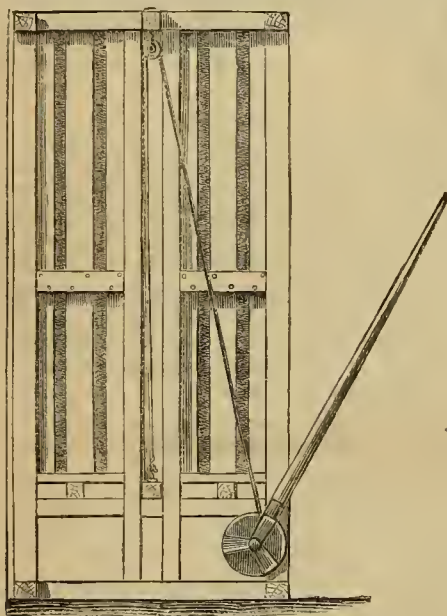


Fig. 2.—HAY-PRESS—END VIEW.

stack, the cords, made of proper length to tie the bale, looped at the end, and placed in position, as seen at figure 1, the hay thrown in, and one man in the press should tread it down as it is forked to him. When the space is filled as closely as possible, the top boards and cross-bars (*e, e*) are put in place, and the bale pressed until it is brought to a thickness of 2 1/2 feet, when it is tied securely, and lowered and removed from the press through the lower half of

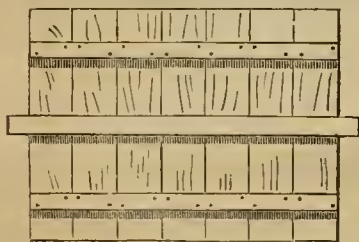


Fig. 3.—BOTTOM FOR PRESS.

the side which is made movable. This movable side is held in place by four bolts, which are easily withdrawn when necessary. To facilitate the removal of the bale it is well to make the frame of the press two inches smaller each way at the top than at the bottom, then, by releasing the catch of the ratchet-wheel, the bale will slide downwards by its own weight without binding

the cap in which the upper part of the heel-post turns should be thus lubricated.

Hints on Haying.

Making hay "on paper" and making it on the farm are two very different things. In this case, as in so many others in agriculture, "to know is not to be able." A man may have a very accurate knowledge of the principles and practice of hay-making, he may understand all the changes that should and should not take place, and yet make very inferior hay. There seems to be a kind of "knack" in making hay that is hard to acquire, and still harder to communicate. We can not know too much about the science of hay-making, but it is still more important to have energy enough to apply our knowledge. And it must be energy of the right kind. We all know men who seem to be remarkably active and industrious, and who yet never accomplish anything. Such men rarely make good hay. What is needed is a disciplined mind, that can lay plans wisely and take every detail into consideration. He must know that his mowing machine is in complete order, and that he has on hand duplicates of such parts as are most liable to break. He will not put off grinding the knives, tightening the bolts, and examining and cleaning the journals until the moment he wants to be in the field. He will not cut down the hay and then go for the tedder or rake and find a bolt out or a tooth broken. He will have everything ready in advance—mower, scythe, whetstone, tedder, rakes, forks, wagons, racks, unloading tackle—all will be ready, and just where he can lay his hands on them in a moment. He will not have to spend an hour or two cleaning out the barn or making a stack-bottom, some afternoon when the hay is overcured in the field and a threatening cloud in the western sky. The good hay-maker is a man who not only knows *how* hay should be cured, but he is possessed of the energy, forethought, and patience to prepare for and direct every detail of the operation.

And recollect that *patience* is the crowning virtue of the farmer's life—not the false patience which springs from indifference, indolence, and a sluggish mind, but that quality which produces a "masterly inactivity," that waits until the right moment, and then puts forth all the powers of mind and body to accomplish the purpose. Give such a farmer a good crop of grass and an ordinary season, and he will be sure to make it into good hay and get it safe into the barn.

We can not go into details. The main points to be observed in making timothy or meadow hay with little or no clover in it are:

1st. Cutting the grass when in flower and before any seeds are formed. If we cut too early we lose substance, if too late we lose quality. If the hay is for market or for horses we should let it stand longer than if it is to be fed out on the farm to milk-cows or sheep.

2d. Cut it so that if it is necessarily exposed to dew the dew shall fall on while the grass is green rather than after it is partially cured. This is one of the most important practical points in hay-making. Dew or rain will not hurt fresh, green grass, provided it is got rid of before the grass begins to wilt. In heavy grass, therefore, that can not be cured in one day, we should start the mower late in the afternoon, say four o'clock, and cut as long as we could see. Rain or dew will not hurt it any more than if it was standing uncut. The next morn-

ing, the moment the dew is off, or a little earlier, start the tedding machine, *lively*, and *keep it going*, changing horses if necessary. The more frequently the grass is stirred the more rapidly it will cure. If kept well stirred, the hay will be ready to draw in immediately after dinner.

3d. When grass is cut in the morning, if a light crop and somewhat overripe, it may not unfrequently be drawn into the barn the same day. But with heavy green grass this can rarely be done. Keep stirring the hay until about four o'clock in the afternoon. Then rake into windrows, and put it into cock for the night. If exposed to rain or dew while spread out on the land in this partially cured state, it will be very seriously damaged. The next morning turn over the cocks, or open them out if necessary, and draw in as soon as dry enough.

4th. When grass is cut, and rain sets in immediately, while the grass is spread out on the land as left by the machine, or in swaths, nothing can be done. It is better not to touch it until there is a prospect of getting it sufficiently dry to put in cock. As long as it is green it will not hurt.

5th. When partially-cured grass is wet with a sudden shower while spread out, it can not be turned or shaken out too quickly after the rain is over. Do not wait for the ground to dry. Better spread out lightly on the wet grass, so that the wind can get through it, than allow it to lie flat and sodden. It is necessary to be very careful to get such hay *perfectly dry* before drawing in. Spread two or three quarts of salt on each ton of this damaged hay when put in.

CLOVER HAY requires more time in curing than timothy and meadow hay. But the principles involved are essentially the same, except that after the clover is partially dry care must be taken not to shake off the leaves and blossoms. If cut early, the tedder may be used to great advantage. A good plan is to cut the clover late in the afternoon, and the next morning, as soon as the dew is off, shake it out with the tedder. Then, in an hour or two, rake it into small windrows five or six feet apart with a steel-toothed rake. Turn these windrows with a fork, say once before dinner, and then immediately after dinner. About three or four o'clock, rake into large windrows and cock up carefully for the night. If necessary, spread it out the next morning and turn it over in an hour or two. That which was opened first will probably be ready to draw in by half-past ten or eleven o'clock. There are many other methods, but, all things considered, we prefer the one we have briefly described. If we could be sure of the weather, we should cure the hay in the cock, and it is often convenient to adopt both plans.

Keeping Roads in Repair.

The best system of mending the highway is that which mends soonest. The old method of working the roads annually by the tax-payers in person has gone out of use in many places. The work was not well done, although the tax-payers had to use the roads they mended. The highways need constant supervision by one man in each town who understands the business, and who can remedy a defect as soon as it makes its appearance. A deep rut is made deeper by every loaded team that passes over the road, and where the system of annual repairs prevails the highways are almost impassable in the early spring. We want the same thorough system of supervision that prevails on

our railroads transferred to the highway. This has been adopted in some towns in Massachusetts, and is found to be much better economy, and to give them much better roads. A load of gravel in season applied to the ruts and gullies saves the necessity of two loads applied at the end of the year. Travel on a well-made road does far less injury than the rains and frosts. If the inequalities are immediately remedied, travel rather helps than hinders road-making. Every one prefers the well-beaten track to a new-made road. It is quite possible to distribute the repairs so evenly through the year that the road-bed may be always in good condition. The loss to the farming community from bad roads is enormous. It is one of the heaviest taxes we have to pay. It is laid on every article that goes from the farm to market, and in many cases the tax is so heavy that it swallows all the profits. Good roads lessen the cost of production; they would cheapen the grocer's bill, the miller's bill, and especially the cost of fertilizers, which are the secret of economical farming in the older States. Work the roads to-day, and save money.

SHALL WE GRIND GRAIN FOR COWS?—A correspondent says: "If a cow in chewing her cud throws up all she eats and chews it over again, I do not see where the advantage is in getting corn ground at all to feed ruminating animals." The proof of that hasty-pudding is in the eating of the corn by the cow. Feed her on whole corn, and you will find that, even in twice chewing, she does but indifferent work, and that much of the grain in her food is passed in whole kernels. Grind her corn for her, and a smaller quantity will nourish her as well. More hogs can be fattened after animals fed on whole corn than after the same number fed on meal. Lastly, try the comparative experiment (under exactly the same circumstances) and you will satisfy yourself.

Fiber from Cane.

Every man or boy who has used a fishing-pole is acquainted with the cane, cane-pole, or reed, as it is variously called. There are two species of cane, the Large Cane (*Arundinaria macrosperma*), and the Small Cane (*Arundinaria tecta*), the one growing from ten to twenty feet high, and the other seldom reaching above ten feet. Both species are found from Virginia southward, but the large species is best known, and it forms extensive tracts in waste and swampy ground known as "cane-brakes."

Until recently, the chief use of canes was for fishing-rods and for making cages and such uses. In the search for material, for paper-making, the cane was found to yield a serviceable fiber, and now there are several manufactories of it in Virginia and North Carolina.

This manufacture is an interesting instance of the conversion of what is otherwise almost a waste product into a valuable article of commerce. In California vast tracts are covered by the Tule, and in the Eastern States hundreds of acres are covered only by the Cat-tail, and though the attempts to utilize these have not been quite successful, the time can not be far distant when such a vast amount of vegetable fiber will be made to serve some useful purpose.

We give sketches of the processes of fiber-making from cane, drawn by Mr. J. D. Woodward, at the factory on the Cape Fear River,

N. C. The notes furnished by Mr. W. say: "The cane on the borders on the Cape Fear River and its tributaries is particularly abun-

leaves that valve, and the steam in the dome rushes out with such force that it carries the cane before it. On reaching the atmosphere,

steam-pump under four beating engines, similar to those used in the paper-mills, except that the fiber passes from one to the other instead of

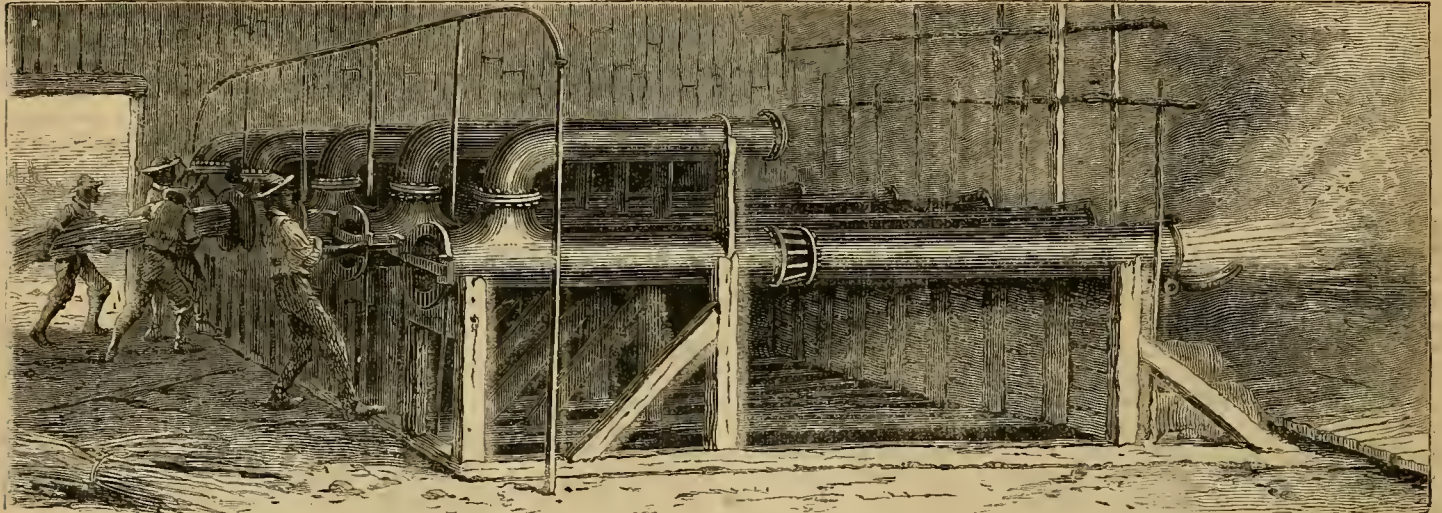


Fig. 1.—THE BATTERY—LOADING THE CANE AND FIRING OFF THE FIBER.

dant, the average height to which it grows being twelve feet. Large gangs of negroes are sent up into the swamps to cut it, under the superintendence of a white overseer. It is then made up into bundles, for convenience of future handling, corded up, and the tops cut off, the cutter being paid by the cord. Other gangs 'tote' the cane from where it is cut, and load it in large flats capable of carrying 150 cords at a trip. When landed at the company's dock, the bundles are opened, cleaned of all refuse matter, trimmed up, and made into compact bundles, from seven to eleven feet in length and one foot in diameter. The bundles are then taken in hand-cars to the gun-room of the factory. In the gun-room is arranged a battery of five guns, 23 feet in length, each surmounted by a steam-dome having connection with high-pressure boilers. The guns being loaded, and the front and rear valves screwed tight, steam is turned on at a pressure of 180 lbs. to the inch.

the steam with which all the pores of the cane are filled violently expands, thoroughly disintegrating it, and the load strikes a target, at about

traveling round and round. It then passes on to an endless wire apron, and is carried through several sets of iron rollers, the last set being covered with india-rubber. The fiber is thus squeezed of all water that will run from it, and comes off in a thick, solid sheet. By this washing the bulk is reduced one third, being deprived of all the gum, dirt, etc. Next, the fiber has to be dried. It is slightly picked apart and thrown on to an apron, which leads it through feed-rolls to a picker, revolving at a high rate of speed, which thoroughly pulls it apart, and throws it on to the apron of the drying-house. This house is seventy feet long, and is heated by four steam-pipes running side by side. The endless apron travels slowly over these pipes—taking about twenty minutes to make the trip—



Fig. 2.—CLEANING AND BUNDLING CANE.

thirty feet from the guns, a mass of brown, sugary-smelling fiber. The report made by the expansion of the steam is equal to that of a large cannon. The fiber is next submitted to

and the fiber is taken off at the end perfectly dry. It is then baled by one of Dederick's hay-presses, and made into bales, averaging 500 lbs. in weight. The pulp made from this fiber

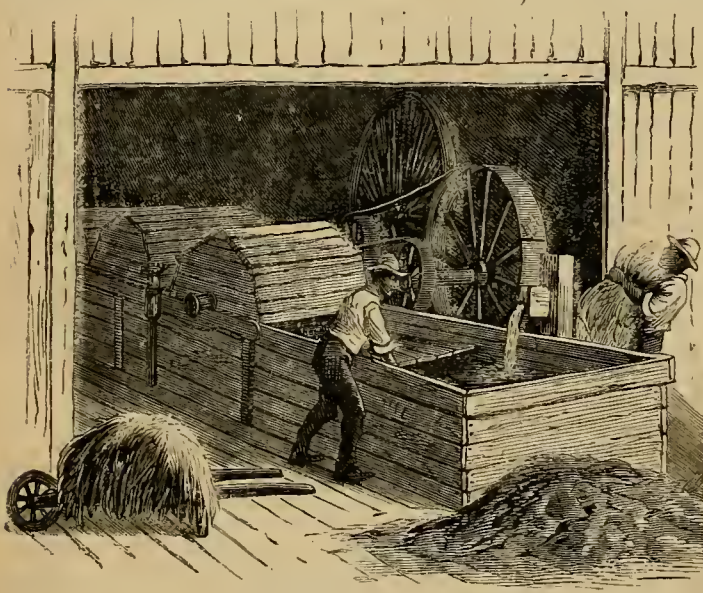


Fig. 3.—WASHING THE FIBER.

After being in this steam-bath for twenty minutes, a trigger, or rather a rod connected by cranks to the front valve, is pulled, which re-

turns the washing process. It is gathered up, thrown into large tubs, and passed by means of a continuous stream of spring water thrown by a

is soft, and admirably adapted for making paper, either alone, or mixed with the harsher paper-making substances, such as straw, etc."

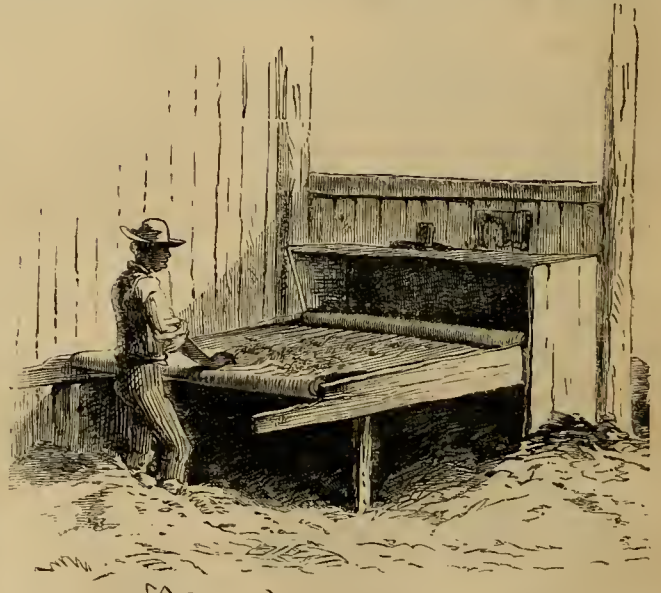


Fig. 4.—ROLLING THE FIBER.

The Indian Turnip (*Arisema triphyllum*).

But few of our wild-flowers are so likely to attract attention as the Indian Turnip. It is so unlike others in its form, its coloring is so peculiar, and it has altogether such a strange, weird look, that those who care but little about plants in general will be quite sure to notice this. It

ones, or one or the other kind of flowers may be abortive, and thus the plant becomes, as it often does, *dioecious*. The spadix is prolonged above the flowers into a smooth club-shaped body, which sticks up in the center of the spathe and is seen under its incurved point. Some imaginative person has seen the resemblance between this arrangement and the old-fashioned

ing plant, and desirable in a collection of aquatics. Its leaves, usually floating, are of a singularly beautiful green. These arise from a deep root-stock, as do the flower-stalks. The Golden-club belongs to the same family (the Arums) as does the Indian Turnip described elsewhere, but while in the last-named the spathe is the conspicuous part, and quite conceals the

INDIAN TURNIP.—(*Arisema triphyllum*.)GOLDEN-CLUB.—(*Orontium aquaticum*.)

is found in rich woods and on the margins of swamps, flowering in May and often much later. The engraving gives a representation of the plant, which varies much in both size and coloring. Below the surface we find a solid bulb or corm, which is dark-colored without, white within, and so much shaped like a turnip as to have suggested the common name—Indian Turnip. From this corm arise one or two leaves, which are divided into three parts or leaflets, and a flower-bearing stem. The conspicuous hood-shaped body which popularly passes for the flower is only a leafy envelope that surrounds and protects the flowers. Botanically, it is called a *spathe*, and it is just such an organ as we find, though of a different shape, in the cultivated and nearly related Calla. The spathe in the Calla is pure white, and it has its point turned back from the center, while in our Indian Turnip it is variously colored, and its point is bent inward toward the center. Sometimes the spathe is green, with yellowish markings, and frequently it is dark purple with whitish or yellowish stripes and spots, and the leaf-stalks freely marked with purple. To find the flowers we must look inside the spathe, where we shall find them clustered at the base of a fleshy stem called a *spadix*. We may find pistillate flowers at the base and above these staminate

pulpit with sounding-board, and has given the plant the fanciful name of Jack-in-the-Pulpit, a name quite popular in some localities.

The fleshy corm, or root as it is popularly called, is when fresh extremely acrid. A small piece placed on the tongue produces the same sensation as scalding. Mischievous people sometimes play tricks with it, and its great acridity has led to its use in domestic medicine. The pungent principle is destroyed by heat and dissipated by drying. The corm contains a large amount of starch of very fine quality. The starch is separated by grating the tuber and washing, and is nearly equal in quality to arrow-root. Another species, called the Green Dragon (*Arisema Dracontium*), is less common. It has its leaves divided into seven to eleven parts, and the point of the spathe is erect. This is less common than the other.

The Golden-Club (*Orontium aquaticum*).

The Golden-club is very common in the Southern States, and is found here and there as far north as Massachusetts. Mr. Hallock, of the firm of C. L. Allen & Co., florists, Brooklyn, recently brought us a fine lot of specimens from near Flushing. It is a very handsome and interest-

ing spadix which bears the flowers, in the Golden-club the spathe is small and at the lower part of the stem, while the spadix is quite showy. In the reduced engraving we give the leaves and the spadices; the spathe, being small and submerged, is not shown. Here the flowers are all perfect, and so crowded all over the spadix that they appear like a solid mass. They are of the brightest golden-yellow color. The stem just below the flowers is pure white, and the contrast between the white and deep yellow makes the plant quite showy. The root-stalks are starchy, and are said to have formed when roasted a part of the food of the Southern Indians.

Insects in Relation to Horticulture.

That insects frequent flowers is a matter of common observation. Not only do bees of various kinds and the large moths go to the flowers to feed upon their sweet juices, but multitudes of small insects that escape ordinary notice are engaged in the same occupation. The horticulturist sees his plants bloom, and he expects them to bear fruit and seed, with but little thought that the success of his crops often depends upon insects. We have so much to say about the injury done by insects that it is

pleasant to be able to speak of them in other aspects. The relation of plants to insects is a subject just now engaging the attention of naturalists, and there is much about it to interest every one who grows plants of any kind.

Most flowers offer nectar and pleasant odor to attract insects, and we know that some, especially the bees, are very busy in availing themselves of the sweets thus set before them. Does the plant offer this treat of sweets to the insects out of pure benevolence, so to speak? Not at all. This feast of nectar is offered to the insects as a compensation, if they will in turn do something for the plant. What this something is, we can only briefly indicate, but we can state sufficient to show that the relations between plants and insects are more complicated and more important than is generally supposed. It is within the knowledge of every intelligent person that plants have stamens and pistils; that the stamens produce a fine powder—pollen—which fertilizes the pistil, and that this contact between the pollen and pistil must take place before the pistil will develop into a fruit or seed-pod. It is well known to orchardists that a violent and long-continued rain-storm at blossoming time will seriously injure the fruit crop, as the pollen is washed away by the rain, and is prevented from performing its proper office. In some cases, as in the willows, poplars, the hop, etc., flowers with stamens only and flowers with pistils only are borne upon separate plants. These plants may be fertilized by the wind, which carries the pollen from one tree to another, or by insects which convey the pollen adhering to their bodies from one plant to another. Other cases show stamens and pistils in separate flowers but on the same plant. The squash, melon, and all of that family are familiar illustrations of flowers of this kind. Every one who has worked in a garden knows the male (staminate) flowers and the female (pistillate) flowers of these plants, and have seen the insects, "as busy as a bee in a pumpkin-blow," going from one flower to another, getting as dusty as millers in the staminate blooms, and then going to the pistillate ones, where, in their greedy search for nectar, they are sure to rub some of the pollen upon the pistil.

In these cases we can understand the use that insects are to plants in the matter of fertilization. But the greater number of plants present us with stamens and pistils in the same flower. The pistil stands in the center, surrounded by a few or a countless number of stamens all ready to fertilize it—only they don't as a general thing do it. One would think that the flower was so thoroughly arranged for self-fertilization that insect aid would not be welcomed, much less needed. This most interesting subject was first prominently brought forward by the great naturalist, Darwin. In the *American Agriculturist* for 1866, Prof. Asa Gray gave an admirable series of articles, illustrating them by reference to American plants. We are glad to know that the matter has again been popularly presented by Prof. Gray in a charming little book called "How Plants Behave," which, though intended for young people, presents in an attractive style the results of the most careful observers, and can be commended to maturer minds as well. We have not space to explain the curious relations of insects to those plants which have perfect flowers—i. e., containing stamens and pistils in the same flower—but must refer the reader to the articles and the work just named. This very frequent provision that a pistil shall not be fertilized by the pollen of the same flower, but that the pollen of an-

other flower shall be brought to it by means of insects, has an object, and that object is one which every farmer will understand—to prevent close breeding. Were in-and-in breeding carried on continuously in plants the result would be the same as with animals—certain individual peculiarities would be perpetuated, and become fixed, to the detriment of the general welfare of the species as a whole. A curious instance of injury resulting to an insect while it is working for the good of a plant is given in another article entitled "What Ails the Bees' Legs?"

A Good Rotation for Farm-Gardening.

It is now becoming a very important part of the business of farming in the vicinity of large towns to raise vegetables for sale in their markets, and the system pursued by those who are exclusively market-gardeners near the great cities, where land is very costly, is not the best adapted for the different conditions of farm-gardening. In the country, rents are lower, and manure is either higher, or more difficult to get, or more needed for other uses.

This points to the use of clover as a fertilizer. Almost any garden crop grows best on a well-tilled clover lea, and cabbages are especially benefited by it, while they are also the sheet-anchor of the market-gardener. Late cabbages are rather uncertain, and must sometimes be used for fodder for want of a market (though even then they are a profitable crop), but early cabbages hardly ever come amiss. A manufacturing population may be depended on to use a dozen heads per week of Jersey Wakefields for each family of six or eight persons, and the market is rarely overstocked, inasmuch as this crop requires special treatment, that can not be given, by the acre together, by common farmers who raise late cabbages without difficulty. After some years' experimenting, we have settled on the following plan as best adapted to our circumstances:

Our field is divided into three equal parts, and is planted on a three-year course. The diagram is copied from the one actually in use as a memorandum.

First Section, First Year.	Second Section, First Year.	Third Section, First Year.
All in clover, sowed early on land plowed in the fall after celery is removed.	½ in early cabbage, followed by horseradish ½ in early cabbage, followed by fall spioach	¼ spring spinach, followed by late celery. ¼ winter spinach, followed by early celery.
First Section, Second Year.	Second Section, Second Year.	Third Section, Second Year.
Two halves in early cabbage, horseradish, and spinach.	Two halves in spinach and celery.	All in clover.
First Section, Third Year.	Second Section, Third Year.	Third Section, Third Year.
Two halves in spinach and celery.	All in clover.	Two halves in early cabbage, horseradish, and spinach.

The fourth year repeats the first year; the fifth year repeats the second year, etc.

On land in good garden condition the clover will need no other manure than a couple of bushels of plaster sown over the leaves of the young plants when wet with the dew. It will produce an abundant supply of green food for soiling or other use, amply repaying the cost of production and rent of land. In November it

should be covered with a heavy dressing of the best manure, and at the earliest possible moment in the spring it should be plowed and very thoroughly harrowed. The plowing should be shallow, and if the land is hard below, the subsoiler should be used. On such land, a good crop of early cabbage is a moral certainty, and with the subsequent horseradish crop on one half the field, the return should pay a handsome profit on the first and second years' use of the ground.

The subsequent crops may be varied according to the market. Spinach is almost always profitable. Whether celery is so or not will depend on one's facilities for selling it. It may be well to substitute early beets or parsnips for the early celery, and transplanted mangolds, or ruta-bagas, or Lane's sugar-beet for the late celery. Whatever change is made, the land should be cleared and plowed for clover in the fall, so that we may have the full season's growth of this to prepare the field for the *sine qua non* of successful gardening—a crop of early cabbage.

Of course, the land must be well manured the second year. Bonedust or "Phosphatic Blood Guano," at the rate of 500 lbs. to the acre, will always pay on the cabbage land, before the last harrowing, no matter how much other manure has been used. 1,000 lbs. or 1,500 lbs. to the acre might enable us to get along without other manure.

Cold-Frame Cabbage Plants.

BY PETER HENDERSON.

An article in the June number of the *Agriculturist*, by a writer who gives no name, and, worse than that, no location, was written evidently with the desire to do good, but the advice, if followed, will most certainly do a great deal of harm in the latitude of New York, or even further north. He complains that by sowing on the 20th of September last year, his cabbages were too small to "prick out," and that in consequence he lost all those that were not so treated; and now advises to sow from the first to the fifth of September. If any of the early cabbages were sown in accordance with his advice in this locality, in nine years out of ten, three fourths of them would run to seed. This was the very ground upon which the Philadelphia market-gardener who sued Mr. Dreer for damages in having sold him bad seed got defeated. It was proved that he had sowed his seed upon the 5th of September, instead of the 15th, and numbers of experienced gardeners testified in court that no other result than a failure could be expected; besides, it was further corroborated by dozens of others who had bought the same seed of Mr. Dreer, that their crops had not run to seed when sown at the proper time. It may seem to the uninitiated in such matters, that a few days earlier or later in sowing could not be of material importance; but all experienced market-gardeners know it to be a fact beyond question, so that here no one ever begins to sow his seed before the 10th, and the great majority uniformly sow on the 15th. My own plan is to sow twice, on the 12th and on the 16th of September, and I should far rather risk even the 25th than the 5th. Much depends on the condition of the ground. It ought to be mellowed and enriched to the highest possible point by plowing and harrowing, or digging and raking, and well mixed with a heavy dressing of thoroughly-rotted stable manure, in quantity when spread sufficient to cover

the surface at least three inches. In absence of stable manure, *pure* bone-dust or blood and bone-dust should be used, in the ratio of at least one ton to the acre, and of course thoroughly mixed in with soil designed for the sowing of the cabbage. Ground thus prepared, will in any season I have ever seen in this vicinity give excellent plants, fit to "prick out" four weeks after sowing; that is, if we sow on September 15th, we have plants of just the right size to "prick" into the frames by Oct. 15th.

The article makes an assertion with which I can not agree. It says that when the stem of a cabbage plant is split it makes a loose head. If it is split severely enough to be decayed, it will die long before it gets a chance to form a head; but if not, the split part will form a callus, just as the slip of any plant does before it roots, and when planted the roots will develop from there better than any other part of the stem. In the area of a mile from where I write there is probably a million cabbages planted, most of them just beginning to "head up," and I think it safe to say at least one half of them when planted were split in the stem, and, by the way the most of them look now, I should say few of them will form loose heads, but will be likely to give good solid results to the owners. This cold-frame cabbage business is now an important one, engaging the attention of hundreds of your readers in every section of the country, and if the article in the June *Agriculturist* had been accepted as applicable to all localities it might have lessened some poor fellow's profits next season.

[The article to which Mr. Henderson takes exceptions was by Col. Waring, of Newport, R. I., and we should have so stated when we published it. Col. W. gives his experience in the climate of Newport, and Mr. H. his in that of New York, and our gardening readers have now both sides of a subject.—ED.]

Notes from the Pines.

WE HAVE BURIED OUR DEAD—or, what is the same thing, carted them to the brush-heap. They were mainly evergreens, but some deciduous things went too. Evergreens of great rarity, that had been established just long enough to give promise of future beauty, went to the same heap with the more common but not less useful Hemlock, Norway Spruce, and Arbor-vite. Among the deciduous trees that suffered most on my grounds were European Chestnut, Scotch Laburnum, Catalpa Kämpferi, Mahaleb Cherry, and Deciduous Cypress. Almond-trees were badly injured, while the Peach, though most of the flower-buds were killed, was all right as to its leaf-buds.

THE CAUSES OF THE WINTER-KILLING that have been assigned are principally these: The unusual depth to which the soil was frozen; the unusual cold (zero or near it) in March, following a mild spell in February; the unusual dryness of the soil during the winter, and the prevalence of drying winds. I think that a combination of the last two causes produced the results. Some curious cases appear difficult to account for. With trees, apparently just alike, standing side by side, one was taken and the other left unharmed; also one half of a tree would be killed, and the other half untouched.

THE BLOOMING OF FRUIT TREES was in our neighborhood something wonderful. There are numerous old orchards, the trees in which are fit only for fire-wood, yet every worthless, half-

decayed old tree was completely sheeted with bloom. Nor were the valuable trees less full. My little *cordon* apple-trees were what the name implies, garlands; and my bush apple-trees were filled from the ground to the very top, forming the most beautiful monster bouquets it is possible to imagine.

THE RED MAPLES have shed their seed. I have four trees, and am thankful that only one, and this not the largest, is a bearing one, but this supplies seeds enough to make it a complete nuisance. The fall of the maple keys is worth watching. The heavy end, which contains the seed, is downwards, while the wing acts as a parachute, and this being one sided, the key as it falls takes a rapid spinning motion, which delays its descent, and allows the least breeze to waft it to a distance from the tree. In watching this beautiful contrivance for the dispersion of the seeds, one is inclined to forget the trouble that the young maples will give him as weeds, springing up in every corner. A skilled sower could not cover the ground more evenly with grain than it is now strewn with maple-seeds.

TREE-LABELS.—If anything illustrates the "depravity of inanimate things," it is a tree-label. If any one is careful to have the wire loose, I am, yet I go about and find here and there some branch has grown so out of all reason that the wire is already strangulating the bark. Let me advise those who have set trees this spring just as they came from the nursery, to go over them at once and look to the labels. The nurseryman, when he wires on his tag, puts it there that the tree may be identified by the purchaser, and he fastens it securely. The wire is twisted on tight, and if left thus, strangulation and injury will result. With cherries and peaches, I find it makes no difference how loose the wire is. If it hangs in a crotch, the wire will somehow get imbedded in the bark.

PLANT-LABELS—by this I mean those stuck in the ground, as distinguished from those tied to trees and shrubs—are also annoying. If small, they will get lost at the first hoeing, and if large they disfigure the beds. If there is a garden workman who appreciates the importance of a label I have yet to make his acquaintance. I have adopted a stake so large that it can not be hoed up without considerable trouble. In small gardens one can trust to memory, but where the plants are numbered by hundreds, and many things are new and on trial, a label becomes a necessity.

PACKING PLANTS.—What a difference there is between good and bad packing! Most florists and nurserymen put up plants admirably, but once in a while one makes bad work of it. The general fault is too little moss or other packing material; sometimes this is too wet, and the plants put in so loosely that they can move about. Last year I paid \$5 for some plants, and as much more for express charges, from a distant nurseryman. When the box was opened, the whole lot was not worth a dollar. The plants were put in dripping-wet moss, and not closely packed. In the long transit, plants and moss were shaken up into a mush.

COLUMBINES have bloomed splendidly this spring. Too much can not be said in praise of *Aquilegia cerulea*, from the Rocky Mountains. It is the most graceful and charming of all. Do you know what a beautiful thing our native Columbine (*Aquilegia Canadensis*) is in cultivation? Not only are the flowers more abundant and finer than we usually see it in the wild state, but the foliage is much handsomer. I

think it a much better plant than the related *A. Skinneri*. Last year I obtained from Zurich seeds of a new Columbine, said to be from the Rocky Mountains, called *Aquilegia aurea*. I only succeeded in raising a single plant. It is certainly a beauty, not only in color, but in the form of the flower, which is unlike that of any other species with which I am acquainted.

SHALL WE KILL THE TOADS?—My garden is full of toads, with a rather large poetic license. The more manure and the better the cultivation, the more the toads thrive. This is probably with a sharp eye to business, for insects thrive best in rich land. Bugs are scarce on a gravel bank. But where the ground has been trenched, and the manure worked in unsparingly, and vegetation is rank, there insect-life abounds. And the toad makes his domicile under the cabbage or the squash-vine, and watches patiently for snails, worms, bugs, and millers. That smooth tongue that he darts out with such rapidity looks innocent enough, but it sticks like pitch to every living thing. His power of digestion is excellent. Harris fed one hundred black larvæ, three quarters of an inch long, to a single toad without destroying his appetite. We can not afford to lose such an agency as this for the destruction of insects. He does for the ground what the birds do for the trees. Give the toads the freedom of the garden.—C.

The Apple Maggot-Fly.

(*Trypeta pomonella*, Walsh.)

BY C. V. RILEY, STATE ENTOMOLOGIST OF MISSOURI.

The following letter was received some time ago from J. H. Spatter, Esq., Keene, N. H.:

"GENTLEMEN: We are troubled here with a new pest, which I have seen described by no writer yet. It is a worm about half an inch long—about as large as a large pin. It eats through the apple (fruit) in all directions, coming only to the skin (not through it), completely honeycombing it, rendering the fruit entirely worthless. It prefers the early sweet apple, commencing its ravages about the time it begins to ripen. Also attacks the later sub-acid apple 'Seek-no-Further,' etc. It does not puncture the skin. If you can give us its history, *modus operandi*, and destruction in your *Agriculturist* you will confer a great favor on the sufferers."

The matter being referred to Mr. Riley, he sends the following:

The insect referred to by your correspondent is known as the Apple-maggot, in contradistinction to the notorious and more wide-spread Apple-worm or Codling-moth. This last occurs all over the land, and was originally imported, with apples, from Europe. The insect which Mr. Spatter refers to is, on the contrary, an indigenous species, and feeds naturally on our wild haws or thorn-apples, and, as I have proved, also on our crabs. It was first described by the late Benj. D. Walsh in the *American Journal of Horticulture* for December, 1867, and further treated of in his Report as Acting State Entomologist of Illinois. Prior to the year 1866 it was not known as an injurious insect, but since then it has done much damage to apples—and especially to tender-skinned varieties—in Massachusetts, Connecticut, New York, and Vermont, and now we may add New Hampshire to the list.

This insect differs notably from the Codling-moth in the following respects: The parent fly has two transparent wings clouded with marks as in the engraving (fig. 1), and it consequently

belongs to the Order of Two-winged Flies (*Diptera*). The Codling-moth, on the other hand, has four scaly wings (appearing powdery with the unaided eye), and belongs to the Order of Scaly-winged Flies (*Lepidoptera*). The former is single-brooded, while I have clearly established

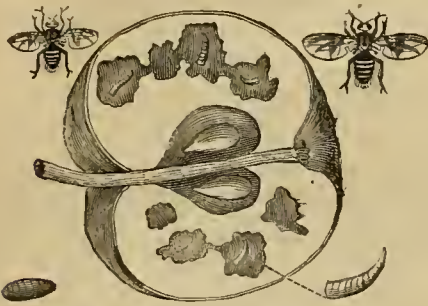


Fig. 1.—APPLE MAGGOT-FLY.

the fact that the latter is double-brooded. The one under consideration burrows in all directions, and in varied numbers, in the flesh of the fruit, giving it a discolored, honeycombed, rotten, and filthy appearance, but seldom penetrating to the core; while the other works for the most part around the core, and does not, directly, do so much harm to the flesh. The maggot is white, footless, tapers anteriorly, with no distinctive head; it quits the apple and enters the ground, in which it merely contracts until its skin hardens to a smooth, shiny (coarctate) pupa, with no indications of the future state. The Apple-worm, on the contrary, inclines to pink in color, has sixteen legs, a distinct head, spins a silken cocoon above ground, and, casting off its skin, assumes the chrysalis state, in which the members of the future moth may easily be traced. The parent flies of the apple-maggot do not make their appearance until July, and the pupæ remain quiescent underground all through the winter and spring.

No remedies for this pest have ever been suggested, and as it does not affect our cultivated apples out West, I have had no opportunity of experimenting with it. The remedies which would suggest themselves, from the habits of the insect, are of too expensive a nature to ever be generally used. Thus, by entirely covering the ground with flagstones, bricks, or any other hard substance, the maggots would not only be effectually prevented from completing their transformations, but such as are already in the



Fig. 3.—MILK-WEED FLOWER.

ground could not emerge as flies. Covering the ground thickly with salt, ashes, lime, or other substances might have a similar effect, and should at least be tried, especially in isolated orchards. It is also very certain that destruction of the infested fruit, either by feeding into cider, and stirring and disturbance of the ground in spring, so that birds and other predacious animals may get at the pupæ, are preventive measures, and we have no doubt will be attended with good results.

Not the least interesting or important feature in this insect's history is the fact that it exists all over the country, West as well as East, feeding on our wild haws; while it is only in the Eastern States, already indicated, that it has taken to feeding on the cultivated fruit. It furnishes one of the most perfect illustrations of the manner in which a new habit may be formed, and there is far more danger that this

Eastern race, which is so appreciative of the more delicious cultivated fruits, may spread until it also becomes a nuisance in the West, than that our Western maggots, which are now content with the more insipid wild fruit, should likewise learn to attack the cultivated kinds. In the event of such spread of your Eastern Apple-maggot, we should have in the West two distinct branches of the same species, the one working on wild fruit, and never multiplying unduly on account of the scattered nature and greater scarcity of its food, the other working on cultivated fruit and—because of the abundance and concentration of such fruit in orchards—multiplying and rioting in it in the manner described by Mr. Spatter.

As the Eastern-bred specimens in the Walsh cabinet were destroyed in the great Chicago fire, I should be pleased to get some to place alongside of those in my cabinet which have been reared from wild-haws and crabs here. For this purpose I hope Mr. Spatter will send me some of the pupæ next fall, mixed with moist earth, and inclosed in a tight tin box.

In further illustration of the difference between the Apple-worm and Apple-maggot, I introduce an engraving (fig. 2) of the first-named also.

St. Louis, Mo., May, 1872.

“What Ails the Bees' Legs?”

Last year we received complaints, accompanied by specimens, of a curious trouble with the bees. As the matter came to our notice late in the season, we thought it better to defer an



Fig. 1.—BEE WITH LEGS CLOGGED—(MAGNIFIED).

explanation of the difficulty until the time at which it is likely to occur should come round again. In the cases referred to the bees had some extraneous matter attached to their legs which impeded their movements to such an extent that the insects were unable to climb up the comb, and perished in great numbers. A



Fig. 2.

very much magnified bee, with its legs thus clogged, is shown in figure 1. It will be seen that numerous pear-shaped masses are attached to the legs; a single one of these objects is shown in figure 2. These curious bodies are the pollen masses of the Milk-weed (*Asclepias*) or, as it is sometimes called, Silk-weed. There are several species of *Asclepias*, some of which are very common. Most of them have a copious milky juice, whence their most common name, Milk-weed, and the seeds of all each have a beautiful tuft of silky down, from which is derived the other name, Silk-weed. In an article, “The Relations of Insects to Horticulture,” we have briefly hinted at the reciprocal benefits flowers and insects yield to one another. Flow-

ers furnish in their nectar food to insects, while these are of great service to the plant in distributing the pollen. In most plants, the pollen is an exceedingly fine dust, but in the Milk-weeds and some other plants the pollen grains

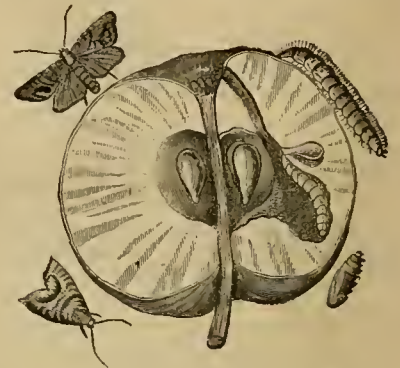


Fig. 2.—APPLE-WORM MOTH.

adhere together in masses. In the Milk-weed they are so compact that it takes a strong microscope to show any grains at all, so closely are they pressed together in a pear-shaped waxy mass. Two of these masses are connected together, as shown in the engraving, and the point where the filaments or strings which connect them join is very sticky. We might dismiss the subject by saying that the bee in its visits to the flowers of the Milk-weed steps upon these sticky portions, which adhere to its feet and legs and thus produce the trouble alluded to. Some may wish to know more about the matter, and we give a drawing of a Milk-weed flower (fig. 3), premising that its structure is difficult to explain by drawings, but if one has the fresh flowers it is more readily understood. The flowers of the Milk-weed are produced in large umbels or clusters, and in the engraving we show only an individual flower. The structure of these flowers is such that the pollen can only come in contact with the pistil through the agency of insects, though, as in the case of the bees, the insects sometimes suffer for their benevolence. The anthers are placed in a column around the pistil, with their filaments united into a tube. The anthers have each at the top a curious appendage or hood, which contains a horn curving toward the center of the flower, as in figure 4. Each anther is two-celled, each cell containing a pollen mass, but, singularly enough, the pollen masses of adjacent anthers are united. In the pollen masses shown in figure 2, the right-hand one came from one anther, and the left-hand one from the next anther to that. Stranger still, the top of the pistil, the stigma, bears projections by which these pollen masses are suspended, the adhesive portion before alluded to being well exposed. This adhesive portion is usually dark-colored and readily visible, and one having a flower can by inserting a pin or needle just below it lift out the pollen masses. This removal of the pollen masses is just what is done by the bees, who, in their search for nectar, bring the pollen in contact with the pistil, a place it would never reach without their aid. We are well aware of the difficulty of describing this matter, and advise those who are curious enough to make such observations to study the structure of the living flower of the Milk-weed, when they will see the singular arrangement of pollen, and be able to understand what is the matter with the bees.



Fig. 4. ANTHHER.

THE HOUSEHOLD.

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

Neighborhood Picnics.

I am glad we are growing wise enough to see the folly of leaving all of blessed childhood behind us, in putting away childish things. We are learning that play is as necessary as work, even for grown-up persons, and that innocent gayety pays. Besides, I do believe that we big folks are getting to feel more like brothers and sisters in the same great family. So we, who got cheated out of most of the fun of holidays in our childhood by the serious-minded parents and teachers of a former generation, are getting our Christmas presents and our holiday picnics at last. Isn't it nice?

Good-by to the old-fashioned village celebrations, with their pompous orators, their tedious processions, their heavy dinners, and solemn cannonading! And welcome to the village and neighborhood picnics, with their friendly greetings, social visits, fun, frolic, basket-dinners, and a safe good time generally, for old and young together! That is the best of it, after all—old and young, rich and poor, learned and ignorant, happy together!

The genuine neighborhood Fourth-of-July picnic is Christmas over again so far as the *spirit* of Christmas goes. Everybody wants everybody else to go to the picnic and have a good time. The more the merrier. Calico and muslin dresses are in the best taste, and no one need stay away on account of dress. Cakes and tarts and jellies and ices are in order, and so are biseuits and doughnuts and Graham gems and plain bread and butter. Everybody can furnish something. If there are homeless ones who can not, we will take them into our party, and make them believe that nobody is obliged to carry provisions, unless it is convenient, and that those of us who make preparations for our own families, always make provision for two or three more, so that there will surely be enough and to spare. And let us be sure that such is actually the case. Let us have all the fruit possible, and free to all—great saucers of berries for children who have never had enough of any good thing to eat at home. Somebody will delight to furnish plenty of nice sugar. Let us have "lots" of lemonade, and why not cool milk also?

In many country places ice-cream is a great rarity, but it need not be too rare or too expensive for our rural picnic. I guess we can manage it. Two or three of us can club together, and furnish milk and cream and sugar. Excellent ice-cream can be made as cheaply as custard. We may be able to borrow a freezer if there is none in the neighborhood. But there should be one in every neighborhood, if it has to be a "company concern."

Let us have plenty of light, sweet, delicate cake, but let it be wholesome. The great bane of cake is in the shortening. If you carry greasy cake to the picnic, somebody's darling will cry on account of "a pain under her apron." Look out for your tart-crusts, too. And don't let the children take lemonade, or ice-cream, or ice-water, when excessively heated.

Of course, you can take the baby along, if it is old enough to enjoy company, but keep it as secluded as possible. "Outdoors" won't hurt it at all, but too much handling and baby talk from a variety of people may excite its nerves. If let alone, nature will divert it with the nearest pretty thing, and you will only do mischief by trying to call its attention to what you fancy might please it better. Give it very plain and simple fare, if you feed it—as much as possible like home-food. Go prepared for a shower, with umbrellas and extra shawls.

At a picnic of this sort, every one should be ready and willing to help make the day as comfortable and pleasant one for all the rest. If you do not set tables, but simply spread your table-cloths on the grass and pass things around, sitting in groups here and there, there will be little work to do. Whatever work is to be done, the young men and maidens should take upon themselves. It is just

the opportunity country boys and girls need, and they will get a first-rate time out of it.

It is a common mistake to stay too late. The children should get home safely before the earliest bed-time. It is an excellent plan to go in the forenoon, have a good dinner in the grove at noon, and take quiet suppers at home. Let us have music and games, and perhaps dancing and swinging and boat-riding. There is no harm in having a good speech, but that should not be the main thing at such a social picnic. We neighbors might a good deal better talk together about our common interests than be talked at by an outsider. It is our nation's birthday—Fourth of July is—and we are the people, you know, and we had better see what kind of people we are when we are together, and what we can do to make better governors of ourselves for the great nation that we are. R.

Trapping Rats and Mice.

Most people, but especially those who live in the country, are at one time or another annoyed by rats and mice. The destruction caused by these animals amounts annually to a large sum in the aggregate. The garret, the cellar, the store-room, and all sheds and out-buildings belonging to the house, are liable to be infested by them, as are barns, granaries, poultry-houses, and other of the farm buildings. Poisoning is often attended by such unpleasant results, that it is not to be commended, and trapping is the most satisfactory manner of extermination.

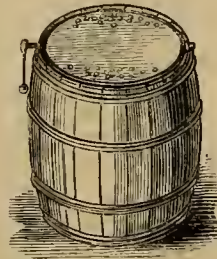


Fig. 1.—BARREL TRAP.

Much may be done in the way of keeping rats and mice out of an apartment or a building. If a cellar is well cemented, the only chance a rat has to enter is through an open door or window. All rat and mouse-holes in store-rooms should be closed. Strips of tin or zinc tacked over the holes will be of service. When the way of ingress and egress is stopped the animal must hide somewhere in the room. Hence, no unnecessary lumber or rubbish that will afford a harbor should be allowed to remain. If we did less to make our buildings attractive to rats we should have fewer of them. Traps of various kinds are sold at the stores, some of which answer a good purpose. Almost any kind of a trap will catch a mouse, and the foolish little fellows are not deterred by the fate of a comrade from seeking a similar one. With the rat it is quite different, and it takes considerable cunning and patience to circumvent an old rat that knows traps and avoids them. The best way to manage these old stagers is to patiently bait them at the traps, which should be so arranged as not to spring. When the rats have ceased to be suspicious of the trap, and will come to take their food there, then is the time to catch them unawares. If a steel trap or any of the ordinary wire traps are used, they should be thoroughly washed after a capture. A gentleman who is very expert at rat-catching informed us that

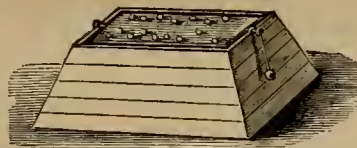


Fig. 2.—MOUSE-TRAP.

he considered this important, as a rat will very rarely go into a trap in which one has been caught unless it be well washed.

A farmer friend, who has given considerable attention to the vermin question, gives us the following: "Have traps everywhere. I give some illustrations of handy traps, which can be made in odd hours, and which might be placed where the vermin are expected. Variations of the same plan

of traps will suggest themselves. Triangular pieces of tin, fastened about three feet above the floor at the corners of sheds, stables, and barns, will prevent rats from climbing up, while they will not prevent them coming down. And lastly, let it be

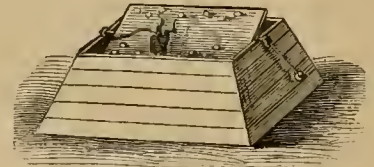


Fig. 3.—TRAP AT WORK.

remembered that owls find their natural food in such vermin, and will do no harm in the hen-roosts if these are kept closed at night. Therefore, if an owl should be seen around the premises in the dusk of the evening, it is not wise to rush to arms at once to destroy him as an invader of the peace. To make the traps, take a barrel (fig. 1) and support the head on pivots; a weight is fixed to one pivot to keep the head in position; a few grains of corn are glued on to the head. When a rat or mouse steps on the head it turns and the animal drops into the barrel; the weight immediately brings the head into position again. The trap (fig. 2) is a smaller one, for mice, made of wood or tin, on the same principle. These traps should for a few days be set in the haunts of the vermin, fixed so as not to work, so that they will become accustomed to them. Then set for use. Fig. 3 shows the trap in operation.

Home Topics.

BY FAITH ROCHESTER.

HINTS TO VISITORS.—Do people who always keep help, and who entertain few guests, understand that the hospitality of other people is often a very serious matter which they can ill afford?

I have known city people to give up housekeeping and go to boarding, because they could not afford to entertain the company which they could not escape. Country cousins and old neighbors coming to the city on errands of business or pleasure, used their house as a sort of free hotel, taking their own welcome for granted, and giving as an equivalent for the trouble and expense caused only invitations for return visits, which they knew would never be made.

It is certainly very convenient to have friends in the city, who will be really glad to see us at any time, and who can cordially and unaffectedly urge us to stay long and come again. One who has such sincere friends, need not be ashamed to accept their invitations, though unable to make any return of hospitality. Mutual love is sufficient reason, and will make all straight.

I hope we all of us know the pleasure there is to be found in entertaining our friends, and in making visitors comfortable and happy in our homes. But when we already have more work than we can perform or greater expenses than we can easily meet, we can only wonder at the assurance with which people who care nothing about us, make themselves at home in our houses. I have heard my mother tell of the family that quartered themselves upon her one night, when her own family was young and numerous—a man and his wife with two or three children. The woman of the party gave mother a very cordial greeting, but mother was obliged to confess that she did not remember the lady. "Why, don't you remember," said she, "that our folks used to sit in the church-pew adjoining yours, when your father's folks lived in Massachusetts?" With great effort mother remembered or pretended that she did, and on that pretext the traveling family got a good lodging and two or three meals.

Country people suffer quite as much as city people from selfish visitors—perhaps more. A whole family of city relatives will sometimes swoop down upon some farm-house, expecting all sorts of attentions from people who can not wait upon them

without overtaxing themselves. Hard-working people feel the hardness of their lot more than ever when brought into contact with the elegant leisure paraded by their unthinking visitors. Women who live at the old homesteads of their husband's families, sometimes suffer a good deal from such visitations, though they may suffer cheerfully, because they love and enjoy their visitors so much. This mitigates the severity of the care and labor, it is true, but the care and labor are there all the same, and the housekeepers and mothers will be especially liable to suffer in consequence.

Sometimes visitors realize this, and make themselves useful in many ways, saving steps for the busier members, and warding off trouble by attention and patience. It is always help for the parents when visitors win the children's love and confidence and manage to keep them interested and happy with innocent pleasure.

There are mothers, to be sure, who would rather be set free to take care of their own children, if that were possible, but they may be thankful if there is any one to watch over the little ones wisely while they are unavoidably tied by household tasks.

Does that sound heartless? Yet on this subject of mothers' rights my heart is especially tender. Even more so, however, in regard to children's rights. But when I set out with this topic I was going to say to visitors in general what no hostess will ever be likely to say to any guest in particular.

If you really want to help the "lady who does her own work" while you make her a friendly visit of a few weeks, probably the best thing you can do is to wash the dishes regularly. If she has a little girl or boy to do this work for her, there are other regular unavoidable tasks, like sweeping, dusting, taking care of bedrooms, which you can do without asking questions. Whatever you do, try to take something off from her hands and mind, so that she may be relieved of all concern about it.

"Too many cooks spoil the broth," and for this reason the one who is accustomed to do the cooking, and who knows just what is in the house and where it is, may as well keep to that department generally. Dish-washing is as easy as any work, but it is something that *must* be done, and often it drags along most unpleasantly, when one has frequent interruptions from small children and from callers.

When you visit at a house where there is plenty of hired help, you should still be careful not to make unnecessary trouble and labor.

ANOTHER WORD TO MEN.—Mr. Rochester says I would do well to advise farmers to quit work early, wash up, and put on their clean linen coats before supper, and get time to read a little while on the porch or piazza, before dark.

I say, "The clean linen coat by all means, if they want the pleasure of taking baby in their arms."

He says, "It does a man a deal of good to feel dressed up and decent once a day, if only for half an hour. Every hired man ought to enjoy this relief. I notice that good hired men don't grumble so much about being set to work too early in the morning, as about being worked too long at night. They want a chance to lounge about and chat with other folks a little while before bed-time. In the hottest of haying weather it is better to work late, and take a good long rest in the middle of the day, of course. But I believe in early suppers and evening rest and recreation as a general rule."

"And in clean clothes, too," say I. And then, if we can all have a ride, or some entertaining family reading, or a social game of some kind, it will do much to save us from feeling like drudges and slaves, and will help us to be kindly affectioned one toward another.

DRYING CORN.—During those months when green corn is out of season, dried corn may be made into a very palatable dish. I was told last year that the easiest way to dry the sweet corn (and we never dry any other) was, to cut it from the cob, spread it in the sun, and dry it without any scalding. This was said to be just as well as to go to the trouble of scalding the corn, either in a kettle of water, before cutting, or in the oven afterwards. I could not quite believe it, and did not try it. I did not think the dried corn would be as sweet as when cured

more rapidly. When I had an opportunity to make a comparison, my previous opinion was confirmed. The corn, simply sun-dried, lacked much of the sweetness and delicacy of flavor that I had always found in dried sweet-corn. So this year I shall scald the corn on the cob, putting it into boiling water, and cooking it a few minutes, then cut the corn from the cob as closely as I can, without shaving off the cob, scrape off the sweet yellow bits gently with the cut corn, spread all upon plates, and set the plates into a warm oven. When the corn is dry enough, so that two plates may be emptied together without spreading the corn too thickly for even drying, I shall probably set the corn in the sunshine, on a shed or out of reach of chickens and kittens. To keep off flies and bees I will spread over it a piece of mosquito-netting. When well dried, I shall tie it up in a cloth-bag, and hang it in a dry store-room. Before winter I will examine the corn at the top, to see if insects have laid eggs in it, and if I see any sign of their eggs or larvæ, I must spread it on plates again for a quick scalding in the heat of the oven. But I have never had corn get wormy. Next winter we will have sweet-corn on the table as often as twice a week, regularly, "wind and weather permitting." It shall be washed in cold water, and the hulls that rise on top of the water shall be turned off. Then it shall be put in a stew-pan, with cold water enough to soak it and boil it tender. The stew-pan shall be set upon the back of the stove, allowing the corn to heat slowly as it soaks. Then half an hour's boiling will be sufficient. Sometimes it shall be seasoned with rich milk (cream, when cream is plenty, but milk is good enough) and a little salt. This may be poured over toast or over dry bread, previously soaked in hot milk. Sometimes we shall season it with butter, salt, and a little black pepper, and crumb crackers in, oyster fashion; and sometimes we shall put in neither bread nor crackers, but fresh white gems—as we sometimes do, pot-pie fashion. And the dried corn will be good and wholesome, almost any way you can fix it.

Some housekeepers boil the corn as though for the table, before cutting it from the cob, and then do little more than soak out the dried corn when the time comes for cooking it. It can not be as sweet, I think, for so much boiling. For when you boil sweet-corn, the water in which you cook it becomes quite sweet, so that you might boil down the water in which you had cooked two dozen ears of corn into a spoonful or more of sweet-corn molasses. The longer you boil your corn, the sweeter the water in which it was boiled becomes. This sweetness ought to go into the dried corn, and not be thrown away.

Perhaps some one thinks that is a good reason for not boiling the corn at all, and I should think so myself, only I do not like to waste the milk of the corn, as one must in cutting it from the cob without scalding it enough to harden the juice a little. That is my reason for the water scalding. Then I put it in the oven and dry it rapidly at first, because I have learned that the flavor is best preserved if the outside is dried so quickly that the inside has no time to change before it is shut in by the dry outside or crust. One must be careful not to scorch it.

DRYING BERRIES AND OTHER FRUIT.—The last rule mentioned holds good in reference to drying berries or any kind of fruit. If you spread the sweetest of blackberries out to dry gradually in the sunshine, you will lose a large proportion of their goodness. The seeds will be left to you, and the color and the sourness, and a part of the flavor, but you can not get the best of pies out of the seedy things. Sister L. wouldn't do that on any account. She takes them as soon as they are brought home and spreads them rather thickly on earthen platters or plates, and puts them into the warm but not too hot oven for a few hours, then under the stove, unless the sun shines hot. Canning is carried on extensively in the same family, but when pies are expected twice a day, without fail (how can a housekeeper stand that?), dried fruit is also in demand. She dries apples, pears, peaches, etc., in the same way, and I have seen none better than hers.

Young housekeepers know so little, sometimes (at least, I did once!), that it is safe to suggest that of course all dried fruit or vegetables should be soaked in cold or tepid water, or be put to cook in cold water, coming slowly to a boil. Dried apples are just as good, so far as I can see, to be washed and put upon the stove at once in cold water, without soaking, heating gradually and stewing gently until they are done, as when soaked over night.

Nothing acid should be cooked in an iron dish or in tin that has worn down to the iron. Porcelain kettles, earthen stew-pans, or tin dishes, unworn, should be used.

"THE DOCTOR'S PRIZES."—Uncle Tim, of *Hearth and Home*, and "The Doctor," of the *Agriculturist*, make me almost wish to be a child again, there must be such pleasure in working for their prizes. I would like to see some of the letters from children which those worthy gentlemen get, especially the lists of animals and flowers seen in May. That is the first prize-business that has come within the range of our eldest child's abilities, and now we hear about his "lists" every day, and see the little fellow working his jaws in his efforts to print the names of the flowers and animals he sees, just as we spell them for him. He persists in making out both lists, which is good sport for him and won't hurt any one. For he knows how to print, and spells by the sounds of letters, though he has never been taught to read. I hope the "Doctor" will offer more prizes for work that will help on the healthy development of our children's faculties. Not that I care particularly for the prizes, though I dare say they are worth getting, but work that exercises a child's faculties *happily* is always good in the way of education. The puzzles, rebuses, anagrams, etc., which many narrow-minded people despise, are excellent in this way.

NETTING IN THE WINDOWS.—One thing that made the sitting-room at the B.'s seem so cool and pleasant in the summer-time, was the netting in the windows, *in place of the glazed sashes*. They had blinds upon the outside, which they would close to shut out the storm or hot sunshine when they chose. One window opened upon a piazza. The other two looked out upon the fruit and vegetable garden. They had frames to fit the windows with thin, firm white netting, stretched and tacked upon them. These were easily put in and taken out of the windows. They gave the room a good supply of fresh air, and kept out the mosquitos, moths, flies, and other insects generally. When the weather was cool, the room was heated by a register. It is too bad to take down the stove in the sitting-room as soon as warm weather comes, there are so many cool nights and mornings, and rainy days, when rooms are uncomfortable without fires, and it seems as unpleasant to have to close the windows in order to keep warm. After we have grown accustomed to open windows, it is hard to breathe with the room all closed. How to get the most fresh air together with a comfortable degree of warmth, that is the problem. We must have fresh air, anyhow.

Any woman can tack a square yard of netting across the lower half of a window, upon the outside, if that is the only way she can get a chance to breathe pure air without letting in mosquitos.

Fritters in Haste.—Sometimes an emergency arises when an extra dish is required, and the eggs can not be found, or the hens are sitting, and no eggs are to be had. To one quart of flour add one measure of Horsford's Baking Powder or its equivalent in cream-tartar and soda. Cut in two spoonfuls sugar, soften a piece of butter the size of an egg, and salt as to judgment, then milk enough to make a thin batter. Bake quickly on a griddle. The sugar makes them brown as well as eggs. If one has buttermilk, Horsford's Preparation and the butter are not necessary.

Indian Cake.—Two cups flour, two cups Indian meal, one measure Horsford's baking powder, half a cup of white sugar, and four table-spoons of melted butter, salt, and milk to make a rather thin batter. Bake in a quick oven.

BOYS & GIRLS' COLUMNS.

About Our Prizes.

In the *Agriculturist* for May, I offered prizes for the best lists of plants in flower, made by the girls, and the best list of animals made by the boys. The lists were to reach me by the fifteenth of June. As this part of the paper goes to press on the fourth of June, I shall be obliged this time, as I have been before, to announce the awards in another part of the paper. As there are some ten days yet in which to receive the lists, I can not tell you how many there are, but for the past few days they have been coming in quite lively. I do not expect near as many lists as there were stories, as it requires a great deal more time and care to make out such a list than it does to write a story. Besides, with boys and girls who live in the country, it is a very busy time of year, as many of them have to help at the farm work and take care of their gardens. The parents of some of you have written to thank me for proposing something that will teach you to use your eyes and set down what you see. Now that so many of you have done it with the hope of getting a prize, I hope some of you will continue for your own improvement, and another spring make a record of the time of blooming of the principal trees and plants about you, and the first appearance of the familiar birds. Lists like these made each spring, will become an interesting record of the seasons. The hot weather is now upon us, and we do not any of us care to do much in-door work, at least I do not, and you may be sure it is no small task to read over the stories and lists, and decide upon prizes. So we will let the hot months go by without proposing any prizes. But you must be ready for some more when the dog-days are over and the cool nights come. THE DOCTOR.

Wonderment.

So long as that little duckling has been conscious of anything, its world has been the bounds of the shell which inclosed it. It could see the light shine through its walls when the mother was off of the nest, and probably wondered what was outside. Now that it has grown large enough and strong enough to break its shell, it looks out in perfect wonderment. We do not know that ducklings think, but if they do, we can imagine this little fellow as hesitating about leaving the cosy shell that he has known, for the unknown and untried world. But he has grown too large and must leave. The little chap has never seen water, and we are quite sure has never heard of it, yet when he goes out and sees a puddle or a pond, he will go for it at once, and swim off without the least teaching. Is it not strange that if we set three kinds of eggs, that are not very unlike except in size, a hen's, a turkey's, and a duck's, the young birds will at once behave so differently?



The chickens will scratch for food of their own accord, the young turkeys will run for their food and not scratch, while the ducklings will neither scratch nor run but waddle and swim. These birds are guided to do these things by what is called instinct.

Aunt Sue's Puzzle-Box.

I have received a great many lists of square words from "PLOW" and "CARE." Some I shall not notice, as proper nouns and obsolete words were used, contrary to orders. Many of my correspondents conscientiously refrained from using a word twice, which necessarily curtailed their lists.

I will credit the names as they stand, and another time we will start more fairly, with a better understanding.

From the word "CARE" B. F. Bidwell made 96 squares; Leander J., 45; M. O. N. Key, 23; H. H. Clarke, 23; O. A. Gage, 20; Ajax, 20; Bay State, 14; A. B. Leach, 13; Edward P. S., 13; Frank Winship, 12; W. E. H., 12;

Gustavus M., 11; Minnie T. B., 4; Annie M. R., 4; Willie G., 3.

From the word "PLOW" B. F. Bidwell made 74 (1) squares; A. B. Leach, 21; O. A. Gage, 19; Bay State, 18; R. W. Moore, 13; Frank W., 10; Edwin E. P., 7; Gustavus M., 8; Minnie T. B., 9.

Now, who will send me the greatest number of squares on the word "OVEN," using no proper nouns, no obsolete words, and using no word (except "oven") twice?

281
326
607

Roar! Givv
Sweet milke

Uesl & in

IBEX

427—Illustrated Rebus. As we have not had any rebuses in some time, we give you a good long and tolerably difficult one to exercise your ingenuity over.

ALPHABETICAL ARITHMETIC.

P F N) N R E D Y O (F R D I
U I F

F Y D
R T R
P P U Y
P Y R R

P R I O
P P N I

P P U OTIS A. GAGE.

EQUIVOCAL WORDS.

1. Visible—plain—seeming—unreal.
2. A sphere—a game—a grand party.
3. The duty of a cook—the work of a seamstress.
4. A dog-fight—temptation—refreshment.
5. An animal—to carry—to endure.
6. What you are—skill.

JOHNNIE.

ANAGRAMS.

1. I scorn a mop.
2. Ceding zero.
3. Fix lime deep.
4. Sir B. Highe.
5. Simply rat.
6. Not lined.
7. I send a trace.
8. Do pin trees.
9. M. Peters died.
10. Paint the pear.

CROSS-WORD.

My first is in stable but not in barn.
My next is in knitting but not in yarn.
My third is in peach but not in plum.
My fourth is in paste but not in gum.
My fifth is in maple but not in ash.
My sixth is in linen but not in crash.
My seventh is in minute but not in hour.
Look up for my whole, 'tis a turret or tower.

JOHN S. VAN OOSTERHOUT.

DOUBLE ACROSTIC.

A blustering wind around you sings:
I am the sign of many things.

1. Shackles.
2. To be in.
3. An animal.
4. To decline.
5. Bustle.
6. A boat.

R. T. ISBESTER.

PI.

Who weets dan herfs bist lenvar yad!
Ow! lamicus het rai!
Swel!f weer renve nesc os yag,
Ro tunear lafh os rifa.

J. E. M.

ARITHMOREMS.

1. 7110020011900.
2. 100200500117.
3. 6050250160.
4. 1050050160.
5. 71601.
6. 50053.
7. 40803.
8. 04010.
9. 5580.
10. 0150.

NUMERICAL ENIGMAS.

1. I am composed of 15 letters;
My 7, 1, 8, 14, 5, 12, 4, is found in every school.
My 5, 3, 9, 11, 6, is much used in a dairy.
My 2, 10, 13, is generally found on a farm.
My 1, 14, 15, is shy.
My whole is the name of the author.
2. I am composed of 12 letters:
My 1, 2, 11, 8, 3, 9, is a boy's name.
My 9, 5, 11, 4, is a household utensil.
My 12, 1, 7, is an animal.
My 8, 12, 6, is a hiped.
My 5, 10, is an interjection.
My whole is a city.

E. MARTIN.

ANSWERS TO PUZZLES IN THE MAY NUMBER.
CROSS-WORD ENIGMA.—Washington.

DIAMOND CROSS-PUZZLE.

A
AGE
SCRAG
UNAIDED
REDUCTIVE
PLEASURABLE
AGRICULTURIST
PROFITATIVE
PERSUASIVE
NOURISH
MAIZE
ASK
T

PI.—Early to bed and early to rise
Will make a man healthy, wealthy, and wise.

SQUARE WORDS.

- | | |
|----------|----------|
| 1. ENACT | 2. CROWD |
| NEGRO | RIPER |
| AGAIN | OPINE |
| CRIME | WENDS |
| TONES | DRESS |

PUZZLE.—Goose (made from Og, So, and Er).

DECAPITATIONS.—1. Mark, ark. 2. Oliver, liver. 3. Mabel, Abel. 4. Grace, race. 5. Finch, inch. 6. Salad, a lad.

GEOGRAPHICAL ANAGRAMS.

- | | |
|---------------|--------------|
| 1. Italy. | 5. Beverly. |
| 2. Naples. | 6. Trenton. |
| 3. Rochester. | 7. New York. |
| 4. Salem. | 8. Boston. |

NUMERICAL ENIGMA.—Calceolaria.

TO CORRESPONDENTS.

A. G. S.—The answer to that original charade (1) "My first stands for company, my second shuns, my third calls, and my whole entertains company," is "Conundrum," and may be found in some of the most ancient puzzle-books that were ever published.

Thanks for letters and puzzles to Laura V. Matthews, Alice N. P., O. A. Gage, Belle Sparr, W. E. H., B. F. Bidwell, and Minnie S. G.

Little Mischief and her Doll.

Ah, ha! Little Mischief, you are caught at it! Oh yes, because you are obliged to take a bath, you think it will be good for dolly, do you? It will be a nice doll that you will have after this scrape. Probably the paint will



wash off, the kid arms and legs will dry all out of shape, and the poor thing, instead of being the better for its bath, will look sorry enough to be sent to a dolls' hospital. The doll in the picture looks as if it knew that the bath was not good for its constitution, which is more than Little Mischief knows now—but she will learn.



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THE LITTLE DRILL-MASTER.—Drawn by Wm. M. Cary, by permission of Goupil & Co., from a painting by G. Arnold.—Engraved for the Am. Agriculturist.

The Fourth of July.

Hurrah! you all say. So I say, "Hurrah for the Fourth of July!" What are we all going to do? For every American boy, born or adopted, must do something on the Fourth. What a saving of cents (I won't say pennies, for we have no such coin) there has been in view of a proper celebration, and many will think necessary to go to some unusual expense in honor of the day. Perhaps you youngsters will ask me what I am going to do. I can recollect when I was foolish enough to stay up all night so as to be ready to make a terrible noise at day-break, and then be sleepy all the next day—a course that I can not recommend to any of you. Well, in the first place, the flag must go up; then, if my nephews happen to be here, there will be noise enough without the necessity for my making any. Living in a lone house in the country, I have kept up my old traveling habit of keeping a revolver in some safe place, and on the fourth day of the seventh month it occurs to me that the piece needs cleaning, and as I can not clean it without firing off the charges, why, off they go. Then the rest of the day I shall be very quiet, perhaps go up into my woods which cover the side of a hill, from the top of which I can see a wide landscape, and try to be thankful that my lot is cast in such a pleasant place, where any man of ordinary industry can own a piece of God's beautiful earth, and there are no kings nor emperors to fear. But perhaps you will not be content with such a quiet Fourth, and must

burn powder. I don't exactly know why it is necessary to celebrate with noise, or why we should be so fond of firing the crackers the Chinese use in their idolatrous worship upon our national festival. The fearful burning of the city of Portland, a few years ago, which resulted from the use of fire-crackers, is enough to make one wish that these noisy explosives had never been invented. There is one safe rule for the Fourth of July (and for 364 other days) and that is, to do nothing of which your parents do not approve. If they sanction fireworks and gunpowder-burning, they will take care that no harm can come from them.

It is possible to have a very good time without gunpowder. Look at the little fellow in the picture. I don't know that it is the Fourth of July with him, but it might as well be, for he looks happy enough. He imagines that his army is passing in review, and is band and commanding officer all in one, while the standard-bearer is quite up to the importance of the occasion. The one spectator is so taken up with the review that she does not see the enemy in the rear.

Now, if you were to ask me what would be the best thing to do on the Fourth, I should first advise what not to do—do not undertake anything that will annoy any one else, and do not get so tired that on the morrow you will be glad that the holiday comes but once a year. What I would advise is, to get all the boys and girls together, and have a nice picnic. There are plenty of flowers, and there can be wreaths and garlands, which

are vastly better than powder and crackers, and then of course you will sing the "Star-spangled Banner," "My Country, 'tis of Thee," and such songs, and then some good reader can read the Declaration of Independence, and maybe some selections from patriotic writings can also be read, unless you can get up an original speech yourselves. Do not have too many of these exercises, but just enough to make the Fourth-of-July picnic seem different from every other. Now, do you, boys and girls, both know *why* we celebrate this particular day? It is because on this day our people declared themselves able to govern themselves without any help from a king and rulers away across the water. Our people are now so accustomed to self-government that we accept it as a matter of course. So when you raise your flag on this day, think how much it stands for—the right of people to govern themselves without asking kings and princes what they may do; the right of every one to worship God as seems best to him; the right of every man to his own self and the fruits of his own labor. So our Fourth of July is a day always to be remembered, and our flag is always an emblem to be respected, and even children can understand and be thankful for the blessings that make the day worthy and the flag honored.

So after this bit of seasonable talk, which to my surprise I find has almost come to be a Fourth-of-July oration, I say, don't get tired, don't burn your fingers, but have a jolly good time. This is the wish of

THE DOCTOR.

A Railroad Watch.

Travelers by Railroad frequently find their watches completely demoralized by the continuous jar of the train. To overcome this difficulty has long been a problem with watchmakers, and it is now successfully accomplished in the new grade made by the

American Watch Co. of Waltham.

This Watch is made in the most substantial manner, on the most approved principles, and combines all the recent improvements. It has a new micrometrical regulator, by which the slightest variation can be easily corrected. It is carefully adjusted, and may be entirely relied on to run accurately, wear well, and ENDURE THE HARDEST USAGE, without any derangement whatever. We confidently recommend this watch to the trade and the public as the BEST WATCH FOR THE PRICE IN THIS MARKET.

The full trade-mark engraved on the plate of each watch is "AMERICAN WATCH CO., CRESCENT ST., WALTHAM, MASS.,"

and it is distinctively known as the CRESCENT-ST. Watch. For sale by all leading Jewelers.

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FRAZER'S AXLE GREASE.

Best in the world. Does not gum. Alike in all seasons. Depot, 104 Maiden Lane, New York. Sold everywhere. Send for Circular.

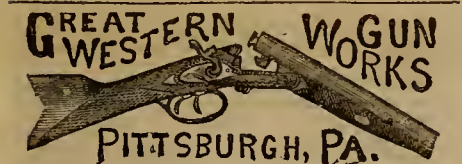
The Best Water Pipe, also the Cheapest, when strength and durability are considered, is the TIN-LINED LEAD PIPE, manufactured by the COLWELLS, SHAW & WILLARD M'F'g Co., No. 213 Center street, New York. Price, 15 cents a pound for all sizes. Send for circular.

Few implements that farmers use have been tested and improved for so many years, that they are as near perfect, as anything can be made of wood and iron. The Blanchard Churn is one of this kind.

SAFE AND PROFITABLE.

BONDS of the CITY of LA GRANGE, LEWIS CO., MO., issued for MUNICIPAL purposes.
REGISTERED BONDS of LEAVENWORTH CO., KAN. Value of property OVER \$20,000,000.
BONDS of the VILLAGE of NEW LONDON, WIS., having but 10 and 12 years to run, all payable in New York City. For sale at prices that will pay from 12 to 15 per cent on the investment.
Also, other first-class investment securities.
Call or send for descriptive Circulars.
THOS. P. ELLIS & CO., Bankers, No. 14 Pine street, N. Y.

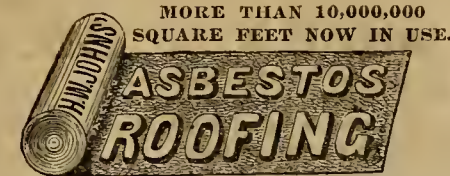
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GOOD CABLE SCREW WIRE
Boots and Shoes better than pegged or sewed.



Warranted to shoot close and hard at long range. Double-Barrel Breech-Loading Shot-Guns, \$10 to \$100. Double-Barrel Muzzle-Loading Shot-Guns, \$3 to \$100. Single Shot-Guns, Rifles, Revolvers, Pistols, Gun Material, etc. Send stamp for Price-List.

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HOW to obtain a Cast Cast-Steel Plow for five dollars. For particulars, address COLLINS & CO., 212 Water st., New York.



MORE THAN 10,000,000 SQUARE FEET NOW IN USE.
FIRST PREMIUM (MEDAL) AWARDED IN 1870, AND INDORSED BY CERTIFICATE FROM THE AMERICAN INSTITUTE IN 1871 AS "The Best Article in the Market."

The "Asbestos Roofing" is a substantial and reliable material, which can be safely used in place of Tin, Slate, etc., on steep or flat roofs, in all climates, and can be easily and cheaply transported and applied.

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The Oldest, Largest, and Most Perfect Manufactory in the United States.

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Now in use. No other Musical Instrument ever obtained the same popularity.

Send for Price-Lists. Address BUFFALO, N. Y., Or CHICAGO, ILL.



Three weeks is the extent of wear for children's Shoes unless they have a Silver Tip on to protect the toe.

Time is Money.

This old-timed axiom is aptly illustrated in the use of DOOLEY'S YEAST POWDER. It is well known that the common process of raising dough is a slow one, and often attended with unfavorable results from the use of poor baker's yeast and improper heat. With DOOLEY'S YEAST POWDER, the best of rolls, biscuits, corn-cakes, etc., can be made in the short space of ten minutes, and uniform success will certainly attend its use. This is owing to its purity, strength, and the care with which it is manufactured. Dooley & Brother, 69 New street, New York, Proprietors. For sale by all Grocers.

Hear our Side and know why we sell on Trial the best Four-Ton Hay Scale, made at \$75. Free Price-list. THE JONES SCALE WORKS, Binghamton, N. Y.

MONEY MADE RAPIDLY with Stencil and Key Check Outfits. Catalogues, samples, and full particulars FREE. S. M. SPENCER, Brattleboro, Vt.

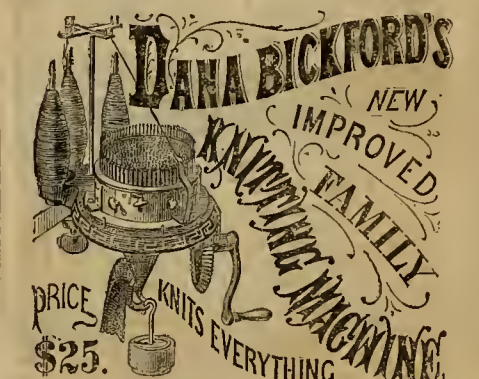
MOWER AND REAPER, combined, Wood's, new, for sale. Address G. TIMPSON, Box 243, Williamsburgh, N. Y.

If You Write and Mail a Letter as Follows:

Messrs. Howard & Co.,
No. 865 Broadway, New York:
Please send me your Price-list of Waltham Watches for 1872, as per advertisement in the AMERICAN AGRICULTURIST.
(Sign Name and Address in full):

You will receive, post-paid, by return mail, a very interesting pamphlet, illustrated with fine engravings, describing the details of the Waltham Factory, and telling how the Watches are made. You will also receive our Price-list, which describes all the different grades of watches, gives weight and quality of the cases, with prices of each, and also explains our plan of sending Single Watches by Express to any part of the country, no matter how remote, with the privilege of examination before paying the bill. Two new Watches have been added to the list, the "Boy's Watch" and the "Railroad Time-keeper." Please keep in mind that we will REFUND the MONEY for any watch that is not satisfactory. Address HOWARD & CO., No. 865 Broadway, New York.

Residents of California, Oregon, and other distant places, will find a great advantage in dealing with us.



A splendid opportunity for every one to aid themselves, their loved ones, or some needy friend, as DANA BICKFORD, of 689 Broadway, New York, is willing to send, for \$25, one of his EXTRA FINE \$35 NICKEL-PLATED FAMILY KNITTING MACHINES. This wonderful Household Assistant is of more service than the sewing machine—as it will knit a pair of socks complete in 30 minutes, and every kind and style of plain or fancy work. It is an easy support to those that require it; to others, a never-ending source of amusement and solid enjoyment. His object in offering such inducements during the summer months is to have it better known before the fall trade opens. Send in your orders with the money at once, with address plain and distinct. Address as above.

AMERICAN SUBMERGED PUMP.

"The Best Pump in the World."



Our Agents report over \$300,000 worth of property saved from Fire this year by these pumps, being the most powerful force-pumps in the world, as well as Non-Freezing.

See October number, page 596, also the Premium-List, page 303, of the Am. Agriculturist. This paper never deceives the farmers. See notice in February number, page 45. Try one. If it don't do the work claimed, send it back and get your money, as we warrant our pumps to do all we claim for them on our circulars.

Send for circulars or orders to the Bridgeport M'f'g Co., No. 55 Chambers St., New York.

An order for nine No. 1 Pumps secures an exclusive town agency.

AMERICAN SUBMERGED PUMP. General agent for Illinois, ALFRED A. RUNDLE, No. 318 North Centre St., Bloomington, Ill.

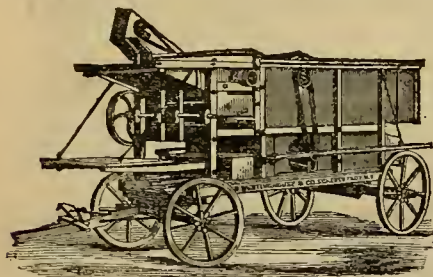


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A CURIOSITY for old and young. Chain 14 inches long of running rings. Sample, 25 cts., with 6 cts. for postage. Circular sent free. Address WILCOX, CRITTELDEN & CO., Middletown, Ct.

**G. WESTINGHOUSE & CO.'S
Improved Threshing Machines
FOR STEAM POWER.**

Four to Ten-Horse Lever Powers. Two and Three-Horse Endless Chain Powers.



These Machines are unequalled for threshing, separating, and cleaning grain in the best manner. Our combined Clover-Huller and Grain-Thresher is also unsurpassed by any in the market. Send for descriptive Circulars Address

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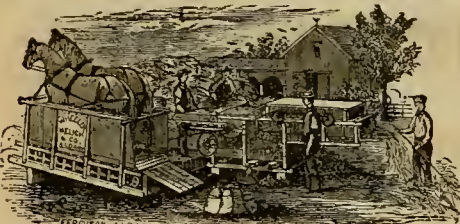
TWO GOLD MEDALS

AWARDED THIS MACHINE

THE BEST OF AMERICA

Harder's Premium Railway Horse Power and Thresher and Cleaner, received, **THE FIRST PRIZE** At Great National Trial, at Auburn, N. Y.

For "Slow and easy movement of horses, 15 rods less than 1/4 miles per hour, Mechanical Construction of the very best kind, thorough and conscientious workmanship and material in every place, nothing slighted, excellent work, &c.," as shown by official Report of Judges. Threshers, Separators, Fanning Mills, Wood Saws, Seed Sowers and Planters, all of the best in Market. Catalogue with price, full information, and Judge's Report of Auburn Trial sent free. Address **MINARD HARDEE,** Cohoeskill, Schoharie Co., N. Y.



**New York State Agricultural Works,
WHEELER, MELICK & CO.,**
PROPRIETORS, PATENTEES, AND MANUFACTURERS OF **RAILWAY CHAIN AND LEVER HORSE POWERS,**
Combined Threshers and Winnowers, Overshot Threshers, Clover Hullers, Feed-Cutters, Sawmills, Horse-Rakes, Horse Pitchforks, Shingle Machines, STRAW-PRESERVING RYE THRESHERS, etc. **Albany, N. Y.**

**Double Harpoon
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Highest Award and Bronze Medal at the New York State Fair and Trial in 1870.
Thirty Premiums in 1870.
Indorsed by 1,000 Farmers in 1870.
Descriptive Catalogue Sent Free.
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N.B. Received several hundred Premiums in 1871.

Hutchinson's Family Cider and Wine Mill.
With single or double curb is the cheapest and best; grinds fine, fast, and easy; makes pure wine and sweet cider, and saves all the fruit. More than 20,000 now in use.
Also Excellent for Cider-Mill, excellent for hand or power.
Large and small Presses.
Mills separate from Presses.
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The most complete variety of Cider-making Machinery. Send for Circulars. **PEEKSKILL PLOW WORKS,** 94 Beekman st., N. Y., or 61 Merwin st., Cleveland, O.

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I keep no other breed of pigs except the Essex. Taking everything into consideration, I regard them as the best, purest, most refined, quietest, and most thoroughly established breed of pigs now extant.

I do not know that they have a single fault, I have never heard any one who examined them carefully object to them except on the ground of color. They are a black breed.

I have heard many farmers say: "If they were only white, they would be perfect." This, of course, is mere prejudice.

When dressed, they are as white as the whitest, and the lard is firmer and whiter than that of any white hog I have ever seen.

"But are they not too small?" They are classed with the small breeds, but they will dress over 400 lbs. They are quite large enough. They are the largest of the small breeds—larger than the small Berkshires, and much larger than the Prince Albert Suffolks, small Yorkshires, or Neapolitans.

So far as I know, I have the largest stock of pure-bred Essex in the United States, and I think my pigs are at least as good as any pure-bred Essex to be found in England.

My prices are reasonable, and I feel certain that I can give good satisfaction to all who favor me with their orders.

My spring pigs are the best I have ever raised, and I am selling sow pigs at reduced rates.

Address **JOSEPH HARRIS,
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Jersey Cows, Heifers, and young Bulls.
Ayrshire Cows, Heifers, and young Bulls.
Guernsey Bull, 2 yrs. old, very fine.
Cotswold Sheep. The famous "Maple Shade Flock," as fine as any in the country. Rams, Ewes, and Lambs.
Dorsetshire Pigs, of the very best blood.
Essex Pigs, as good as can be found in this country or any other.

Perfect pedigrees given with all thorough-bred stock, which may be seen at my farm (Herdendale), Florence, Mass. Send communications to

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Fleetwood Farm,

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Thorough-bred Horses, Trotting Stock, Imported Alderneys, South Down Sheep, etc.
J. W. HUNT REYNOLDS.
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Essex Pigs. Best blood in England. Breeding stock imported or out of imported.
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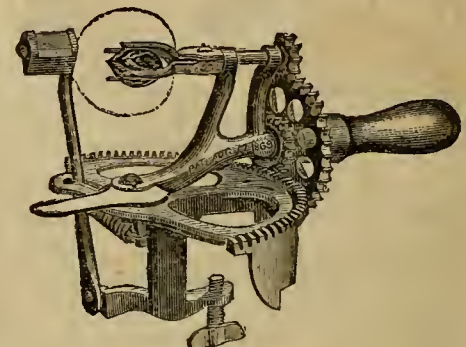
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Refined by means the most simple and effective. Just what sorghum-growers want. In general use for five years. **CLOUGH REFINING CO., Cincinnati, O.**

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This Machine has been largely sold for two years past, and has given universal satisfaction. It is the only practical Peach-Parer ever invented. It is surpassed as an Apple-Parer, so the purchaser needs but one machine for paring both apples and peaches. Sold by the Hardware Trade in all large markets. On receipt of \$1.50 I will send a sample by express to any address.

D. H. COODELL, Sole Manufacturer.
Office, 55 Chambers street, New York.
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P. S.—I am also Sole Manufacturer of the Lightning and Turn-Table Apple-Parers.

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OF
EXCELLENT FARMING
AND SPLENDID
Michigan Pine Lands
FOR SALE,**

On which are **ONE THOUSAND MILLIONS OF PINE TIMBER**, and inexhaustible quantities of Maple, Beech, Elm, Ash, Hemlock, Oak, etc. The grant of lands to the Grand Rapids and Indiana Railroad Company, to build their Road from Fort Wayne, Ind., to Traverse Bay and Mackinaw, Michigan, comprises in its farming lands every variety of soil, from the rich clay loam to the light sandy, and they are found in that section of Michigan, north of the city of Grand Rapids, and contiguous to the great fruit belt on the eastern shores of Lake Michigan, now being rapidly developed by railroad and other enterprises.

Farming Lands are sold to actual settlers, on credit, one quarter down, balance in yearly payments, interest 7 per cent. Persons desirous of locations for farms will, on application at the Office in Grand Rapids, be furnished with Tickets over the Road, entitling them to Return of Fares, in the event of purchasing any of the Company's farming land. For information about the lands, prices, location, etc., address

WM. A. HOWARD, Land Commissioner.
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**1,500,000 ACRES
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NEOSHO VALLEY, KANSAS.
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CARS NOW RUNNING 500 MILES.

The Lands now offered by this Company are mainly within 20 miles of each side of the road, extending 170 miles along the **NEOSHO VALLEY**, the richest, finest, and most inviting valley for settlement in the West.

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The location is healthful and beautiful, commanding an extensive view of the waters of the Bay, and the grounds are planted with shade-trees, shrubbery, and flowers. The cultivated land of about 300 acres has all been heavily limed, and is in the best state of cultivation, adapted to the growth of all the crops raised in this region, but especially adapted to the cultivation of melons, berries, vegetables, and all tree fruits, with which the estate is abundantly supplied, and for which its vicinity to Annapolis and access to Baltimore by rail, and daily and nightly by steamer, furnish ready sales. There are about 4,000 bearing peach-trees; 500 pears, dwarf and standard; and 500 apple-trees now bearing, or all rapidly becoming so, on this property. The location of the Naval Academy, and the cultivated society of the City, furnish superior attractions to those who desire recreation. St. John's College, and excellent Schools, furnish the best opportunity for educating children, whilst the growth of the City is rapidly enhancing the value of all property in the neighborhood.

As an investment for future advantages, or for profit from cultivation, few estates in the country present greater advantages than the purchase of the property now offered, or than the terms for which it can be purchased.

Price, \$25,000, of which \$10,000 to be paid in cash, residue on easy terms of credit.
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The following varieties, the quality of which can not be excelled, will be mailed *post-paid* to any address in the Union upon receipt of price affixed:

Early White Dutch, White Strap-leaf, Red-top Strap-leaf, Yellow Aberdeen, Long White or Cow-horn, Improved American Rutabaga, Carter's Improved Swede, Kirving's Improved Swede, 10 cents per ounce, 25 cents 4 ounces, 75 cts. per pound. Large Yellow Globe, Long White Frooch, Sweet German, 10 cents per ounce, 30 cents four ounces.

\$1.00 per pound. Prices for larger quantities to dealers, either in bulk or packets for retailing, will be given upon application. Address

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Cabbage Plants.—Premium Flat Dutch, Large Drum-head, Improved American Savoy, and Red Dutch for pickling. 75c. per hundred; \$3 for five hundred; \$5 per 1,000.

Address **B. K. BLISS & SONS,** Seed and Horticultural Warehouse, Nos. 23 Park place and 20 Murray st., New York.

Our celebrated *Seed Catalogue and Guide to the Flower and Kitchen Garden* will be mailed to all applicants upon receipt of two three-cent stamps for return postage.

Nurserymen and Dealers, Attention!

Over 200 acres in trees. Our Price-list for fall now ready. An immense stock of Fruit Trees, Standard and Dwarf Pears & specialties. Prices low. Correspondence solicited. Send for Catalogue.

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Flat Dutch, Drumhead, Mammoth, Brunswick, Savoy, Bergen, Mason, Red Dutch, Winniestadt, 40c. per 100, \$3 per 1,000, \$25 per 10,000; 65c. per 100 by mail. Can furnish plants through July. Send for Circular.

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Cabbage Plants, all kinds, prepaid, 100, 35 cts.; 1,000, \$3. **LANSLEY & CO., Poughkeepsie, N. Y.**

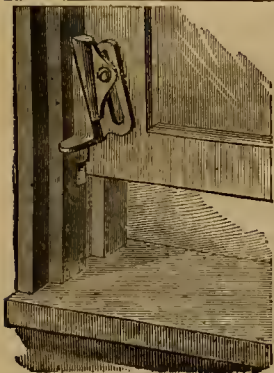
500 BAGS SEED BUCK-WHEAT. Also Millet and Hungarian Grass Seed. For sale by **C. B. ROGERS, No. 133 Market st., Philadelphia.**

WANTED.—A situation in a Florist's establishment as foreman. Can come well recommended. Six years' experience. Address **J. DAVIDSON, 518 Classon Ave., Brooklyn, N. Y.**

NOTICE.

Buckeye Steamer, Drier, Baker, and Range. Most wonderful mechanical combination of the age! One hundred bushels of feed cooked in three hours! Fruit dried in five hours without change of position. Apparatus made entirely of iron. Bakes equal to a brick oven. For full particulars, including an excellent essay upon the advantages of cooking food for domestic animals send a fine illustrated pamphlet, sent free of postage, address

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VINEGAR, Quick! Cheap! Pure! As my plan of making is the best, persons are fraudulently selling Descriptions which I give away. Send three cents to **A. D. STRONG, Ashtabula, O.**

AGENTS and Peddlers for our Press and Strainer. Presses and strains jams, jellies, herbs, vegetables, lard, tallow, meats, cheese, etc.; quick and profitable. Over 60,000 sold in a few localities. Every family wants it. Circulars free. **LITTLEFIELD & DAME, 102 Wash. st., Boston, Mass.**

CINCINNATI National Industrial Exposition.

THE BOARD OF COMMISSIONERS ANNOUNCE THAT THE

THIRD GRAND EXPOSITION

WILL BE OPEN FROM

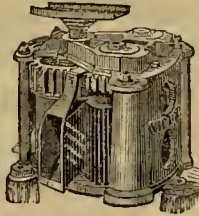
Sept. 4th to Oct. 5th, 1872. Goods will be received from Aug. 14th to 31st.

The Sixteen Grand Departments have been greatly extended, and the Exposition will be the

LARGEST EVER HELD IN AMERICA.

The extensive transportation arrangements for visitors will largely increase the unprecedented attendance of last year.

Exhibitors should make immediate application for space. Rules and Premium List furnished on application.



STANDARD Cane Machinery, For Sorgho and Sugar-Cane.

The only recognized Standards in Cane Machines are the **Cook Evaporator** AND

Victor Cane-Mill.

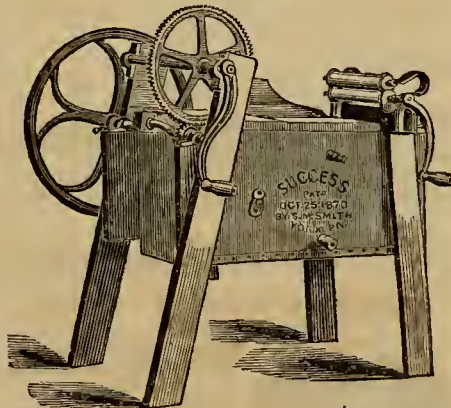
There are of these machines Over 31,000 in use.

They have taken the

FIRST PREMIUMS AT 117 STATE FAIRS. Send for Descriptive Catalogue and Price-list.

BLMYER, NORTON & CO., Cincinnati, O., Manufacturers of Cane-Mills and Evaporators, Farm, School, and Church Bells, Buckeye Thresher, Feed Cutters, Corn Shellers, Corn and Cob Crushers, etc.

THE SUCCESS



WASHING MACHINE.

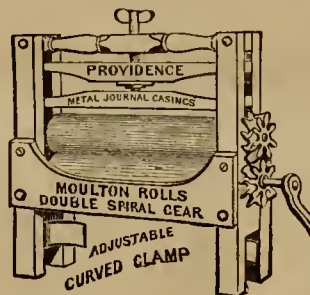
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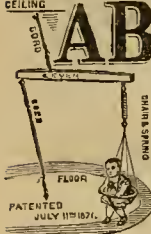
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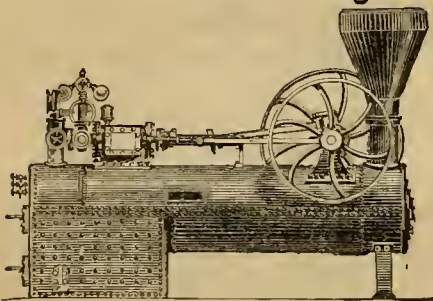
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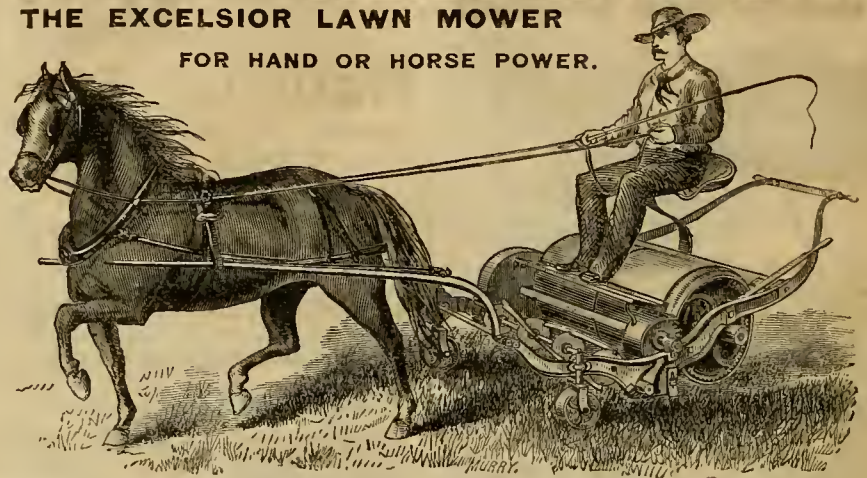
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The Essex pig I received from you has grown finely, and given perfect satisfaction. I have this fall slaughtered four grade Essex that averaged 301 lbs. each. One weighed 335 lbs. alive, and dressed 280 lbs., making 86.2-13 per cent of his live weight. They were eight months and eight days old the day they were slaughtered.

JAMES C. ASHMORE.

CLARKSVILLE, OHIO, Jan. 15th, 1872.

The Essex pig I got from you is growing finely, and I am well pleased with him.

W. CLIMEI.

MONMOUTH, ILL.

The Essex sow I got from you is doing splendidly. She is admired by all who see her. I think she is the handsomest pig I ever saw—and I have seen a great many.

IRVINE MCCARTNEY.

ARCADIA, N. Y., May 10th, 1872.

The Essex pig arrived safe and in good order, and I am well pleased with him. He is all that I anticipated.

L. J. BENTON.

AUSTIN, TEXAS, Feb. 6th, 1872.

The pigs arrived yesterday, and look remarkably well. To say that I am thoroughly pleased is scarce enough. I am more than pleased, and you have my thanks for giving me more than my money's worth. I have two Scotchmen in my employ who were in ecstasies over them (for Scotchmen). I would not take \$150 for the pair of pigs.

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Please Observe.—It often causes much delay when matters that relate to business and those that belong to the editorial department are included in the same letter. All business letters should be directed: Orange Judd & Company. Letters relating to editorial matters only should be directed to the Editor of the *American Agriculturist*, 245 Broadway. When one wishes to write about business and editorial matters at the same time, he should write upon separate sheets, and direct to the publishers. Many answers to questions are delayed until too late for the answers to be of use because the questions are included in business letters.

How to Trap Moles.—V. D. Van Nest, Hightstown, N. J., writes: The trap a man or boy, time from 5 to 7 and 10 to 12 A. M. and 5 to 7 P. M. First plow the field, then harrow and roll; if the piece is so large that it can not be all rolled by 10 A. M., roll three or four times around it. Then at the hours before named let the person walk carefully around the field, and he will find the moles at work. Place the foot on the borrow, two or three feet behind the mole, and dig it out. The mole is very sensitive, and will turn back at a slight noise; so, to be successful, it requires care. As the mole lives along the fences and under stumps and trees, they should be looked after in the walks. A man can catch more moles in one day, working as here described, than can be caught in one month with a trap.

Protection to Orchards.—A large orchard near Girard, Pa., of several thousand trees, is protected on the north and west by a tract of woodland, and during fifteen years there has not been a failure in the crops on this orchard. This may be due to other causes, but it is very doubtful if anything other than the protection of the woodland should be credited with it.

Steam Plows and Tackle.—The new tariff bill, which goes into operation August 1st, permits the free importation of steam-plows and necessary engines and tackle for individual use on farms.

"Corner" in Grain-Bags.—The California harvest is progressing with rapidity; but the farmers are laboring under a difficulty arising from a scarcity of bags. Bags are the farmers' barn and granary in California, for the wheat is cut, thrashed, and bagged on the field. If, therefore, bags are wanting, harvesting is seriously interfered with. The Eastern markets are receiving large orders by telegraph, and by and by the "corner" will be turned.

The Wheat Market.—It is a singular fact that the condition of the weather in England just now is a sufficient cause for the rise or fall in value of wheat over the whole civilized world. A week's rain there lately caused an advance, and now a week's favorable weather checks the rise, and falling markets occur all over Europe and America.

Buying a Farm.—"M. W.," New Preston, Ct., asks if it would be advisable to run in debt for a farm, which would be sufficient to keep a horse, cow, and ten sheep, and leave five acres for market-gardening, and how much land would be required, and lastly, if it would be better to buy land with a house, or without and build one; he has \$500 to start with.—This depends altogether on the kind of man Mr. W. is. For some men it would be quite safe to go in debt for a farm, while for others it would not; of this he must be his own judge. Fifteen to twenty acres of fair land would be sufficient to keep the stock mentioned, and generally farms with buildings can be purchased relatively cheaper than without them.

Tree Planting.—The champion tree-planter of Nebraska, and doubtless of the world, is J. D. Smith, who lives near Lincoln in that State, who planted on "Arbor day" one tree per second for nearly ten hours. The result is a grove of 33,550 trees. Thus says the *Nebraska Herald*.

Value of Farms in England.—At a sale of estates in England lately farms were sold at \$230 per acre. These farms rented at \$5 per acre, or less than 2½ per cent on the value. Few good farms in New York or Pennsylvania could be purchased or rented for any less.

Fancy Stock Raising.—"J. G.," Idaville, Pennsylvania, puts the following question: he has 100 acres of land worth ten thousand dollars, not all paid for, but by raising grain clears only three hundred dollars per year; could he make more by selling his farm or by raising fancy thorough-bred stock?—It is very doubtful; after paying interest on part of the cost of the farm,

he has rent and all expenses paid and \$300 left and a safe business, and this is better than many other professions can secure. Raising fancy stock is a poor business, except to a few men, and to them it is profitable because they are few. J. G. is better off on his farm; if he will keep and sell more stock he can improve in this direction.

A Defense of the Gopher.—W. O. White, Kalamazoo Co., Mich., writes that he thinks that "the gopher" has been unjustly accused of being very destructive to vegetation. He examined the contents of the stomach of one, and found the remains of a large bug, eleven cut-worms, and two kernels of corn. He thinks that when the animal pulls up the corn, it is to get at the grub at the root. The true Gopher, or Pouched Gopher, about the destructiveness of which there can be no doubt, as it will kill a whole row of young trees, is not found in Michigan. The animal to which our correspondent refers is probably the Striped Gopher, or Leopard Spermophile, which is not accused of the serious mischief committed by the larger and more western Gopher. It is unfortunate that the name Gopher should be applied to three or four squirrel-like animals and to a tortoise, as it often leads to confusion.

Old Plaster.—"J. C. G." wants to know if old plaster is worth hauling two miles to put on his land, and if it will do to mix in mortar to plaster a log-cabin with.—Yes. If the old plaster is finely broken up and mixed with some fresh lime, it will make very good mortar for this work.

Lime, Salt, and Plaster.—"L. C.," Laurel, Md., asks if he is doing right to top-dress his corn and clover with lime, salt, and plaster.—Yes; but a crop of clover should be plowed in occasionally; this dressing will not do always alone; it is good as a help.

Propagating the Ivy.—Mrs. S. T. M., Garden City, Minn. Nothing is easier. Make cuttings six inches long and set them in a moist, shady place, or you can set out a plant and layer the branches, each of which will be a good plant by fall.

Sulphur in Fruit-Trees.—The gentleman in British Columbia who writes us an account of boring his fruit-trees, filling the holes with sulphur, and plugging them up, must excuse us from publishing his communication. This medicating trees by introducing foreign substances into their trunks, is one of the old fallacies that is every now and then revived. Sulphur is quite insoluble, and sand would have answered just as well. The sulphur being placed well into the center of the tree, is beyond the circulating sap, and if it were soluble, would not be taken up. Besides, it is an unnecessary mutilation of the trees. If, as our correspondent states, his trees regained their health, some cause must be looked for other than the sulphur.

Hedge for Texas.—"E. H. C.," Houston, writes that the China Tree, recommended by a correspondent in February, makes a good ornamental hedge, but will not turn cattle until it has grown very strong. He thinks that the best hedge-plant for Western Texas is the Pyracantha Thorn.

Mulching Grapes.—"S. M. F.," Hannibal, Mo. We do not think it advisable to use a mulch upon bearing vines. The soil needs all the sun's heat, in order to produce the best fruit. What say your Missouri grape-growers?

How to Kill Docks.—"T. S. S.," of Venango Co., Pa., writes us that, in his experience, the only certain method of destroying docks is to "dig them up, root and branch, and burn them." He thinks John Johnston's plan of mowing them early in clover while they are in blossom will not kill them. He says he had a patch near the barn covered with docks, and he has mown them at least half a dozen times every year, and has cut them up below the crown time and time again with a hoe, and all to no purpose. In his dooryard he has dug them up with a mattock, and then in some places put two feet of earth on top of them with a scraper, and after thus being dug up, the roots that remained in the ground grew as thrifty a crop as ever, and worse than before, for now they run down or up so much deeper!

We are well aware that where docks once get full possession of the soil they are a very troublesome weed to kill. But still, in ordinary farm practice, the plan recommended by Mr. Johnston is certainly a good one. It prevents the docks from going to seed, and if the method is persisted in, and the land is thoroughly cultivated when under the plow, and no docks are

suffered to go to seed, a few years of such treatment will unquestionably rid the farm of this troublesome pest. We do not think that mowing alone will kill them, but mowing in conjunction with thorough cultivation will in time do so.

Lime on Garden Land.—"G. R. V.," Williamsport, Va., has been advised to put a hundred bushels of lime per acre on his garden, which is rich with horse manure, but wants to hear from the *Agriculturist* before he acts. We would rather use fifty bushels now, and fifty bushels in three or four years, than a hundred all at once.

Rye-Grass.—"E. P.," Milltown, N. J., wishes to know all about rye-grass, and which kind is best. Italian rye-grass (*Lolium Italicum*) is the best of the rye-grasses. It needs a rich moist soil, is not suited to sandy thin soils, makes good hay, and requires two bushels of seed (18 lbs. per bushel) per acre. It is inferior to timothy or orchard grass in some respects.

Rape or Coleseed.—"A Subscriber" asks us to tell him something about that rape or coleseed mentioned in the March *Agriculturist*, and where the seed can be procured. Rape is a plant related to the turnip, but has not a root like that. It is grown wholly for the green fodder, or for the seed. It is, like the turnip, a biennial, and flowers in the second year. It thrives well on black peaty or mucky soils, and is useful for bringing such soils into condition for other crops. A rich sandy loam is also very suitable. When sown early in July, it will be ready for sheep to be turned on in October and November, and they will get it during winter from beneath the snow if it is not too deep; it may be fed again early in spring, and the refuse should be or may be plowed in when not completely fed off before it seeds, when a crop of wheat may follow with advantage. It is often grown for the seed, which produces rape-oil, and the cake left after the oil is expressed makes a rich feed for sheep or cattle. The haulm or stalks furnish very good dry feed. It would be a valuable winter fodder crop for sheep where the snow does not lie deeper than a few inches. A peck of seed per acre is needed when sown broadcast, three pounds when in drills. The seed can be purchased at most of the large seed-stores. The black seed fed to canary-birds is rape-seed.

Farming on the Eastern Shore, Md.

Thos. G. Reynolds, Talbot Co., Md., writes us a very interesting letter on his mode of cultivating the flat lands of the Eastern Shore. The soil is a rich, heavy loam, underlaid by a compact clay, which necessitates surface-draining. His rotation is the "three-field system"—corn, wheat, and pasture—chosen mainly to keep down the blue-grass or wire-grass. The corn is cut and carted off, and the wheat sown and covered with a three-furrowed plow, by which the land is thrown into four-foot ridges with water-furrows between them. The wheat is harvested with the reaping machine, one wheel running in the furrow, and a four-foot swath is cut. The next year the field is pastured, and then the ridges are reversed for corn, the land being heavily manured for this crop, and none given to the wheat. The corn is sown with the drill, and the furrows between the ridges being cleaned out, the planting is complete. On this system crops are made of 50 bushels of corn (sometimes 80 bushels), and 30 bushels (sometimes 50 bushels) of wheat per acre. Now, he asks what is our opinion of this mode of cultivation, and especially if we would recommend under-draining.—In reply, we have no fault to find with this system of cropping, believing that certain special rotations are well adapted to certain localities and circumstances. But, as regards the question of drainage, we should certainly in this case advise under-draining, not only to get rid of the water, but as a means of preventing the rampant growth of grass, which is the chief source of trouble. If ever there was a soil that needed under-draining this is one, and it is one also which freed from surface water would soon admit of deeper cultivation being gradually brought in. We have known of similar cases in which draining led to an effectual cleansing of the ground from grass, especially couch-grass, a nuisance equally troublesome as wire-grass. Having some personal acquaintance with the Eastern Shore, we have greater confidence in making this statement than if we wrote only on general principles, knowing that a want of drainage is the great trouble generally in this particular district. With a fine climate, a rich soil, and teeming wealth of luxuries in and on their numerous bays and creeks, and water communication to almost every considerable farm, the farmers of this district yet need one thing—which is drainage.



GARDENING FOR THE SOUTH;

OR, HOW TO GROW

VEGETABLES AND FRUITS.

BY THE LATE

WILLIAM N. WHITE,

OF ATHENS, GA.

WITH ADDITIONS BY MR. J. VAN BUREN AND
DR. JAS. CAMAK.

REVISED AND NEWLY STEREOTYPED.

ILLUSTRATED.

NOTICES BY THE PRESS

It supplies a place long vacant in Southern literature, and should be in the hands of every man or woman who cultivates a foot of ground. While it treats very freely of the vegetable garden, it devotes much space also to fruits, etc.—*Tribune* (Mobile, Ala.)

It is illustrated by a portrait of the author, and numerous engravings of subjects treated. It is a work of 450 pages, and is a complete manual of kitchen gardening and fruit culture.—*Telegraph* (Macon, Ga.)

Mr. White was prime authority in his specialty, and this volume is a complete manual for gardening for Southern latitudes. Besides the usual fruits and vegetables of Northern gardens, there are full instructions as to the culture of the almond, fig, orange, lemon, shaddock, olive, yam, ground-nut, Madeira nut, and pistachio. In view of the rising importance of "truck farming" in the South to supply Northern markets with early vegetables and fruit, this book is quite important to the gardeners of either section.—*Register* (Wheeling, W. Va.)

Coming from the pen of an experienced cultivator of Southern vegetables and fruits, the reader, whether of old or recent residence, is put in possession of facts relating to the soil, climate, and varieties of plants adapted to the South that would otherwise require much time and expense to acquire. The vineyard and orchard receive sufficient attention to furnish all the necessary information for the beginner. We regard the book as especially adapted for the private garden, and if a copy could be placed in the hands of every farmer, we might expect, on our visits to the country, to be regaled upon something else than "bacon and greens."—*Daily State Journal*.

The first edition of this work appeared in 1856, but the second, now just issued, is much enlarged, containing 441 pages. It embraces a much larger range of topics than the title indicates, and is one of the most valuable compilations of facts that we have anywhere seen in a single volume, relating to different kinds of soil, and their adaptation to different kinds of fruit and vegetables.—*Journal of Agriculture* (St. Louis, Mo.)

The book itself we can commend to our farmers and gardeners. Its author was formerly connected with the "Southern Agriculturist," a most excellent farmers' paper, and was thoroughly acquainted with the wants of the Southern people in respect to their farming and gardening operations.—*Gazette and Banner*.

A complete gardening book for the localities which it specifies. It is full and comprehensive, and written in a clear, perspicuous style. A volume of 441 pages, well printed and bound.—*Republican* (St. Louis, Mo.)

It is very comprehensive, embracing all the improved kinds of fruits and vegetables, and the modern modes and implements of tillage. Its arrangement is systematic, and entirely convenient for prompt reference. It is illustrated by a large number of drawings relating to garden and fruit cultivation, such as trailing, grafting, draining, transplanting, together with pictures of novel fruits and vegetables.—*Dispatch* (Richmond, Va.)

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Gardening for Profit

In the Market and Family Garden.

By Peter Henderson.

ILLUSTRATED.

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All the vegetables that thrive in the open air in our latitude are described, together with the best methods for growing them. The author also imparts practical instructions on the subjects of drainage, and the formation and management of hot-beds. Numerous well-executed wood-cuts tend to make clearer the instructions of the author.—*Philadelphia Inquirer*.

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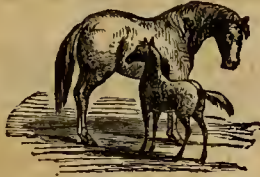
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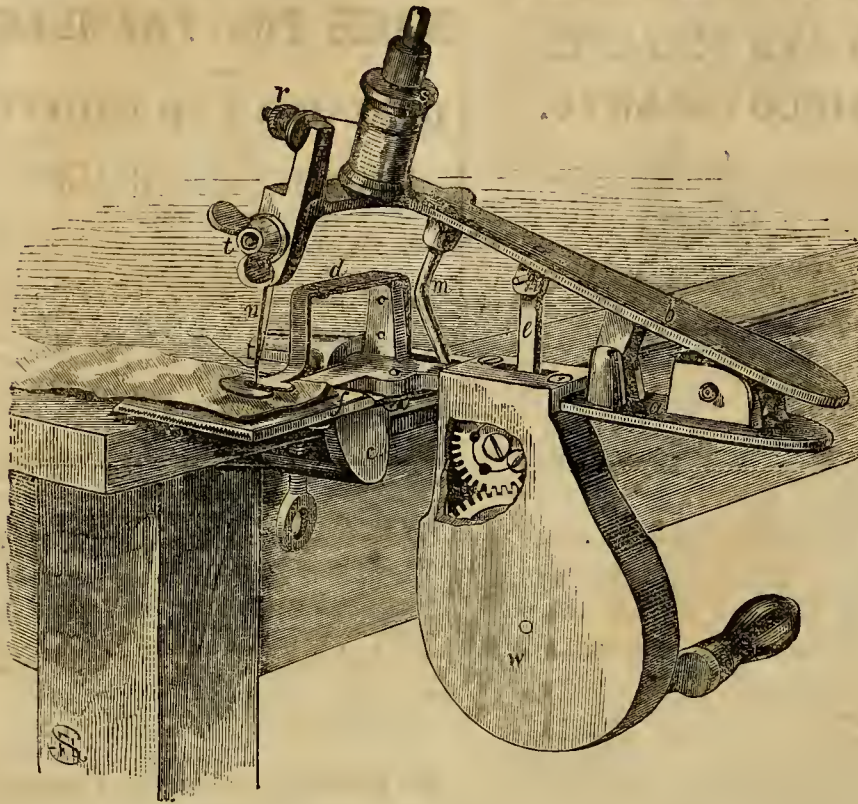
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GENTLEMEN: Yours of late date to hand, and contents noted. Am glad to learn your demand is more than you can supply, and hope you every success possible. My machine came all right, and such a novelty you can imagine, and so surprising to do such work, is really astonishing! Have experimented considerably, and am well pleased, and think I will soon be an expert at the business.

Yours truly,
W. S. MORGAN.

SALISBURY, MD., March, 1872.

GENTLEMEN: The sewing machine, came safely to hand, and on trial I find it complete. The dearest little machine ever was made. I am quite in love with it. A gentleman told me last night that he believed I could sell a hundred here in town, and urged me to write and get the agency.

Yours respectfully,
Miss SALLIE BUSH.

FOND DU LAC, WIS., March, 1872.

GENTLEMEN: I have received from the office of the *American Agriculturist* one of your \$10 sewing machines, and am so much pleased with it that I would like to know on what terms you supply agents, and what is required of them. An early reply will oblige

Mrs. EDWARD COLMAN.

COLUMBUS, GA., April, 1872.

GENTLEMEN: I purchased a sample of the "Beckwith Sewing-Machine" while in Savannah, Ga., for a lady friend. She has received it, and is perfectly satisfied with it. I am confident, from the merits of the machine, that many of them can be sold in the Southern country, from the fact that thousands would buy machines if they could get a cheap meritorious one.

Yours truly,
L. C. DUER.

LOWER MACCAN, CUMBERLAND Co., N. S., April, 1872.

GENTLEMEN: I received the Beckwith Sewing-Machine a few days ago, and am perfectly satisfied with it. It exceeds my expectations, and those who have seen it pronounce it beautiful.

Very truly yours,
ISAAC HARRISON.

BEDFORD Co., VA., March, 1872.

GENTLEMEN: Some time since, I got for my wife one of your sewing-machines, and she and I are so well pleased with it, and think it comes up so nigh to what it promises, that I have determined to apply to you for an agency. I believe I can sell a good many of them, and can make a good thing of it both for yourselves and me. I do not know of there being another machine of the kind in the county. If you choose to entertain my proposition, I refer you (for my character) to our Circuit County Judge, or the Clerks of our County or Circuit Court, or any one you may happen to know in the County of Bedford, Va.

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Dr. JNO. S. MITCHELL,
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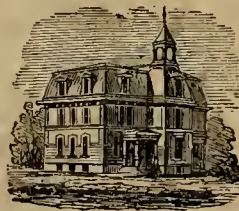
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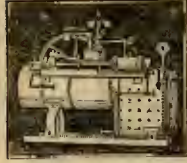
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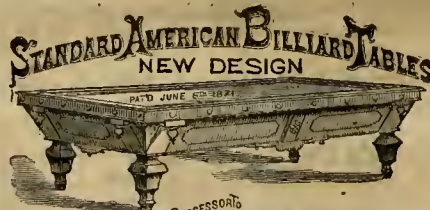
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VOLUME XXXI.—No. 8.

NEW YORK, AUGUST, 1872.

NEW SERIES—No. 307.



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his progeny are not likely to do discredit. As a three-year-old, *Longfellow* won several important races at the West. In his career as a four-year-old, last year, he won several races, but was beaten at Saratoga in August by *Helmbold*. His owner, determined that he should recover his lost prestige, entered him for the Monmouth Cup (Long Branch), which was run for on July 2d, against *Harry Bassett*. The race, 2½ miles, was easily won by *Longfellow* by a hundred yards,

in 4:34. *Longfellow* is 16½ hands high, of a full brown color, very strong quarters, and has, according to the opinion of his owner, the best set of legs ever put under a horse. He has a very neat and intelligent head, but his neck is defective on account of an accident which occurred to him when quite young. We understand that Mr. Harper has declined an offer of \$80,000 for *Longfellow*, but he does not care to part with his pet for a less sum than \$100,000.

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Calendar for August.

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PHASES OF THE MOON.

Table showing moon phases (New Moon, 1st Quart., Full, 3d Quart.) for Boston, N. York, Waso N., Gaa'ston, and Chicago.

AMERICAN AGRICULTURIST.

NEW YORK, AUGUST, 1872.

Many farmers have had much to try their temper and test their patience during the past month. Hoeing, haying, and harvest have been crowded together. Men have been scarce and have had things all their own way. And we know of nothing more disagreeable than to be obliged to submit to the dictation of a lot of ignorant, selfish, conceited men, who are blind to their own permanent interests, and utterly regardless of the interests of others. It is useless to reason with them. All that we can do is, the moment we are through the hurrying season, to discharge those who have behaved the worst. We do not complain so much of the high wages as of the short hours and of the general listlessness, indifference, unskillfulness, and indolence of a large class of farm men. We have all been complaining of this evil for some years. We have thought that it would cure itself. But instead of getting better, it is getting worse and worse. It is time that the subject was carefully considered and concerted action resorted to. We must be just and liberal with our men, but should insist on a faithful performance of contracts. No farmer should hire a man who has broken an engagement with a brother-farmer.

During the latter part of this month and the next there will be comparatively little to do on many farms, and day-men can be obtained at lower rates. If a man has been faithful, give him steady work and fair wages. But you owe it to yourself and to the good men, to dismiss every man who has not acted properly. This policy, generally carried out, would have a salutary effect.

Hints about Work.

Finish the Harvest.—The better plan is to finish each field as you go, but we can not always do just what we know to be best. In the hurry of harvest, and with fewer men than we need, it is sometimes necessary to "get the biggest of it," and trust to finding time to clear up afterwards. As soon as the main bulk of the crops is secured, a farmer is very apt to relax his exertions. This should be guarded against. There should be no let-up until everything is finished. Then take a rest and enjoy yourself.
Oats.—This is generally the last grain crop to

harvest. Where the straw is used for fodder, it is well to cut the crop before the oats get fully ripe. Or where oats and straw are to be all cut up together and fed to horses, the crop may be cut while there is considerable "milk" in the grain. In this case it is necessary to be very careful in curing. On the whole, we are inclined to think that the better plan is to let the oats stand until they are nearly or quite ripe. The grain will be heavier, and less time is required for curing. Much, however, depends on circumstances. If we are likely to have settled hot weather, we should cut early, but if the weather is unsettled, we should prefer to let the oats stand until quite ripe. Oats are not unfrequently damaged by being drawn in before they are sufficiently cured, especially after they have been exposed to rain. It is important that the oats are perfectly dry inside and outside the sheaves and at the butts.

Thrashing.—If the grain is safe in the barn, we should be in no hurry to thrash. It is not probable that wheat will rule permanently lower during the next twelve months than at the present time. We do not say that it will be higher. We are not urging farmers to hold on to their grain, but simply not to be in a hurry to thrash, unless there is some object to be gained. Wheat keeps far better in the straw than in the granary, and it is far better not to thrash until the straw or grain is needed. But where grain has to be stacked, and where thatching is not practiced, it is better to thrash as early as possible.

Thrashing by Steam.—Steam-engines for thrashing are being rapidly introduced. The old ten-horse-power machines have done good service, and deserve to be held in grateful remembrance. But we rejoice to believe that their days are numbered. If there is a steam thrasher in the neighborhood, patronize it. This is the only way to banish the old horse-machines.

Look to your Insurance.—This is always good advice; but it is particularly so at this season. Many farmers have a good deal of property, in the form of wool, hay, and grain, exposed to fire, that is not covered by insurance, because they expect to keep it only a short time. If they can afford to be their "own insurers," all very well. But if a fire would cripple them, it is the part of wisdom to be at least partially insured. We fear that many farmers have property that they think is insured which their policies do not cover. Your wool or grain may be insured in one barn but not in another, and you may have overlooked or forgotten the fact. If you are going to thrash with a steam-engine, see if it does not invalidate your policy. There is little or no risk from a properly-constructed engine, but it is a very unpleasant thing when you think you are insured to burn up and find that there is a clause in the policy that forfeits your claim.

Thrashing with a Sweep-Power.—The general practice in our neighborhood when thrashing with a hired ten-horse-power machine is to pay five cents per bushel for wheat, four cents for barley, and three cents for oats, the owner of the machine furnishing four men and four horses. One of the "thrashers" drives, and he is naturally inclined to spare his own teams at the expense of ours. This should be looked to. If possible, let the horses have a level track, for in going up-hill a good team is inclined to pull harder than on a level. Give the outside horse a longer half of the evener. With quiet, thoughtful, and experienced thrashers everything will go smooth, and the horses will not be injured, but new hands get excited, and drive too hard. What is wanted is steady work. See not only that the machine thrashes clean, but that none of the grain is carried over in the chaff.

Making the Straw-Stack.—It is rare to see a really good straw-stack. If the object is to rot down the straw for manure, the stacks as frequently made can not be improved. But where the object is to save the straw for fodder and for litter, much more pains than is generally the case should be taken in making the stack. We can not go into details, but the main points are to keep the middle full and well trodden down, so that the sides shall settle more than the center. Keep the chaff and short

straw well scattered about in the middle of the stack, and especially avoid letting it lie in a mass where deposited by the straw-carrier. Aim to have good straw to top off with. In a few days after the stack is completed, place a long ladder on the roof, and rake the straw down smooth so that the water will run off rapidly.

Thatching.—We do not advocate stacking hay; but we do most earnestly recommend any of our readers who have hay-stacks to thatch them as soon as they can get the straw. It is a mistake to suppose that it is necessary to have long, straight straw to thatch with. Short straw will answer the purpose. The first point is to *wet* it thoroughly and lay it out straight on the roof, commencing at the eaves, and lapping the courses as you would with shingles. Rake smooth, and fasten carefully with pegs and hay-rope or twine.

Grain, when thrashed early, is very liable to heat. Turn it frequently, or run it through a fanning-mill. If it is very damp, mix dry cut-straw or chaff with it, and turn it every two or three days.

Weeds.—The best thing to do with the weed-seeds cleaned out of the grain is to burn them. If the screenings contain weeds, as they almost always do, they should be thoroughly boiled before feeding. If possible, allow no weeds to go to seed in the growing crops or in the fence-corners and waste places. Mow the weeds in the pastures. If the wheat or barley stubbles are weedy, it is a capital plan to go over them with a mowing machine.

Beans.—Our own plan is to pull five rows at a time, and place the handfuls, with the roots up, on the middle row. If the weather is favorable, this is the easiest and quickest way of curing. They should be lifted or turned as often as necessary to prevent the leaves on the ground from molding. If the weather is unsettled, it is the safest plan to cure them in large heaps made so as to shed the rain. If carefully made, beans may stand in such heaps for weeks without injury.

Wheat on Stubble Land.—A large and increasing breadth of winter-wheat is now sown after barley, oats, peas, or beans. Whether it is best to plow such land once or twice depends on circumstances. As a rule, we think it best on rather heavy soil to plow twice—once immediately after the crop is gathered, and again just previous to sowing. On light sandy land we should harrow the stubble, or cultivate it to start the weeds and fillen grain, and plow as soon as they had germinated. Then harrow, and keep the surface clean and mellow by the use of the cultivator until it was time to sow.

Root Crops, such as mangel-wurzel, ruta-bagas, carrots, parsnips, etc., should be kept scrupulously clean. Use the hoe and cultivator freely. By using 200 lbs. of good superphosphate per acre, a fair crop of Strap leaf turnips may be grown on good clean land sown as late as the first or even the second week in August. Sow on fresh-plowed land.

Draining Swamps and Getting out Muck are always in order this month. Grind the spades as sharp as possible, and go to work with a will. It is nothing like as difficult a job as most people imagine. On flat, level land the true way to dig a ditch is to commence at the lowest point, and dig just deep enough to have the water follow you up into the higher land. You will then lose no fall. Such muck as you intend to use for manure or compost should be thrown on one side of the ditch only, and by taking a little pains it may be thrown in good-sized heaps with little extra labor.

Cows.—During the hot weather in August the flow of milk is apt to fall off considerably, and it is difficult afterwards to bring it up again. Bran and spout-feed are unusually cheap, and can be used to great advantage. Our own plan is to keep a large trough of water in the yard, and mix as much mill-feed with the water every day as the cows will drink. It pays in the manure, in the increase of milk, and in the improved condition of the cows. If you have any green corn, now is the time to feed it liberally. If very succulent, let it wilt a little, and if very large and coarse, and consequently rather deficient in nutriment, let the

cows have enough corn-meal to make the fodder as nutritious as the best pasture grass.

Sheep.—Lambs should now be weaned. Put the ewes in a poor pasture, and let the lambs have the run of some second growth clover or other rich grass. If the weather is wet and the grass succulent, give some dry food, such as clover hay, or, better still, bran. Remove the rams from the flock.

Swine.—Let the breeding sows and store pigs have the run of the stubbles. Pigs intended to be fatted this fall should now be fed liberally, but should be allowed to run in the pasture.

Water.—See that all animals have a plenty.

Work in the Horticultural Departments.

During August the gardener will have a little time for rest if he has succeeded in subduing the weeds, and has not allowed his work to get ahead of him. A day or two of fishing or picnicking will afford a pleasing variation from the regular routine of daily labor. There are many odd jobs that can be done before harvesting commences, which will save a great deal of time next season. Around most gardens, weeds are allowed to find a harbor along the fences and walls, and if permitted to go to seed it will be hard work to kill them next year. Preparations for draining may be made.

Orchard and Nursery.

The present month will be a trying one to the trees planted last spring unless a good mulch was applied after they were set out. It will not be too late to save many if a mulch is put around the trees now. If late web-worms infest the trees, the branches must be cut off and burned, or they will soon destroy the foliage of the whole tree.

Marketing.—Care should be taken in sending fruit to market to assort and pack it in such a way that the highest prices can be obtained. The fruit should be packed so firmly in the box or crate that there will be no danger of bruising in transit.

Insects.—There is often much fruit which falls prematurely, which on examination will be found to contain insects, and should be given to the pigs as fast as they fall, or, if preferred, the pigs may be allowed to run in the orchard.

Budding may be done whenever the bark is loose enough to lift readily, and well-ripened buds can be obtained. The maturity of buds may be hastened by pinching the end of the shoot on which they are borne. When sticks of buds are cut, remove the leaf, leaving the leaf-stalk attached to the twig. The twigs must be kept moist until used.

Weeds.—If the nursery rows have been allowed to become weedy, they should be thoroughly cultivated, and afterwards hand-weeded. A heavy mulch between the rows will save many seedlings which would otherwise die from the extreme dry weather which often occurs at this season.

Kitchen Garden.

Nothing can furnish more real enjoyment than a good garden well stocked with a variety of vegetables, and a family can obtain their principal supply of food from it.

Asparagus.—There is danger of neglecting this during the rush of work, and allowing it to become filled with weeds, to the injury of the next year's crop. It ought to be hoed frequently to keep the soil light, and manure applied at any time now, will be of great benefit to it.

Beans.—It is rather late to plant beans unless wanted for late snaps; a fair crop may be secured for salting or pickling.

Cabbages and Cauliflowers.—Hoe frequently, especially early in the morning when the dew is on. Liquid manure occasionally will be of benefit. Lime or salt may be used for destroying slugs.

Carrots.—Cultivate between the rows until the tops are so large as to cover the ground, and when very large weeds make their appearance pull them out by hand. Thin out the late sowings.

Celery.—Continue to earth up, and keep the ground well cultivated. Plants may still be put out, and will make a late crop.

Corn.—Reserve the earliest and best formed ears for seed. Cut off all smutty ears and burn them.

Cucumbers.—Pick every day for pickles; those not more than two or three inches in length make the best pickles. Those that ripen may be made into cucumber salad for winter use.

Egg-Plants.—The present warm weather will give these a start, and a little liquid manure will benefit them. Hay around the plants will keep the fruit from touching the ground and rotting.

Melons.—Cultivate until the vines cover the ground, and pinch back the ends of the vines where they are too long.

Onions.—As soon as the tops fall down they are ready for harvesting. Pull and allow them to dry thoroughly before storing; when stored, spread thinly so that they will not heat. Store onion sets in the same way.

Radishes.—Sow Chinese Rose-colored Winter.

Spinach.—Sow now for fall use; the winter crop is put in later.

Sweet-Totatoes should be making a rapid growth now, and the ridges must be kept clear of weeds. Move the vines often to prevent taking root.

Tomatoes.—Tie up to some sort of trellis, or place brush or hay around the plants to keep the fruit off from the ground. Destroy the green worm wherever found.

Turnips.—Ground from which early peas, potatoes, etc., have been taken, may be set with transplanted ruta-bagas or sown with turnips.

Fruit Garden.

The principal work in this department is the harvesting of the fruit, which promises to be very abundant. Surplus fruit should be preserved in cans or bottles, or dried.

Blackberries.—Three or four canes only should be allowed to grow, and these must be cut off when they reach a height of 4 or 5 feet, and the laterals pinched back when they are 18 inches long. Fruit for home use ought to be thoroughly ripe before picking, while that for market must be picked before it is fully ripe.

Dwarf Trees.—Pick off all deformed fruit, and do not allow the trees to overbear.

Grapes.—Use sulphur if mildew makes its appearance. Keep the vines tied to trellises or stakes.

Raspberries.—After the fruit has been harvested, cut away the old canes, and dig in a good dressing of manure between the rows.

Strawberries.—Now is a good time to plant new beds, and to renovate the old ones. Beds set out now, will produce a moderate crop next season. Plenty of stable manure is the basis of good crops.

Flower-Garden and Lawn.

The fine growing weather of July has pushed forward the growth of plants very rapidly, but the weeds have made correspondingly rapid march, and if the hoe and rake have not been in constant use, a great deal of weeding will be necessary to make the flower-garden look respectable.

Box.—This beautiful edging must be clipped, to keep it in proper shape, and the present month is the time to do it.

Climbers require to be kept neatly tied up to show off to the best advantage. A few small iron brackets screwed to the posts of the piazza or side of the house, and galvanized iron-wire stretched between the brackets, will make very serviceable supports, as they allow a free circulation of air between the house and vines.

Grass.—Edgings and borders need a good deal of attention in order to look well, and if cared for often, will require but little time. The lawn needs mowing over at least every week or ten days, in order to make it look well.

Dollias and Gladioluses need stakes, to keep them

from being blown down during high winds or rains. Most florists have for sale stakes of different sizes and lengths, which are very serviceable, and last well, if properly taken care of.

Hedges.—Give the summer clipping this month.

Potted Plants, which have been placed in different parts of the grounds for summer decoration, need to be watered often, as the soil dries very rapidly when exposed to the wind.

Perennials.—A suitable frame or bed must be prepared, where seeds of perennials and biennials can be sown as soon as they ripen. Keep the beds or boxes well watered and shaded during the dry, hot weather.

Chrysanthemums.—Bring them into good shape by pinching, and remove any imperfect flowers which show themselves.

Seeds.—Gather as soon as they commence to ripen, and after they are thoroughly dry, clean and put away in a dry place, secure from mice.

Greenhouse and Window Plants.

Hanging baskets and window-boxes must have plenty of water and be shaded during the middle of the day. The greenhouse will need a thorough renovation, to clear it of all insects, and to make it ready for the reception of the plants in autumn.

All glass should be set before cold weather sets in, and the heating apparatus put in good order. Put in a good stock of potting soil and sand for winter use, and provide plenty of pots and boxes for large plants.

Commercial Matters—Market Prices.

Gold receded to 113 @ 113 1/4, closing July 13th at 114 1/4, against 113 3/4 on the 13th of June. There has been a less satisfactory trade reported in Breadstuffs, with prices generally quoted much lower, in most instances, on increased offerings of stock. The home demand has been on a restricted scale, while the export inquiry has been mainly for Spring Wheat and mixed Western Corn. Toward the close, the market exhibited more steadiness, particularly for Flour, Wheat, Corn, and Oats, which were less abundant, under lighter arrivals, though the scarcity of ocean freight room and the sharp advance in rates were against free export purchases. Provisions have been in less confident demand. Hog products closed more firmly; while Butter and Cheese showed weakness as to values; and Beef products were depressed. Eggs have been less sought after, closing in favor of buyers. Hay has declined in price, and closed dull. Hops and Tobacco have attracted more attention, at steadier rates. Wool was dull and lower early in the month under review. Toward the close there was more inquiry noted for desirable lots, which, however, have been offered with reserve and at prices generally above the views of buyers, thus checking operations, particularly in Domestic Fleece and Pulled. Comparatively little of the New Clip is being forwarded to market, as farmers are not willing to sell at less than the extreme asking figures, and do not seem eager to realize on their holdings. Cotton has declined materially, closing tamely and heavily.

The following condensed, comprehensive tables, carefully prepared specially for the American Agriculturist, show at a glance the transactions for the month ending July 13, 1872, and for the corresponding month last year.

Table with 4 main sections: 1. TRANSACTIONS AT THE NEW YORK MARKETS. 2. Comparison with same period at this time last year. 3. Exports from New York, Jan. 1 to July 12. 4. Receipts at head of tide-water at Albany each season to July 7th.

Stock of grain in store at New York. Table with columns for Wheat, Corn, Rye, Barley, Oats, and Mill, with sub-columns for bush and bbl.

CURRENT WHOLESALE PRICES.

Table of current wholesale prices for various commodities including gold, flour, corn, wheat, rye, barley, oats, and various oils and fats.

New York Live-Stock Markets.

Table showing live-stock market data including week ending, beef cows, calves, sheep, swine, and total.

Beef Cattle.—Several causes combined to make a dull cattle market the past month. One was the generally poor quality of the stock after the corn-fed cattle had nearly run out, and before the grass steers had become fat. They are now improving in condition each week. Besides this we have had too many cattle for the extreme heat of the past few weeks. Much of the meat would spoil before it could be used, while those employed in getting out and distributing ice took advantage of the situation, and struck for higher wages. Then, again, so many men of the various trades were unemployed and out on strikes, that the laboring classes had not the money with which to buy beef. Just at the close there is a better tone to the market, the prospect being favorable for a lighter run of stock. Still the decline for the month has been more than 1/2 c. per lb.

Milk Cows.—With a larger average, the cow trade has been variable during the past month. The market has been largely overstocked with milk, so that farmers were more inclined to reduce than add to their stock of cows. Just now there is more inquiry, and all the good cows are selling. Prices are rather higher all around. Common cows sell at \$35 @ \$50, fair at \$60 @ \$65, and good to prime at \$70 @ \$80. Calves.—These decrease in numbers as summer wears away, but their use is also less.

The quality is poorer. Some of the best milk veals are as good as those sent in last month, but we now get a good many grass and buttermilk calves. Farmers were in market for such last year, but they do not come now. Such animals sell low. Quotations of grass calves are 3c. @ 5c. per lb., live weight; common to fair milk veals 7c. @ 8 1/2 c.; good to choice, 9c. @ 9 1/2 c. Sheep and Lambs.—As lambs are ready for sale, and some of the ewes can be turned off, we are getting quite an increase of stock. The demand has also improved during the hot weather, mutton being decidedly a favorite meat during the summer. Sheep declined at first, and have since improved, though they are scarcely as high as they were one month ago. Lambs have held their own, notwithstanding it is the season when they are expected to decline. Quotations: Ordinary sheep, 5c. @ 5 1/2 c. per lb., live weight; fair to good, 6c. @ 6 1/2 c.; prime to extra, 6 1/2 c. @ 6 3/4 c.; few very choice, 7c. Lambs, 8 1/2 c. @ 10c. for poor; 11c. @ 12 1/2 c. for medium to good, and 13c. for choice Jerseys. Swine.—With a falling off in arrivals there is little change in the market. Heavy dressed declined to 5 1/2 c. during a scarcity of ice, but are now improved. There is seldom a sale alive, nearly all the hogs being consigned to slaughterers. Live are worth 4 1/2 c. @ 4 3/4 c.; city-dressed Western, 5 1/2 c. @ 6c.



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 Volume Thirty are now ready. Price, \$3, 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.

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.

The Union Pacific Railroad Co.—The Land Department at Omaha, Neb., reports: "The sales of the Land Department of the Union Pacific Railroad Co., for the month of June, 1872, were 23,900 1/4 acres, amounting to \$103,610.63, at an average of \$4.30 per acre. The total sales from July 23rd, 1869, to the present date are 571,169 1/8 acres, amounting to \$2,399,410.55, at an average of \$4.20 per acre. Sales in April, 1872, were 12,466 3/4 acres, for \$51,000.05. Sales in May, 1872, were 16,935 1/4 acres, for \$76,746."

The Georgia State College solicits for its Industrial Museum models of machines of any character; models of bridges; plans and photographs of buildings, bridges, etc.; minerals, specimens of ores; specimens of woods; products of agriculture; products of manufactures, exhibiting as far as possible the various stages of preparation; and generally whatever may illustrate the industrial arts. Donations will be acknowledged by publication in the Catalogue. Direct all articles to President State College, Athens, Georgia, marked "For Industrial Museum."

The A. A. F. T. A. O. S., which of course everybody knows means the yearly "mud-fog," as an irreverent lady of our acquaintance calls the "American Association for the Advancement of Science," will hold its meeting at Dabnque, Iowa, on the 21st inst. The

meeting was appointed for San Francisco, but for some reason of which we have not been informed the executive officers have changed it as above. We may add that the meetings of this association with the abominable name are most charming re-unions, and we advise all lovers of science to attend the coming one.

Post-Hole Augers.—"J. M. J.," Halifax, N. S., asks if post-hole augers can be used on other than soft soils.—Yes; they can be used anywhere in the absence of large stones. Clay, gravel with stones no larger than hen's eggs, sand, and peat can be bored with them.

Grass-Rake.—"J. M. J.," Halifax, N. S., wants a machine for collecting grass and weeds after mowing, so as to burn them.—The common spring-tooth hay-rake does this work excellently. A very useful rake can be made with a piece of 4 × 4 oak scantling, ten feet long, armed with teeth of half-inch round iron a foot long, and slightly curved forwards, furnished with a tongue to draw by, and a pair of stilt by which it may be lifted to release the load when gathered.

Patent Rights.—"J. N. S.," Oconee Co., S. C., is about to organize a tile manufacturing company, and asks if he purchases a tile machine will he have to pay for a right to use it?—The purchase of a machine does not always include the right except for private use. If tiles are made for sale it is a matter for agreement if any royalty is to be paid on what are sold.

Syrup from Cane.—"N. S.," Bounty Land, S. C., writes us that a neighbor made very fine syrup from cane cut before it headed out. If he will send an account of the process, from and including the cutting of the cane to the clearing of the syrup, it may be of interest to many of our readers.

Rape-Seed in the South.—"E. B. S.," Virginia, asks if rape-seed will succeed in the South.—Yes; wherever the soil is in good heart, and if it be sown in the early part of the fall, so as to get well started before winter. Rape, turnips, and cabbages grow well with proper care as far south as Florida.

Sulphur for Lice.—"J. Ferry, Sonoma Co., Cal.," says if "C. D. W." would rub sulphur into the skin of his cattle it will clear them of lice. He has used it several years with complete success.

Beans with Sunflowers.—"G. W. W.," Greencastle, Ind., asks if it will do to plant beans with sunflowers. One of his neighbors is making the experiment.—With a good rich soil, beans are often planted with corn and potatoes, and make a very fair additional crop. There is no reason why they should not succeed as well with sunflowers. Let us know the result of the experiment when complete.

Subsoil Plow.—"J. M. J.," Nova Scotia, wants the best subsoil plow for breaking up light sandy ground filled with roots of trees and shrubs.—The plow figured in *American Agriculturist* of June, 1872 (page 216), made with a sharp edge on the front, which might be steeled if necessary, would be as effectual an implement as any we know or could devise.

The Best Force-Pump.—"J. M. J.,"—"The best force-pump to be used in a cemented cistern" that we know of is the American Submerged Pump, often of late referred to in the *Agriculturist*. It may be set either in or out of the water.

Moles and their "Dark Ways."—Valentine P. Hoffman, Egg Harbor, N. J., asks what he shall do with a species of mice which make underground ways like moles, and injure the roots of his trees and vegetables.—These are the American moles, which are much smaller than some of the European ones, and not mice, and the best way perhaps to get rid of them is to trap them in their holes, which is difficult, or to poison them with pieces of apple covered with arsenic dropped in their holes, which often is of no use. A great many folks would like to know just how to get rid of them. A new mole-trap is advertised in the *Agriculturist*, which he might try.

Rennet.—G. L. Porter, Cedar Mountain, N. C., asks if cheese can be made without rennet, and if rennet can be procured at the North.—Cheese can be and is made by using acetic acid to procure the curd; but it is hard, and has not a good flavor. Rennet can be bought at or procured by almost any of the Northern seed-stores; but it can very easily be made by taking the stomach of a sucking calf, and, without emptying the contents, filling it with salt, allowing it to remain for two days, and then stretching it on a hoop of stout twig and drying it.

Composting.—"H. R. McC.," Clarksburgh, W. Va., asks if it would be proper to compost hog-pen manure with stable manure.—This would not be composting at all, but mixing, and nothing would be gained by the labor (or lost, except the labor). A compost is a mixture of fermenting substances with earth or other inert matter, which serves to dilute the richer materials, and they in their turn by their chemical activity render the added matter more soluble or more immediately available as fertilizers.

Butter-Worker.—"Thos. C. S.," Mount Auburn, N. Y., wants a butter-worker to put up butter taken in at stores into "straight lots."—We know of nothing better than the Eureka butter-worker.

A Good Native Cow.—"J. W. Moore," Augusta, Ga., sends us the record of his native cow, which with her third calf, twenty-eight days old, gives five gallons of milk per day, besides feeding her calf. The cream of three days' milk yielded five and three quarter pounds of butter. The cow is fed on two quarts of cracked peas boiled with kitchen slops at a feed, and hay. His wife is not satisfied with her churn. She should get a "Blanchard."

China White Pigs.—"N.," New Albany, Ind., asks, "What kind of breed are the China White pigs?"—We would suggest that this conundrum be propounded to the Swine Breeders' Convention, which will probably meet in Indiana next fall, and at which a committee on "breeds" will be prepared to entertain it.

Circumventing the Cutworm.—"D. S. K.," Fort Plain, N. Y., has a plan to save his corn from the cutworm. He plants ten grains in a hill an inch apart, in a direct row, and not dropped promiscuously. Then, when the cutworm attacks the corn, it leaves sufficient untouched to make a crop where, if the plants were all in a bunch, they would be all destroyed. It is also easier to hoe a crop thus planted.

Fence Wire.—Chas. E. Whitcombe, Ancaster, Can., wants to know the best-sized wire for a fence to turn stock. We have used No. 9, one rod of which weighs one pound; we believe this size is in general use.

Grades and Crosses.—"A Farmer," Bloomington, Ill., asks what is the difference between grades and crosses.—A grade is the offspring of native or grade and thorough-bred parents; a cross is the offspring of two thorough-bred parents of different breeds.

A Series of Questions.—"T. W. S.," Ripley Co., Ind., asks a batch of questions as follows: "Which is the best book on raising Shorthorn bulls?" "Does the *American Agriculturist* publish 'pieces' sent by others than those employed to write for it?" "Does the *Agriculturist* insert pieces on all parts of agriculture?"—Replies: We know of no book specially devoted to Shorthorn bulls. If the "piece" is of sufficient interest to our readers and sufficiently condensed for our crowded columns, we are always happy to receive the ideas of those who are interested in agriculture, and publish them; a reference to the contents of the various numbers of the *Agriculturist* will answer this question fully.

Mange.—"J. A. O.," Elkhart Co., Ind., has a horse which is always rubbing his neck when in the stable, and seems to be very itchy beneath the mane; what is the cause and remedy?—It is probably mange, or an irritation of the skin which may develop into mange. Sulphur should be given to the horse in his feed—a teaspoonful in each feed would be a proper quantity during a week or ten days. The neck should be washed with carbolic soapsuds, and sulphur and lard rubbed into an ointment be applied to the parts affected.

Cashmere Goats' Wool.—"J. W. M.," Mount Vernon, Tenn., has a quantity of Cashmere goats' wool, and wants to know its value and where there is a market for it. There is no market for the wool in New York. We have seen it stated that there is a demand for it in Philadelphia. But with the present insignificant production of this material there can be no regular market for it. The unshorn pelts can be sold in New York, where they are made into rugs and trimmings for ladies' sacks. Write to some of the commission agents who advertise.

Soap-Scraps.—"Subscriber," East Providence, R. I., has a quantity of soap-scraps, and asks advice as to the best mode of using them and for what crops. One of the best ways of using them is to spread lightly on a clover sod and plow them in for corn. Another but more laborious method is to compost them with earth, lime, and ashes, until they are all reduced to a fine mass, and then spread at the rate of a two-horse load per acre

on a newly-mown meadow, or harrow the same quantity in with the seed of fall wheat, or put a small shovelful into the hill with corn or potatoes. It is not lasting, but quick in its effects and good for grass or corn or roots.

Kerosene and Lice.—"Wm. King, Green Bay, Wis.," "has tried kerosene oil as an application to kill lice on calves, but their backs became sore; was it the kerosene that caused it?"—We suppose he means the calves' backs became sore, and do not wonder, for kerosene oil will readily inflame the skin. Crude petroleum should have been used in small quantities, or the kerosene should have been mixed with lard.

Running at the Nose.—"O.," Elkhart, Ind., wants a remedy for a horse troubled with running at the nose.—It is quite impossible to answer such ill-defined questions. The complaint may be catarrh, the result of a cold merely, or it may have progressed into a confirmed nasal gleet or glanders, in which case the disease would be either too serious or dangerous to trifle with. Better take advice from a veterinary surgeon. A catarrh may generally be cured by giving warm bran-mashes with a teaspoonful of salt-pepper added, and a bag of scalded bran hung so that the nose can be steamed for a few minutes daily.

Clover-Seed.—"A Subscriber," Hopkinsville, Ky., asks which is the best method of saving clover-seed, the best machine for hulling the same, its cost, and where it is to be procured.—Clover-seed should be saved by cutting the second crop when the seed is ripe, generally about September. The crop should be stacked or put away until cold frosty weather, when it should be thrashed and hulled. Hulling machines may be bought at any large agricultural implement store; price about \$55.

Warbles.—"L. W. B.," says if "A. B. F.," "or any other man," will bring the backs of his cattle once every week during the summer months they will not be troubled with warbles or grubs.—We notice in a "journal" devoted to stock the ridiculous statement that these grubs are the larvæ of the sheep-fly (*Estro mus ovæ*); that they will kill small cattle, and squirrels and rabbits. This is quite wrong. The parent fly is one of the gad-flies, the *Estro mus bovis*, and no other animals but horned stock are troubled by them, and although there are few cattle altogether free from these grubs, we never heard or read of a case in which an animal was seriously injured or killed by them.

For other Items see page 313.

SUNDRY HUMBUGS.—*Lies Told.*—Several readers inform us that when we denounce medicines and other humbugs, and country agents write to the head-quarters of these operators, they are told that the reason for our denouncing them is, because they do not advertise with us, or because we have tried and failed to get the printing of their circulars, etc. This dodge was tried also before the jury in the Byrn libel suit. Two simple statements will squelch these dastardly falsehoods. *First:* We have no job printing-office; we do no printing for others, but even hire our own circulars and job-work done in other offices. *Second:* We never admit medical advertisements, nor any others, except from good, reliable parties, doing a fair square business in a fair way, though tens of thousands—yea, hundreds of thousands of dollars have been offered us to advertise these things. We could get rich in a year if we admitted the advertisements of these medicine-sellers and of others who give little or nothing, or worse than nothing, for the money they receive, and who can therefore pay largely for advertising. . . . The "Queer" operators are shown up in another article, giving an interesting account of their mode of reaching people. Brown & Billings, 293 Chestnut street, Philadelphia, Geo. Harrington, Monument square, Baltimore, Arthur Debenham, 190 Broadway, N. Y., and others, are in the same line, with the Masonic and I. O. O. F. dodge. They operate in Ontario as well as in the United States. . . . The "Queer" operators at 22 West 4th street, New York, have carried on the "Spanish Policy" dodge, with new features, under many names, such as Edward Barnes, Martin Ellenwood, etc., to confuse the Post-Office clerks. He sends out gilded certificates, pretended to be signed by N. A. Personia, Madrid, Spain, which state that the recipient has drawn a \$200 gold watch, or other valuable article, that will be forwarded to him on receipt of the usual five per cent (\$10)—and some ignorant people bite the bait and lose their money. . . . "Constant Readers" and others will be worse than foolish if they give the slightest credence to those advertising doctors with high-sounding names and positions. . . . A Connecticut reader gives us an account of a visit to an Ann-street swindling shop of the envelope order. We have often shown these up. The only safe rule is to avoid all those shops (and

their circulars) which pretend to give \$2 for \$1, whether by ticket, envelope, or otherwise. . . . If any reader is so simple as to believe the medical story of the so-called "old Marcus Pettigrew" and his daughter, they will have to suffer for their greenness. Any one who receives and distributes the circulars or medicines of this or any other advertised medicine is a nuisance to the community in which he or she lives. The plausible stories make well people sick. . . . Thos. D. Thorp, 737 Broadway, the note swindler, previously exposed, continues his offers of Internal Revenue Brewers' Stamps at eighty per cent discount, on the plea that his cousin prints them in the Government printing-office. Of course he never supplies any, claims that his offer is not criminal, and escapes by a legal quibble. Those who send money lose it, but will not appear as witnesses, as that would show them "*particeps criminis*"—in attempting to buy professedly stolen stamps—and so the villain stands unconvicted. . . . Those foolish enough to send fifty cents to H. T. Moore, Box 2,751, New York City, for a "sure way to succeed," and get \$2,000 a year, have not "gumption" enough to succeed in anything, or to keep money if they get it. . . . The "Silent Friend," proposing to teach everything, and some more, is another catch-penny humbug. . . . T. S. Pattison, Elmira, N. Y., is vigorously pushing his detestable lottery scheme,yclept a "Premium Land Sale," and we are sorry to see several otherwise respectable newspapers helping him by inserting his column advertisement. . . . Numerous letters give us details of how the writers have been swindled out of \$10 to \$500 each by those pretending to cure private diseases, early indiscretions, etc. Every one advertising such medicines is a quack. . . . If you want a "radical regenerator," go to a good well-known physician, but on no account touch any of the quack medicines, and don't read the circulars or symptoms, or you will surely be sick. . . . Dr. Fittler, of Philadelphia, claiming to be a Professor of Toxicology, etc. (where? and by what authority?), doesn't have as much confidence in others as he wants others to have in his medicines, for he requires pay of agents in advance, on his promise to buy the medicine back after six months if not sold. "It's a poor rule that don't work both ways." . . . Give a cold shoulder to all "Silent Friends," "Roads to Fortune," oroid watches, butter-powders, and those who offer them. . . . "Just the Thing for Boys" is a villainous advertisement of just the thing no boy should have. Beware of "Lock-Box 26, Lincoln, Ill." A mean villain offers vile things from that address. No wonder he is ashamed of using any name that the people there could find. How about the P. M.? He must know who gets letters there. . . . Our space is exhausted, with sundry other humbings on hand which must go over to next paper.

Hedges.—R. C. Hall, Montgomery Co., N. Y. Warder's is the best, and indeed the only work on hedges. As you say, it is only full on the Osage Orange. This is the only subject he intended to treat, and the other matter was, as we understand, only added at the earnest request of the publisher who originally brought out the work. In the matter of articles on hedges, we will endeavor to comply with your request at the proper season.

Ice on Weed.—Cyrus Nade, Christian Co., Ky. It is impossible to tell the name of your plant, which "in the fall has beautiful specimens of ice attached to its bark," from the bark only. If you can send us the flowers, we can tell you what it is.

Those Mules.—We have received about a dozen letters from parties who have mules for sale, and have forwarded the names of the writers to the party who made the inquiry for them. This occurrence seems to point out that there are many parties wanting what others have to dispose of, and it is obvious that the mutual interest of these parties would be best served by making their needs known to the public through the advertising columns of the *Agriculturist*.

A Specimen of Rock.—"F. N.," New Albany, Ind., sends a specimen of rock, and wants to know if it contains lime, or is of any agricultural value, and if it occurs under the "old red" or "new red" sandstone. This rock is a fragment of clay slate, contains no lime, and is of no agricultural value; it is not crystalline in texture, and does not occur beneath the old red sandstone. It is very similar to some of the clays of the coal measures, but may belong to a still later age than the new red sandstone; without seeing it "in place," it is impossible to give the exact geological position.

Wants to be a Farmer.—"C. I.," Paluted Post, N. Y., wants advice. He was raised on a farm, knows all about farm work, and wants to be a farmer, but fears that he will not be able to make it as profitable as his present occupation, which brings him a salary of \$1,200 a year, out of which he can save \$300 to

\$400. There is an old proverb applicable to C. I.'s case, which is, "Let well enough alone." He is better off as he is than thousands of farmers who work harder and make less than he does.

Cooking Feed.—J. N. Robertson, Cass Co., Ill., cooks corn in the ear or meal for his stock, and finds it conducive to their health, and economical in the use of feed. He uses a trough with sheet-iron bottom and pine-plank sides, and ends similar to a syrup evaporator, in which water may be made to boil in a few minutes.

Warts on Cows' Teats.—"Subscriber," Snowshoe, Pa., wants a remedy for warts on cows' teats. If the warts are quite small, cut them off with a sharp shears, and canterize the wound with nitrate of silver (or Iodo-castic). If they are large, wet the wart, and rub the caustic on it twice a day, after milking, until it disappears.

Beef and Butter.—"H. H.," Fern's Mills, Mich., asks what breed of cattle are, on the whole, best to raise for beef and butter. If the pasture is luxuriant and can be kept "knee-high" all the time, or plenty of feed can always be procured, grade Shorthorns of a good milking family will be the best; otherwise, Ayrshires.

Ashes and Hen-Manure.—H. Hutchins, Allegan Co., Mich., asks if ashes and hen-manure are good for corn and potatoes, and how they should be applied. They are excellent for both crops, and should be applied a handful in the hill, at planting time, well mixed with the soil.

The Largest Milking in Twenty-four Hours.—"S. S.," Alexandria, La., asks what is the largest milking of a cow, during twenty-four hours, on record. Allen, in his *American Cattle*, mentions a Dutch cow owned by W. Chenery, of Mass., which gave in one day 3½ quarts. We have a scrap cut from a French paper some years ago, which states that a cow in Holland gave in one day 3½ quarts. These are the largest recorded milkings we know of.

Farm Gate.—A correspondent who forgot to affix his name to his letter, sends a sketch of a gate, "not patented," but the principle on which it works is patented; it would therefore be an infringement.

Concrete Buildings.—"A Subscriber" wants the address of a man who erects concrete buildings. As this is a well-understood process, we should think any intelligent mason could put up such a building. We do not know any one who makes a business of it.

Poison Ivy.—Paulus Keck, Dorseyville, Pa., asks how to destroy poison ivy. We killed by keeping the fence rows mowed during one summer. If there is any easier way, we should be glad to learn it.

Sugar-Waste as Manure.—"A Constant Reader," Philadelphia, asks if the waste from a grocery-store, which consists of sugar and molasses mixed with sawdust, is worth hauling six miles in preference to paying 50 cents per month per horse for stable manure. The stable manure is better worth paying for than the sweet stuff, which is little else than carbon and of slight use. All cattle have a sweet tooth, and are very fond of sugar, occasionally. It will do them no harm if they lick such waste stuff.

Value of Sorghum Bagasse.—"J. W. G.," Ohio, wants to dispose of a quantity of bagasse of sugar cane. We would burn it and save the ashes, if we could not plow it under, and spread the ashes on wheat or grass.

To Bring New Land into Cultivation.—An "Admirer," Spring Lake, Mich., asks what he shall do with a piece of newly-cleared woodland, to get it into cultivation. The usual mode is, to plow it as far as possible and plant potatoes, cultivating with the hoe. Take up the crop in time to sow wheat, which is harrowed in the loose soil, without plowing. Sow with the wheat six quarts of timothy, and in the spring four quarts of clover. Leave it in grass until the stumps and roots are rotten.

Iron-Weed.—Geo. Hoke, Mount Pleasant, Frederick Co., Md., has been looking out for roots of "Iron-weed," and writes us for the address of the party who inquired how to destroy this weed, in October *Agriculturist*. As his letter was without State or county, and a town of the same name is in five different States, we were unable to comply with his request. [N. B.—All letters should have county and State invariably added to post-office; many inquiries come to us that depend on correct locality for a proper reply.]

Lard-Makers' Refuse.—"I. F.," Edwardsville, Ind., has a quantity of refuse from a lard-rendering factory, which consists of dry flesh, hair, and bones, easily pulverized; how can he best use it?—His method of composting this valuable material with fermenting stable manure and earth is excellent, and will make a very active and lasting fertilizer, of which ten to twenty loads per acre will be a fair dressing.

Cure for Stifle.—"B. J. C.," Wilton, Minn., asks if there is any cure for a colt that was "stified" a year ago. It is probably past cure now; taken at the earliest moment, it is often incurable, but when confirmed by long standing, the case is hopeless. Strong astringent lotions applied to the stifle-joint, chiefly on the inside of the thigh, good food, and absolute rest are the only remedies.

Clover in Virginia.—"F.," Concord Depot, Va., has lately removed from New York State to Virginia, and finds the country suitable for sheep and clover. He can show a nice stand of clover and a good flock of Merinos there.

To Destroy Milk-Weed.—"F. Van D.," Oneida Co., N. Y., asks how to destroy Milk-weed. We know of no plan but plowing the ground and harrowing up the roots and picking them off. No surface application will answer.

A Calcareous Soil.—"A Subscriber" asks, What is a calcareous soil?—It is one which naturally contains carbonate of lime. Lime exists in the soil generally in the state of carbonate, and sometimes as sulphate, in small quantities.

Hay-Press.—"G. L.," Blairsville, asks for a hay-press that will press 400 to 500 pounds of hay into a bale. We don't believe there is such a press in existence. The heaviest bales of hay we have seen averaged six to a ton, or 333 pounds each; the majority are lighter.

The Lime Interest.—H. Wildey, Carroll Co., Ill., asks if we know of any paper published in the lime interest. We do not know of any; if there is any such, we should like to know of it.

Hard-milking Cows.—E. Ryder, Brewsters, N. Y., writes that he improved a hard-milking cow by enlarging the orifice of the teat by inserting carefully the sharp blade of a fine penknife. The orifice should be enlarged sufficiently to allow for some contraction, which will occur during healing. If a small wooden plug is kept in the teat, during healing, no contraction will occur; the plug should be rubbed with sweet oil.

A Pig that has Fits.—"Wm. A. W.," Foster Center, R. I., has a Chester White pig that is troubled with fits. He feeds meal-pudding, warm. This may be the cause. Fits are caused sometimes by worms, and sometimes by indigestion; warm feed causes indigestion. Feed cold mash.

To Cut Corn-Fodder.—"W. S. H.," Niagara Co., N. Y. Corn, sown for green fodder, may be cut either with the mowing machine or with the common cradle. Our practice has been to cut with a one-horse mower sufficient for one day, and cart it to the barn in a one-horse wagon. The horse is moved from the wagon to the machine, and back again, when needed, and the work is very quickly performed; when the field is near to the barn, fifteen minutes' time is sufficient.

The Cost of Keeping Rats.—A stack of wheat was lately thrashed on an English farm, according to the *Farmers' Chronicle*, out of which 1,040 rats were taken; only three escaped out of the lot. The damage done is not stated, but can easily be estimated.

An Aged Parrot.—A parrot lately died in England, which belonged to an old lady, a Mrs. Turner, and which had belonged in turn to her mother and grandmother; it was said to be 113 years old at its death.

Strawberries set in July.—"W. M. B.," Weston, Ct., asks if strawberries set out in a peabed in July will bear next year, or if it will pay better to plant turnips.—If the strawberries can be taken up with a ball of earth—better if potted—and put out so that they will not be checked in their growth, they will give a good crop next year. The other question depends upon the relative price of strawberries and turnips in your market. Properly managed, there should be no difficulty in getting a good crop of strawberries.

For other items see page 313.

Read Tax in Ohio.—Referring to some remarks in "Walks and Talks" in the June number of the *American Agriculturist*, Jno. S. Bowles, of Ohio, writes: "Here in Ohio a man is taxed so many dollars road-tax according to property, but he has the privilege of working it out at \$1.50 per day, or \$3 per day for a man and team, and wagon, or scraper. No supervisor of roads ever objects to a man's working his road tax in the spring. On the contrary, he very often insists on it. It is the farmers who generally object to working out road tax until fall, when they have nothing else to do. Sometimes, however, they do the work in May. When we plow and scrape we only have as many teams as there are scrapers. When we draw gravel, in which most of our work consists, we have a number of teams and wagons at it, and enough extra shovellers to keep the teams on the road, and not at the gravel-pit, nearly all the time. Every man has a poll-tax of two days' work to perform yearly. The supervisor can either allow one day with a team, or call for two days at shovelling gravel. If he needs shovellers, he will do the latter. More work can be accomplished at the same expense by the teams being constantly on the road than if every man's team stood still until he filled his own wagon."—No doubt about that. We fear, however, that every district is not favored with such a sensible supervisor. Road-making or repairing requires some experience and much good judgment, and we can not but fear that a good deal of time is lost in doing work at the wrong season, and in not half-doing it. The commonest mistake is in not providing good drainage. Three inches of well-screened gravel laid on a thoroughly-drained and rounded road-bed will make a far better and more enduring road than a foot of unscreened gravel laid in the wet spots. There is dirt and sand enough on our roads without drawing them from a gravel-pit.

Night-Soil.—"C. C." asks how he shall use two loads of night-soil.—Mix it with a few loads of fine earth, and put a handful or two into each hill of corn.

The Wisconsin State Dairymen's Association has decided to establish the coming season semi-monthly market days at the city of Watertown, for the sale of dairy products.

What is the Matter with the Horse?—"A. L. B.," Trenton, Pa., has a horse which is stupid and dull, as though something were the matter with the head. Possibly there is: if there is redness of the eyes, it may be caused by inflammation of the brain, or it may be caused by overfeeding, or a too tightly fitting collar. Books in such a case are useless, and the trouble is so ill-defined that we can not offer any advice except to consult a veterinary surgeon about it.

A Patent Wanted.—"S. S.," Bedford, Pa., sends us a sketch of a farm-gate which he claims is a new thing, and wants our opinion about it. As the claimed improvement has not the least novelty, we give our opinion, and would not advise "S. S." to spend any money over it. We think that the gate business, being already hampered with over 100 patents, should now be left in peace, and inventors turn their attention to methods of doing without gates at all; and fences as well.

Buffalo Bulls.—If "P. B. B." will send his address (former one mislaid), we will give him the address of parties who can furnish him with a young buffalo bull, or he can apply to the party who advertised them for sale in the *July Agriculturist*. People often don't know that they want many such things until they discover that they can get them, and the "Basket" is not exactly the proper vehicle for carrying buffalo bulls and the like between seller and buyer.

Shall He Buy or Hire a Bull?—"P. M.," Pleasant Run, Kansas, asks if he shall buy a thorough-bred Shorthorn bull at \$200, on a year's credit, or take him on shares of half the value of his services. He has 20 good native cows. We would advise the latter course, lest when pay-day comes inconvenience should arise in meeting it. A farmer, as a rule, should never run in debt, except to drain or manure his farm, and then only in rare cases. When the funds are *in hand*, then buy a bull as soon as possible.

To Improve an old Meadow.—"J. E. R.," Norwalk, Ct., wants the best manner to start the grass on an old, run-out meadow, in the absence of stable manure. We would harrow the meadow with a sharp, heavy harrow, and spread 800 lbs. of fine bone-dust early in spring, with a little timothy seed where the ground is bare. Harrow again with a very light harrow or a bush. If swamp muck could be dug through the summer, a top-dressing in the fall would be useful.

Is it too Late to Sow Mangel-Wurzel?—It is too late to grow a large crop. But if the ground is rich, mellow, and clean, a fair crop may be grown, sown as late as the first week in July. Seed-growers who raise moderate-sized roots for the purpose of setting them out for seed next spring, often sow as late as the first or middle of July. They sow in rows, say 2½ feet apart, and leave the plants six inches in the rows. If the ground is moist and the seeds are sown by hand, a week or so may be gained and much weeding saved by soaking the seeds for 48 hours before sowing, taking care to change the water at least every 12 hours. If, after soaking for 48 hours, the ground is not ready, pour off the water and keep the seed moist until you are ready to plant. It can be kept two or three days, or even until it sprouts, without injury, provided the sprouts are not knocked off in planting.

"What is a Hogget?"—It is an English term applied to sheep, and, like many other similar terms, does not seem to have any very definite meaning. Webster, quoting from the *American agricultural writer Skinner*, says, "A hogget is a sheep two years old." As we understand the matter, however, the general meaning of the term as used by English farmers is a sheep, male or female, from the time it ceases to be a lamb until it is shorn for the first time. After it is shorn it is a "shearing" or "shearling;" when shorn the second time, it is a "two-shear" sheep, and when shorn the third time, a "three-shear" ram, ewe, or wether, as the case may be. A "hogget," then, is a lamb, without regard to sex, from five to fifteen months old, or until it is sheared. After that it ceases to be a hogget and becomes a shearing. For the sake of distinction it is, we believe, proper to say ewe hogget, wether hogget, etc.

Artificial Cider.—"D. P. B." We have no formula for artificial cider, and if we had, should not publish it; we do not believe in sophisticating.

Roaches—Insect-Powder.—L. G. Hedge. If you can get fresh Persian Insect-Powder, you can get rid of roaches or cockroaches. Here let us state that all the various "lightning," "electric," and other bug-powders are only this done up in small packages. The Persian Insect Powder is the ground flowers of several species of Pyrethrum, and is put up in chests in the Caucasus. Its value depends upon its aroma, and consequently upon the care with which it is kept. The importers, when they open a case, immediately put the powder into pound bottles, securely corked. We get ours of Lasell, Marsh & Gardener, No. 10 Gold st., New York, in pound bottles, at \$1.25 each. It is sure death to every cockroach it touches. We use a bellows and blow it into all the cracks. Get your druggist to order it for you.

Clover amongst Corn.—"A Young Farmer" in New Jersey is engaged in raising green corn for the city market and wishes to grow a crop of clover between the crops of corn. The corn is to be off by the first of August, and some of it by July 20th. He asks if clover will do well sown at this season of the year; if so, he can grow corn every alternate year.—Yes, it will do well, sown in July or August, provided the land is clean, moist, and in good condition. Sow seed enough, say 8 to 10 quarts per acre. If the crop can be removed and the land got in good condition by the middle of August, we should prefer to wait and plow, and thoroughly harrow the land before sowing the seed, and then roll. But otherwise it will be better to sow the seed among the corn after the last cultivating.

Buggy Peas.—"J. R.," Wayne Co., N. Y. We know of no remedy. All you can do is to feed out your peas to the pigs early in the fall, before the "bugs" grow large enough to eat their way out of the peas and escape. If fed out before the first of November, there will be little loss of nutriment, as the pigs will eat peas and bugs together and grow fat on them.

Pigs for Choice Family Pork.—A Jersey farmer writes: "I raise quite a number of pigs, and sell them to people who get the city slops, and who want them to fatten at from six to ten months old. Have got my name pretty well up for raising the right quality of pigs, so that orders come in from three months to one year ahead. This with a common stock of hogs, lightly crossed with Chester Whites, such pigs ranging from 275 to 300 lbs. at ten months old. Last fall I thought to still further improve part of my stock by using a Jefferson County boar, which has perfectly disgusted me with them. The pigs are now six weeks old, and I could put any of them in my overcoat-pocket, while my other pigs go from 25 to 35 lbs. at eight weeks old. Now, what I want to know is, whether you think a thorough-bred Essex boar put to Chester White or other large sows would give me pigs that would grow faster while young and mature earlier than others in which there is no Essex blood?"—The pigs

from such a cross may not weigh any more at two or three months old than the Chesters, but they will be finer boned, smaller eared, fatter, and more stylish-looking. At any rate, this is our experience and observation. A second cross, if you select the best and most vigorous sows, will improve them still more. And if well fed, the quality of the pork can not be excelled. But it should be understood that such pigs will not stand starvation and neglect. They are bred to grow rapidly and mature early, and must have something to grow with.

Chester Co. Mammoth Corn.—"D. H. B.," West Brandywine, Pa., disagrees with Thomas Wood, of Doe Run, Pa., when he states that the Chester Co. Mammoth corn is simply the result of good culture. He asks if heavy feeding would make native cattle equal in size to the Kentucky Shorthorns, and if not, could heavy manuring change an inferior grain into one of great excellence? The theory and practice of culture and breeding are against the views of "D. H. B.," and in favor of those of Thomas Wood, and they prove that "the careful cultivation of one distinct variety" does not deteriorate it, but within certain well-defined bounds improves it. The highly-bred Shorthorns are the result of the careful and long-continued culture of a race of native British cattle, and are totally different in character from the uncultivated progeny of the same race now existing. Besides it can be shown that corn cultivated without change of seed for sixty or eighty years, at least has not degenerated. Yet great improvement often results from the introduction of new or fresh varieties.

Value of Bone-Black.—"W. A. G.," Washington, asks what is the value of bone-black and Guanape guano as compared with raw bone and Peruvian guano. Bone-black having by burning lost its animal matter, contains little or no ammonia, and its value is therefore less than that of raw bone, probably one fourth or even more. Guanape guano is so variable in composition that its actual value can not be stated. Generally, Dr. Voelker states it to be less in the best samples than Peruvian guano. What the poorest samples are worth it is impossible to say.

How to Smoke Meat.—"T. M. D.," Baden, Mo., wants to know which is the best weather in which to smoke meat, wet or dry. It is quite immaterial as far as regards the dryness or juiciness of the meat. This is affected by the degree of heat in the smoke-house. If the house is kept cool the smoking will leave the meat juicy, but if the temperature becomes too high the meat is dried. Damp weather affects only the surface.

Stripping Cows.—W. H. Barns, Oakwood, Kansas, has heard of folks stripping their cows into a small pail, and putting it directly into the cream-jar, claiming it is nearly pure cream, and always thought it absurd. It is true, nevertheless, and we supposed everybody who had a cow knew that the last drawn milk is much richer in cream than the first.

About Borrowing.—A "Subscriber" asks if we would advise a farmer who has a good farm of one hundred acres to borrow \$2,000 to purchase stock for a butter-dairy farm. If the farmer knows enough to lay out the money judiciously, the stock ought to be always worth the cost, so that he really is not in debt; and we don't hesitate to advise any farmer to borrow money to improve the productive capacity of his farm.

The Sawdust, or "Queer," Humbug.

This has been shown up often in these columns. The most extensive operator in this line now sends out the following circular, under seal, with no name attached, but a name is written and inclosed in it on a separate slip. As all letters to swindlers are stopped at the New York Post-Office, this fellow sees a great variety of names, changing them faster than they can be followed up by the Post-Office clerks. Thus, in a lot of the same circulars before us, we find slips with the following names and many others, all giving the address of 22 West 4th street or 16 South Fifth ave., New York: Wm. Dalley, S. Yetter, Jonas Phillips, Wm. Coombs, Joel Jewells, John H. Klinkard, David Driscoll, David Curran, Rollin Burdick, Henry Outman, Martin Bowker, Lemuel Haines, Ezra Whitcomb, Joseph Hoffman, Jonas Moore, Herman Andrews, David Curran, etc., etc. As a curiosity, we give the circular entire. It will be understood that nothing is ever returned for the money sent, the sender not daring to expose himself as a would-be dealer in counterfeits. If one comes to the shop he is scared out of his money, or has it taken from him by a bogus policeman. If parcels are sent out by express, C. O. D., they are filled with "sawdust" or other trash, the character of which is not known until the recipient has paid a large bill and taken

his box to a private place. If he is suspicious, and don't take out the box, he gets a lot of letters threatening exposure, etc.—all of no account. Here is the circular, which is sent out by the hundred thousand, and enough dishonest greenhorns are caught to make it very profitable: "STRICTLY SUB-ROSA, AND THE SECRET NEVER TO BE IMPARTED TO A LIVING BEING.

"MY DEAR SIR: I take the liberty of sending you a Circular that is printed by myself in my own printing office, in order that its contents may be known only to the few that I conclude to take into my confidence.

"I hope that after I have placed confidence enough in you to send a circular of this kind, relating the nature of my business, that you would not be so treacherous as to even breathe the contents of this document to a living being; should you betray me, I will find means to be avenged in way perhaps you would not dream of. If you do not wish to enter into this confidential business with me, all I ask is, that you burn this circular and let the secret die with the flame. On the other hand, if you conclude to enter into this speculation, that will in a few weeks make you a wealthy man, I would advise you to burn the circular and preserve the secret, as when this circular is destroyed all evidence against you and me is obliterated.

"A person in a business of this character must be true to themselves, and as true as steel to the person they are doing business with. You should always abstain from the use of strong drink, there is great danger that a person knows not what he might say when drunk. You should also keep the secret of the business as still as the grave, not even hint at it to your nearest relation or breathe it to your second self. Now, with all the warnings I have given you that is most necessary to adhere to without a single exception, I will proceed to state facts in reference to the business, which, if managed with care and shrewdness, will lead you to fortune without any one dreaming from whence your wealth came.

"In the first place, I wish to state that I am an engraver, and said to be by those who are competent of judging, the most expert one in America. I have been employed by the U. S. Government for ten years. I superintended the engraving of all the plates for the United States money. When the Government ceased to issue Greenbacks my services were no longer required, and as soon as I found that my time was my own I conceived the idea of engraving a few plates for myself and for my benefit, as I am well aware that a man can never become wealthy working for a salary. I have only recently finished the work that I began almost two years since, that is, the engraving of six plates which are exact duplicates of the Governments. Mine are the Fifty Cents, the One, Two, Five, Ten, and Twenty Dollar plates. I have taken the greatest care in engraving these plates, and I defy the best experts to detect the counterfeits from the genuine. In a few days since a large amount of my money in six different banks in New York City they all accepted it without saying a word; my money being all new, I thought it would not be advisable to deposit any more, for fear they might think something wrong. When it is deposited in banks there should be other money that has been in use mixed with it, then there will be no suspicion, and I now need only to be careful not to be caught. If you do, then we will secure a fortune that will enable us to enjoy all the pleasures that money can procure on earth. My bills are printed on exactly the same paper as the United States money, so that there is not a possible chance to detect the difference only in one way, which is this: The Government bills are numbered from one up to one million. If you should come across two of the same number, one will certainly be counterfeit and the other genuine. If it is convenient for you to come to New York, I wish you would; then you could see the money, and I would give you a few dollars to pass, then you would see that everybody would take it exactly as if it was genuine money.

"The price of my money is ten cents on the dollar; one half cash, and the other half as soon as the money is passed. State in your letter, when you order, how many \$500s, \$1.00, \$2.00, \$5.00, \$10.00, and \$20.00 bills you wish, so that I will know exactly how many of each to send. You must be sure to seal your letter perfectly tight, and write my name very plainly. I will make the following discounts when large amounts are ordered. For a three hundred dollar order the price will be thirty dollars. You must inclose ten dollars with the order, and the other twenty dollars when the money is passed; and for larger orders at the following rates:

- \$400 order for \$40. Send \$12 cash, and \$28 when money is passed.
- \$500 order for \$50. Send \$15 cash, and \$35 when money is passed.
- \$1,000 order for \$100. Send \$25 cash, and \$75 when money is passed.
- \$5,000 order for \$500. Send \$100 cash, and \$400 when money is passed.
- \$10,000 order for \$1,000. Send \$200 cash, and \$800 when money is passed.

"When a large amount is sent, I pack it in a box and mark it in such a manner that no one would suspect it being money, and send it by Express. Always state when you order how you wish the money sent, and if by Express.

"I will send you a hundred dollars assorted, on receipt of five dollars, so you can see how it passes, then you can order a large lot.

"By all means come at once and see me; if possible, and bring all the money you can possibly raise with you, so you will be prepared to buy a large stock; for this may be the last chance you will ever have to make a fortune at a single stroke. After you arrive in the city you can take the Broadway stage and get out at Fourth street, walk down Fourth street, west side, until you come to No. 23; you will see the sign "Book Agency" over the door to the office. I occupy the ground floor, so you will have no trouble in finding me. But if you can not possibly come on here now, send me 10, 20, 50, or 100 dollars in a thick envelope, by mail, or by express. Do not send by registered letter under any circumstances. All registered letters are supposed to contain money, and Post Office Clerks are apt to open them, take the money out, and then seal them up as before, and send them through. You see if this were to happen it would expose the whole thing. I guarantee to send you back ten times the amount I receive, in the best counterfeit money ever issued, or if you prefer I will send my money you C. O. D. by express, and you can pay the money due me to the express agent when he hands you the package. I sew the money up in the lining of a coat, and pack it in many other ways before I ship it, so no one would dream of its being money. Now, my dear sir, I have disclosed this golden opportunity to you in faith and hope—faith in your ability and fidelity, and hoping that one year hence you may find us both wealthy and happy, and I here pledge you my word of honor that while you are faithful to me I will be true to you. My name and address is on the enclosed slip, which you will keep, but burn this circular.

"This is the compact which I sign, and to which you must agree: 1st—We mutually agree not to betray each other, and to disclose this matter to no living soul. 2d—I am to return to you, secure from observation, ten dollars of the best counterfeit money made for every dollar I receive from you. 3d—When you come here to see me, I am to count you out \$10.00 for every dollar you give me, and you need not pay me until you have my money in your hands. We must do business in a discreet and honest manner, and let him who first violates it suffer the consequences."

Arsenic for Pigs.—W. W. Chance, Naples, Ill., says he has cured his pigs of paralysis of the hind parts, or kidney complaint, by giving a quarter of a teaspoonful of arsenic in their feed once a day. Pigs had been thus cured which had been affected for two months. [There are several other less dangerous remedies than arsenic, which are therefore preferable in all such cases.—Ed.]

Canker of the Frog.—"X," Randolph Co., Ill., has a mare whose feet are out of order; the frog is swollen, soft, spongy, and tender. What must he do?—This is probably canker, or it may be a commencement of thrush, caused by standing in a wet, foul stable or yard, or roving in a wet, mucky field, or by an unhealthy condition of the blood. The soles should be washed with warm water and soap, then with a strong solution of blue vitriol (sulphate of copper); if there are any cracks in the sole, they should be filled with tow, soaked in the solution. If the general health is poor, that should be remedied at once by proper treatment.

Bones.—"N," New Albany, Ind., asks, if bones can be purchased at \$8 per ton, whether it would be cheaper to burn them to reduce them to powder than to buy bone-dust at \$35 per ton. If the bone-phosphate alone is wanted, it would be cheaper to burn and crush them. If the ammonia is wanted as well as the phosphate, bone-dust from unsteamed bones would be cheaper at the price, as the nitrogen from fresh raw bones is considered by Prof. Johnson to be worth \$24 per ton of bones.

Buffalo Crosses.—"Army," Fort Leavenworth, Kansas, advises "P. B. B." (see *Agriculturist*, May, 1872) not to use the buffalo bull for crossing purposes. He has lived during several years in the buffalo country, and they say there that a half-bred buffalo calf will have the hump common to the buffalo, which will be fatal to the cow in her efforts to produce the calf. Domestic bulls will not breed with buffalo cows. Near Chicago several valuable cows have been lost in the effort to give birth to half-bred buffalo calves. We give "Army's" letter, but he seems not aware of the fact that the buffalo bull has been crossed with success with the native cow, and the heifer calf from this union has bred with a buffalo bull.

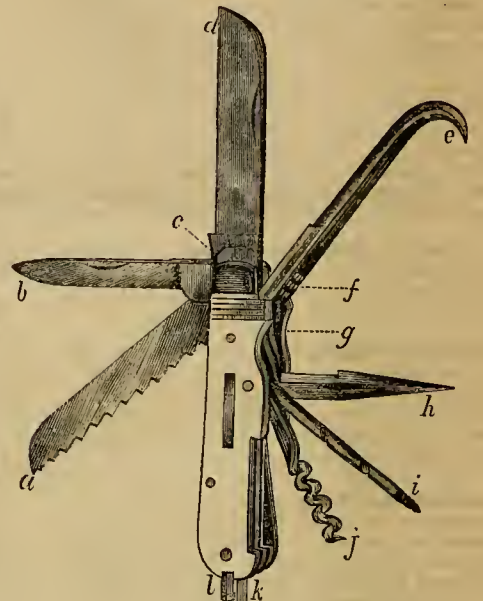
Salt-Cake.—"L. S.," Saratoga Co., N. Y., asks, what is salt-cake, and what is it worth as a fertilizer? Salt-cake, the refuse of the salt manufactory, contains mainly sulphates of soda and magnesia or Epsom and Glauber salts and chloride of calcium, which are practically of no value in agriculture, or but very little; in fact, they often do more harm than good. Such matters should not be used without a well-understood purpose.

Artificial Manures.—"A Subscriber," Bousacks, Va., last year collected two tons of horse and cattle droppings, which he mixed with nine bushels of unslaked lime, same quantity of leached ashes, and four hundred pounds of guano. The mixture was pulverized and sowed with the drill at the rate of 100 pounds per acre on the wheat crop, with what advantage to the crop is not known. He thinks that if farmers knew what ingredients to add to their compost heaps much valuable and cheap manure might be made.—This experiment is not a satisfactory one, because there is no result, for the reason that the effects were not watched and noted. 100 pounds of such a compost is too small an application except for comparison. 500 pounds per acre would have been better, but the effects of it should be closely observed as a guide for the future. Besides, the mixing of fresh lime with ammoniacal manures is contrary to what is considered sound principle, unless plenty of absorbent matter, as leaf-mold, swamp-muck, or even earth, is added to retain the escaping ammonia.

Saltpeter.—"W. J.," Fitchburg, Mass., asks if saltpeter would be of any benefit as a dressing for grass land. Nitrate of potash, which is one form of saltpeter (nitrate of soda, called soda-saltpeter, being another), has been used as a dressing for grass with very good results in England, but in dry seasons it is apt to "burn" the crop. It should therefore be used with caution, and in quantities of not over 100 pounds per acre at a time. It encourages the growth of clover and the most valuable grasses, and tends to make the soil more absorbent and retentive of moisture. Nitrate of soda is not so highly thought of as nitrate of potash.

To Drain a Flat Beaver Meadow.—"Old Field" has a beaver meadow which he wants to drain, but there is not sufficient fall on his land. He suggests digging a fish-pond. This would not reduce the level of the water. If permission could be got, the creek might doubtless be lowered a foot or two in much less than a mile; if not, there is no resource but digging channels to collect the water, and sowing Red-top.

SPECIAL PREMIUMS STILL OFFERED.



MULTUM IN PARVO KNIFE, OPEN.—WEIGHT 2 OZ.

The General Premium List closed July 1st. The following Special Premiums are continued until further notice:

The Multum in Parvo Knife for 8 subscribers to *American Agriculturist* at \$1.50 a year; or 4 subscribers to *Hearth and Home* at \$3.00 a year; or 5 subscribers for one year to both the above papers at \$4.00 a year. (Knife sent post-paid.)

The Beckwith \$10 Sewing Machine for 12 subscribers to *American Agriculturist* at \$1.50 a year; or 6 subscribers to *Hearth and Home* at \$3.00 a year; or for 10 subscribers to both papers at \$4.00 a year.

N. B.—Two half-year subscribers in all the above cases may count for one full year in a Premium Club List.



MULTUM IN PARVO KNIFE, CLOSED.—3 inches long.

Raising Water.—"T. N." has his house 40 feet above a spring, and 150 feet distant from it. What would be the best and cheapest way to bring the water to the house?—If there is a fall of several feet within 30 or 40 feet of the spring a ram could be used, at a cost for pipe and ram altogether of about forty dollars. If there is no fall, a windmill might be used, at a cost of about \$150, or less if made at home. See *Agriculturist* for May, 1872.

What Manures?—"J. M. J." asks what manures, artificial or otherwise, would be best for soil composed of "siliceous silica," oxide of iron, alumina, and sulphates and carbonates of lime and magnesia. This description is very incomplete, and although it might form the basis of a theoretical chemical formula as to the necessary manures, we do not consider it of any value practically. We never knew a soil which could not be improved by barn-yard manure, with a dressing of lime every five years, and good plowing; and in the absence of a knowledge of the amount of silica or alumina contained in it, we would advise "J. M. J." to pin his faith on to barn-yard manure as his main reliance.

A Technological Dictionary.—The greatest trouble one experiences in studying a language other than his own, is with the purely technical words—words that occur in business or the arts. If we think of the varied meanings that the words "stick" and "bar" and such like have, we can appreciate the difficulties which beset one in learning English; and the same trouble attends us in learning French and German. Ordinary dictionaries fail to give us the technical uses of words, and we gladly welcome three small volumes from L. W. Schmidt, 24 Barclay st., entitled "A Technological Pocket Dictionary in the English, German, and French Languages." The title sufficiently explains the scope of the work. The real value of a dictionary can only be learned by use, and we can only say that this appears to be as valuable as its mechanical appearance is neat.

Carbolic Acid in Soap.—"F. N.," New Albany, Ind. The use of carbolic acid in soap is patented. We do not know the proportions, but in using it you would be infringing upon a patent right.

Barberry Hedge.—"F. N.," New Albany, Ind. Procure the seeds in fall, and sow them then, or keep them in sand over winter and sow in spring. Treat them for one year just like cabbages or other seedling plants, by keeping them clear of weeds and thinning where too thick.

Holly-leaved Cherry.—"P. W. M.," We trust we have no one in our office so stupid as not to know the difference between the Holly-leaved Cherry and the Holly-leaved Barberry, especially when the one has simple leaves and the other compound ones; besides, the structure of the flowers is entirely different in the two.

Sweet-Corn Suckering.—We have reports that one and another variety of sweet corn suckers badly in different parts of the country. As the same complaint has been made of different kinds of field corn, we are inclined to think that soil and climate affect the suckering. The only remedy we can suggest, is to grow those kinds in each particular locality that seem best adapted to it. Corn, whether sweet or field, is very readily modified by locality, and any one can by a little care in selection obtain what the gardeners call a "strain" suited to his wants.

Colorado Potato-Bug.—Many inquirers. We must repeat, that if the bugs are too abundant for hand-picking, the only resort is the deadly poison, Paris green. Mix this with from twelve to twenty parts of flour, and sift from a perforated tin box, or one with a gauze cover, over the vines, while the dew is on. Keep the stuff away from children, and do not inhale the dust in using. If you must use it, keep in mind its virulently poisonous character.

Yeast Powders.—The immense and growing consumption of the various substitutes for the old-fashioned saleratus we believe to be favorable to the health of the community. These mixtures are, in the main, carefully compounded, so that there shall be no preponderance of either acid or alkali, thus forming in the bread only a harmless, neutral salt. We have used, with much satisfaction, the preparation manufactured by Messrs. Dooley & Brother, and sold by them very largely throughout the country.

Grape Cuttings.—"J. B. S.," Madison, Neb. You can do nothing about grape cuttings until the leaves fall. Then when you trim your vines make cuttings of two buds or eyes each, tie them in convenient bundles, and bury them in sand in the cellar, or out of doors in a place where water does not settle. In spring set in rows, putting the cuttings six inches apart, and one bud at the surface, taking care to get them right side up; press the soil well to the bottom of the cuttings, and give the bed a mulch of leaves or litter. Most grapes will grow, treated in this way, but some varieties require a propagating-house. These you can raise from layers.

"The Garden."—Mr. Robinson's paper, the establishment of which we announced at the time, continues its career with every appearance of prosperity. It differs in many respects from other English horticultural journals, and would probably best suit those of our readers who wish to keep the run of British horticulture. We are glad to notice that the editor finds frequent occasion to quote from our columns, and to transfer our engravings. He always gives credit in the most courteous manner, and is most heartily welcome.

Mezquit or Muskeet Grass.—J. A. Reagan, M.D., Buncombe Co., N. C., asks about the value of "Muskeet Grass," its cultivation, and where seed can be procured—This is one of several queries of the same

purport. In a pretty extended tour in Texas, some years ago, we found that several grasses were called Mezquit, and we do not know of any particular one which can be designated as the *Mezquit*. It may be that some of our Texan readers can help our correspondent. We should be glad to get from our friends in different parts of Texas specimens (*in flower*) of the grass known in their localities as Mezquit. Even so intelligent an observer as the late Mr. Affleck sent us the Buffalo grass as what he considered the true Mezquit.

Fruit Trees.—A correspondent at Bealton, Va., writes: "Can you tell me how to make my fruit trees grow down, or heavier in the body of the tree? I have 400 apple-trees, and as a general thing they are too light in the body."—Unless the trees are crowded, we do not see why they should be "too light in the body." An apple-tree that has room to develop itself properly, will naturally keep a proper proportion between the trunk and head.

Night-Soil for Fruit Trees.—"Inquirer," Brunswick, Me., asks if night-soil is good dressing for apple-trees, young or old, and if so, best way of application.—We would use night-soil for corn and other quick-growing crops, and apply a compost of stable manure or of muck and lime to the trees.

The Plymouth Pulpit.—Messrs. J. B. Ford & Co., under the title above given, publish a sermon of Henry Ward Beecher each week. They now send us the fifth and sixth series, bound in two handsome volumes, and including the sermons of a part of 1870 and the whole of 1871. Mr. Beecher is a full-hearted, manly, hopeful man, and thoroughly impresses these characteristics upon his sermons. We can not conceive that one, whatever his "denomination," or even if of no particular faith, can read these sermons without feeling refreshed. There is something in them to meet every phase of life, and every mood and temperament. Though the writer is not of the Plymouth pastor's "denomination," he would no sooner be deprived of his Beecher than our regular readers would be of their *Agriculturist*.

Garden and Lawn Weed.—"F. S.," Rothsville, Pa. Your weed is the Low or Running Malloes, *Malva rotundifolia*. Children eat the slimy, unripe fruit-capsules, and call them "cheeses." There is no better mode of getting rid of it than the one you suggest—"pulling and digging it out by the roots." There are no specifics for destroying weeds and leaving useful plants unharmed.

The Babcock Fire-Extinguisher.—A bucket of water at the right moment is of more use in checking a conflagration than a whole fire department would be a few moments later. The Babcock Fire-Extinguisher claims to have at hand a liquid more efficacious in extinguishing fire than simple water, and with a self-generating force to throw the stream where it is needed. As we understand the apparatus, it is upon the principle of a soda-fountain. By the turn of a screw a quantity of acid is emptied into a solution of alkaline carbonate, thus generating a force sufficient to propel the liquid, and the solution, being highly charged with carbonic acid, is more effective than the same amount of water. The apparatus seems to be constructed upon correct principles, and there is abundant evidence as to its utility.

Chicken Cholera.—"J. H. D.," Perry Co., Ill., says that he never knew *assafoetida* to fail in curing chicken cholera. He uses a piece of the drug the size of a marble to two quarts of corn-meal mixed with water. We suppose that he first dissolves the *assafoetida* in water, though he does not say so. The drug is not really soluble, but if soaked in water can be rubbed up into a milky mixture.

Curious Corn.—"Bermudian Subscriber" will accept our thanks for specimens of abnormal corn. Such malformations are not very rare, had people eyes to notice them. One of yours is different from any we have seen, and with some others that we have on hand will serve to illustrate an article on the structure of corn that we hope to write when the weather is less tropical. We are always glad to hear from our Bermudian friends.

Akebia—Kalmias from Seed.—"Mrs. L. E. D.," Ohio.—We have no trouble with Akebia, treating it as we would any other hardy climber. In the last very severe winter some of the younger twigs were killed. The seeds of Kalmia are so small, and the young plants so delicate, that it requires an experienced cultivator to succeed with them. The trouble with the Abronia and other seeds named is probably due to the fact that they were not sown as soon as ripe. It is fat to many seeds to keep them over winter. We never succeeded with *Abronia fragrans*.

A Locust-stung Orchard.—"J. R. E.," California, Ky. The "stinging" is mainly due to the incisions made by the female for the purpose of depositing her eggs. The wounds, as well as the presence of a foreign body, the eggs, of course injure young trees. When the trouble "extends nearly to the ground," it will be cheaper to replace the trees with new ones. When the branches only are injured, we should cut off and burn the perforated portions. Probably before another visitation your trees will get as large as not to be seriously damaged. When the locusts once come there is no known help.

Bee Notes for August.—By M. Quinby.

Any diseased stocks that have been neglected should be driven now. What little they may do will come good another year. In sections where buckwheat is abundant, boxes should be put on with reference to it. Remove all boxes containing clover honey, to prevent their being discolored by that from buckwheat. As honey grows scarce, a weak stock will sometimes take every particle of honey from a box that they may have partly filled, while strong swarms may be gradually filling boxes. To secure honey from swarms disposed to remove it from the boxes, will require close watching. Honey in these boxes is nice for the table, and it might not be safe to put the boxes on another hive for filling, the supply of honey being limited. Any swarm coming out now, should be returned to the hive from which it issued, after taking away the queen; or the half, with the queen, might be given to some queenless stock, and the remainder returned to the old hive. Surplus honey that has been taken off, should be watched for worms. Should there be any indications of the presence of worms, the boxes should be put in a close box and smoked with brimstone, care being taken not to have the fumes so strong as to discolor the combs. Keep good watch of weak colonies. If such are in movable frames, they may be given a comb or two of sealed brood from stronger ones. Queenless colonies, if in box-hives, may be broken up, and contents secured, unless in sections where buckwheat is plenty, when it pays sometimes to give them a queen, thereby gaining a few combs for another year.

If it is desired to rear Italian queens late in the fall, when native drones are gone, measures to secure the Italian drones at that time should be attended to now. A strong Italian stock that is getting honey should be well provided with drone combs, that they may be filled with drone brood. Or, if they do not raise drones, for want of honey, it will be necessary to save what they have already. No drones are reared for the season, after this month. A queenless hive, or at least one without a laying queen, will preserve their drones best. Remove the queen until about October. She may be given for the time to some nucleus, or some other colony.

ANOTHER JERSEY COW.—Mr. Andrew Roberson, of Tiverton, R. I., has an imported Jersey cow which dropped her first calf April 1st, 1871 (when she was less than twenty-eight months old). From April 11th to January 6th, when she was dried for calving, she gave of milk 6,023 lbs. She dropped her second calf February 8th, 1872, and from February 12th to March 30th, both inclusive, she gave 1,339 lbs. Total for the year, 7,362 lbs. Of the 365 days she was dry 23 days, and her milk was not used for 14 days. During the 319 days when the milk was weighed she gave a daily average of 20 lbs. per day. We cite this case rather because it is a carefully recorded one than because of the amount of milk given, but, at the same time, the cow must be commended as a very good one indeed, and a good representative of her valuable race.

The Value of Night-Soil.

From a German work, on "The Employment of Human Excreta and Animal Remains in Agriculture," by Wilhelm Hahn, we extract the following statement of the value to the farmer of a manure that is now almost entirely wasted in every part of our country. According to these tables, the human excrement of our population of 40,000,000 is equal, in respect

to its nitrogen, to one hundred million tons of cattle dung. This is a statement that needs no comment. We commend it to the careful consideration of all who care for the problems of national prosperity.

Inquiry has shown that a grown person produces daily 2 lbs. of fæces, of which 1½ lb. is fluid, and ½ lb. solid.

In every 100 lbs. of urine there are 4½ lbs. nitrogenous matter, in the proportion of 100:46¾; so that in 100 lbs. of urine we have about 2¼ lbs. nitrogen.

In 100 lbs. of solid fæces we have 4¼ lbs. nitrogen, so that in the yearly product of a grown person (547 lbs. fluid and 183 lbs. solid fæces) we have:

In the fluid.....12½ lbs. nitrogen.
" solid..... 7½ lbs. "

Or.....19½ lbs. nitrogen per annum.

Or, in 100 lbs. of the mixed fæces we have 2¾ lbs. nitrogen.

So that, in respect to nitrogen, 100 lbs. mixed human fæces are equal to:

417¾ lbs. horse dung. 753½ lbs. cattle dung.
445½ lbs. pig dung. 298½ lbs. sheep dung.

As compared with the best guano, which contains 13 per cent of nitrogen, the yearly product of a grown person would equal 1½ cwt. of the latter, as regards nitrogen, or 100 lbs. of mixed fæces would equal 34½ lbs. of best guano.

In respect to alkalies, 100 lbs. human fæces equal

109 lbs. horse dung. 111 lbs. cow dung,
112 lbs. pig dung, 51 lbs. sheep dung.

In respect to phosphates, 100 lbs. human fæces equal

208 lbs. horse dung, 415 lbs. cow dung.
208 lbs. pig dung, 134 lbs. sheep dung.

In comparing human fæces with that of animals, it would be well to take into consideration the fact that quantities of straw, etc., are mixed therewith. A comparison of human fæces with stable manure will show that 100 lbs. of the former are equal in respect to nitrogen to

550 lbs. horse stable manure, 753 lbs. cow stable manure,
560 lbs. pig " " 400 lbs. sheep " " "

In respect to alkalies, to

135 lbs. horse stable manure, 140 lbs. cow stable manure
142 lbs. pig " " 75 lbs. sheep " " "

Or, in respect to phosphoric acid, to

320 lbs. horse stable manure, 500 lbs. cow stable manure.
330 lbs. pig " " 250 lbs. sheep " " "

As the best guano contains about 12 per cent alkali salts, and an equal quantity of phosphoric acid, 100 lbs. mixed fæces will equal 8 lbs. guano in respect to alkalies, and 5½ lbs. in respect to phosphoric acid.

Tim Bunker on Underselling the Butcher.

"Twenty-five cents a pound for fresh lamb in Hookertown!" said Seth Twiggs, knocking the ashes from his second pipe, and loading again. With his forefinger fumbling over the bowl and acting as rammer, he continued: "Who'd ever 'ave tho't when he was a boy, that he should live to see sich times! Why, I can remember when my father used to sell the hind quarters of sheep and calves for four cents a pound, and tho't they were pretty well sold at that."

"Mighty hard times to get a livin', now," exclaimed George Washington Tucker.

"It's allers ben hard times, sense I know'd any thing about 'em," chimed in Jake Frink. "What is the difference, whether lamb is five

cents a pound or twenty-five, so long as a feller haint got any to sell, and is too blamed poor to buy any! I take it he is outside of lamb, altogether, high or low."

"It is a long time since I have been outside of any," said Tucker slyly.

"You must eat veal," suggested uncle Jotham Sparrowgrass, who came limping up the walk, cane in hand. "Veal is only twenty cents a pound, and half of that for the soup pieces. Soup is wholesome."

"But what is folks gwine to do that haint got the dimes to buy soup pieces—which means bones, I take it?" inquired Benjamin Franklin Jones. "I'm put to 't every week to get enough to pay the butcher's bill, lettin' alone rent. And it'll git to be pretty soon jest as bad here as it is in the old country, where poor folks can't get meat more'n twice a week. It's jest orful now."

"The butchers make about all the money," said Deacon Smith. "I sell a calf for seven dollars, which dresses a hundred pounds. He dresses it in less than half an hour, puts it in his shop, and retails it at an average of fifteen cents a pound, and gets a dollar for the pelt. He gets nine dollars clear for his time in peddling my calf, and at the same time he is selling lamb, beef, chickens, goslings, and other things, and making them pay quite as well."

"That's so," exclaimed Uncle Jotham; "I don't know a butcher within twenty miles of Hookertown, that isn't a prosperous man. There is Brown, over in Shadtown, begun business there twenty-five years ago, so poor that he was hardly worth the clothes he stood in. He borrowed a little money, and begun to butcher and carry meat around on a wheelbarrow. He couldn't afford a horse and wagon. Next year he bought one. Then he bought a piece of land and put up a slaughter-house. Then he bought more land, to put his slaughter-house manure upon, and raised the biggest crops in town. And it has been more meat sold and more land bought every year since, until Brown is as well off as any man in Shadtown. There was Jim Johnson, from the Whiteoaks, so poor that he used to grease the wheels for Kier Frink's coal-cart at a cent a piece, and glad to get the job. He started business at the Ferry, just as the war broke out, buying lambs, calves, etc., of the farmers, and peddling them, until he opened a butcher's shop in the village. Now Johnson is worth twenty thousand dollars, and is doing a business worth three thousand dollars a year. Any man with a decent character makes money as a butcher in our villages."

"Wall, what ye gwine to do about it?" asked Jake Frink, philosophically. "It stands tu reason that they'll buy cheap jist as long as folks is fools enough to sell so, and they'll sell dear jist as long as folks will buy of 'em."

"Undersell 'em," I suggested.

"That wou'd du hardly," said Seth Twiggs, puffing away at his pipe; "ye see we've got two butchers in Hookertown, and I've noticed that meat is a plaguey sight dearer than when we only had one. Now ye see, if we bring in another butcher to undersell 'em, they'll jist buy up this third man, and fix prices to suit themselves. Another family has got to be supported in Hookertown by selling meat, and those who eat meat have got to foot the bills. You don't catch butchers doing business at their own expense." There was a puff of smoke at this last sentence by way of emphasis.

"Suppose farmers undersell the butchers," I suggested.

"That will do," said Deacon Smith. "As near as I can calculate, our butcher just about

doubles his money on every calf and lamb he buys. If he gives seven dollars for a calf, he gets, for his time in dressing and selling, seven more, and while he is doing this he is doing the same thing by the other meats in his stall. He might do this at much less profit and still do a thriving business. If his meat costs him ten, and he sells at twenty, I, who raise the meat, can sell at fifteen, and still do quite as good a business as I am doing on the farm. If I was a large farmer, raising calves and lambs by the hundred, instead of by the score, I might not be able to do this. It might be better for me to sell in the lump at a less price. But I only do a small business, like most Connecticut farmers, and I have time to speculate a little and attend to anything outside of my regular business that promises to pay well. It won't interfere with my day's work to dress a calf or lamb at evening, and send it round to my neighbors next morning. If I have two or more to dress, I have only to take them with me to Shadtown when I go to mill, and I dispose of them at the store without any loss of time. I have to go to mill every two or three weeks, and I almost always manage to take something to market at the same time—eggs, poultry, lamb, veal, or beef. At the end of the year I have sold fifty lambs or more, and a dozen calves, and all my poultry, and have had the advantage of retail prices, which is, at least, twenty-five per cent better than the butchers would have given me. People get their meats cheaper, and nobody has any cause to grumble. It makes about four hundred dollars difference in the yearly receipts of my farm, and that comes to a good deal in the run of a lifetime."

"Butcher Clark does grumble though," said Jake Frink, "and says if it wern't for Deacon Smith, Tim Bunker, and a few more old skin-flints, he could make some money."

You see the drift of things up here in Hookertown from this talk of my neighbors. The high price of meats is under discussion, and how to get them cheaper. Farmers sell cheap enough, and it does seem as if some way ought to be contrived to prevent the doubling of prices before the meat gets to the consumers. Some of us send dressed calves to New York and get returns at six and seven cents a pound, when such meats are quoted wholesale at eleven to twelve cents, and are sold to the consumer at an average of twenty. I guess Deacon Smith has got hold of the root of the matter, and farmers must kill their own animals and peddle more. It will cultivate the spirit of trade a good deal more, and that is what is needed to wake up the farming population. Full one half of the success of farming depends upon selling well. Farm products are not well sold when the farmer does not get three fourths of what they cost the consumer. I have noticed that these trading farmers always get ahead and increase their lands and flocks wonderfully. There was Giles Bailey, on Sweet Briar Hill, as rough a region as can be found in New England, who followed meat peddling until he was eighty years old. He appeared regularly in Hookertown on Tuesday morning, after a ride of a dozen miles, with his load of home-dressed lamb, veal, poultry, or whatever he had to sell, and was generally known as Tuesday Bailey. He always kept first-rate meats, dressed them neatly, and undersold the butchers, who never quite forgave him. He became one of the largest landholders and richest men in his town long before he died. Underselling the butchers did it.

Hookertown, Ct., } Yours to command,
June 16, 1872. } TIMOTHY BUNKER, Esq.

Digging and Storing Early Potatoes.

We know a large potato-grower in Western New York who dug ten or a dozen acres of Early Rose potatoes last year in August. He was offered forty cents a bushel for them at the time, but thinking they would be higher he pitted them in the field. He apprehended no danger, and it was only for some casual reason that he opened one of the heaps, when he was surprised to find it so hot that he could scarcely bear his hand in it. Had they been left a few days longer every potato would have been spoiled. As it was, he immediately drew them into his barns and basement cellar, and was glad to take the first offer he could get for them.

Early potatoes should be barreled and marketed as soon as they are dug, or else they should be placed in thin layers or small heaps in a barn or cellar, and turned over occasionally if there are any signs of heating. If this can not be done, it is better to leave them in the ground until cool weather sets in. In the case we have alluded to, the farmer dug them because he wanted to sow the land to winter-wheat. The expense of handling potatoes is so great, that, as a rule, those farmers make the most profit, especially in the case of early potatoes, who ship them directly from the field.

Shad-Planting in the Mississippi Valley.

EDITORIAL CORRESPONDENCE.

DENVER, COL., July 8th, 1872.

Connecticut River shad were planted in the South Platte yesterday, after a five-days passage from the hatching-boxes at Hadley Falls, Mass. This brief item of news will be read with more interest a few years hence when the shad has taken possession of the Platte and the streams below, and fishing stations are as numerous upon their banks as they now are upon the Hudson and the Connecticut. We all know that the shad could be eaten here in the fresh state, brought over the plains packed in ice, and served up at the tables of the rich as a rare and costly delicacy. But can the *Alosa prestabilis* of our Atlantic streams be transplanted to the valleys of the Ohio, the Missouri, and the Mississippi, and become as plenty and cheap as they are in their native streams? Can the sons of the East take along with them their fish as they do their cattle, and make them a source of pleasure and profit in their new homes? These questions, discussed by fish culturists for a few years back with great interest, got into Congress at the close of the session, and a small appropriation was made to test the practicability of planting shad west of the Alleghanies, and of transferring some of the varieties of the Salmon that swarm in the rivers of the Pacific to the streams of our Atlantic coast. The appropriation was put in the hands of Prof. Spencer F. Baird, United States Fish Commissioner, who acted with great promptness in the matter of shad-planting. We took interest enough in the *Agriculturist* families of the great West to take a share in the work of distribution. Seth Green was at the close of the shad-hatching season upon the Hudson, and started with 25,000 fry for the Mississippi, near St. Paul, Minn. We left Hadley Falls at six o'clock A.M., July 2d, with 2,000,000 shad fry, just taken from the hatching-boxes in the river. The season is several days later than last year, but the parent shad are more numerous, and Mr. Smith, who has charge of the hatching, in-

formed us that they were larger than he had seen in late years. Seven-pound fish were not uncommon in the hauls he made for spawners. We had nine eight-gallon tin cans for the fry, supplied with Connecticut River water, and an extra can of ice to keep the water of proper temperature. The shad has a much more delicate organization than the Salmonidæ, and the range of temperature within which the ova will hatch and the fry will live is much more limited. We have not determined these limits very accurately, but the few essays that have been made at transplanting shad show very clearly that the temperature must not be much above 80° nor under 60°. The weather was very much against us, a sultry July morning with the thermometer at 84°, and by noon reaching 96° in the cars. We got a change of water at Albany from a city hydrant, which proved to be good. Frequent partial changes were made at the railway stations during the day and night. We reached Salamanca, on the Erie road, on the morning of July 3d, and put 400,000 fry, in good condition, into the Alleghany, one of the large feeders of the Ohio. The stock was made very large here, as it must necessarily supply the whole river.

Another very-hot day, with about the same range of thermometer. With careful watching we got through with our charge safely, and put about 400,000 fry into the White River at Indianapolis on the morning of July 4th. We had now but one can of fish left, much reduced in numbers by the journey, but still lively and in good condition. We determined to make an experimental trip to this point to test the practicability of stocking rivers remotest from the sources of supply. If they could be transported a five-days journey, and the last half of the way over a region affording no suitable water for them, there would be no insurmountable difficulty in supplying every stream in the land. The weather favored us for the last three days, so that the consumption of ice was small, and the frequent change of water less necessary. We reached Denver about 10 A.M., July 7th, five days and five hours from Hadley Falls, and planted about 2,000 fry in Platte River. They seemed to be at home in the new waters, and at once headed up stream. We found no good water for the fry west of the Mississippi, except at Wilson's Station on the Kansas Pacific road.

Of course the planting of shad in these streams is an experiment. However men may differ about the probabilities of success, all will agree that success is exceedingly desirable. The principal objections urged against the stocking of the streams are the extreme length of the rivers and the large amount of sediment in the waters. But some of the shad streams are six or seven hundred miles long, and if the fish will go this distance to seek a spawning-bed, why would not the instinct of propagation carry it still farther, if it were necessary? Some twenty years ago Dr. Daniels, of Georgia, carried a few shad spawn from the head-waters of the Savannah to those of the Alabama. The shad are now abundant not only in the Alabama, but in the Black Warrior, a large stream which joins it before it reaches the Gulf. These rivers are quite as muddy as the Mississippi and its branches. The probabilities are, that if a stream has clear water of a suitable temperature for spawning, the shad will find it, and deposit their spawn, no matter how remote it may be from the sea. Three years must pass before the results of the present

planting can be known and all doubts be solved. W. C.

Why Do not the Eggs Hatch?

I would say in reply to CONNECTICUT (p. 255), that the keeping of fowls in small yards is not a sufficient reason why the eggs do not hatch, and that in this part of the country the same difficulty is complained of by all parties, whether the fowls be thorough-bred or dunghills, either yarded or running at large. I read a large number of the poultry journals, and find the same complaint everywhere. I have talked with many breeders and farmers, and all agree that the experience of this year is different from any previous one, and all complain alike of poor results. The trouble is not caused by small yards, and the fact that the same results are attained, at least in this region, from fowls which run at large, shows that it is not. Moreover, the eggs are not infertile, as he claims. My experience shows that in a large proportion of the eggs the chicks will be partly or fully formed, but for some unaccountable reason they fail to complete the process of incubation. I have in some cases found that fully formed chicks would have the head turned in such a way that they could not pip the shell, and so would fail to come out. One of my hens sat until the twenty-seventh day, and then came off with but one chick. A previous examination had shown but one had egg, which I removed, and I kept her at it. After she came off, I found the remaining eggs all contained chicks, those partly formed being alive. Other investigating men tell me that they also find few bad eggs, but many that contain unhatched chicks in various stages. We find then that small yards do not cause infertile eggs, and again, that the eggs are not infertile. But why do they not hatch? If "Connecticut" will bring forward his other nineteen reasons, it may be that we shall find the true solution among them; but please let the reasons be based on careful examination into cause and effect, and do not jump at conclusions. I have been giving the matter careful consideration, and am obliged to confess myself apparently no nearer a solution of the problem than two months since. OHIO.

Ogden Farm Papers.—No. 31.

A neighbor, who is a very good farmer, accosted me recently on the subject of transplanting beets, saying, "I agree with a good deal that you write, but not with all," etc. I told him that the last thing I expect from any man who has brains of his own is that he should agree with me in everything. "Opinions differ," and when I find a man who accepts all the opinions of another I set him down as of small account. It is much more satisfactory to have the partial assent of one who does his own thinking than the entire assent of one who lets me do his thinking for him. The most good that any agricultural writer can do, is to set his readers a-thinking. No matter that they agree or disagree with what is written, the one thing needed, or the most important thing, is that they be stimulated to harness their brains in with their farm teams, and do their work with a fuller consciousness of its real character. It is, of course, important and interesting to a farmer to be told how to do this or that sort of work, but it is far more important that he be made to realize that all his work is founded on a rational basis—on "science," if this much-hated word may be allowed—and everything connected with it will become daily more and more inter-

esting if he once finds that it is *intellectual* work. Consequently, even though we were to tell our readers seriously that the grass of their fields is made of the sunbeams which dance upon the meadow, we should do them some good. They would soon find out that we were wrong, of course, but in hunting for proof of our error they would bring into play a spirit of investigation that would lead them to inquire what it really is made of, and they would not stop thinking about it until they had learned some important facts which would make farming for evermore a very different sort of occupation for them from what it thus far had been. I hope we do some good to those who believe we are right, but I am sure we do more good to those who try in earnest to prove us wrong.

Speaking of the composition of grass, I am reminded that it is a very long time since I have seen in an agricultural paper any statement of the fundamental principles of the science of agriculture, which had such a fascination for me in the early days of my study, and that these papers may have some readers to whom they will even now be a revelation. To all, they have an importance that will justify their re-statement.

The object of farming is to convert air and water and earth into the materials on which the world depends for food and for the comforts and luxuries of life—to turn matter from a useless to a useful form. The agent through which we work is the laws of vegetable and animal life and growth. Nature furnishes the conditions for the constant operation of these laws; our office is so to influence their action as to cause them to produce the particular kind of growth that is best suited to our ends. The composition of all of the common plants is about the same: a little earth, more water, and a good deal of air. If we first dry and then burn a ton (2,000 lbs.) of meadow grass, cut when in bloom, we shall find that it contains about 1,400 lbs. of water and 46 lbs. of ash or earthy matter. The remaining 554 lbs. is combustible solid matter. It is the business of the farmer to cause these raw materials to come together in such a way as to produce the grass. The ash comes from the soil. It consists (approximately) of potash, 12 lbs.; soda, $3\frac{2}{10}$ lbs.; magnesia, $2\frac{2}{10}$ lbs.; lime, $5\frac{4}{10}$ lbs.; phosphoric acid, 3 lbs.; sulphuric acid, $2\frac{4}{10}$ lbs.; silica (or sand), $13\frac{9}{10}$ lbs.; chlorine, $3\frac{9}{10}$ lbs.; and sulphur $1\frac{1}{10}$ lbs. Just about this, and nothing more, the soil *must* contribute of its mineral matter toward the ton of grass. Some of the ingredients named may vary in quantity, and some may supplant each other, but for the illustration the list given will suffice. The quantities are small, but they are to the last degree important. Any soil that can not furnish the little that is needed must receive an artificial supply before it can produce its crop.

The 554 lbs. of combustible solid matter consist of carbon (charcoal), oxygen and hydrogen (the constituents of water), and *nitrogen*—of this latter about 10 lbs. The carbon is taken entirely from carbonic acid—a gas of which the atmosphere always contains an ample store—and the oxygen and hydrogen are abundantly supplied by the water of the sap; but the nitrogen can be furnished only by some product of organic decomposition, either already existing in the soil, or brought to it in the impurities of rain-water, or in manure. As in the case of the ash of the plant, it must be supplied by the soil. If it does not already exist there, it must be added before the soil can be fertile, and if the soil be-

comes exhausted of it, it must be added—naturally or artificially—before fertility can be restored. Man has to concern himself chiefly with about 10 lbs. of nitrogen, 3 lbs. of phosphoric acid, and 15 lbs. of potash and soda (the other elements of the ash are abundantly present in all tolerable soils). *Given these twenty-eight pounds of matter, nature—properly guided—produces two thousand pounds of grass.*

The *proper guidance* is the farmer's affair. So is the supply and guarding of the all-important twenty-eight pounds. Concerning all the rest—the 1,972 lbs.—he can only exercise a fostering care. The mass of material in the soil, the water that moistens its pores, and the winds that sweep its surface, supply it all. To prepare the land for the best action of the wonderful alchemy of growth; to sow the proper seed; to keep down the competition of other plants; to supply the needed nitrogen and alkalis and acids; and to stimulate in every way in his power the favorable action of natural influences—these are the duty of the farmer. It seems a short story, but it holds the kernel of practical farming, which is only a slight aiding and a very constant and careful guiding of the impulse that is born of sunshine, moisture, air, and a fertile soil. Whether we turn the elements into grass, or the grass into flesh, we are handling tools whose use should ennoble us, as what they perform enriches us.

Does all this sound a little bifalutin? Possibly it does; and where's the harm? There is enough in our lives that is humdrum, and stupid, and dull, to make a flight of the fancy, now and then, a relief and a delight. No man will be a worse farmer because he knows something of the principles on which his farming depends, and if he will look oftener to the inner side of the picture—to the silver lining of his cloud—he will see that his occupation comprises more than he now believes of that which he envies in others.

To return to my neighbor and his beets. We talked for some time and failed to convince each other. He claims that he can clean and thin an acre with three days' labor. (If he can, his land is cleaner than mine.) I claim that the land would be benefited by repeated harrowings during all of May and June, and that my man, with a boy to drop, can set out an acre in two days. (He says if he can he is a smarter man than he can hire.) And so we separated—he taking some of my plants to set out in his field, to see how the two will compare in their subsequent growth. His are long, red mangolds, and mine are Lane's sugar-beets, but I hope to make at least half a convert of him, nevertheless, for I think it helps the growth of a beet to nip off the end of its tap-root and make it throw out more fibers.

I wrote in my last of the field I had juggled with too deep plowing; this season has shown that it is not beyond the help of manure. Last year, Mr. Hand sent me a bag of "Phosphatic Blood Guano" for an experiment with cabbages. I planted four rows across the field in question, and had a passable result. It was a close race between good manure and poor land. I thought the land was a little ahead. This year that side of the field is in oats for soiling, but they hardly soil the ground. After two months' trial they have reached a brown eminence of perhaps four inches. Where the four rows of cabbages stood, there is a thick and luxuriant growth of

oats, now ready for the scythe. Another part of the field was last year very heavily manured for beets with stable-manure, and that, too, is covered with a very good growth of oats. I think I have found out what will at last cure the disease, or, rather, I think the disease has been so far cured by time, that I can now commence to build up the patient's constitution by the aid of stimulants; and now follow the interesting questions whether the turning under of the surface soil to so great a depth is going to make the land more permanently fertile, and whether the subsoil which has been brought to the top will finally—when it becomes well mellowed and well manured—have some of the productive power of a virgin soil. I think a favorable answer will eventually be given to both of these questions, but it has been a tedious and an expensive experiment, and however good the land may become, its improvement will have cost more than it is worth. One half the cost in fallows and top-dressings would have had a better effect.

The Dairy is thriving. We are now making about 150 pounds of butter per week—fully 600 pounds per month—from 27 animals, old and young, big and little, sick and well, good, bad, and indifferent. This is very well for a breeding herd, in which no pains are taken to have the cows come in with reference to the flush of feed. Our main object is to turn out thorough-bred Jersey calves for sale, and we keep the mill going as fast as the health of the cows will allow. The result is that calves are dropped at all seasons, and there is no "flush time" with us in June, as with most farmers. Neither are we in the flush of feed; that comes with us in September, when the fodder corn is in blossom. Just one quarter of the herd consists of two-year-old heifers with their first calves, and about another quarter of animals that are nearly dry, or that for one reason or another are giving but little milk—some nearly dry, and some very old. I don't brag about the quantity, but I am, on the whole, quite well satisfied with it. If I have a touch of vanity, it is stimulated by the *quality* and *uniformity* of the butter. It has never been more easily made, and never better; and the advantage of the deep-can system was never better demonstrated. I am sure that any dairyman who makes even 50 pounds of butter per week, would be more than satisfied with his investment if he would rearrange his milk-room so as to set his milk in deep cans, even if he had to use a windmill, as we do, to get a supply of fresh cool water to set them in.

There is one exception to the above statement about the time of having the cows come in. We try to have all our yearlings—say all heifers dropped before October—served by the bull in time to calve not earlier than April 15th, and not later than June 15th, of their second year, so that their first secretion of milk may be stimulated (and their milking habits formed) by the tender grass of May and June.

We find it advantageous—having a pasture farm for our young stock—to turn the cows out in the daytime during the month of June, so that as much as possible of the men's time may be given to the crowding work of that month, and so that we may save for hay as much as possible of the grass on which we would have to depend for soiling until the oats are ready. With this exception we stick to soiling, and like it.

Asiatic Fowls.

Were the "poultry fever" at the high it attained not long ago, Mr. Conklin, the obliging gentleman in charge of the animals at Central Park, would no doubt be besieged for eggs of the Asiatic fowls he has in his collection. Mr. Forbes, the artist, has taken the portraits of these fowls as they appear in the aviary at the Park, and it will be seen that they do not appear essentially different from some breeds of game fowls. Those who have most carefully investigated the origin of our breeds of domestic fowls all come to the conclusion that their parent is the Asiatic fowl, the *Gallus Bankiva*. It hardly seems possible that the minute and pompous Bantam should have the same origin with the portly and leisurely Brahma, but as different investigators have arrived at the same determination, we accept it as a fact in natural history, and until testimony

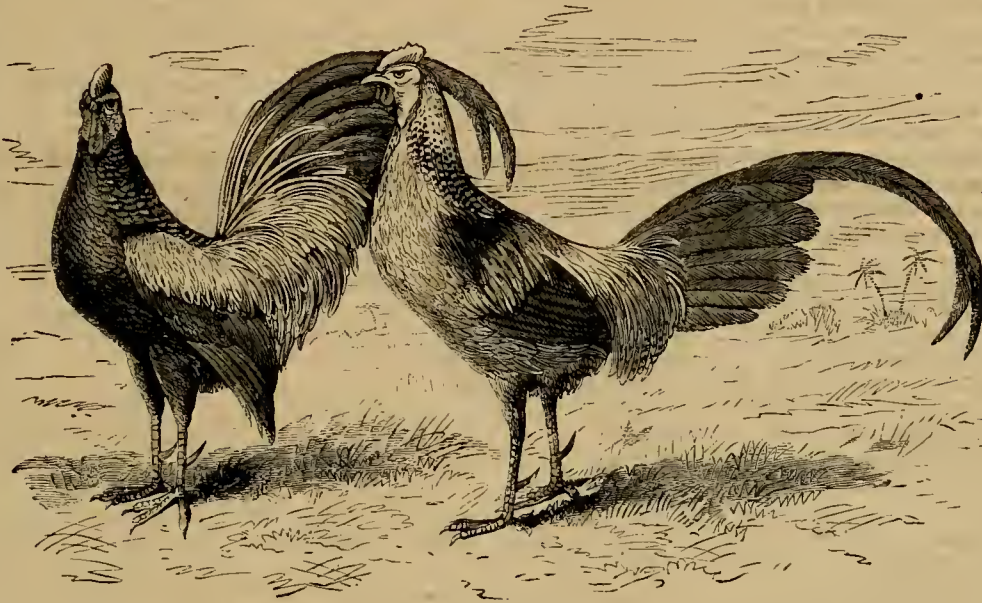
can be brought to show to the contrary we must admit that all, from the half-domesticated Leghorn to the dumpy Cochin, are from one original species. When we ask an old poultry-fancier, who has run through all the breeds, "What is the best fowl, all things considered?" he is quite sure to say the Game, as the best for the table, and the best in the long run for eggs. It is the close relationship to the wild fowl that has made the breed of Leghorns so popular.

Of course, it is not possible to trace the origin of our now popular breeds. Domestic fowls were kept before the commencement of the Christian era. The Romans at that historical epoch had six or seven named breeds, and paid as much attention to "toes" and "ears" as our breeders now do. It is a curious fact that in many savage countries, insular as well as continental, domestic fowls are kept, and even distinct breeds are known. While the fowls here figured are much like our Game birds, other specimens from Asia, also claiming to be native fowls, were very heavy, and more like the Cochins in their style and build. We have no doubt that a cross of either of these native birds

upon our refined breeds would be attended with good results, as it would introduce new and vigorous blood into our yards. Those who would like to know the evidence brought forward to support the statement that our domestic fowls are from one species, are referred to that remarkable work, "Darwin's Animals and Plants under Domestication." It is Mr. Darwin's belief that all our breeds "have diverged by independent and different roads from a single

origin of our domestic breeds of sheep is very obscure. While some claim that they originated from six or more wild species, others regard them as having all descended from one. Where animals, as is the case of the sheep, have been under domestication from the earliest times, to trace their origin becomes almost an impossibility. There is good reason to believe that sheep were kept as domestic animals even in prehistoric times, as the remains of a peculiar

breed have been found in the Swiss lake-dwellings. No domestic animal is more readily modified by local influences than the sheep. This is shown by the production of particular grades of wool in the different sheep-growing districts of England, but in a more marked manner by the changes wrought upon sheep that are taken to peculiar climates. Thus, in certain countries, the sheep take on a remarkable development of tail, in others the horns attain an enormous size, and



A PAIR OF ASIATIC FOWLS.

type," and he gives the characters and illustrations of several of the most distinct breeds.

African Sheep.

There are, or were a short time ago, in the collection at Central Park some "African sheep." Our artist has taken their portraits, and it will

in others again the wool ceases to be wool, but becomes a coarse hair like that of the goat. The fat-tailed sheep have been often described; in these the tail takes on such an unusual enlargement, and becomes so loaded with fat, that it is regarded as a great luxury, and a truck is provided for its support, which is dragged about by the animal. In other countries this deposit

of fat is not made in the tail, but it accumulates in two large masses upon the rump, while the tail itself remains in a rudimentary state. In an Angola variety of sheep there is a great accumulation of fat upon the back of the head and beneath the jaws. Besides these peculiarities of taking on fat upon different parts of the body, there is the greatest possible variety in the horns. One writer states that there is a constant relation between the wool and the horns of the various breeds of sheep; that long



AFRICAN SHEEP AT CENTRAL PARK, N. Y.

be seen that they are as unlike our ideas of a fine sheep as a Western "landpike" is unlike a thorough-bred Berkshire or Essex. Animals of this kind are always interesting and instructive. These specimens are undoubtedly sheep, but how different from the South-Downs that are grazing upon the broad lawns of the Park! The

and smooth wool is accompanied by long and smooth horns, and that breeds which bear close and curled wool have corrugated and twisted horns. To the breeder as well as to the naturalist every unusual form of domesticated animal is of interest, and these curious lank sheep will no doubt be more attractive to the wool-

grower who visits the Park than the well-fed and well-known South-Down.

Walks and Talks on the Farm.—No. 104.

At this date, June 18th, my wheat is better than the Deacon's. All admit that the harrowing did it good. It broke the crust, and freshened up the soil, and made a splendid seed-bed for the clover. The ground was very dry, but there was moisture enough in the freshly-stirred soil to start the clover-seed at once. I never saw a better catch. I do not say, neither do I believe, that the harrowing is the only or main reason why my wheat looks better than the Deacon's in the adjoining field. I have spent more labor on it, and gave it a slight dressing of dried blood. I think there is wheat in the field that will go over 40 bushels per acre, but there are other parts where the crop is light, and these will pull down the average. The wheat on the clay land, where I expected the heaviest growth, is the poorest in the field. And I imagine that this is generally the case the present year. I suppose it is owing to the severe spring drouth. We had a glorious rain the last week in May, but it was too late to save the wheat. In this section—and I presume the same is true of the Middle States generally—we shall not have more than two thirds of an average crop. There are thousands of acres which will barely pay the expense of harvesting. I have just been through one of the finest wheat-growing sections in Monroe County, and did not see one really good field of wheat. This is not the fault of our system of agriculture, for while it is emphatically true that the best farmers have decidedly the best crops, yet even those fields which have received good treatment have many spots where the crop has either failed entirely, or been so weakened by the cold and the drouth that they will yield little more than the seed.

The Deacon and I both sowed our wheat too late last fall. I have generally aimed to sow from the 10th to the 15th of September; and in ordinary years, on good land, this is the best time, but this season, as a rule, the early sown wheat is the best. And *drilled wheat is very decidedly better than that sown broadcast*. I have never been an enthusiastic advocate of drilling. I have seen wheat that was sown broadcast just as good as that sown with a drill. But few will claim that broadcast wheat is ever better than drilled. And so, if every few years we have a season in which drilled wheat is decidedly the best, and never one in which it is worse, it would seem to be the part of wisdom to always drill in the wheat.

John Johnston writes me from Seneca Co., which is one of the best wheat-growing counties in Western New York: "Wheat is bad around here, and I believe over all the winter-wheat-growing sections of the Eastern, Middle, and Western States, as well as in Canada. I have seen 51 crops grown here, but never saw such a failure except in 1836. I am really afraid of a wheat famine."

I do not feel at all alarmed. Wheat will doubtless command a high price before the harvest of 1873. But we need not starve. High prices always check consumption. If wheat is very high, we shall eat less wheat-bread, and more corn-bread, potatoes, and meat. Corn, pork, and potatoes are so abundant that they are now selling far below the cost of production. Cheese, butter, and beef are compara-

tively low, and fruit of all kinds bids fair to be exceedingly abundant. We shall not starve. But I have said for many months that all the signs pointed to a higher range of prices for our leading agricultural products. I believe such would have been the case even if we had had a favorable season for wheat. But the failure of the wheat crop will undoubtedly hasten the time, and serve to carry prices higher than I had anticipated.

Farmers have seen hard times for a few years past, and a higher range of prices will not hurt us. The lesson that we, as farmers, have to learn is not to be discouraged, but to keep on the even tenor of our ways, studying how to improve our farms, to cheapen the cost of production, to raise such crops and keep such stock as are adapted to our soils and situations, to sell when we can get reasonable prices, and be content with fair profits, and not rush into every new thing that for the time being is bringing an extravagant price.

There is seldom a year when a good, steady-going, enterprising, intelligent farmer who works his land thoroughly and improves his stock has not something to sell that affords a good profit. If pork is low, wool is high; if beef is cheap, wheat is dear. If corn can not be sold for what it costs to produce it, he knows that in a well-ventilated corn-crib it will keep for any length of time. Some years ago I was offered corn in the streets of Bloomington, Ill., for "nine cents, cash, per bushel, and ten cents in trade." In less than two years I was in Illinois again, and asked the price of corn in the same neighborhood, and was answered "one dollar and ten cents a bushel." Of course such fluctuations are demoralizing. But we must make the best of our situation.

"E. W. H.," of Grand Rapids, Mich., writes me that he has a field of eight acres of dark, gravelly soil that he broke up three years ago. Plowed once, cultivated twice; then plowed again, cultivated, and sowed to winter-wheat. Had an average crop, or about 20 bushels per acre. Next spring he covered the field with stable-manure, plowed, and planted with corn. Yield, 40 bushels per acre. The next spring (1871) plowed and sowed oats and seeded with timothy and clover. The season was dry, and the oats a light crop. This spring he top-dressed the field with manure. There was a good stand of timothy and clover, but now (June 2d) the clover and timothy are literally choked out with sorrel. He asks what he had better do.

If I had such a field on my farm I think I should plow it up early in August, cultivate and harrow as often as was necessary to kill weeds, and also with a view to cause as many weed-seeds to germinate as possible. Then in October I would plow it again. The next spring sow it to barley, peas, or oats. Then follow with winter-wheat, and seed with timothy in the fall, at the time the wheat was sown, and with clover in the spring, say twelve pounds red clover and two pounds white Dutch clover. If lime could be obtained at anything like a reasonable price, say from fifteen to twenty cents a bushel, I would put on from 50 to 100 bushels per acre before the wheat was sown, and cultivate and harrow it in. I should do this not because I believe in the old theory that sorrel indicates a sour soil, and that lime is needed to neutralize the acid, but simply because it is a matter of experience that liming land is one of the best means of bringing in good grasses and clover.

And if we can get a good crop of grass and clover, especially white clover, the sorrel will be crowded out and disappear.

I have great faith in lime as a manure, even on our limestone soils, and should use it freely if I could get it for twenty cents a bushel, but I can not buy it for less than thirty cents. We must try and get along without it until some one has sense enough to burn lime for agricultural purposes and sell it at a fair price. As long as I can get a good crop of clover I feel pretty sure of getting good grain crops. But when clover begins to fail we shall then have to resort to the use of ashes or kainit to furnish potash, or we shall use lime to render the latent potash and nitrogen in the soil available. On my land at present I have no doubt the latter would be the cheaper method, if I could get lime at twenty cents a bushel, as I need nitrogen rather than potash. But as long as good tillage, or an occasional summer-fallow, with the free use of gypsum, will give us good crops of clover, we can get along without lime.

John S. Bowles, of Hamilton Co., Ohio, thinks that I must live in a very benighted agricultural section, because we plow with double lines, and put the lines back of our shoulders. I dislike the practice as much as he does. But it is of no use to talk to us about single lines and left-hand plows. Neither men nor horses understand the system, and even if we acknowledge all the advantages claimed, which I am not prepared to do, it would take us some years to make the change. "In another number of your 'Walks and Talks,'" he says, "you speak of the Deacon hoeing his corn. If you will come here next fall, I will show you a clean corn-field that has never had a hoe in it the whole season." I have no doubt about it. Neither do I despair of doing the same thing, before many years, on my own farm. Mr. B. raises corn after corn for several years, and by the free use of the cultivator can hardly fail to make his land clean. Mr. B. says he believes "one man and horse with a good cultivator will accomplish as much as four men with hoes." There is no doubt about it. But it seems curious to us to hear so intelligent a man as my correspondent say: "I do not know whether it would be possible to cultivate corn properly without driving *with a single line*, but I doubt it." The truth is, you want a steady horse that will haw and gee promptly as you tell him, and that does not need any lines at all. In such a case two lines do no harm, and may occasionally be useful. I think this is all there is to the question. I once saw a boy take the first prize at a plowing match of the Royal Agricultural Society of England who had no lines on his horses. I do not think that if a pair of rope lines had been hanging by their sides they would have done any harm, and in case the horses had got frightened they might have proved useful. Still, I should be heartily glad to have my horses so well trained that no lines were needed.

Mr. Bowles says he has drained some of his swamp land with tiles, three feet deep, and the underdrains three rods apart, at a cost of \$31 per acre, reckoning labor at \$1.75 per day of ten hours. "But, in point of fact," he says, "it has not cost me nearly so much. I do it in this manner. I hire my men by the month for six months or a year at a time. I hire at least one more than I would want if I carried on no improvement. Whenever in the spring I have no work for my men to do I set them at under-

draining. When I have plenty of other necessary work I put all the men at it, but if I have a man to spare he goes to the drains. Thus my underdraining is often performed when the men would have nothing else to do. A man too many is very useful. If one gets sick or quits work, his team does not then lie idle. He is also very useful at harvest-time."

This is all very true, and it is the plan I have always advocated. Hiring extra men for a few days to do extra work that *must* be done, no matter what wages the men ask, is a bad practice. It has a demoralizing effect. The extra hands boast of how much they are getting, while they say nothing of how many days they lie idle. It is certain that as a rule the men who engage by the year save the most money. The days when a man is not earning money he is very apt to be spending it.

As a rule, however, ordinary farm hands make very poor ditchers. They do not like the work. I have had many ditches cut on the plan practiced by Mr. Bowles, but am satisfied that they have cost me a good deal more than those I had cut by the rod. I am inclined to think that we might adopt both plans. We might hire the men by the season at so much a day, and when there is much ditching to be done let out the work to them by the rod. If they were out and industrious they would earn more money, while we should get the work done cheaper. With married men who have boys to help them, there is a good deal of work on the farm that they could take with advantage to themselves and their employers, such as hoeing, pulling beans, digging potatoes, husking corn, etc. In fact, I do not see why the plan might not be extended to nearly all the operations on the farm.

"My swamp land," says Mr. B., "used to grow only smart-weed. The first year after it was underdrained it grew about 35 bushels (68 lbs. of ears) of corn per acre. The next year it grew 80 bushels of corn per acre. The next year (1871) 85 bushels per acre. It is now in corn again." Is not that better than letting it produce smart-weed and fever and ague?

I have harrowed my corn three times with Thomas's Smoothing Harrow. I went over it the first time a few days after the plants made their appearance, and then at intervals of four or five days. We are now (June 18th) cultivating it, and I propose to go over it again in a day or two with the harrow. There are a good many thistles in the field, and it will be necessary to hoe these out of the rows where the cultivator will not reach them. But for this, I would not put a hoe in the field, as there are few things that annoy me more than to see men during this hurrying season wasting their time dressing up a hill of corn with a hoe. I have never yet been able to convince a man that I want him to hoe the weeds. He says and thinks that he is engaged to "hoe the corn." And it is curious how tenaciously this idea clings to the mind of even intelligent farm men. The very boys seem to inherit the same tendency. If a hill of corn has missed, it requires a special training to induce the boys to cut out the weeds. If there is not a weed to be seen they will hoe all round the corn, but if there is no corn they will not hoe the land, no matter how many weeds there may be in the hill. Thomas's harrow has certainly killed thousands of weeds, and greatly lessened the necessity for hoeing. In fact, an active man, if he could get rid of the idea that he was hoeing corn, and would merely cut out

the weeds, could go over two, three, or four acres a day and do all that was necessary.

So far as my observation extends, there is no branch of farming in which such a marked improvement has taken place during the last twenty years as in the cultivation of corn. The old plan in this section was to run a cultivator through the rows each way, and then hoe. Then in two or three weeks run the cultivator through again both ways, and hill up the corn, and dress off the hills with a hoe. That was all the cultivation it received. Now, our cultivators are not only far more effective implements, but we use them more frequently. Farmers are fully convinced of the advantage of keeping the land constantly stirred and free from weeds. I know of no crop, unless it is cotton, that affords such a splendid opportunity of cleaning land as our magnificent cereal, Indian corn. And I have no little pleasure in witnessing the avidity with which all good farmers avail themselves of this chance to kill the weeds. I have always said that it will not be many years before the best farming in the world will be found on this continent, and the more thorough cultivation of the land while in corn will do much to hasten the time.

My English friend smiles at this remark. He thinks it will be a good many years before our farming will compare favorably with that in Norfolk and Lincolnshire or Scotland. I am well aware that much of our farming at the present time is about as bad as it will can be. I know farms where every well-established principle of agricultural science and practice is daily violated. But the American agricultural press, which is sending its sheets broadcast over the land by the million, has become a prodigious power for good, and is having a mighty influence on the minds of men. Farmers are constitutionally cautious and slow to change. But when they get hold of a good idea they digest it thoroughly and make it their own. By and by you see the effect. All improvements in agriculture are slow. It is often a life-work to bring up a farm to the highest state of cultivation and productiveness. Bearing these facts in mind, and admitting, as I must, that much of our farming is now wretched in the extreme, I can see beneath the surface most cheering indications of great and far-reaching improvement in our general agriculture. Recollect that *we own the land*. We are not tenants liable to be turned off our farms if we express political or religious views different from those of the landlord. If we plant a tree, dig a drain, or get out a stone, we can feel that it is our own land that we are improving. And this thought *does* have an influence. We must look out, however, and not let the great railroad corporations virtually become our landlords. For my part, I have no fear. They oppress us sorely at times, but, on the whole, it must be confessed that the condition and prospects of the American farmer will compare favorably with those of any industrial class in the world.

Let us take a cheerful view of things, and go ahead with our improvements. Farm products will always be in demand, and will, taking one year with another, always bring what they are worth. Our aim must be to produce them as cheaply as possible. And the first thing to be done is to stop growing weeds.

I have said that we are cultivating our corn better. Such is the case. Our cornfields are much cleaner than formerly. But our wheat and spring grain crops are too frequently full

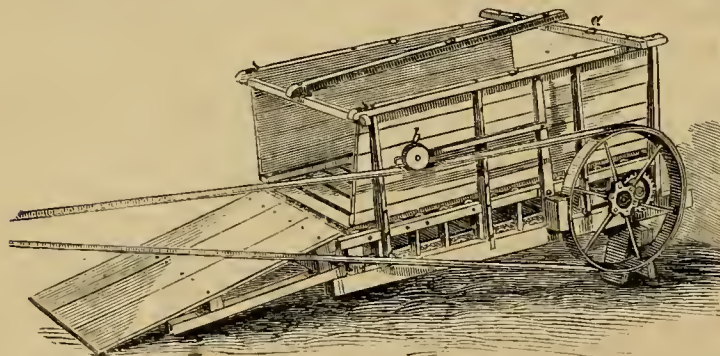
of weeds. Such is the case on my own farm, though I am making encouraging headway against them. With rare exceptions, it is generally the case in this section. The Deacon's oats, sown after corn, are a mass of thistles. And the reason of this weedy condition of our spring grain and wheat crops is mainly due to the fact that the great aim of the Deacon and of the majority of farmers is to plant corn in such a way as to "save hoeing." They do not want the weeds to grow. They fail to take advantage of the splendid opportunity which a corn crop affords for killing weeds. The weeds and weed-seeds are lying dormant beneath a tough sod, where the cultivator does not reach them. Next spring the land is plowed, and all these weeds spring up in the oats, barley, or wheat, where we have no chance to kill them. It is a great error. We must either plant corn two years in succession, or we must break up our sod land early the fall previous, and plow it again in the spring before planting the corn. In other words, we must adopt some method of *making the weeds grow* in the corn, where we can get at them with the cultivator. I know I have said the same thing again and again. It is one of my pet ideas. And I am trying to carry it out in my own practice. I have planted my corn this year on land purposely treated in the best way I could think of to make the weeds grow. It looks like rough and slovenly work, but I think I shall have pretty good corn, and I know the land will be cleaner for years to come. I plowed a clover sod last fall with one of Holbrook's side-hill plows. I put on three horses, and turned a furrow twenty inches wide. The plow is designed to break the furrow as much as possible. The land was very dry and hard, and being a two-horse plow the three-horse evened made it run a little wider than it is calculated for. It made rough work, but that was precisely what I wanted. At any rate, I wanted to try the experiment. I plowed part of the field with an ordinary plow, turning over a neat, smooth furrow. This spring I harrowed the land and then cross-plowed it, and I think the rough-plowed land was in the best condition, though owing to the great drouth the sod had not rotted on any of it as much as I expected. If I was going to do it again I would plow earlier, say in August or September, and then cross-plow the last of November in such a way as to let the land lie up rough for the winter. A thorough harrowing in the spring, with the free use of a two-horse cultivator, and then plowing it up just before planting the corn, would give the weeds a good chance to start, and we could then kill them by the million with Thomas's harrow and cultivator. At any rate, until I get my land clean, or unless some one will tell me a better plan, I think I shall adopt this method of growing corn. As soon as my land is clean I shall then probably plant on a freshly-inverted clover sod.

But as long as our farms are as weedy as they are at present, I am satisfied that the plan of "fall-fallowing" which I have advocated is the true plan in this section. We only lose the use of the land for about two months in the fall, and at a season when grass is usually abundant, while the soil is exposed to the ameliorating influences of the atmosphere for a period of about nine months, or say from August to May. The work can be done at odd times when there is little else for the teams to do. You are not obliged to break up the whole field at once, as is the case when you intend to sow a crop. Part may be left in grass, and pastured until

you can find time to go on with the plowing. But the earlier it can be done in the fall the better will be the condition of the land. It is very desirable to cross-plow before winter.

Horse-Powers.

There has been much discussion as to the most economical horse-power. Without entering into the merits of the question in a mechanical sense, which involves many considerations, we would merely say that having tried and used both the lever and the railway power, we believe that for general use the railway power is the simplest and best, and that almost any well-built railway power now made and in use will be found a handy and economical thing to have around the barn. Some of its advantages are that the weather, whatever it may be, need not interfere with its use, that it is always ready, that for light work, as cutting feed or cleaning grain, one horse may be used, and that it is easily moved about. The chief objections to railway powers are, the seeming danger to the horses in case anything gives way, and also the seeming severe work on the team. But both these are more imaginary than real. With a pretty large acquaintance with them, we never had or heard of an accident in their use, and although we confess to feeling a dread of something happening, yet no accident has occurred, and with the precautions we have learned to take there does not seem to be any possibility of it. Perfect safety may be secured by the following methods: Let the horses have all the harness on when they are put in, fasten the breast-chains on to the rings of the harness, and let them pass through the rings on the breast-



HORSE-POWER WITH SAFETY-BRAKE AND PLATFORM.

ba. at a in the figure, and straps from the breeching may also pass through the rings on the seat. The horses then could not in any case lean out, nor can they back out even if so disposed, and should they under any circumstances whatever endeavor to back out, the platform should be at the rear of the machine will allow them to do so without injury. This platform should be made of two-inch plank, and should be attached to the machine by means of a bolt passing through the sills at the rear of the machine, as shown by dotted lines. It will be found very convenient for the passage of the horses in and out in a very short time they may be so trained to walk up and back out by word of command and without handling. The only real danger consists in the effects of a breakage of the belt, or the slipping off of the belt. The machinery, provided for effectually by an arrangement of an arm which carries a pulley is fixed to the arm of the brake-block. The pulley at b rests on the belt, and serves when run right as a tightener, and prevents the need

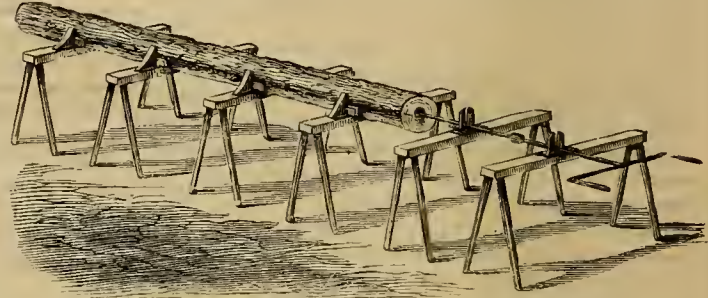
of keeping a dangerous strain on the belt to obviate slipping. Should the belt break or fly off, the pulley drops and brings the brake into immediate action, and the machine can not by any possibility run away. If these precautions are taken, there need be no fear of any accident occurring in the use of these horse-powers, and the chief objections to their use are removed. With reference to the excessive labor of the team, this is quite a gratuitous alarm. The horse walks up an elevation of a foot and a half in ten at the rate of two miles in an hour, or something over that, and thus, carrying no load but merely his own weight up that moderate elevation, if he weighs a thousand pounds, he performs the work of a standard horse-power, and this with greater ease than in any other method we know of.

To Bore Wooden Drains or Water-Logs.

"G. F." Rochester, Ind., asks how to bore drain-logs eight or ten feet in length. He has a quantity of spruce poles of which he wants to construct water-pipes. For this purpose a frame should be constructed as shown in the figure. It consists of a series of trestles firmly placed on the ground, or they may be connected together by a strip nailed along the ends of the trestles so that they are kept in position. Each trestle has a pair of stakes fixed on the top, between which the logs are placed and keyed fast with wedges. The boring tool is an auger of two or three (or more if necessary) inches in diameter, fixed on to a long iron rod—half-inch or three quarters thick would be sufficiently strong—and at the end of the rod a double-crank handle is welded. This tool rests on trestles furnished with guides to keep it exactly in position during the boring. When the trestles are placed in position and the log keyed fast, the boring tool is then carefully placed in line each way with the center of the log. A line, similar to a carpenter's chalk-line, should be used for this purpose, and it depends on the care with which this is done whether the bore-hole keeps the center of the log or not.

When all is accurately placed, the work is commenced and continued until the middle of the log is reached, when it is turned end for end and bored from the other extremity. This is always advisable, as it very much lessens the risk of the auger running out of line. When the logs are bored, they should be peeled and seasoned before using. An excellent method of doing this is to put them for a few days into a creek or pond, where they will become thoroughly saturated with water, and on drying afterwards for a few weeks they will season rapidly. To fit them together, one end should be brought to a taper, and the other end bored out with a tapering reamer to fit the end of the

log which connects with it. In laying the logs, the end of one should be driven into the enlarged bore of the other. A little tar may be used to get a close fit if the pipes are to be used for conveying water; if for drains, the ends may be left loosely connecting, and stones packed around the joint. A coating of hot tar given when the logs are thoroughly dry will make

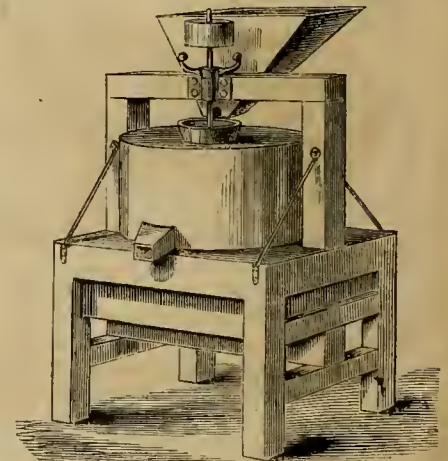


BORING A WATER OR DRAIN LOG.

them more durable, and an iron ring driven over the end which receives the point of the connected log will prevent it splitting when it comes to swell in consequence of being saturated with water.

Farm-Mills.

We have had several inquiries about farm-mills for grinding coarse feed for stock. There are but two kinds of these mills—viz., those with steel plates to form the grinding surfaces, and those with burr-stones. The former kind does very fair work, but occasionally the plates need replacing, and as soon as they become worn the work is badly done. Such mills are largely advertised in the agricultural papers, and are relatively cheaper than the stones, but they are not so durable, and not easily kept in such good order as the stone mills. The cost for a horse-power steel mill is not far from \$50, and one of this price will grind from five to ten bushels per hour. The burr-stone mill will cost about double this amount with all the fittings complete, but one can be got up very much cheaper by purchasing a pair of what are called country stones—which are of native manufacture, and cost less than half the price



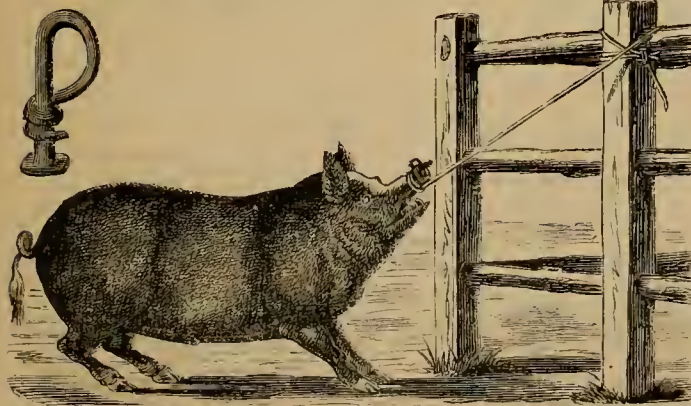
A FARM-MILL.

of French burr—and having them framed and mounted by a country millwright or miller. We give an illustration of such a mill, which we have used very satisfactorily, and which, run by two horses, has chopped fifty bushels of oats and corn in a day with great ease. The stones were country stones, and were hard enough to

grind a thousand bushels without dressing, and cost \$20. The frame is a very simple affair, made very stout; the lower stone is stationary, and is bedded on the frame; the upper stone is suspended on the spindle, and is turned by means of the pulley above. A screw on the upper part of the spindle raised and lowered the stone as became necessary. The hopper above fed the grain into the eye of the stone by a shoe and shaker, as in any ordinary mill. A hoop surrounds the upper stone, and the meal is discharged through a spout in front into a box or bag placed to receive it. The economy and convenience of such a mill are very great when one is located at a distance from a miller, and even when this is not the case it is a great convenience to be able to do all the work of the farm at home on days when the weather is not fit for out-door work. The saving made in feeding ground grain is such that where no more than ten head of stock are to be fed it would be profitable to incur the cost of a mill to do the grinding. These mills are very easily kept in order, and the method of dressing the stones is so simple that any one can learn to do it by trying a few times and following directions.

How to Ring a Pig.

There are circumstances in which pigs should not be allowed to root. In fact, when they are not constantly penned up, or where a lot can not be appropriated altogether to their use, it is absolutely necessary to prevent them from rooting. All methods of cutting the snout have with us been unavailing; the wound very rapidly heals, and nature seems to have provided so effectually for the perfection of the rooting implement, that nothing save a ring which acts mechanically prevents its use altogether. The best ring we have used is a horseshoe nail with the point beaten out into a slender wire, which may be passed through a hole made in the snout with a common awl, and twisted two or three



RINGING A PIG.

times around the head of the nail. This stays in place, and offers so much obstruction to the action of the edge of the snout, that the hog can not root while it remains there. It does not operate by any sharp points pressing on the snout painfully, and therefore may be used by the most humane and considerate man without any qualms of conscience.

The main difficulty in ringing a hog is to hold him during the operation. This is done very easily by coaxing him up to a trough, and taking him by one ear; he immediately squeals, and when the mouth is open a noose is slipped over the upper jaw back of the tusks and drawn tight. The end of the rope is passed round a fence-post or anything which may be handy,

and the pig will hold back, steadily hanging on the rope, without making any other movement. It is then the work of an instant, having everything all ready, to pierce the snout and insert and fasten the nail. The rope is loosened, and slips off the pig's jaw in an instant. Good-sized hogs may be thus ringed by one man without the need of any help besides the tools.

A "Buck-Board" Wagon.

All the costly appliances of modern carriage-building hardly accomplish a better result—so far as comfort goes—than is secured by the very simple "buck-board" of the backwoods, which is cheap, simple, and effective. The accompanying illustration shows a modification of the original device, which is in use in some parts of the country, and which deserves to be more generally adopted. The two axles are connected by a platform of oak or ash boards, which does duty at the same time as a reach, as a body, and as springs. On this platform, which is about three feet wide, there is built a common buggy-seat, with or without springs, for two persons, so placed as to bring the weight half-way between the axles.

This wagon, which may be built at any country shop, will be found as easy and comfortable as the best buggy. It is susceptible of a fine finish, and may be made an elegant vehicle.

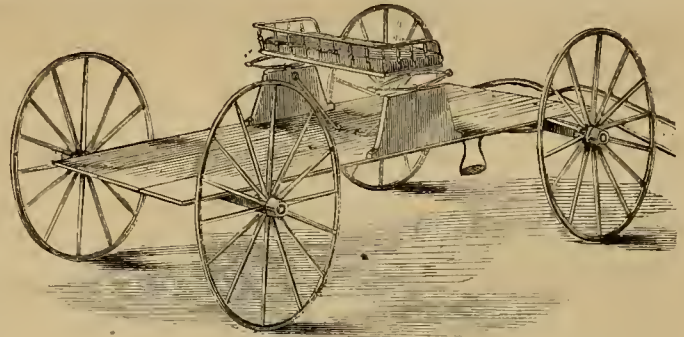
Applying Manure to Wheat.

We know two quite distinguished farmers in Western New York whose land is thoroughly underdrained and in very high condition. Both grow a great deal of clover and feed a large number of sheep. All the clover and straw grown on the farm, as well as the corn and corn-stalks, are fed out, and a large amount of rich manure is made every winter. Both pile their manure in the spring, and keep it over until the fall. One applies it to his winter-wheat, and the other spreads it on his grass land that he intends to break up in the spring for corn. The farms adjoin. Both are noted for their great productiveness. It would be difficult to select two better managed farms in the State. But we noticed that the farm on which the manure is applied to the grass land is *far cleaner* than that on which the manure is applied to the wheat. We think that it will not be an easy matter to get rid of the weeds so long as the manure is applied to a crop, like wheat, that can not be cultivated or hoed.

We are well aware of the advantages resulting from applying manure to wheat. It is a crop which we sell, and which brings in a good round sum of money at once. We are all anxious to get a large yield, and it is certainly not

an easy matter when there is some good manure in the yard to refrain from drawing it on to the wheat fallows when we know that it is likely to add ten or fifteen bushels per acre to the crop.

When land is clean, and when the hay, straw, and grain crops are free from weeds, the practice of applying manure to wheat has many advantages. But on farms where even clover is not free from docks and red-root, and where the wheat, oat, and barley straw is mixed with injurious plants, the manure must contain large numbers of weed-seeds. Piling and fermenting the manure will not destroy the vitality of these



A BUCK-BOARD WAGON.

seeds. Many of them will be pretty sure to grow in the wheat, and will go to seed, and so land and manure will become more and more infested with these troublesome plants.

It would seem, therefore, that as long as our farms and crops are weedy we must adopt some other method of enriching our land for wheat. If the land is poor, we might apply the manure to a one or two-year-old grass or clover sward in the fall, say in August or September. Spread evenly and harrow thoroughly. The weed-seeds would germinate in the fall or spring. Then pasture the field next spring, and plow it up before the weeds go to seed, and fallow it for wheat. We should be pretty sure of getting a good crop, and the land would be clean, and the following crop of clover would be heavy and free from weeds, and we should have made a commencement towards that cleaner and better farming, which we must ultimately adopt.

Harvesting Buckwheat.

"A Young Farmer" wants information about harvesting buckwheat, which we give somewhat



A STOOK OF BUCKWHEAT.

in full, as it is of general interest, and the crop is sufficiently valuable to make the proper harvesting of it worthy of more care and attention than are generally given to it. No crop is more care-

lessly put in the ground or harvested than this, and the result is that a considerable loss both in yield and quality is sustained. It is thus that the crop has come to be called "the lazy man's crop." It is too late in the season now to say anything more as to the best methods of cultivating it than that the crop deserves and will pay well to be put in in the best manner and on good soil. In harvesting, too, it will pay for good care. No crop suffers more from wet, or shells out more easily. The slender attachment by which the grain hangs, is broken very readily when dry, and it is thus best to cut it when the dew is still on it and the grain is damp. It should be cut with the cradle, and allowed to lie until again damp with dew, when it may be raked up into bunches, and set up in small shocks, without being bound, as shown in the cut. The haulm or straw will always tangle sufficiently to make the shocks hang together, and binding would cause much unnecessary waste. It should stay in these shocks, which are very open and admit air and sunshine, until the grain is cured, when it should be thrashed immediately. It will not do to stack it or put it away in a mow, as it heats and spoils very readily, and after being heated its value for flour is very much diminished. It should be hauled on a bright, windy day, if possible, and thrashed as it is hauled, the grain cleaned up immediately, and either sold at once, or stored in an airy room or granary. The earliest buckwheat flour in the market brings the best price, and that ground on a clear, windy, dry day, both yields more and better flour than when ground in damp, close weather. Buckwheat chopped with oats or rye makes excellent feed for horses, hogs, or milch-cows, and the bran will increase the flow of milk in cows, but at the same time it makes poor white butter.

Building Concrete Houses.

Edwin D. Knapp, Tompkins Co., N. Y., sends us the following directions for putting up con-



Fig. 1.—SIDE OF BOX FOR CONCRETE WALL.

crete buildings. In his neighborhood there are eighteen buildings, including one fine residence, several smaller dwelling-houses, and barns. The principle is the same as that described in the *Agriculturist* for March, 1872, but the material used is common lime instead of cement,

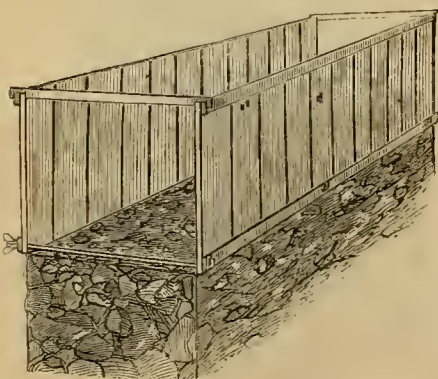


Fig. 2.—BOX FOR BUILDING WALL.

and the construction of the boxes is somewhat different. He says after the foundations are ready the boxes are to be set up. They are made of strips of 2 x 4 inch stuff, ten or more

feet long, as may be desired to fit the length of wall to be built. On these strips are nailed boards twenty-one inches long, fitting close to-

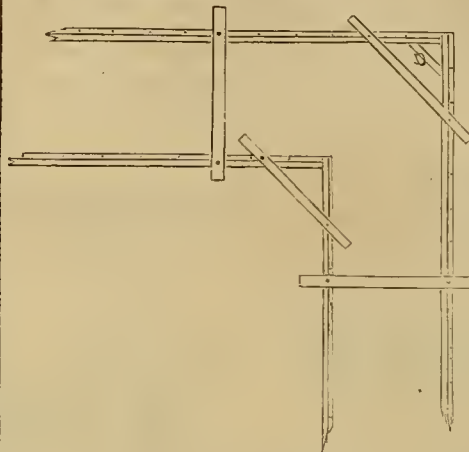


Fig. 3.—MANNER OF MAKING ANGLES.

gether. A sufficient number of boxes is provided to go once around the building. Fig. 1 shows the side of the box put together. These sides are kept in place by 3/8-inch iron rods, two inches of which is bent into an angle at one end, and a screw and thumb-nut is made at the other

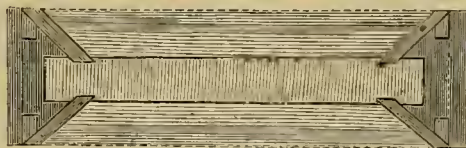


Fig. 4.—WINDOW-FRAME.

end. The length of these rods will depend on the thickness of the wall. Each box should have three rods, and holes are bored in the bottom of each side to receive them. The sides of the boxes are kept in place on the top by strips laid across with notches cut to receive the sides. These are shown, and also the rods, in fig. 2. Care is to be taken in setting the boxes to have the sides plumb, and always the same distance apart, or the wall will not go up evenly. These buildings should not have sharp corners, and in the arrangement made for the corners, as shown in fig. 3, a beveled piece is fastened (as shown at a) into the corner of the box to provide for this. When the boxes are placed properly they are filled with the concrete. This is made of common mortar of coarse, sharp sand and lime, in the ordinary proportions, and is put into the box, and the stone is compactly bedded into it. The stone may be common field stone, large and small together, but too many large stones are not advisable; it is best to break most of them if they run all large. It is very important that the stone should be perfectly imbedded and packed in the mortar. When the window and door frames are put in, they should be made with beveled sides, as in fig. 4, and the ends of the boxes should be tacked to them with a close fit. It is not necessary to make this attachment to the boxes at the ends, unless it happens to come so; the beveled sides of the frames may be tacked to any part of the boxes they may happen to come against. It is not necessary to have any skilled labor about these buildings; common smart laborers properly superintended will do the work very well. When the course is finished, the bolts are unscrewed and drawn out, the boxes come apart, and are set up again for another course as soon as the previous one

is sufficiently set. One to two days are required to make it solid. As the walls are carried up, the flues for the chimneys are made by inserting in the wall the block shown at fig. 5. This is made in three tapering pieces. The center one has a ring fixed in it by which it is drawn out, then the sides are taken out, and the blocks set higher up for the next round. These are made large enough to suit the size of flue required. A wall sixteen inches thick is sufficient for a large building, a foot is thick enough for a smaller one. If it is desired to finish off the wall smoothly, a floating is given with common mortar, and a wash to color it may be made by taking five parts of water to one part of molasses, and thickened with cement to a proper consistency for a wash, and mineral paints or ochers may be added to suit the taste as to the color.

Double-Trees and Uneven Pulling.

Some months ago the question was submitted, to us whether, when one horse of a team was pulling ahead of another, either horse was necessarily doing more work than his mate. This question was so simple that a plain answer was easily given, and we gave it, as we believe correctly, in replying no. This reply has given rise to a large number of communications, amongst which was one from the propounder of the original question, who we discovered had a dispute about the matter, and had agreed to refer to the *American Agriculturist* for a decision. Of course, it was unsatisfactory to the defeated party, who felt himself aggrieved, which seems not to be exactly the way of submitting to the decision of a referee. Had we known that we were to be placed in the position of umpire we should have declined it as a thankless and useless piece of business.

The question, as originally propounded, ad-



Fig. 1.—DOUBLE-TREE.

mitted of no contingency or limitation, and was therefore answered on its merits as a plain and simple one. But it is in practice subject to so many complications, that much confusion is likely to arise in the minds of those who can not easily view a question in several ways at once. Now, we propose to place the matter finally in such a way that the ques-



Fig. 2.—SINGLE-TREE.

tion will be readily understood, and may be practically useful. Freed from all those little niceties of mechanics, which practically are of no account, there are three ways in which uneven pulling operates, and these wholly depend on the position of the holes in the double-tree. If they are all in a straight line with each other, as in fig. 1, practically each horse will pull equally in whatever position the double-tree may be, so long as it is free from entanglement. If the middle hole is behind the line of the end holes, the horse in advance is doing more than his share of the work; and if the center hole is ahead of the line of the end holes the rear horse will do most work; and lastly, the further the center hole is out of line the greater difference in draft is occasioned by the unevenness of the draft.

While considering this question, it is worth while to notice the forms of double and single-trees, both as relating to the case in point and



Fig. 5. BLOCK FOR FLUE.

to their strength in use. While we need to have them light, they must be strong, and the form that will best include these two requisites is the best to use. In figs. 1 and 2 we give forms of double and single trees which have been used by us for many years in farm work and in heavy lumbering, and we consider them preferable to any other. The double-tree has the three holes in line, and is strengthened by light iron bands, so placed as to resist the tendency to rupture the wood. This enables them to be made much lighter than they otherwise could be to be equally strong. Fig. 2 shows a single-tree with the "belly" placed in the front. There it is of greatest use in resisting strain; when placed behind it is of the very least service. We have to acknowledge a communication from Prof. Miles, of the State Agricultural College of Michigan, on this subject, which we should gladly publish had we space, but as he entirely indorses our views as to the effects of uneven pulling in the several shapes it may be made to take, its purpose is accomplished in this earlier prepared article. We hope the matter is now finally set at rest.

A Case of Mixed Husbandry.

We have no doubt that in all the older States, near good markets, mixed husbandry is better both for the farmer and the farm. The grain farms of the West are deteriorating, and the plantations of the South are becoming barren by the persistent cultivation of cotton and tobacco, without fertilizers. Every crop impoverishes the land and takes something from the capital of the land-holder. With mixed husbandry it is quite possible to return to the soil more than is carried off every year. The annual sales may be steadily increased, and the soil be kept constantly increasing in fertility from the products of the farm. There is a great safeguard, too, in mixed husbandry against loss of crops from peculiarities of the season. The cultivator does not put all his eggs in one basket. He is certain to have something that will be specially adapted to the season. If great heat comes, and drouth, Indian corn will be successful. If he has a wet season, grass and roots will flourish, and the extra growth of potatoes, beets, and turnips will compensate for the deficiency in the corn-bin. In the variety of his crops he is certain to have something that will sell at paying prices.

As an example of mixed farming we present the sales of a New England farm for the past year, taken from the record:

FROM THE HERD.	
Heifers and beef cows.....	\$743 84
Veal calves.....	106 73
Butter.....	149 47
Total from herd.....	\$1,000 04
FROM THE FLOCK.	
Lambs, sheep, and wool.....	113 76
Pigs and Pork.....	256 33
Turkeys.....	389 23
Hens.....	46 33
Eggs—261 dozen.....	68 33
Geese.....	35 42
Ducks.....	24 64
Total animal products.....	\$1,933 93
Potatoes.....	108 12
Lima beans.....	25 50
Onions.....	26 77
Straw.....	68 95
Pasture.....	4 50
Vegetables.....	130 92
Pickles.....	22 50
Cranberries.....	8 00
Rye.....	6 85
Wood.....	372 74
Railroad ties.....	123 20
Total amount of sales.....	\$2,832 03

In looking at these figures it will be noticed that the sales of animal products are \$1,933.93,

while the vegetable products amount to only \$898.05, and of this nearly \$500 is for wood and timber. The hay, corn, oats, rye, and the large root crop, carrots, beets, mangels, and turnips, were nearly all consumed upon the farm. And in addition to these there were large purchases of corn and hay to winter thirty head of horses and cattle and thirty-two sheep. Large quantities of peat, loam, and leaves are used in the yards and stables in making manure, and in addition the wood sold is exchanged for fertilizers. These are used extensively in top-dressing the meadows as well as in raising hoed crops. The purchase of fertilizers is regarded as only a temporary necessity to bring up exhausted fields. The farm will soon be in a condition to keep fifty head of cattle, and to make manure enough to keep the fields constantly increasing in fertility.

Another item worthy of notice is that of poultry and its products, amounting to \$563.85. Nearly four hundred of this is from turkeys. They have a good range through pastures and woodland, and pick up their own living mainly from June to October. Poultry, especially the turkeys, is regarded as more profitable than any other stock kept on the farm. The best varieties are selected, and none but the largest and best are kept for breeders. Sheep stand next to poultry in the profit they yield. The sales for this year were from a flock of ten sheep only. They paid more than one hundred per cent above the cost of keeping. The least profitable stock kept is swine. They consume the buttermilk, and make a good deal of manure of excellent quality, and if there is any profit, it is found only in the item of manure. But it is doubted if swine can be raised profitably in New England, at the present prices of pork. Of course, those who know the great superiority of home-grown pork and hams, will continue to raise enough for home consumption at whatever cost. But to compete in the market with Western pork does not pay even at the extra price which the Eastern article commands. The grain would give much better results if fed to poultry, sheep, or cows. With this single exception the policy of raising animal products for market rather than vegetable is regarded as sound.

Of the common farm crops rye probably pays better than any other grain. There has been increasing demand for rye-straw in all Eastern markets for litter, until it is nearly as valuable as hay. As a rule, the straw sells for as much per acre as the grain, and if the grain can be kept at home, the farm can easily bear the loss of the straw. With a light dressing of manure it is easy to get 12 or 15 bushels of rye and a ton of straw to the acre. The labor is mainly that of getting in the seed, and it comes at a season when other work is not pressing. Corn pays only because there is so much excellent fodder in the stalks, when they are properly cured. Market-gardening will pay very well near cities and villages, where the business is not already overdone. But it is properly a business by itself, and requires more skill and capital than most farmers possess to make it pay. It wants glass, large stores of manure, which are likely to rob other parts of the farm, early hours, and close attention to marketing, which will absorb the attention of one man during the season. Root crops may be grown to almost any extent. If the market is dull, they may safely be fed out to stock, where they are certain to pay a handsome profit. With suitable soil and improved tools ruta-bagas and mangels can be raised at eight cents a bushel, and we know of nothing better to make up for a short hay

or grain crop. On any farm devoted to mixed husbandry roots should have a large place.

Top-dressing Grass Land.

It is a good thing at this season of the year, or before we thrash the new crops, to clean up the yards, sheds, and every part of the premises where any kind of fertilizing material can be found. The amount of manure that can be seraped together in this way will be far greater than most farmers imagine. If it is allowed to lie spread out in the yards the fall rains will wash out nearly all the valuable ingredients.

There seems to be a general idea that manure spread out on the land during the hot weather in August must lose much of its valuable ingredients by evaporation. With very rare exceptions, such is not the case. Many farmers would find it greatly to their advantage to draw out all the manure they can gather together and spread it out at this season on their grass land, either on meadows, permanent pastures, or on grass land that is to be plowed up next spring.

We would specially recommend the free use

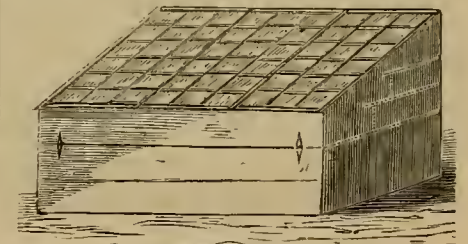


Fig. 1.—FRAME AND SASH FOR DRYING FRUIT.

of the harrow after the manure is spread. Go over it several times, and respread any of the manure that the harrows may draw into heaps. It is a great mistake to suppose that cows and sheep do not like the grass after it has been top-dressed. If the manure is well harrowed and completely broken up, the first rain will wash much of the soluble matter into the soil, and the grass will spring up and be sweet and tender, and all animals will eat it with far greater avidity than grass not top-dressed.

About Drying Fruit.

That there are better ways of preserving fruit than drying, all who put up their cans of peaches, cherries, and other fruits will admit. There is really nothing equal to properly canned or bottled fruit. But there are thousands who live where fruit is plenty and bottles and cans are scarce. It requires no little skill and some

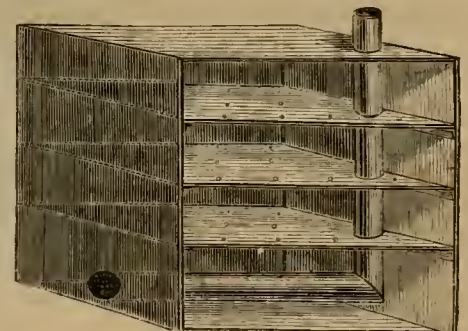


Fig. 2.—OVEN FOR DRYING FRUIT.

outlay to bottle fruit, and but few care to put up more than will be needed by their own families. The sun and the air are free to all, hence thousands dry fruit where one puts it up in the improved method. They may not be for

some purposes as good as that which is canned, but there is a flavor about dried apples and dried peaches peculiar to them, and while we have a plenty of canned peaches we like

fruit of some kind curing in the yard. Many of the dry-houses were of the rudest description—built of logs, with a flue running through the bottom. The sketch (fig. 4) is of one of the

best quality is very white, but not so fine in flavor, as the fruit to obtain this color must be pulled and dried when green. Old housewives prefer the mahogany-colored apple for cooking.”



Fig. 3.—DRYING FRUIT IN THE OPEN AIR AT HIGH POINT, N. C.

now and then a pie made of the dried fruit. Persons far away from all access to cans and jars, having an abundance of fruit, dry it and turn it into cash. Many a hard-working woman in the mountains of North Carolina or in the abundant orchards of Ohio and Illinois and other Western States dries fruit enough to supply her family with groceries for the year. There are various ways of drying fruit.

A few years ago we were much interested in seeing how a share of the abundant peach crop in Missouri was disposed of. A rude oven was made in the side of a bank, some broad stones formed the top, and underneath these a slow fire was made. Upon the stones were placed peaches, cut through to the center. A slow fire was kept up in the oven, and the fruit gradually dried. A rude shelter was made over this drying oven to protect the fruit from sudden showers. Peaches dried in this rude way are highly prized by the German population of the West, and have a local name which we have forgotten.

An enormous business in the aggregate is done in North Carolina in drying fruit. Mr. Woodward, our artist in the South, sent us an account of the drying of fruit at High Point, N. C. He says that dried fruit to the value of three to four hundred thousand dollars is annually sent from that point alone. He writes:

“As enormous as the business is in the aggregate, no one person carries it on to any great extent. Every family has its orchard and dry-house. In my travels through the surrounding country, I did not see a house that did not have

most improved kinds—a circular building, with a revolving post in the center, on which are racks to place the triangular-shaped trays. A person standing outside can in this way turn the rack and reach any tray without difficulty. The flue is at the base inside, extending around the

Drying fruit in the open air on trays or shelves is not altogether a satisfactory process. It is slow and uncleanly, is often interfered with by the weather, and the fruit is very often damaged by flies. A very simple and effectual method may be taken by using the sash and frame of a

hot-bed. As soon as the hot-bed has served its purpose in the spring, it should be cleared out and the boards washed off; shelves may be laid within it, which should be covered with clean white paper, to receive the fruit and to reflect the heat, and a strip of wire-gauze or mosquito-net fastened at the back to permit the escape of the damp heated air. The glazed sash may then be kept closed, and the entrance of flies prevented. The temperature within the sash will be sufficient to dry the fruit very rapidly, and rain does not interfere with the operation except to suspend it temporarily.

The arrangement is shown at figure 1. At figure 2 is shown a cheap and useful dry-house for the use of artificial heat. It is made of sheet-iron, with perforated sheet-iron shelves, the edges of which are turned up so as to form shallow pans, and a tube similar to a common stove-pipe passes through it, having an opening at the outside, as shown in the figure. A handful of live

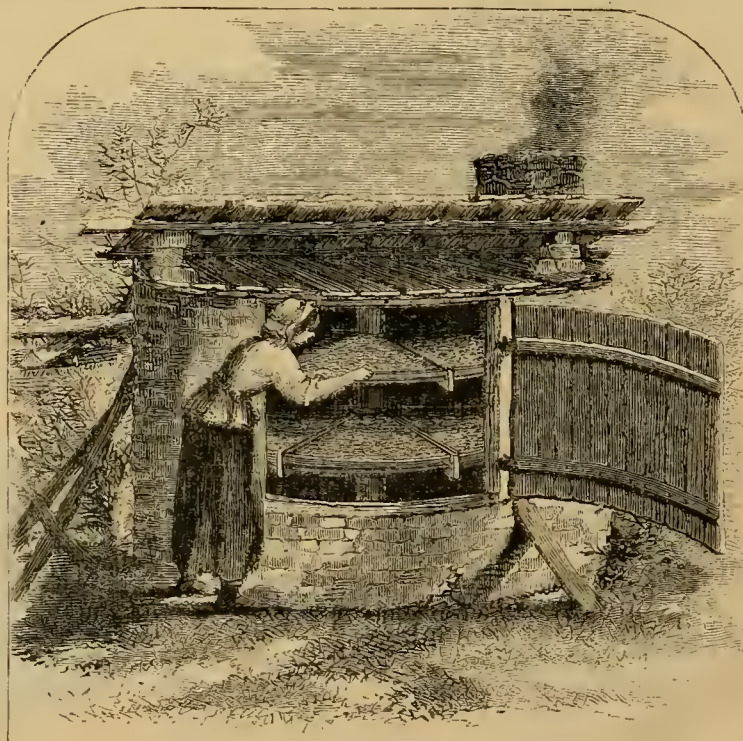


Fig. 4.—A SOUTHERN DRYING-HOUSE.

whole house, thereby securing an even temperature. The house (built of brick) is very close, so that no heat escapes. It takes a day and night for peaches to dry thoroughly. Apples, as a general thing, are dried in the sun (as shown in fig. 3), taking about two days. The

sufficient to raise the requisite heat, and care only is needed to keep the heat low enough to dry and not to cook the fruit. Fruit dried in this manner is sweeter, and retains its natural flavor better, than that dried by the sun. The more rapidly the drying is performed, the better.

The Green Dragon.

In July we gave an engraving of a common but very interesting plant, the Indian Turnip, *Arisæma triphyllum*. We now present a draw-

Farther south it is replaced by a more hairy and simple-leaved species, *Lupinus villosus*.

But the Lupines of the Atlantic States sink into insignificance when compared with the fine species of the Pacific coast. In California and

seeds are generally kept by our best seedsmen, and we may remark that this, and all other perennial Lupines that we have cultivated, are very impatient of removal after they become large. We start the seed in boxes, and after



THE GREEN DRAGON.—(*Arisæma Dracontium*.)



THE MANY-LEAVED LUPINE.—(*Lupinus polyphyllus*.)

ing of another species, *Arisæma Dracontium*, the Green Dragon or Dragon Root. This is much less common than the other species, and though not quite so showy is nevertheless a plant that is likely to arrest attention. Its leaf—it usually has but one—is singularly divided into from seven to eleven and even as many as thirteen leaflets. The flower is greenish, and not showy. The spathe, or envelope that surrounds the flowers, instead of being broad and bent over at the top as in the other species, is rolled into a narrow tube and terminates in a short erect point, and the spadix upon which the small flowers are fixed extends considerably beyond the spathe. This has not the turnip-shaped root-stock of the Indian Turnip, but a cluster of small tubers. The plant is found on rich river banks in most parts of the Atlantic States. The drawing was made from a specimen from our garden, where we find it a curious if not very showy member of the collection.

The Many-leaved Lupine.

The genus Lupine (or *Lupinus*) is a very fine one. It includes annuals, biennials, and perennials. Some of these are in Europe important forage plants, and others are grown for ornament. The common Wild Lupine, *Lupinus perennis*, is well known, it being common in sandy soil in the Northern and Middle States.

Oregon there are forty or more species, some of them forming large branching plants, with showy racemes of flowers, which are white, yellow, and through all shades of blue to deep purple. Only a few of these far Western Lupines have been brought into cultivation, and the best known of these is the Many-leaved Lupine, *Lupinus polyphyllus*, which is now a not rare and very showy ornament in our gardens. We have grown it for several years, but have never succeeded in raising such fine plants as we saw growing wild in California. It was near a miserable little Indian village called San Felipe that we came across a large patch which seemed to us one of the finest floral displays we ever witnessed. The plants stood at least six feet high, and the flower-racemes were from one to two feet in length. These stood up above a wonderfully luxuriant mass of foliage, and the whole formed a flower-show that we shall never forget. As we grow it in the garden, the stems seldom reach higher than three feet; still, though it falls far short of the beauty it possesses in its native locality, the plant is a very desirable one for the garden, as it remains in bloom a long time, and has a stately aspect that is very pleasing. The specific name, *polyphyllus*, has reference to the many divisions of the leaf, which are sometimes as many as fifteen. The flowers are variously colored, being purple, blue, and even white in different seedings. The

the plants show a few leaves transplant them to the place where they are to bloom. Removing large plants is not likely to be successful.

The Cabbage-Worm (*Pieris rapæ*).

The "Cabbage-worm" is not a pleasant subject, but he is a very important one. Where he came from, and how he got here, are matters which have been sufficiently discussed. The cultivator's interest begins and ends with the more important facts that he is here, and that he must be got rid of, or cabbage-growers must find another occupation.

With the worm, as a worm, there is little use in contending. It is not a sensitive creature, and cares little for bad tastes and bad smells. Its mission is to eat cabbage, and it fulfills it in spite of all obstacles. The only way to attack it with any hope of success is to nip it in the bud, and its particular bud is the pretty white butterfly that lays the myriad eggs from which it is hatched. Fortunately, these butterflies are somewhat influenced by foul odors, and whale-oil soap, fish pomace, carbolic soap, flowers of sulphur, and such nastiness, will incline them to seek other foraging ground. This means will do much to abate the nuisance, but the further precaution should be taken to catch and kill as many of them as possible.

Farmers and gardeners should combine to

make up a purse from which to pay children for hunting them. It would be a very good investment to pay \$1 per 100 for all the white butterflies that are delivered, and an active boy with a light net (made of ordinary mosquito-cloth) can catch several hundred in a day. Every butterfly killed, especially if early in the season, means a good many heads of sound cabbage saved from the destroyer. It behooves cultivators to give their minds to this matter, for this insignificant-looking worm promises within a very short time to remove the cabbage from the bill of fare of that very large part of our population to whom "boiled dinner" is a semi-weekly necessity.

[While we agree with our associate, from whom the above is received, as to the importance of attacking the "worm" in the butterfly state, we can not subscribe to his statement that it can not be fought successfully while a worm. Our garden patch of early cabbages was badly infested by the worms early in the season. A few siftings of air-slaked lime completely routed them.—Ed.]

Eggs in Grape Canes and Apple Twigs.

BY C. V. RILEY.

[The following note, with specimens, from M. H. Garland, Amherst Co., Va., was forwarded to Mr. C. V. Riley, State Entomologist of Missouri, who returns the accompanying full reply, with illustrations.—Ed.]

"Inclosed you will find a cutting from a grapevine (*Eumelan*), which you will observe has been punctured by some insect. By splitting through the center you will find imbedded in the pith a small worm or grub, about 1/8 of an inch in length; yellowish white in color; but apparently in a dormant state. Is the vine injured by it? If so, what is the remedy? What is its name?"

The above letter with the accompanying twigs came to hand some time ago. From the frequency with which queries regarding these and similar punctures are made, it is evident that little is known about them, and that a few explanations will prove interesting to many of your readers.

Those sent by Mr. Garland are illustrated at Fig. 1. The punctures are in a straight row, about one third to one half-inch apart, and appear as though made by a rather large-sized pin (*b b*). Each puncture leads to from ten to twelve slender, elongate eggs (*c*), about a tenth of an inch long, and deposited on either side of the puncture, lengthwise, in the pith (*a*). About the first of May they hatch out into little dingy crickets, and though I have not yet kept them until the last molt, and no one has ever bred the perfect insect, I have little doubt but it will prove to be the Jumping Cricket (*Orocharis saltator*, Uhler), so named, I suppose, by my friend P. R. Uhler, of Baltimore, because it does not jump as much as some of its confreres. This insect (Fig. 2) is of a pale yellowish brown color, and the female (*a*) differs from the male (*b*) in possessing a long ovipositor, and in her wings being more rounded and less ribbed and veined, so that she can not chat and sing as does her lord.

These Jumping Crickets are at times quite injurious, for they have a vicious habit of sever-

ing green grapes from their stems, and uselessly scattering them upon the ground—always performing their nefarious work at night. The eggs should therefore be destroyed; and this is best done by cutting and burning in the winter-time.

Other eggs, which I receive quite often, are those illustrated at figure 3.

The twigs or canes of various cultivated plants, and notably those of the Grape-vine, Apple, Peach, Raspberry, Blackberry, White Willow, and Soft Maple, are often more or less split or disfigured by a series of closely set but irregular punctures, as illustrated at *a*. Upon cutting into such twigs we find that, unlike the eggs we have already mentioned, these all lie diagonally across the pith, close together, in a single, irregular,

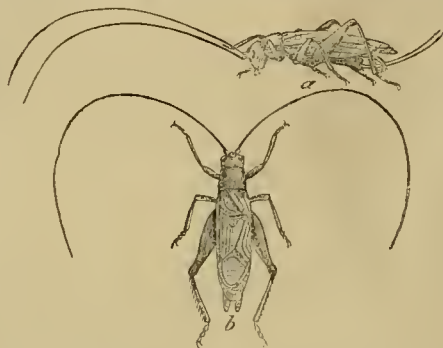


Fig. 2.—JUMPING CRICKET, MALE AND FEMALE.

longitudinal row, as at *b*. More carefully examined with a lens, each egg appears pale yellowish, sub-elliptical, a little curved, more pointed at lower end (*c*), and capped at the head or more rounded end with regularly arranged white, opaque granulations, which, under a low-power microscope, appear as shown at *d*.

These are the eggs of the Snowy Tree-cricket (*Eoanthus niveus*, Harr.). The young also hatch about the first of May. After eating through its egg-cap, the new-born cricket is still enveloped in an exceedingly fine membrane, from which it soon extricates itself, and which it leaves at the orifice of the puncture. These young crickets are whitish and very active, and generally conceal themselves in the thick June foliage of our woods or our orchards. At this time of their life they subsist principally on plant-lice, eggs of insects, and other delicate animal food; and if they can get nothing better, will exhibit their cannibalistic propensities by devouring the weaker individuals of their own kind. Subsequently, as they grow larger, they are often content with a vegetable diet, and thus they perfectly combine in one species herbivorous and carnivorous habits. After the first molt they begin to vary a good deal in color, the females generally being quite dark. When mature, the female insect presents the appearance of figure 4, and the male that of figure 5.

I have at the present time an extensive young brood of these little crickets in one of my breed-

ing cages. They were hatched from a Soft-maple twig, which furnished material for our illustration, and it is astonishing how quickly they will clean off an aphid-crowded twig, of what-



Fig. 4.—SNOWY TREE-CRICKET—FEMALE.

soever kind. When in the course of a few weeks more they acquire their full growth, and with it their wings, it is likely that I shall consign them to chloroformed oblivion; for the male swells with such pride at the acquisition of wings, that he sets them a-going, fiddle-and-bow-fashion, until the shrilling and shrieking fairly distract. He becomes almost as much of a nuisance in-doors, as the young and ambitious musical boarder who grates eternally on his catgut. The only difference is that our little six-legged musician is denied (but not very justly, since he has an object discriminating reason, while the two-legged fiddler is supposed to have reason, which, however, does not always make him considerate of others' feelings!



5.—SNOWY TREE-CRICKET—MALE.

But—not to wander—this Snowy Cricket shares with his more robust Jumping companion in the nefarious midnight-work of gnawing, girdling, or severing different parts of the grape thyrses, causing the berries either to shrivel or fall, and producing what is often known as "shanking." The virtues of its youth do not



Fig. 6.—PUNCTURED TWIG.

atone for the bad habits of its after-life; and this *Eoanthus* must be classed with the bad bugs.

Still a third kind of punctured twig is illustrated at fig. 6. The punctures consist of a row—more or less straight—of little raised slits in the bark (*b*) in each of which upon careful examination may be found an oval, dark-colored egg (*a*). These slits have been mistaken by the uninitiated for the crescent cuts of the Plum Curculio, and thus the false story goes that Madam Turk sometimes oviposits in twigs. They are in reality those of the Buffalo Tree-hopper (*Ceresa bubalus*, Fabr.), a yellowish-green, hump-backed insect, with two little horns on the prothorax, which render its name not inappropriate. A side view, natural size, is shown at *a* and a back view at *b*, fig. 7. The young are at first brownish, with a formidable row of ten pairs of compound spines, and looking totally unlike the mature insect. After the first and second molts they are still furnished with these sprangling spines on the back, but are of a paler color, with some transverse lilac-colored lines. With the third and last molt they suddenly acquire the mature characteristics.



Fig. 7.—BUFFALO TREE-HOPPER.

This insect subsists during its whole life on the sap of apple, pear, and other trees, but never does serious injury.

These three are the more common kinds of twig-eggs that attract attention; and although there are many other kinds that are of interest to the fruit-grower as well as to the entomologist, this article is already too long to allow us to undertake a description of them at present.

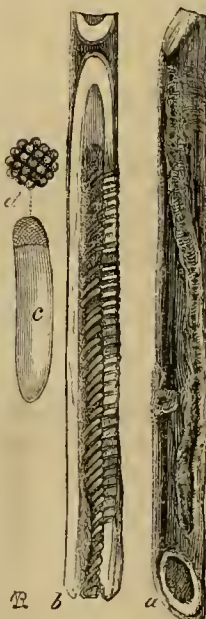


Fig. 3.—PUNCTURED TWIGS.

COLD-FRAME CABBAGE PLANTS.—Col. Waring wrote an article on cold-frame cabbage plants, to some points in which Mr. Henderson took exceptions. We give Col. W.'s rejoinder, which closes the discussion: "I would not presume to dispute the statements of a wise old gardener like Peter Henderson, but you must not try to screen me behind 'climate.' Bless you, Newport is green and growing after Bergen Point is brown with the frost. I have not my previous article before me, but I think I said—I surely should have said—that when the plants are large enough to prick out, if it is too early, we pull them up and heel them in. If they recover from this check in time to threaten to run to seed, we pull them up again and give them a fresh start. This treatment will save them, if they are planted in August. If you doubt it, just try it. My experience of this year with some plants whose stems had been split by frost, show Mr. Henderson to be about right—these plants are heading about as well as the others, but this does not shake my belief in his statement, 'Gardening for Profit,' page 126: 'In planting, it is very important with cabbage or cauliflower that the plant is set down to the first leaf, so that the stem or stalk is all under ground, for we find that if exposed it will be split by the action of the frost, and will be injured in consequence.'"

The Baldwin Apple and its Origin.

BY MRS. ELIZABETH OAKES SMITH.

It is not improbable that of the many who are able to procure a taste of the delicious Baldwin Apple not more than one in ten knows from whence it originated, or knows anything of some interesting historic points associated therewith. I have so often heard my husband, Seba Smith, speak of this fruit, and of the Pearce family, with whom he was associated by the warmest ties of friendship for nearly sixty years, that I am induced to offer your readers a brief sketch of the same.

The Baldwin Apple came from a seedling planted by Josiah Pearce, Esq., of the town of Baldwin, Me. From this stock innumerable grafts have extended the fruit far and wide, but from a well-known law of extension, the Baldwin Apple is rarely found in perfection when far removed from the place where it originated. In Maine, the color, texture, aroma, and solidity of the apple leave nothing to desire, being in truth so delicious, that it might have been akin to the one said to have brought difficulty upon our mother Eve. In other localities, where the soil, climate, or culture may have proved unfriendly, what is called the Baldwin Apple may often be found a total failure, being puffy, insipid, and subject to early decay.

It is not generally known that "Squire Pearce," of Baldwin, Me., was half-brother to Benjamin Thompson, better known as Count Rumford. The mother of these two men was twice married, the first husband being Benjamin Thompson, the second Josiah Pearce, both men of culture and influence in their day. Mrs. Thompson, afterwards Mrs. Pearce, was a woman of strong sense, one of those self-poised, wise women so prominent in our Revolutionary annals. Count Rumford was born in the then town of Rumford, now Concord, N. H., being some twelve years older than his half-brother Pearce. He received a military commission under the Royal Governor of the Colony of Massachusetts. At the breaking out of hostility to the British Crown, young Thompson was supposed unfriendly to the popular move-

ment for freedom, and was most rudely driven from his home by his more zealous neighbors, and compelled to take refuge in Boston, where he became associated with Governor Gage. He was unquestionably what was then known as a "Tory," a circumstance which for many subsequent years was considered as a blot upon the family escutcheon by its patriotic members, although he never took up arms against his country. The subsequent career of Benjamin Thompson is well known. He seems to have cast lingering looks of fondness toward the place of his birth, though familiar with courts and loaded with honors by crowned heads, as is evident by his assuming the name of his native town when the honor of knighthood was conferred upon him by the King of Bavaria—hence his title of Count Rumford.

He was a brave soldier and accomplished military leader, but his character, essentially observant and philosophic, was more naturally employed in those scientific pursuits which for many years engaged his attention. He unquestionably anticipated many of our modern improvements, and was one of the first to turn public thought in the direction of economizing the fuel of the laboring classes. It was a jest in regard to him in Bavaria that he "would soon be able to cook his dinner from the smoke of his neighbor's chimney." He was philanthropic in the highest sense. He devised methods for improving the condition of the poor, by making their labor more productive, by founding better dwellings for them, by teaching them order, cleanliness, and economy, and thus doing away with beggary and disease. Few men of our country have enjoyed more general approbation abroad than Count Rumford, and our own people are beginning to learn that he was a great and estimable man.

In the mean while, the other brother, Josiah Pearce, had become the possessor of a large landed estate, and was living in Baldwin, Me., where he was plowing and planting, and helping on the interests of a scattered but thrifty population. Like his brother, Count Rumford, he was a generous, warm-hearted man, striving to make better what other men considered well enough, if not absolutely good. He experimented much in horticulture, endeavoring to ascertain what fruits could be cultivated to highest perfection in the inhospitable climate of Maine. He bestowed much attention upon the native grape, many varieties of which have large and well-flavored fruit. He planted the seeds of the potato, as did my grandfather David Prince, and thus produced new varieties, well-suited to the soil, and of superior quality. But it was in the cultivation of the Apple that he finally settled down upon as the fruit most genial to the soil, and best adapted to the climate of a State whose long winters are the fostering nurse of a social virtuous population, and whose brief summers vie in intensity with the heat of the tropics. The apple-blossom is the first harbinger of its springs, and the frosty airs of October are rendered more aromatic by the perfume of the apple-tree laden with its richly-colored fruitage. Thus an entire season is required to perfect this kingly fruit.

The old Pearce homestead at Baldwin still attests the skill and enterprise of its ancient owner by its extensive orchards, amongst which may be found the Baldwin, richly productive. The tree has been known to yield an almost fabulous quantity of fruit, and in the season for pruning its thrifty branches were carefully preserved, and liberally distributed to the neighboring farmers.

I have often heard my husband describe this intelligent and most hospitable family. Mr. Pearce was a sort of lord of the manor, to whom everybody came in time of trouble, and was sure of the best aid and advice. He was an eloquent converser, and recited admirably.

Some time in the early part of this century, the Countess of Rumford, daughter of Benjamin Thompson, visited her transatlantic cousins, and was for many months domesticated with the cheerful household. She was a plain, unmarried woman of great good sense, and somewhat learned.

It was the custom for New England teachers of public schools to "board round" with the families of the district until the amount each one was to pay the "master" was boarded out, and such experience was not always of the most agreeable kind. My husband kept the district school of Baldwin for several seasons, but was generally exempted from this contingency by being warmly welcomed at the Pearce homestead, whence he wrote comical rhyming letters to his friends describing the good cheer. One couplet I remember was thought very grotesque:

"We have apples, and doughnuts, and cider,
And curious things fried in a spider,"

the last-named being of course sausages, and the apples the favorite Baldwin.

Shortly before the demise of my husband he received a long letter from his unfailing friend Josiah Pearce, Jun., who had been a judge for many years, in which he thus refers to the family: "Baldwin has greatly changed since you were there. My sister Hannah, who is unmarried, lives at the homestead, and owns the house by division of the property, all the out-buildings, and one hundred acres of the farm. I oversee her business for her. All is still, where once had been so much harmless mirth and activity."

It may be remarked that George W. Pearce, brother to the judge, and son of the first-named Pearce, married a sister of the poet Longfellow. He gave very great promise of a brilliant career, having beauty, genius, and wealth, but died suddenly, while little more than twenty-five years of age. His widow has never since married.

PATCHOGUE, L. I., June 29th, 1872.

Vegetable Plants for the South.

BY PETER HENDERSON.

Every few days, during the summer months, I am written to by some of your readers in the Southern States, wanting to know how they can procure plants of celery, cabbage, cauliflower, etc., to plant so as to produce crops of these during the fall and winter months. Plants can easily be raised here at any season, from May to October, but the time that it is necessary to plant for the fall or winter crops in South Carolina or Louisiana (August and September), it is hardly practicable to ship with safety, particularly celery plants, for if packed more than three or four days (unless the weather is very favorable when set out), the chances are that many would die. To produce plants in these latitudes by seed sown in the ordinary methods, during the month of June, July, or August, rarely results in success, but an experiment in raising celery plants in which we have just been successful here this season, suggests that the same plan may be adopted in the Southern States. Our celery plants are always sown here from the

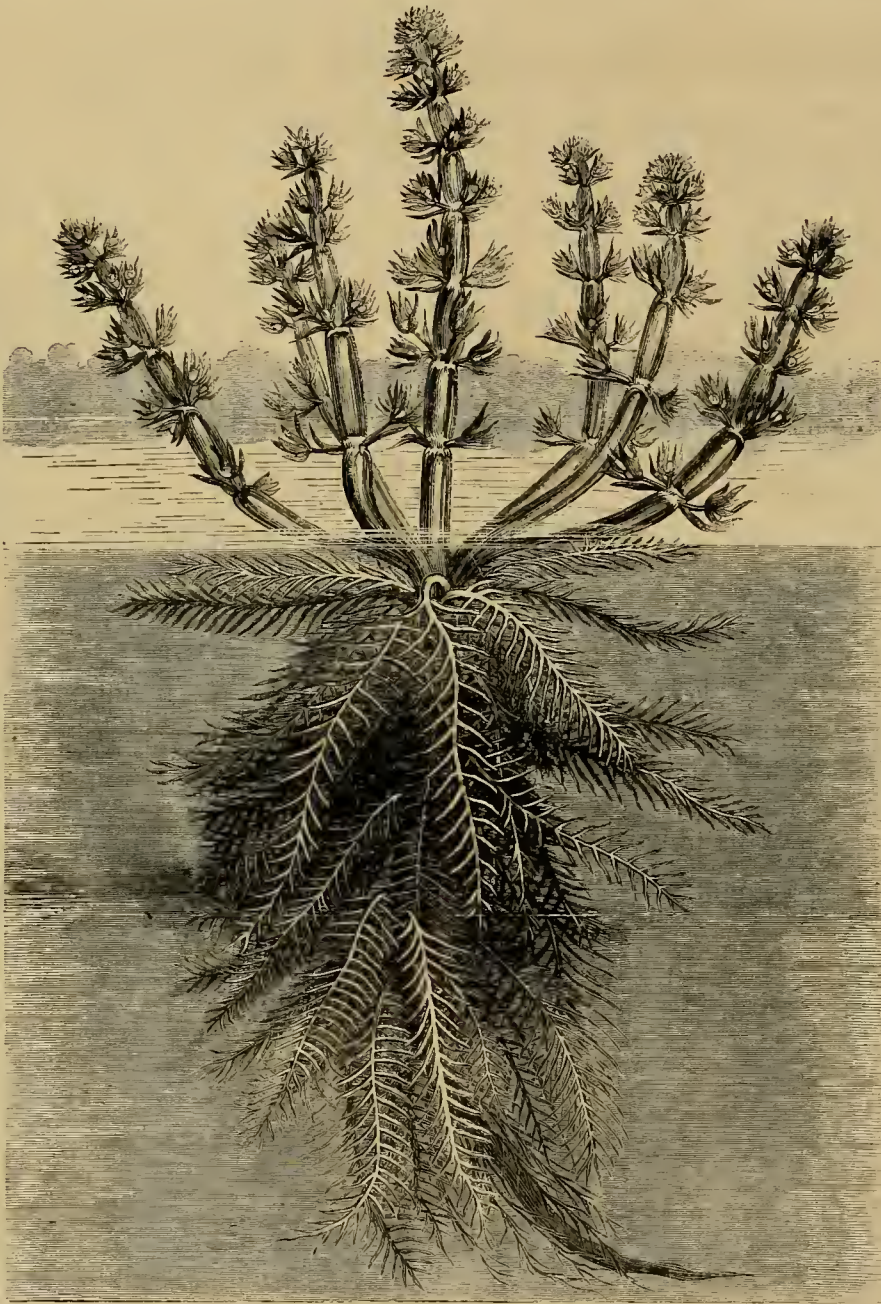
first week in April to the first week in May, but this season the weather was unusually hot and dry during May, so that our crop of celery plants sown April 15th was found, on examination the first week in June, to be a partial failure. I had never sown as late as this before, but plants must be had, and the experiment was worth trying. So we again sowed on well-prepared ground, rolled carefully, and covered the seed-bed an inch deep with salt-meadow hay. Of course, any similar covering will do, if salt-hay is not procurable. The seeds germinated in 6 or 8 days from time of sowing. As soon as this was apparent, the covering was partially removed, and in two or three days more further removed, except just enough to cover the soil, so that the bed got the full rays of the sun, yet modified by the sprinkling of hay over its surface. The advantage of the hay-covering is twofold; it prevents heavy rains from battering the soil, and it also prevents the escape of moisture. Our experiment has been a complete success, as we have more plants from one pound of seed sown in June than from four pounds sown in April, though under the ordinary conditions the opposite result might have been the case. Now, plants of celery, cabbage, or cauliflower can no doubt be successfully raised by this plan in the Southern States, when the ordinary method of sowing without covering with hay would be almost certain to fail. Where hay is not procurable for covering, an excellent substitute would be the pendulous moss (*Tillandsia*) which grows so abundantly in the woods of most of the Southern States. It is difficult to say at what time the sowing should be made, as much would depend on locality and the condition of the atmosphere

after sowing. So the safest way would be to sow at different times, say from June 15th to August 15th. The result, if successful, would well justify the trouble and expense, as all these vegetables, from the hitherto difficulty of getting plants to set out, have brought enormous prices, celery often selling in the markets of New Orleans and Charleston for 25 cents per head, while the average in New York is hardly 3 cents. There is no reason, either, why cauliflowers could not be grown finely in the mild, temperate atmosphere of November and December in Charleston or Savannah, and shipped to New York. The transportation at that cool season would be safe, and during the month of December it is safe to say that average heads of cauli-

flower would sell for \$30 or \$40 per 100 in the markets of New York. I saw some in the grounds of Mr. Van Sicklen, of Jamaica, L. I., in November of 1870 (which he had protected from the frost), for which he was receiving \$10 per dozen, or nearly \$1 each! There is a wide field in the South for enterprises of this kind, if energetically undertaken. All cultivation so

The Water-Violet or Featherfoil.

In illustrating as we frequently do our native plants, we sometimes select those subjects that it is desirable to introduce into cultivation, and at others plants that are interesting for their rarity or curious in their structure. The Water-Violet or Featherfoil, *Hottonia inflata*, is rather rare, and has a structure sufficiently peculiar to commend it to notice. The name Water-Violet is likely to mislead, as its relationship to the Violet is exceedingly remote, it really belonging to the Primrose Family. The plant, as will be seen by the engraving, is purely an aquatic, with its leaves all submerged, and very handsomely divided. It is no doubt rooted when young in the mud at the bottom of the pond or pool in which it grows, but at flowering time it appears to be floating. The flower-stalks form a symmetrical cluster; each is marked with joints, from which arise whorls of small white or slightly bluish flowers. The flower-stems are hollow and inflated, enabling the plant to float; they sometimes are as large as one's finger, and give the plant a striking appearance. It makes an interesting plant for a fresh-water aquarium. The genus *Hottonia* was named in honor of a Leyden botanist of the seventeenth century. The specific name of our species, *inflata*, has reference to the peculiar character of the flower-stems. In Europe another species, *H. palustris*, has much more showy flowers than ours, but is without the peculiar bladderly flower-stems. Our specimens came from a pool near Hackensack, N. J. Although the plant has been so long known to botanists, we believe that no engraving of it was ever published before the one which we give accompanying this article.



THE WATER-VIOLET.—(*Hottonia inflata*.)

far has been with a view to get vegetables early, but in my opinion they might be raised in many instances to better advantage, if grown to fill up the blank in vegetation that our frost-bound earth at the North makes during the winter months.

For example, spinach sold here the past March for a few weeks at \$20, horseradish at \$30, and lettuce at \$10 per barrel, simply for the reason that everything was frozen up solid. Now there is no reason why these—particularly spinach and lettuce—could not have been grown in as good condition in the neighborhood of Charleston or Savannah in March as they could be raised here in June, when we are abundantly glad to get from \$1 to \$2 per barrel for them.

ROSES ON APPLE-TREES.—"G. H. C.," Benson, Ky.—The case to which you refer is of frequent occurrence. Certain papers seem to have a set of items that they bring out every year. The old negro woman who was nurse to Washington, the toad found in the center of the oak-tree, and the wonderful apple-tree that bears double roses—all belong to the same set. It is not at all a rare thing for apple-trees, especially the Early Harvest, to bear a few late flowers which are more or less double. The apple belongs to the same family with the rose, and when its flower becomes double it very strongly resembles a small rose.

THE HOUSEHOLD.

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

Barefoot Boys,

And girls, too! There is something to be said on both sides. Some people have an unreasonable prejudice against bare feet, except in poems, pictures, and statuary.

Is anything in nature much more beautiful than a baby's soft pinky foot? Of course not. And here is Miss Two-year-old sweetly pleading, "May I go bare-footed 'till 'hile?" when you give her a bath and clean clothes in the afternoon.

Say "yes" to the little darling. Her "while" will be little enough, for the soft feet are as tender as a maiden's cheek, and she will be glad enough of shoes and stockings very soon. How daintily she steps, and the working of her curly toes shows how they rejoice in their freedom! When she goes out of doors she chooses soft grass or soft mud to walk upon. The heroine of Jean Ingelow's story is none too extravagant in speaking of the delightful sensation little feet have when set free upon soft grass, but who shall describe the pleasure of paddling in the mud on a warm summer day?

The barefoot school-boy knows all about it. His is a tough foot. He probably makes some involuntary choice of stepping-places as he runs like a free wild animal over weedy roadsides, pavements, chip-yards, stubble-fields, but it is a wonder that he gets so few cuts and stone-bruises.

The country school-ma'am prefers to have her pupils come with bare feet—unless she has a good deal of conventional pride in their appearance. The restless lads and lassies make noise enough with their buzzing lips and their shuffling of books and slates, but on rainy days, when many of the children come in their heavy leather shoes and boots, the added noise of their scraping and stamping makes the day's work almost doubly wearisome.

I like to see the bare feet of young Americans, even when they are scratched and muddy. The outlines are as good in flesh as in marble. I believe in letting children go barefoot in the country during the warm weather. But this is often carried too far. I believe the vital power of children is often weakened by too much exposure of the feet to cold. The barefoot country children are likely to be healthy because they live out of doors almost constantly, except when confined in school-rooms, and in summer these school-rooms have every window opened for fresh breezes.

But if children have their own way they get off their shoes and stockings too early in the spring, and thus often change directly from thick shoes and woolen stockings to bare feet. In chilly mornings and evenings the little unclad feet go through the heavy dews, and then they have to be washed, often in cold well or spring water, before they are fit to rest between white sheets.

Cold foot-baths are good in their place, but some children get far too many. They wade in the streams and ponds too often and too long at a time. It undermines their constitutional vigor, and makes them an easy prey to disease. Upon the temperature of the feet the general health in very large measure depends. The blood in different parts of the body is affected by the condition of the feet. If they are not sufficiently protected from cold, it is unduly cooled in its passage through the capillaries of the feet. If they are overheated, the whole system will be refreshed by reducing the heat of the feet to a comfortable temperature.

Ask any wise physician of your acquaintance (if your own experience or observation has not taught you) whether bathing in lakes and rivers (or "going in swimming," as country boys say) and wading in shallow streams are not usually practiced too much by boys who like such things—whether it does not make them often grow thin and languid during the summer months.

Then let the children have the blessed freedom

and delight of bare feet on warm days, but guard them from injuries that may result from improper exposure of the feet.

RELL.

Home Topics.

BY FAITH ROCHESTER.

AT SCHOOL TOO YOUNG.—I know a mother whose three youngest children are aged respectively four years, two years, and seven or eight months. The mother is loving and intelligent, and has health as good as that of the average American woman. No human being, not even a mother, is infinite in capacity to do and endure. The oldest child needs as constant looking after as either of the others, especially because he is so much tempted to tyrannize over the second child. And so

"To school the little exile goes,
Torn from his mother's arms."

I don't know as this mother can do any better—but isn't it a pity? She says she would much prefer a kindergarten, but there is none within reach, and so the ordinary district school is resorted to. Perhaps the school-ma'am will have mercy on the little fellow, and let him play out of doors most of the time during school hours. I used to do so with the babies sent to me when I was a district school-teacher, and I am glad I did.

I can understand that a relief to hard-working mothers it must be to get their mischievous, inquisitive children off to school for six hours every day, provided they can feel that such a course is best for the children. And it is sometimes the case that the country school-teacher has so few pupils that she can afford to act the part of nurse to four-year-old children. A school not far from here has only eight or ten pupils in the summer-time; and I remember that my first school would not have averaged a larger attendance, except for the little class of A-B-C scholars.

The danger is that the teacher will feel called upon to put the little ones ahead in reading as fast as possible. If she has read Miss Peabody's and Mrs. Mann's and Miss Youmans's essays and letters about primary education, and has duly considered that remark of a British Commoner, "It is better (or more important) that a child should like his lesson than that he should learn it," she may be able to do the fair thing by her infant pupils. Play is the proper business of a child. Its five senses should be awake and active, and its education should come through them chiefly until it is seven or eight years old.

I anticipate great pleasure in seeing my little son enjoy his reading when he gets to that, but his father and I congratulate ourselves very often on having delayed that event so long. So much better things are being done for him than would be likely to be done if he could immerse himself in a story at any leisure moment. There is time enough for the book study in the course of a lifetime, but the golden years when the observing faculties are developing and taking on habits can never come again after early childhood is once passed. This child learned all his letters long ago, from newspaper headings and advertisements chiefly, and we were tempted to lead him right along in a path that seemed so easy for him. I should think he might "read in readings," after a very little practice, any time when we set about it, for he knows the letters by their sounds, and spells any plain word you pronounce to him. He seems to have an idea that what papa and mamma can not tell him about the things which arouse his curiosity, books can; and he stands by while I consult a book to find an answer to his question with a feeling, apparently, that this universe is full of wonderful things, in which a great many folks besides himself and mamma are interested, and these folks—Gray, Youmans, Agassiz, and the rest of them—will help a little fellow if they can. It is a sight that I enjoy. He "likes his lesson," and his *liking* will lead him on farther and deeper in the pursuit of knowledge. Almost any child can be made to hate school and to loathe the study by tasks inappropriate to its stage of mental growth. This would be a great calamity.

It would also be a calamity if a child should love reading and spelling too well, too mechanically, enjoying the parrot-like exercises that constitute the routine of many schools, preferring to commit to memory some description of a bird or flower or mechanical operation, rather than to use its own observation and learn all the facts at first-hand. Let me quote a paragraph from that excellent essay on primary education in Miss Youmans's First Book of Botany:

"The glaring deficiency of our popular systems of instruction is, that words are not subordinated to their real purposes, but are permitted to usurp that supreme attention which should be given to the formation of ideas by the study of things. It is at this point that true mental growth is checked, and the minds of children are switched off from the main line of natural development into a course of artificial acquisition, in which the semblance of knowledge takes the place of the reality of knowledge. We have seen that the growth of mind results from the exercise of its powers upon the direct objects of experience, and consists in its recognition of distinctions among the properties and relations of things, and in the classing and organization of ideas thus acquired. These operations can be facilitated by the use of words and books, but only when the ideas themselves are first clearly conceived as the accurate representations of things. But, the ordinary word-studies of our schools, which are truly designed to assist these operations, are actually made to *exclude* them. The child glides into the habit of accepting words for ideas, and thus evades those mental actions which are only to be performed upon the ideas themselves."

A child is old enough to go into a kindergarten at three years of age, because the training it gets there (I mean the genuine Froebel kindergarten) is in the line of its natural development. It has play, society, and discipline all at the same time.

An acquaintance says he means to send his little son to Germany as soon as he is ten years old to some good kindergarten there. He thinks the child could not leave his parents earlier, but he must have the kindergarten training. But you see it can not be the real kindergarten training at that age. For Froebel's "plays" are adapted to the mental necessities of children several years younger. It is good training for a child of any age, but the mind of a child of ten may be already so demoralized by wrong education, that it can get but a small part of the good intended.

JAM AND JELLY.—The fruit that comes from the vines or canes latest in the season makes the poorest jelly. If currants hang long upon the bushes, they lose most of their jelly-making property. They need to be used as soon as possible after gathering. One who desires clear, fine-flavored jelly will not squeeze the jelly-bag if it be of loose material. Fine flannel is best for this purpose, and when this is used some pressure is allowable; but we wish to strain the juice not only free from stems, skins, and seeds, but free from all fine particles.

Sister M., who makes excellent raspberry-jam, and a good deal of it every year, gives me the following recipe as the one she prefers: "One pound of sugar to each pound of berries, and nearly a pint of currant juice. Put the sugar and berries together in a pan over the fire, and with potato-masher or wooden spoon keep mashing and stirring them constantly to prevent burning. When they are well mashed, add the currant-juice, and boil briskly still stirring it carefully. Just before it actually boils skim it well. Let it boil about three quarters of an hour to bring it to the right consistency. It is best to put it up in cups, bowls, or fruit-jars; it does not keep so well after being disturbed. Cover the cups with firm paper varnished with white of egg, and pressed closely around over the edges of the cups. Jam should be kept in cool dry place." Sister adds, in her letter to me: "This is splendid as dessert with Graham meal and sweet cream."

A TOUGH OLD TURKEY.—In the same letter from

which I extract the above recipe, I find something else which may furnish a hint to some one who has a tough fowl to cook:

"There were three turkeys on the place when we came here, also half a dozen hens and a rooster. The gobbler persisted in fighting the rooster, and one day C. thought to separate them by catching the gobbler. J. was using the ax near by, and after a brief consultation the old fighter's head separated from his body. All this was duly reported indoors. Mother and I took him in hand, and gained two nice wings, which are very handy in the kitchen. We soon stripped him of his feathers. He looked pretty tough. He was large, but not fatted to kill, and I thought we should all get tired of turkey before we should get him eaten, if ever he could be cooked tender. After breakfast next morning I put over the wash-boiler with a pail of water, and when it came to a boil laid in the turkey." [Better not tell this to our esteemed countryman "T. W. H.," for I see he does not know that a tin wash-boiler can be made clean enough even for fish-chowder.]

"Just then I weighed him. Sixteen pounds said the scales. For two hours he boiled and steamed. I made ready some bread-and-butter stuffing, moistening it with the water in which the turkey had been boiled, and then baked it two hours more. It made a fine appearance on the table, and six of us did our duty by him at dinner, the children being at school. For the next three days we had turkey once a day, and to-day we had a good 'chicken-pie' of the fragments, with enough left from it for washing-day dinner, for we are not tired of turkey yet."

BABIES TROUBLED WITH CONSTIPATION.—A mother writes to me about her baby, four months old, who has been troubled with constipation for a month past so that she has to give it daily injections. Change its diet. You need not wean it yet, but begin feeding it Graham gruel seasoned with milk. When it is time to nurse it, feed it as much of the gruel as it is inclined to take. It will not take much at first, but that little will very soon correct its bowels. I had the same experience with my youngest nestling. The water injections kept her in health, but I soon saw that her bowels were depending upon that assistance too much, and I tried the gruel with speedy success. I sifted out the coarsest part of the bran with a very coarse sieve, but now I usually take the whole meal, and do not find it too coarse for her. She is very jolly over her gruel. I thin it with considerable milk, but never add sugar, and seldom use salt in it.

Habitual constipation is a result and a cause of disease. The habit can never be overcome by physic. Careful habits in respect to exercise, rest, cleanliness, pure air, and especially wholesome diet, are the reasonable methods of cure. All these things should be carefully looked after in baby's case.

If unsifted Graham seems to irritate the child's bowels, sift the meal. It is still quite different from common fine flour.

[The types made me say in June: "In this region kind household helpers are very difficult to get." It should have been "hired household helpers." Kindness is no more scarce in Minnesota than elsewhere. It is almost impossible to hire a girl at all—one at least who would really be a helper.]

Another Way to Cook Egg-Plants.

BY MRS. G. A. W. M., TRENTON, N. J.

In your March number of the *Agriculturist* I noticed a short article headed "Cooking the Egg-Plant." Now, of the three ways there given, the first in my estimation is the best; but they need a slow fire and cooking thoroughly. Many persons do not like the taste of egg-plants, simply for the reason that they are not cooked enough or not prepared right. Our family prefer them to meat on a hot summer's day, provided mother cooks them in her old-fashioned way—the way I used to cook them when I was a little maiden at home with my

parents. Now I am at the head of my own little family, and I still think I must be at the head of egg-plants when they are being cooked. No one can get them "just as mother does;" either too much flour or not enough spoils them—they want to be "just so."

I take a large-sized egg-plant, leave the stem and skin on, and boil it in a porcelain kettle until very soft, just so you can get it out with the aid of a fork and spoon. Then take all the skin off, and mash it very fine in a bowl (not tin or earthen). Add a teaspoonful of salt, plenty of pepper, a large iron spoonful of flour (when it is cold), a half-teaspoonful of milk or cream, and three eggs. This forms a nice batter. Now have some butter and lard brown-hot, and drop the batter in with a spoon, as you would fritters, and brown them nicely each side.

My husband would not taste egg-plants before we were married; now he and the children can hardly get enough. Girls should learn the different modes of cooking while they are at their fathers' homes. Alas! too many in these days are brought up young ladies for the parlor, but let them get married, and go into the kitchen to give their orders to Biddy for dinner, and what do they know themselves? Do they know how to tell her to cook such and such dishes? No, no! Sorry I am for the poor husbands of such wives, but you see them every day. I shall instruct all my daughters well in housekeeping, and have the graceful accomplishments come afterwards.

Squash or mashed potatoes mixed the same as the egg-plants are nice fried for breakfast.

Best Way to Prepare Salt-Fish Dinners.

By Mrs. W.

Cut the fish in rather small pieces, wash it thoroughly in warm water, and leave it in cold water over night. Early in the morning remove the skin from the pieces, wash again, and put them in cold water over a fire, and let come very gradually to a boil. Then remove the vessel farther back on the stove, and let it remain at an almost boiling point. Actual boiling hardens the fish. Change the water once during the process, adding hot water; keep it at the same temperature, letting it boil only once for a few minutes when nearly done. While the fish is cooking, pare nicely as many potatoes as necessary, removing carefully every imperfection from the surface, and put them as fast as pared into cold water, with a little salt in it.

Boil in separate utensils small onions, beets, or parsnips if in season. Put the potatoes into boiling water half an hour before dinner-time, add a little salt to the water, and do not let them remain covered after they are fairly boiling. While the vegetables are cooking, remove the fish from the water, carefully take out every bone, and with a sharp chopping-knife mince the fish to an even fineness throughout, then put it into a deep dish, add to it half a cupful of hot water with a little butter melted in it, cover closely, and place in a hot oven until dinner is ready. Prepare drawn butter for sauce, being careful not to let the butter boil, as it will become oily. Boil eggs hard, if they are liked. Some persons prefer the eggs added to the melted butter, cut in circles; others add them to the fish as they prepare it on their plates. When the potatoes are just done (not too soft), pour off the water, take the kettle on an open door (where the wind is blowing) and mash with a wooden pestle.

Replace the kettle on the fire, and do not cover it. The potatoes will keep hot and nice for one or two hours, if necessary. When dinner is served, place the dish of fish and the hot potato on the table the last things. For dessert after a fish-dinner a deep apple-pie without an under-crust is most suitable, or ripe apples, if in season, are better still.

If those who dislike fish-dinners because they are troublesome in the preparation, and doubly so in the serving at table, especially where there are children to be served, will try this way, they will find there is no trouble or annoyance at table, as

all is hot and easily served, and it becomes a dinner desired by all members of the family.

Domestic Coloring.

A lady, whose address we have mislaid, sends the following: "Some one has asked about coloring. Here is a recipe to color orange: Take copperas a half-pound, and two large heaping spoonfuls of salsoda. Dissolve in two separate dishes of warm water. Wring the material out of the copperas solution, and then through the soda, and hang it out to air. Let it air a short time, then wring again as before, until the cloth has passed through the liquids three times. It will make cotton cloth very bright if done in a sunny day. This colors several pounds.

"The bark of the common yellow willow, set with copperas, and colored in an iron vessel, makes a permanent slate color on cotton. It is very useful for coloring linings, cotton stockings, etc."

Washing by Dog-Power.

BY MRS. E. J. JOHNS, DYBERRY, PA.

I have been reading in the February number of the *Agriculturist* about "How we Live at our House," and I thought I would write you how we wash at our house. You advertise Doty's Washing Machine, but you do not tell your readers that it can be made to run by dog-power. I have Doty's washer, and also a churning machine, and when I wash I attach the handle of the washer to the churning machine by a pitman. My husband says it works like a saw-mill, but suffice it to say the dog does the work. The difficulty with the washer is, it is hard work to operate it by hand, so hired help say. By using the dog this labor is done away with. I wash my clothes in boiling-hot suds, and they look white, even if they are washed by a black dog. I can do a washing for a family of seven in two hours or less. I write this in hopes it may reach some weakly woman who has a large family, and finds it difficult to get along with her work.

VASES OF FLOWERS.—What horrid things some of the florists do give us in the way of bouquets! They pack the dear little flowers so close together, such crowds of sweet faces massed, that you can not half-enjoy any of them. I should think that any one who really loves a flower would do it better justice. Each fine blossom or cluster of blossoms ought to have some quiet background, to set it forth. Green foliage, in delicate sprays or handsome leaves, is according to nature's general plan.

I remember the exquisite little floral ornaments in that pleasant sitting-room of the B.'s. Shells of various kinds were made to do duty as vases, here a few geranium-leaves, with rosebuds or pansies in a shell turned up, so as to hold water enough to preserve the flowers, and there a cluster of sweet-pea blossoms, with foliage of some light, graceful character.

One handsome lily, with leaves, is often quite enough for a flower-vase. I was not more than half a score of years old when I saw two vases of flowers on a mantel, which pleased me better than anything I had ever seen before, and their memory is still pleasing through all the years since that time. The vases were tall, old-fashioned wide-glasses, and the flowers were only nasturtiums, a spray in each, with their brilliant flowers, odd-looking leaves, and smooth, curling stems.

We want some large, wide-mouthed vases and some big bouquets when flowers are plenty. Some large vases we must have for the children to fill.

Some flowers have such short stems that they can not be managed in bouquets without they are furnished with artificial stems of wire or straw. Hollyhocks and Balsams are of this kind. The best way to arrange these is in a plate of clean wet sand. Use plenty of ferns or green leaves with the flowers.

R. L. F.

BOYS & GIRLS' COLUMNS.

The Doctor has a Word to Say.

My Dear Children: Since those last prizes were awarded, I have been too ill to attend to any business. Now I do not wish any of you to whom prizes were awarded to think that I have neglected you, and I hope that if any boy or girl has been overlooked, he or she will let me know at once. I always try to send such things very promptly, but what can one do flat on his back with fever? So be patient, my dear little ones. We will have more prizes when the weather gets cooler, and I will try that there shall hereafter be no delay on my part.

THE DOCTOR.

The Little Swiss.

ONE OF THE PICTURE STORIES.

[All the boys and girls saw the pictures in the March number, and the offer of prizes for the best stories suggested by them. The award of prizes was made in June. Several have written to ask me to publish some of the prize stories. I will comply so far as to publish what I, or rather we, thought the best of those written by the boys. I say "we," because there always is a family council over these prize matters. The council consists of Annt Sarah—to her face we call her by the more home-like name of Aunt Sally—the "young Doctor," and the old fellow himself. After reading and re-reading, we all three concluded that this story, by Cyrus D. Chapman, of Irvington, N. J., showed more originality than any other, and we gave him the first prize.—THE DOCTOR.]

Far away, many hundreds of miles from this country, among the grand and beautiful Alps of Switzerland, lives a little Swiss boy. His name we will call Guillimot. His mother lives in a little cot at the foot of the Alps. Little Guillimot's father is dead. His mother supports herself and little boy by selling milk in the Swiss village some two miles from their cottage. Their goats always furnish a good supply—enough for themselves and their customers in the village.

Guillimot was a very thoughtful boy, and one bright summer's day he put on his thinking-cap, that he might find something to do by which he could help his mother and lighten her labors, for his mother was very poor, and she got very tired carrying the milk so far. All at once a thought popped into his head. He had five pretty hens, which were given to him by his grandmother. They laid him three eggs every day, so he thought he would take his eggs (he had three dozen now) to the village. It was a pretty long walk, for he was only six years old, but he was healthy and strong. So he got his little basket, and putting his eggs into it, started off on his journey (for it was a journey to him), with his faithful little dog trotting along before him. By and by he came to a little mountain brook that ran merrily over the pebbles on its way to the lake of Geneva. Guillimot sat down on a stone to rest, for he was getting tired, and putting his feet into the water was soon refreshed, and resumed his journey, arriving safely at the village, where he had been once before with his mother. He found a ready sale for his eggs, and returned to the mountain cot feeling very proud and rich, with fifty cents held tightly in his hand, and sitting down on the door-steps, quite tired out, dropped asleep with his head pillowed against his faithful little dog, who sat very still, lest he should awaken his little master.

As Guillimot slept, he had this most wonderful dream: A beautiful little being, clothed in the finest dress, made from the wings of flies, appeared before him. Little Guillimot looked with surprise and wonder. He knew it must be a fairy, for his grandmother told him about the fairies that used to live in the valleys long ago, so he was not frightened very much.

The fairy said in a voice of music: "I am the queen of the fairies; now, because you have been a good boy, I will give you whatever you wish."

Little Guillimot thought one minute, and then he said: "O good fairy! make me a big strong man, that I may help my mother, so she need not work so hard."

Instantly his wish was gratified, and Guillimot found himself a great strong man, able to do almost anything.

Just as he was preparing to go to work, somebody touched him lightly on the cheek, when he awoke, and starting up he saw his mother, looking very tired. Then he said: "O mamma! I had such a pretty dream. I wished I was a big strong man, so you need not work so hard, and a good fairy gave me my wish. I was just going to work for you, and now I am only a little boy. But, mamma, here are fifty pennies; I sold my thirty-six eggs for you, and if I can not be my mother's big man, I can be your little man."

The mother clasped her child to her bosom, thankful to God for such a good little boy.

Do as I Do.

This game, if properly managed, must be a very amusing one. The following account of it comes from Miss Mary A. Hutchings. A company of children sit in line. One, the leader, sitting in front, begins the game by moving the right hand up and down, and saying, "Massa sent me to you, sir." The first in line answers, "What for to do, sir?" The leader replies, "Do as I do." Question and replies are repeated until all have their right hands in motion.

2. The leader, moving both hands, asks the same questions, getting the same replies, until all have both hands in motion.

3. The leader lifts the right foot up and down until all have their right feet moving, meanwhile asking question and getting the same replies.

4. Leader moves the head, then opens and shuts the eyes, and lastly the mouth. By this time the scene is so ludicrous that all are unable to keep from laughing any longer, and the game is suddenly brought to a close.

Aunt Sue's Puzzle-Box.

DIAMOND PUZZLE.

The center letters—perpendicular and horizontal—will give the name of a man distinguished for virtue.

1. A consonant.
2. An oily substance.
3. Part of a house.
4. Rumor.
5. An ambassador who repudiated the presents of Pyrrhus.
6. Not clear.
7. A glass vessel.
8. A bird.
9. A consonant.

R. T. ISBESTER.

PI.

A tleffur petrem liwl ivedid
Het soleets ontk hatt yam eb diet,
Yb salescees harps socolnoes.

OTIS A. GAGE.



428. *Illustrated Rebus.*—An ornithological complot.



430. *Illustrated Rebus.*—The beginning of a popular song.

- ANAGRAMS.
1. O Pat! pies.
 2. Ida, let's put.
 3. I spite a sad son.
 4. Dnst up nose.
 5. I melt air, Sam.
 6. Silent sea.
 7. Set fiber.
 8. Set it duet.
 9. Lare dun, Dave.
 10. Ran in codes.

NUMERICAL ENIGMAS.

1. I am composed of 21 letters: My 15, 3, 12, 20, 14, 18, 3, is convenience of time. My 10, 11, 7, 13, 3, is a girl's name. My 21, 5, 2, 3, is a great destroyer. My 6, 9, 21, is an animal. My 13, 1, 19, 8, is a man mentioned in the Bible. (I never heard of a child being named after him.) My 17, 20, is a pronoun. My 16, 4, 19, 2, is to shave. My whole is much valued. SNICKER.
2. I am composed of 7 letters: My 1, 2, 4, is something that the young ladies wear, though they would not give it that name. My 6, 7, 5, is a number. My 3, 6, is a verb. My whole is a bird. BAYARD W. P.

COMPOUND ARITHMOREMS.

(Transpose the word in Italics, and add it to the Roman numeral to make the original word, e. g. "1000 and *tea*:—consumed every day."—Meal.)

1. 50 and *map*:—a household article.
2. 100 and *pea*:—geographical.
3. 50 and *beat*:—a piece of furniture.
4. 1000 and *teas*:—much used in factories.
5. 100 and *at*:—high.
6. 501 and *me*:—a coin. HARRY.

CROSS-WORD ENIGMA.

My first is in hatchet but not in ax.
My next is in hammer but not in tacks.
My third is in lie but not in untruth.
My fourth is in Clara but not in Rath.
My fifth is in wake but not in sleep.
My sixth is in hog but not in sheep.
My seventh is in boots but not in skates.
My whole is a city in the United States. W. E. W.

SQUARE WORDS.

1. Square the word "FATE." SCIENTIFIC.
2. Square the word "PLAN."

BLANKS.

(Fill the blanks with words pronounced alike but spelled differently.)

1. They do not _____ to accept him because he _____ tobaccn.
2. One of the soldiers belonging to the _____ threw the apple _____ away.
3. The lovely _____ was _____ by many.
4. The _____ was hung upon the _____ to dry.
5. In the _____ he intends to put all that he _____.

R. T. ISBESTER.

ANSWERS TO PUZZLES IN THE JUNE NUMBER.

RIDDLE.—MURMUR.

- ANAGRAMS.—1. Unwarrantableness. 2. Confederation. 3. Nomenclature. 4. Indefensible. 5. Indoctrinates. 6. Endorse. 7. Ineffable. 8. Flatteries. 9. Habituate. 10. Inchoate.

- ARITHMOREMS.—1. New York. 2. Boston. 3. Albany. 4. Saratoga. 5. Monkey. 6. Doctor. 7. Grant.

DIAMOND CROSS-PUZZLE.

A
A M O
I N E R T
A M E R I C A
S T I C K
I C E
A

— America.

- EQUIVOCAL WORDS.—1. Address. 2. Base. 3. Board. 4. Boot. 5. Brake.

NUMERICAL ENIGMA.—Washington.

Pr.—Be slow to promise and quick to perform.

AUNT SUE'S NOTICES TO CORRESPONDENTS.

F. C. R.—I am curious to know what you mean by sending such a ridiculous "square word." Each word must be perfect in itself, and not such rubbish as "CREAYE," "LUSYRE," "ESYEEM."

MARY VAN EMAN.—Answers must always accompany the puzzles sent to me for publication. I am glad the explanation assisted you.

KATIE.—Let us suppose you want to make a cross-word on your own name. Get your slate and write down five figures perpendicularly; then the letters of your name, then find words to suit. For instance, your first letter is K; well, K is in *dark* but not in *bite*; that will give you a good start. Now I will show you how to write them down:

1. K—bark—bite.
2. A—dark—light.
3. T—cat—dog.
4. I—pig—hog.
5. E—sea—foam.



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THE LITTLE FISHERMAN.—DRAWN BY CARY.—Engraved for the American Agriculturist.

It will be easy enough to fill in the other words:—

“My first is in bark but not in bite.

My next is in dark but not in light.”

Then you can finish with:—

“My fifth is in sea but not in foam;

And my whole is the name that they call me at home.”

Now do you know “how to work those cross-words”?

L. T.—I am afraid if I gave you their names and address you might write to them, and set them a bad example in spelling, grammar, and politeness. If I should publish your letter just as you wrote it, I think you would be rather “a shamed of it” yourself.

L. A. Des B.—I will publish your “enigma” in the *Agriculturist*; it is “against the rules” to allow the same puzzle to appear in this paper and in *Hearth and Home*. The rhus is too simple and palpable. But thanks for your trouble in sending them. The “conundrum” is very old but very good.

Thanks for puzzles, letters, etc., to Katie, M. Van E., Phiz, Laura V. M., James T. II., and Robt. W. M.

Going A-Fishing.

We suppose that it is as natural for boys to go a-fishing as it is for them to eat; and if there is anything that comes easier to boys than eating, we should like to know what it is. If a boy lives anywhere near a stream or pool of water, be it fresh or salt, and if there be any finny inhabitant of that water, be it minnow or pickerel, the boy will have a try at it. He will go a-fishing whether he catches anything or not. Our youngster in the picture

looks altogether too much dressed to make a successful fisherman. He is probably the son of some city parents who have gone to the country for the summer, and he is trying his luck in a half don't-care way, that makes us think that, whatever present success has attended his efforts, he will never make a fisherman. If one would catch fish he must give his mind to it, and exercise all his ingenuity. This is what makes us approve of allowing boys to go a-fishing; they learn that to accomplish a certain end—the catching of fish—they have got to think. They must, in the first place, know the habits of the fish they are after, whether they are to be caught at the bottom with dead bait, or near the surface with what appears to be a live bait. They must learn enough of the habits of the fish to know upon what they feed, and what part of the stream they frequent, the time of day they feed, and many other things that teach them a great deal of the history of fishes. Some fishes can only be caught in deep water, others hide in holes along the banks and at certain times come out to feed, and others can only be caught by presenting to them what appears to be a living insect. It is not rare to see two boys, or men, fishing together, and one will take a plenty of fish, while the other catches none at all. They will tell you that it is a difference in luck, but the real fact is, that the successful one knows or has accidentally hit upon the habits of the fish. A few inches more of line below the float, or a little different arrangement of the sucker, will make all the difference between “luck” and “no luck.” The successful fisherman or fisherboy must learn the ways of the fish. One outfit of the fisherboy is more important than silk lines, improved floats, gut snoods, or even “silver-spin-

ners.” Do you wish to know what it is? It is a very home-made article, but it is better than all the fancy artificial flies, better than lancewood rods and multiplying reels—it is the good old-fashioned virtue, *patience*. There is an old saying, “If you swear, you will catch no fish.” Now we don't believe that any of our youngsters would swear on any account, fish or no fish, but there is a kind of impatience which in persons who know no better finds vent in swearing, and in others in rude acts, which, if not so wicked, are almost as improper as swearing. *Patience* should be the ever-present motto of the fisherman, and it is really the great lesson taught by fishing. If you have no luck—patience. If your hook gets caught by a snaken tree—patience. Are you fishing with a friend and your lines get apparently hopelessly tangled, only that good old-fashioned patience will help you out of the scrape. So, then, we like to have our boys go a-fishing, if they will take to it the right way, and accept all the lessons that it will teach them. It will give them abundant opportunities to control themselves—the worst thing they will ever have to control—and to learn the value of patience. Some parents do not like to have their children catch fish, because it seems cruel. Naturalists tell us that the fish, when he comes from the water into the air, experiences the same sensations that a land animal does when put into the water. Those who have been restored after being apparently drowned, say that the sensation of drowning is a pleasant one, and we may infer that the fish, when taken from the water, experiences no pain. Fish were evidently made to be eaten, and if we exercise no unnecessary cruelty in capturing them, we need not fear that we are doing wrong.

CINCINNATI National Industrial Exposition.

THE BOARD OF COMMISSIONERS ANNOUNCE THAT THE

THIRD GRAND EXPOSITION

WILL BE OPEN FROM

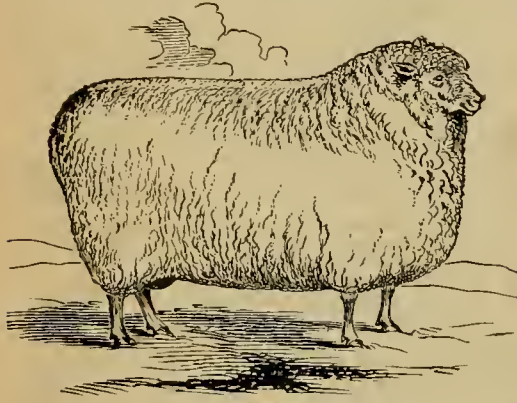
Sept. 4th to Oct. 5th, 1872. Goods will be received from Aug. 14th to 31st.

The Sixteen Grand Departments have been greatly extended, and the Exposition will be the

LARGEST EVER HELD IN AMERICA.

The extensive transportation arrangements for visitors will largely increase the unprecedented attendance of last year.

Exhibitors should make immediate application for space. Rules and Premium List furnished on application.



IMPORTED COTSWOLD RAM, "DIAMOND FLEECE,"

Imported, owned, and used by M. H. COCHRANE, Esq., of Canada, for two seasons; now owned and used at the

"LINDEN GROVE STOCK FARM."

I am now prepared to book orders, and fill in rotation, Spring Buck and Ewe Lambs, also a few Yearling Bucks and Ewes, all sired by Imported "Diamond Fleece," out of Imported Ewes, amongst which is a pen of yearlings which received first prize at the Royal Agricultural Society, at Oxford, England, 1870. "D. F." clipped 18 lbs. of clean washed wool—twelve months' growth. Address

T. S. COOPER (Linden Grove Stock Farm),
Coopersburgh, Lehigh Co., Pa.

ESSEX PIGS.

For crossing with common sows or with the large breeds, there is nothing superior to a highly refined thorough-bred Essex. Read the following:

HANNIBAL, Mo., December 23d, 1871.

The Essex pig I received from you has grown finely, and given perfect satisfaction. I have this fall slaughtered four grade Essex that averaged 303 lbs. each. One weighed 325 lbs. alive, and dressed 280 lbs., making 56 2-13 per cent of his live weight. They were eight months and eight days old the day they were slaughtered.

JAMES C. ASHMORE.

CLARESVILLE, OHIO, Jan. 15th, 1872.

The Essex pig I got from you is growing finely, and I am well pleased with him.

W. CLIMER.

MONMOUTH, ILL.

The Essex sow I got from you is doing splendidly. She is admired by all who see her. I think she is the handsomest pig I ever saw—and I have seen a great many.

IRVINE MCCARTNEY.

ARCADIA, N. Y., May 10th, 1872.

The Essex pig arrived safe and in good order, and I am well pleased with him. He is all that I anticipated.

L. J. BENTON.

AUSTIN, TEXAS, Feb. 6th, 1872.

The pigs arrived yesterday, and look remarkably well. To say that I am thoroughly pleased is scarce enough. I am more than pleased, and you have my thanks for giving me more than my money's worth. I have two Scotchmen in my employ who were in ecstasies over them (for Scotchmen). I would not take \$150 for the pair of pigs.

R. R. TOWNSEND.

I am breeding Essex pigs with great care, and selling them at reasonable rates. They give good satisfaction. Orders promptly attended to. Address

JOSEPH HARRIS,
Moreton Farm,
Rochester, N. Y.

THOROUGH - BRED STOCK.

Jersey Cows, Heifers, and young Bulls.
Ayrshire Cows, Heifers and young Bulls.
Guernsey Bull, 2 yrs. old, very fine.
Cotswold Sheep. The famous "Maple Shade Flock," as fine as any in the country. Rams, Ewes, and Lambs.
Berkshire Pigs, of the very best blood.
Essex Pigs, as good as can be found in this country or any other.
Perfect pedigrees given with all thorough-bred stock, which may be seen at my farm (Hardsdale), Florence, Mass. Send communications to

L. A. CHASE,
245 Broadway, New York.

TWO GOLD MEDALS

THE BEST IN AMERICA

Hardee's Premium Railway Horse Power and Thresher and Cleaner, received, **THE FIRST PRIZE** At Great National Trial, at Auburn, N. Y.

For "Slow and easy movement of horses, 15 rods less than 1 1/2 miles per hour. Mechanical Construction of the very best kind, thorough and conscientious workmanship and material in every place, nothing slighted. excellent work, &c." as shown by official Report of Judges. Threshers, Separators, Fanning Mills, Wood Saws, Seed Sowers and Planters, all of the best in Market. Catalogue with price, full information, and Judge's Report of Auburn Trial sent free. Address
MILNARD HARRIS,
Cobleskill, Schoharie Co., N. Y.

AWARDED THIS MACHINE

HORSE-POWERS, Threshing & Sawing Machines,

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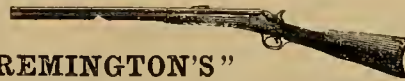
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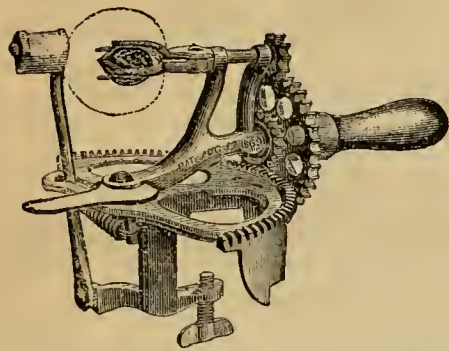
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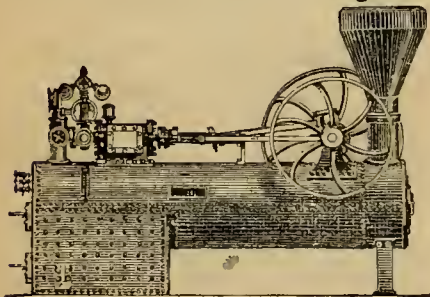
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See October number, page 596, also the Premium-List, page 393, of the Am. Agriculturist. This paper never deceives the farmers. See notice in February number, page 45. Try one. If it don't do the work claimed, send it back and get your money, as we warrant our pumps to do all we claim for them on our circulars.

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King's sale of stock at Minneapolis, thorough-bred Ayrshire bulls sold for \$63 and cows at \$123. . . . Thomas Jackson, Chautauqua Co., N. Y., made \$73 pounds of butter from 35 cows in seven days. . . . Hiram Thayer's cow (of Carroll, N. Y.) lately produced three calves at a birth, and all are doing well. . . . The farmers of Hannibal, Mo., get their fun by means of ox-races held weekly through the season. . . . Prairie-schooners still navigate the plains of Nebraska. The present summer large numbers of these emigrant wagons have been seen, mostly accompanied by more or less stock. . . . In Iowa, the average wealth of the State is \$601 for each individual. . . . Plowing up fall wheat in the spring has not been profitable in Kansas this season. Those who permitted their wheat to grow have gathered a much better harvest than they expected. . . . In Cowley Co., Kansas, a premium of \$5 is offered at the Agricultural Fair for the best baby. . . . At Ottumwa, Iowa, an Artesian well seventy feet deep discharges at the surface a stream of pure water equal to one gallon per second. . . . The Illinois farmers near Freeport are growing sugar-beets for a new sugar-factory lately established there, and are to be paid \$1.50 per ton for them. . . . In Illinois, on farms worth \$60 per acre, wheat costs 91 cts., corn 21 cents, oats 26 cents per bushel, and hay \$4.75 per ton. . . . The Campaign Co. (Ill.) Farmers' Club offers \$100 for the best thirty acres of corn raised this season in that county. . . . The sheep in California have doubled in number since 1869. There are now in that State eleven millions of them. . . . A man in Illinois has counted up the Canada thistles in that State, and finds they cover exactly ten thousand acres. . . . A New Hampshire farmer who soils his cows believes millet to be the most profitable fodder crop he can raise. . . . Plant walnuts and chestnuts; they are by far the most profitable trees for all uses a farmer can raise. . . . Hops are looking well in this country, but are not very promising in Europe. . . . Wisconsin raises more hops than any other State. . . . Osier-raising and basket-making is now becoming a favorite specialty with some farmers. . . . A farmer who can not make a good living on his farm, should hire out with a good farmer and learn how he does it. . . . Early Rose potatoes appeared in the Kansas market on June 8th. . . . The "Heathen Chinese" want 50,000 tons of our cheese every year after this. . . . A great deal of poor American cheese is sold in England for hog feed; so says an English paper; if so, why do our dairymen make such cheese, and such a reputation along with it. . . . Cistern-water may be kept free from insects and leaves by having a strainer of wire-gauze on the inlet pipe. . . . Chain-pumps and water-drawers serve to aerate the water of cisterns and improve its flavor for drinking purposes. . . . Horace Greeley has a lot at Greeley, Colorado, which he has caused to be planted with walnuts, chestnuts, and hickories successfully. It is now more than probable that all these nuts can be grown in Colorado, but Mr. Greeley's perseverance should have due credit. . . . Montana claims to have produced the largest crops of wheat ever harvested in any country; oats, rye, and barley yield bountifully, and all varieties of grass flourish surprisingly, while the crops of roots of all kinds produce enormously. . . . There are eighteen millions of fertile acres waiting for occupiers in Montana. . . . Minnesota is fourteen years old, and has a population of half a million; there is room for more yet. . . . In California they claim that fifteen sheep can be fed on an acre of alfalfa; their name for lucern. . . . At Bakersfield, Cal., an irrigating ditch, eight miles long, twenty-four feet wide, and three feet deep, was dug by a co-operative colony of farmers in six weeks. It waters sixteen thousand acres of land, and runs a grist-mill. . . . It costs \$10 per acre in Tulare Co., Cal., to prepare the land for a vineyard and plant the cuttings; at seven years old, the grapes will produce 1,000 gallons of juice per acre, worth \$300. . . . In Tulare Lake, Cal., the hogs wade out half a mile in shallow waters, and dig clams and mussels. . . . In an English agricultural paper, it is stated that "the wretchedest being under the canopy of heaven is an English agricultural laborer," which is stating the thing strongly certainly. . . . The Mark Lane Express, an English paper, says when cows are fed high the milk product increases, but it soon begins to decrease, and no amount of feed avails to keep up the quantity. . . . The root crop of England is being largely increased by steam cultivation, with the curious effect of increasing the production of brandy, which is made from the surplus potato crop; sixteen million bushels being thus used. . . . Steam-plows are used now quite largely in Germany, and it is said that the average of the crops of barley is already considerably increased by their use. . . . The system of summer-fallowing is now going out of use in England. The farmers, to pay their high rents, are obliged to keep more stock to make more manure, and keep their land in continual cultivation.

At a farmers' meeting at Durham, N. H., Mr. Bedou, of Fremont, said one load of fine manure at the surface was worth three loads covered nine inches deep; he uses 800 pounds of ground bone per acre when seeding down. . . . In Boston ripe timothy hay from Illinois has sold for \$26, and urine, or that from which the heads will not strip, at \$32 per ton. . . . In Pennsylvania the deep milk-pans have long been in general use, and experiments with shallow pans have shown that deep setting is far more profitable; the pans or crocks used are of the common red earthenware. . . . A pound of peat freshly dug contains fourteen ounces of water. A cord

of peat therefore contains only one eighth of its weight, or five hundred pounds of dry matter. . . . Vermont produces more beans than any other State. . . . A Massachusetts farmer made a profit of \$42.25 from a dozen light Brahma fowls last year; they consumed in that time 31 bushels of grain and 60 pounds of scraps. . . . The farmers of Rutland, Vt., lately tarred and feathered a peddler who had come on a swindling tour in that neighborhood. . . . Horace Greeley will deliver the address at the next State fair in Vermont. . . . Mr. Whitman, of Fitchburg, Mass., has imported five valuable Shorthorn heifers from a noted English herd, for the purpose of improving his own stock. . . . A Pennsylvania farmer has found the capital invested in draining to be returned every five years in the increase of his crops. . . . Dr. Warder, of Ohio, lately stated that he had planted some land in locust-timber fifteen years ago, and had sold last year from one acre 4,000 fence posts at twenty-five cents each, clearing \$1,000 from that acre. . . . Col. Sweet, of Paris, N. H., seven years ago put 150 bushels of ashes on an acre and a half of grass land, and has mowed an average of a ton and a half per acre every year since. . . . A farmer of South Hadley, Ct., is the owner of a sow two years and a half old, which has produced and brought to maturity forty-one pigs, and now has a litter of twenty, all doing well. . . . A turkey killed by Dr. O. Fisk, of Shelburne, Mass., even more than old, weighed twenty-one pounds. . . . A sandy farm in sometimes a valuable one; such a one at Red Bank, N. J., was lately sold to the United States Government for \$25,000 on account of the immense quantity of sand it contained.

Henry Dow, of Pittston, Maine, has a pair of oxen which weigh, in working order, 4,600 pounds; they draw usually at a load two and a half cords of green wood on a pair of sleds, and often, when the roads are good, three cords. . . . A farmer in Litchfield, Maine, lately killed a sheep whose four quarters dressed 151 pounds, and the tallow weighed 80 pounds tried out. . . . Isaac Rowell, of the same State, has fed during the past winter 100 grade merinos on hay morning and night, with twelve quarts of corn at noon, salt and ashes always at hand, and running water in the yard constantly; they came out this spring in good condition. . . . E. S. Wood, of Pomfret, Vt., made from three grade Jersey cows in one year 900 pounds of butter. . . . A heifer owned by S. Hills, Windsor, Ct., now weighs 3,000 pounds, and is still growing. . . . H. S. Porter, of Connecticut, has used 2,300 pounds of guano on an acre of tobacco, the tobacco was bad quality; with 3,000 pounds of barley meal per acre the quality was superior. . . . G. F. Beebe, of New Hampshire, sows millet in July on a plowed sod, and cuts two tons of fodder per acre in September; he thinks it the cheapest feed he can raise. . . . Dr. Dana, of Lowell, Mass., thinks he has found by observation that a cow in consuming one ton of hay makes one cord or four and a half tons of solid manure. . . . A cow in the course of a year produces ten tons of solid and four tons of liquid manure. . . . In a sale of fourteen head Shorthorn stock in Massachusetts, the average price was \$320; in Illinois, the average of eleven head was \$520, and in another sale the average of twenty-one head was \$278. . . . Mr. Cheney, of Boston, Mass., has sold in all forty-two head of Holstein cattle at an average of \$730. . . . Joseph Harris, of Moreton Farm, Rochester, N. Y., has sold to parties in fourteen States 73 head of Essex pigs for \$2,605, or an average of over \$35 each. . . . Shephard & Alexander, of Charleston, Ill., report sales of 387 head of Poland-China hogs at an average of \$7.50. . . . Some years since a breeder of Berkshire swine defined pure-bred animals of that breed as those having three white feet and three white hairs in the tail.

The best crop of rye last season was grown in Massachusetts. It produced 54 bushels per acre. . . . The experience of many fancy farmers is summed up in that of one who said his cattle ate up his crops, and his hired men ate up his cattle. . . . Make a roller; all crops are improved by rolling at the proper season—winter grain and meadows in the spring, and sown crops immediately after sowing. . . . It is economy to feed Western corn on Eastern farms; it enriches the manure, and when, as now, it is equal in price to hay, in many places, money is made by buying corn and selling hay. . . . Six thousand acres of tobacco were grown in Rock Co., Wis., the past season. . . . A Western farmer has come to the conclusion that wheat when injured produces cheese and cheese produces timothy. The same man believes mules will breed together. A few more discoveries of this nature will make him famous. . . . The heaviest lot of hogs in the Chicago market at any time was marketed January last; they amounted to 100 head, averaged 523 pounds, and were fed by one feeder in Page Co., Iowa. . . . J. Whang, Maine, thinks 12 hens equally profitable as one cow. He cleared \$36 last year from a dozen fowls, and from three turkey-hens, in two years, cleared \$147. . . . A farmer at Fort Scott, Kansas, has a grove of soft maples on his farm, one year from seed, which are four feet high. . . . In New Hampshire, farms are being deserted very rapidly; a traveler, in passing twenty-six miles on a main road, saw twenty-six deserted farm-houses. . . . Miss Fanny Campbell, of Bozeman City, Montana, has settled 160 acres of land, fulfilled the conditions of settlement, got her deed, and is farming successfully. Mrs. Ray, of the same place, raised on her farm 60 acres of wheat last year. . . . The prospect of a large yield of wheat this season in California is excellent. Generally in all other localities reports of serious injury are current. . . . The wool crop of California last year amounted to over twenty-four million pounds. . . . A lecturer at Cornell University recommends a variety of grasses in seeding meadows. English farmers often sow as many as twenty-six varieties when laying down pastures. . . . A meadow irrigated by running water is said to be double the value of one irrigated by flooding, a flooded one double the value of a rich loam not irrigated. . . . A speaker at a farmers' club said if farmers determined to stick to their farms and fight it out on them, there would be fewer makeshifts to be seen, and more improved farms. . . . At a New York State agricultural meeting, T. S. Gold said: "For the production of milk from an equal amount of food, the Ayrshire cows stood first. Dutch cattle were enormous eaters, although good milkers." Mr. Goodale had an Ayrshire cow which gave forty-seven pounds of milk per day. Another speaker said the use of machines saved a great amount of time to a farmer, which he could use profitably in considering how he could improve the productive capacity of his

farm. . . . At the Orleans County (N. Y.) farmers' meeting, Mr. Smith said the laws of New York did not compel a farmer to fence his farm. He thought the appearance of the country would be improved if fences were abolished. Judge Sawyer said if this were done and grass grown to the edge of the road, and mown, the production of woods would be reduced very much, if not altogether prevented. Mr. Tripp thought in such cases the road-sides could be planted with fruit profitably, as cattle would not then destroy them. A. Onderdonk said it would pay a farmer better to pasture a cow for a poor villager free than have it on the road. . . . The calf of a cow that has been kept poor all winter will never make a good cow. . . . A Vermont farmer says sheep are the most profitable stock he can keep; hay fed to sheep has brought him \$18 a ton in wool and lambs, while that fed to cows yielded only \$11, and there is less labor in shepherding than in dairying. . . . W. M. Place fed eighteen hens with sour milk mixed with meal (in water scalded). They produced, in the year, a profit of \$50, besides eggs and chickens used in the family.

An excellent compost for grass-lands is soda, lime, and earth from fences and ditches, piled up for fourteen days, then well mixed and spread in spring. . . . In England, by the use of a steam-engine, one pound of coal will turn over nine tons of earth in the shape of furrows. On the Duke of Northumberland's property plowing is done by steam, at two dollars per acre; the land is then cultivated 30 inches deep, the first time for one dollar, and the second time for fifty cents per acre. It is then harrowed, with harrows with 12-inch teeth, for thirty cents per acre. This had been done for three years satisfactorily, on fields of twenty, thirty, and forty acres. . . . Hereford cattle are gaining in favor in England. During ten years the number exhibited at the principal agricultural fair had increased from 211 to 574 head. . . . Four hundred plows have been distributed amongst the farmers of Michigan rendered destitute by the great fires of last year. . . . The colony at Longmont, Colorado, has planted fifteen thousand larch-trees, which are succeeding very well. . . . Bone-dust is being adulterated with raspsina of vegetable-ivory and ground dried fish. These ingredients may be detected by calcining the bone, when a loss will occur in burning over and above the 45 per cent of organic matter naturally contained in the bones. . . . Forty barrels of pop-corn have been shipped from Illinois to England. The English people have found a novel amusement in popping it. . . . In Ohio farmers are averse to pasturing meadows at any time. . . . Charles B. Leonard, of Woodbury, N. J., has twelve cows which last year averaged 238 pounds of butter each. They were fed corn-meal and bran all the year round. . . . William Knight bought sixteen calves, which were fattened by six cows, and realized \$491.68 for the veal. He fed his cows one quart of corn-meal and two of bran, each, per day. The calves averaged 250 pounds each. . . . Cooper Clond made his cows bring him in \$55 each, by fattening purchased calves. . . . A New Jersey farmer sold milk at five cents a quart, and made \$125 per cow in the year. He found it a slavish business. . . . W. Tatum fed his steers twelve quarts of corn and cob-meal each day, and thought it better than pure corn-meal. . . . At the Cheango County (N. Y.) fair, H. Crain received a premium of \$25 for the greatest produce of butter in one week, from one cow. The cow was a grade Shorthorn, and 154 pounds of butter were churned in the week. The second premium of \$10 was taken by W. L. Moon, who made 14 pounds in the week from a pure Jersey cow. Both cows were on pasture only. . . . In Washington Territory there were raised last year, and exhibited in New York, a turnip weighing 34 pounds, which measured nearly four feet in circumference, a ruta-baga which weighed 30 pounds, and carrots 18 inches long. . . . The Sacramento Beet-Sugar Company last season raised 2,000 tons of beets, which they are now profitably working up, at the rate of 33 tons per day. Some of their beets are said to contain 18 per cent of sugar. . . . Draft-horses in France and Belgium are becoming scarce, and the probability is that few will be exported for some years. . . . The Ohio Dairymen's Association elected the following officers for the ensuing year, viz.: *President*, D. L. Pope, of Geauga County; *Vice-President*, Lucius Bartlett, of Geauga Co.; *Secretary and Treasurer*, Cal. S. D. Harris, of Cleveland; *Cor. Secretary*, Anson Bartlett, of Madison County. . . . The Ohio State fairs for 1872 and 1873 will be held at Mansfield, Richland Co. The next fair will commence Sept. 2d, and continue one week. . . . On the 18th June, the Ohio State Board of Agriculture held a trial of plows and earth-working instruments at Springfield. . . . California is becoming a wine-producing country of respectability; they now have vines sufficiently large to give balls in, and find room not only for the dancers, but the musicians, and seats for spectators in them. . . . The products of California now include large quantities of castor-oil and mustard; 700,000 pounds of castor-beans and 13,000 bushels of mustard-seed were produced last year, besides \$40,000 worth of wild-mustard seed was gathered in one county alone. . . . Tobacco is said to be injured in quality by strong animal manures. . . . In some parts of Germany and Eastern France, 2,500 pounds of guano per acre is used as a fertilizer for tobacco. . . . Another Chester Co., Pa., swindler has been detected in receiving money for stock, and keeping it without forwarding the stock; in all cases when parties are unknown, it is safest to inquire of the postmaster, or to deal only with known responsible parties, although their prices may be higher than those of swindlers. . . . Mr. R. R. Seymour, Bainbridge, Ohio, has purchased a half-interest in the young Shorthorn bull, 3d Duke of Oudia. This bull will divide his time between Ross and Licking Counties for the future, and will, without doubt, leave his mark. . . . An Ohio farmer keeps his hogs healthy by furnishing them, in a covered trough, with a continuous supply of soft stone coal, salt, and ashes; this assists their digestion. . . . A New York farmer saved a calf which was choking with a potato in its throat, by bending a fence wire, putting it down the calf's throat, and working it behind the potato, which he was thus enabled to draw out. . . . A farmer of Kane Co., Ill., lately sold 1,500 pounds of wool, which was the clip of five years past, at 65 cents a pound, amounting to \$970. He made money by holding on to his wool. He keeps 800 sheep. . . . A farmer of Linn Co., Mo., with the help of his two young sons, raised last season over 10,000 pounds of tobacco, which brought him over \$300 net profit.

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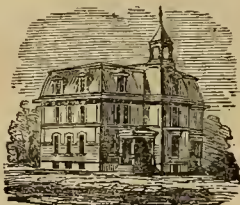
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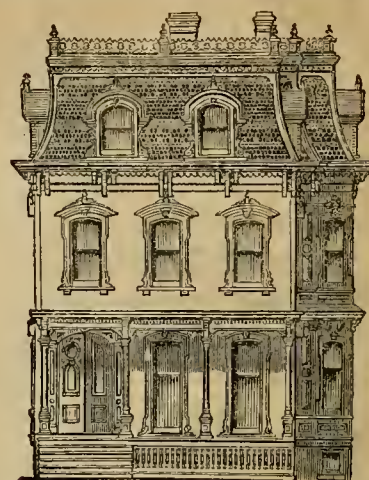
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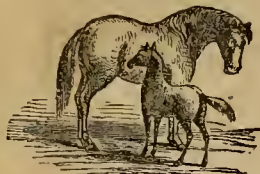
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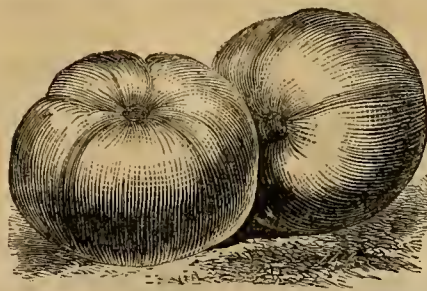
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"'You see,' said the old woman, knocking the residuum from her cob-pipe, and chafing some dry leaf between her withered hands preparatory to filling it again, 'you see, Mr. Hartsook, my ole man's purty well along in the world. He's got a right smart lot of this world's plunder, one way and another.' And while she studied the tobacco in her pipe Ralph wondered why she should mention it to him. 'You see we moved in here nigh upon twenty-five year ago. 'Twas when my Jack, him as died afore Dad was born, was a baby. Dad'll be twenty-one the fifth of next June.'

"Here Mrs. Means stopped to rake a live coal out of the fire with her skinny finger, and then to carry it in her skinny palm to the bowl—or to the hole—of her cob-pipe. When she got the smoke agog she proceeded:

"'You see this ere bottom land was all Congress land in them there days, and it sold for a dollar and a quarter, and I says to my ole man, 'Jack,' says I, 'Jack, do you git a plenty while you're a-gittin'. Git a plenty while you're a-gittin','' says I, 'fer 'twon't never be no cheaper'n 'tis now,' and it ha'n't been, I knowed 'twouldn't,' and Mrs. Means took the pipe from her mouth to indulge in a good chuckle at the thought of her financial shrewdness. "'Git a plenty while you're a gittin','' says I. I could see, you know, they was a powerful sight of money in Congress land. "'Git a plenty while you're a gittin','' And Jack, he's wuth lots and gobs of money, all made out of Congress land. Jack didn't git rich by hard work. Bless you, no! Not him. That a'n't his way. Hard work a'n't, you know. 'Twas that air six hundred dollars he got along of me, all salted down into Flat Crick bottoms at a dollar and a quarter a acre, and 'twas my sayin' 'Git a plenty while you're a gittin','' as doze it.' And here the old ogre laughed, or grinned horribly, at Ralph, showing her few straggling, discolored teeth."—*From "The Hoosier School-Master."*

NOTICES BY THE PRESS.

The development of the story is substantially a rude epic of truth, gentleness and true pluck. For the young master, younger than most of his pupils, far more cultivated in every direction than any of the population, and practically religious, instructs the community as well as the school; reclaims some of the worst, foils some, and has some detected and punished; encourage and loves, and is loved by a charming orphan, and graduates into a higher position with the highest honors. The moral is one of robust manhood confirmed in the worst conditions.—*American and Gazette (Philadelphia)*.

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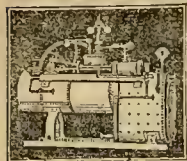
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NEW YORK, SEPTEMBER, 1872.

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Calendar for September.

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PHASES OF THE MOON.

Table showing moon phases (New Moon, 1st Quart., Full, 3d Quart.) and times for Boston, N.Y., Wash'n, and Chicago.

AMERICAN AGRICULTURIST.

NEW YORK, SEPTEMBER, 1872.

On many farms, September is a comparatively leisure month. It is a good time to build stone walls, to repair fences, to put up new gates, or rehang the old ones that sag.

We do not know how it is with other farmers, but in our own case we find it more difficult to get "odd jobs" properly and promptly done than the steady, more prolonged, and in some sense more important operations of the farm.

Hints about Work.

Sowing Winter-Wheat.—In the Middle and Northwestern States nearly all our winter-wheat is sown

the first, second, and third week in September. Occasionally, some farmers who like to be ahead of their neighbors sow in August, but four times out of five the later-sown wheat, on good land, proves best at harvest.

Pickling Wheat to Prevent Smut.—Moisten the wheat with fermented chamber-lye, and dry it with lime. Or, take three ounces of blue vitriol and dissolve in one quart of boiling water, for each bushel of wheat.

Drilling in Wheat.—This is by far the neatest way of putting in wheat, and when the land is dry it often makes all the difference between a good and poor crop.

Quantity of Seed per Acre.—Our own rule is two bushels per acre. Thick seeding favors early ripening. Many excellent farmers think 1 1/2 bushel per acre is a plenty of seed, and when the land is rich, clean, mellow, and moist, we have seen heavy crops obtained from a bushel to the acre.

Wheat likes a Firm Soil, but we prefer to have it mellow underneath and somewhat cloddy on top, rather than to have the surface very fine and the bottom hard and dry.

Harrowing Wheat in the Fall to Kill Small Weeds is very common in England, and is well worthy of a trial here. Any fine-tooth harrow will answer, but those of our readers who have Thomas's Harrow will, we think, find it just the thing for the purpose.

Sowing Grass Seeds with Wheat.—Where the wheat is to be harrowed, either in the fall or spring, we must give up sowing timothy with the wheat. We do not think this a serious objection, especially where clover is largely sown on the wheat in the spring.

Sowing Grass-Seed Alone.—This is a good practice, and one which we should like to see greatly extended. The ground should be very fine and mellow. The earlier the seed is sown in September the better.

Rye.—This crop may be sown any time this month, or as late as October. Where the straw is in demand, it is often a very profitable crop, and can be grown on soil too light and sandy for winter-wheat.

Fall Plowing.—Except on very light land, there can be no doubt of the advantages of fall plowing. The earlier the work is performed the better will the soil rot, and the more weeds will be killed.

Clover-Seed.—The most convenient way of cutting clover-seed is with a mowing-machine and a reaper platform which carries the clover into heaps or windrows. If the clover is heavy and green, the

crop may be cured partly for hay and partly for seed. That is to say, if properly cured, it may be worth thrashing for seed, and the clover-seed straw will be valuable for fodder. In this case, the better way is to make the crop into good-sized cocks, and let it cure with as little exposure to rain as possible. In other words, cure it as you would hay. But where the crop is grown simply for seed, the more it is exposed to rain the easier it will thrash and hull. Let it be thoroughly dry when drawn in, and if possible put it in the barn. It is one of the very worst of crops to put in a stack. Unless it is thatched, it is almost impossible to so make the stack that it will shed water.

Cutting up Corn.—We usually take five rows. Commence on the center row, and cut two hills, and stand it up against the third hill, which is left uncut to form a support for the stook. Twenty-five hills are placed in a stook. Make it as upright and compact as possible. Bind firmly with two bands. Where corn is to be husked with a machine, it is much the better plan to bind the corn into sheaves or bundles of a convenient size to pitch and haul. Corn may be cut as soon as it is glazed, or when there is no appearance of milk in the kernel. It is better to cut a little too early, than to run much risk of having the fodder injured by frost. We need hardly say that frost does not hurt the stalks after the corn is cut, but an early frost while the corn is standing and full of sap greatly lessens the value of the fodder.

Cultivating Corn-Stubble.—As soon as the corn is cut, it is an excellent plan to cultivate the land between the stooks with a good two-horse cultivator. We have practiced it with advantage.

Digging Potatoes.—We would dig potatoes as soon as they are ripe. October and November are busy months, and it is very desirable to do as much work as possible while the weather is favorable and the days long. Cart the potato-vines into the barn-yard. They make excellent manure.

Thrashing.—See Hints for last month.

Grain in the Granary should be watched, and if there is indication of its heating turn it at once.

Rats and Mice should be looked after. Keep two or three good cats about the barns.

Fattening Pigs.—Pork is low, but so also is corn. At this season, seven bushels of corn should produce 100 lbs. of pork, or if the pigs are running in a good clover pasture, three or four bushels of corn fed in addition to the clover should give a gain of 100 lbs. in live-weight. It is a great mistake not to give fattening pigs nearly or quite all the corn they will eat at this season while running in pasture.

Sheep.—Those intended to be fattened next winter should be separated from the rest of the flock, and be allowed a good pasture. It does not pay to try to fatten poor sheep in winter. Ewes intended to raise early lambs for the butcher should have extra feed for a few weeks before turning the ram into the flock. If you have neglected to mark your sheep, neglect it no longer. Wethers may be marked on the rump, and ewes on the sides, or in any other way most convenient for distinguishing them. And those you intend to sell should be marked in such a way that they can be easily separated when a purchaser wishes to examine them.

Horses.—If grass is abundant, let the horses run out, but if regularly worked they should be allowed grain and hay in addition. It costs so much to keep horses, that the rule should be to keep only such as are capable of doing a good day's work. Feed liberally, work steadily, and groom thoroughly.

Milk Cows.—Bran and corn-meal are comparatively cheap. A good cow should have all the food she can eat, digest, and turn into milk, and if she gains in flesh at this season it will not hurt her.

Young Stock should have the best of care and feed. Nothing is more unwise than to starve a young, growing animal.

Weeds.—The destruction of weeds is always in order. Let none go to seed in fence-corners, in pastures, or on the sides of the road, or around stone heaps or other waste places.

Pasturing Young Clover.—If the growth is very large, it will not hurt young clover to pasture it moderately. But if it can be spared, it is best not to turn anything into it.

Plaster.—If you have leisure, it is a good plan to sow plaster on the clover. It will do full as much good sown now as in the spring.

Buckwheat.—See article on harvesting this crop in the August number of the *Agriculturist*. Our own plan is to cut it with a reaper. Wood's Reaper, by taking off the reel, will do the work, but a Johnston Reaper will cut buckwheat better than it can be done with a cradle, and lay it off in bundles of any desired size. If ripe enough to shell, cut when the dew is on.

Work in the Horticultural Departments.

Now that the warm summer weather is over, the gardener may prosecute his planting and harvesting with renewed vigor. There are many varieties of vegetable and flower seeds which do best when planted in the fall. The annual fairs of the agricultural and horticultural societies are sources of great pleasure and profit to the gardener. The numerous books and papers relating to horticulture are now so cheap that any one of moderate means can supply himself with an ample stock of reading for the winter and during the long evenings of late fall and early spring. The evenings can be profitably employed also in writing out an account of the operations of the year. This no intelligent man will fail to do, however unnecessary it may seem at first. In the extended account of several years its advantage becomes apparent, and by means of it he will be able to profit by the various successes or failures which have attended him.

Orchard and Nursery.

Harvesting and marketing will be the principal work to attend to in this department. Care must be used in picking to keep the fruit free from bruises. Always pick the fruit carefully by hand, and never shake it off, as is too often done. The assorting is also a matter of a good deal of importance, as the money returns depend upon the quality of the fruit. Make at least two qualities, and on no account mix the good and bad. The increased price of the first quality will more than pay for the trouble of assorting.

Dried Apples.—Many windfalls, and fruit unfit to ship, and too good to put with the cider-apples, may be dried and put away for use during the spring, when there is little fruit to be had.

Budding.—Stocks which were budded last month will need to have the ties cut now. See article on budding on page 343.

Nursery Stock.—If any nursery stock is needed, order early, so that no delay will occur when the ground is ready for planting. Should the trees come before the ground is ready, heel them in to keep the roots from drying.

Seeds should be secured now. Peach and other stone fruits are to be mixed with earth and buried in the open ground; in the spring many will be found to have commenced growing.

Fruit Garden.

Where the winters are not very severe, fall planting is desirable, as it gives the plants ample time to become established, so that they can commence their growth early in the spring. In localities where the winter sets in early, planting had better be deferred until spring.

Blackberries.—As soon as the canes have done fruiting, cut them away, and dig up all suckers which appear between the rows. Tie up the new growth to stakes five feet high, and cut back the side shoots to eighteen inches. Three or four canes are enough to a stool.

Raspberries.—The old fruiting canes must be treated the same as recommended for blackberries.

Black-caps.—To propagate these, bend down the

tips of the canes, and throw a little earth over them to keep the wind from moving them. When treated thus they soon take root, and in spring may be severed from the old plants and set out in rows in rich soil. In tying up the new growth, a wire stretched tightly along the rows, and securely fastened at each end to posts three feet high, is much more durable than wooden stakes.

Strawberries.—Fill up the vacancies in the old beds from plants rooted in pots, or from well-rooted runners, and set out new beds where wanted. Before planting, dip the roots in thin mud.

Grapes.—The grape crop will be ready for harvesting this month, or at least a part of it, and care must be taken not to break or injure the bunches in any way. Use scissors in gathering, and do not handle the fruit much, as it injures the bloom. Grapes intended for home use are the best when allowed to remain on the vines until fully ripe.

Gooseberries and Currants.—Make cuttings as soon as the wood is thoroughly ripe, and either set them in nursery rows or tie them in small bunches, and bury them in earth in a cold-frame or in the cellar.

Kitchen Garden.

As fast as a crop matures it should be harvested, and the ground plowed and manured, and other quick-growing or winter crops planted.

Beans.—Gather string-beans from the later plantings, and salt them for winter use. Dry plenty of Limas and other pole sorts; they form a pleasing variety in the winter bill of fare.

Cabbages and Cauliflowers.—Sow seeds of these at the North about the middle of the month for the spring crops, in order to get good strong plants before the ground freezes. These plants are afterwards set out in cold-frames, and kept as nearly dormant as possible until it is time to set them out in the spring. The seed-beds should be well prepared before the seed is sown, and the plants afterwards thinned and weeded as in spring.

Corn.—Dry a supply for winter, using that which is just fit for the table. Boil it long enough to set the milk, and afterwards cut it from the cob.

Cucumbers for pickles ought to be gathered every other day, those of small size being preferable, at least so far as appearance goes. While gathering, take care not to injure the vines by trampling.

Celery grown in flat culture should be kept well cultivated.

Melons.—Pick off all fruit which will not ripen, and use for mangoes. A thin piece of board placed under the fruit will insure even ripening.

Martynias.—There are comparatively few persons who have eaten good pickles unless they have tasted of martynias. They should be pickled before the skin becomes hard, and placed in a brine the same as cucumbers; they are afterwards put into sugared vinegar, and flavored with cloves, allspice, etc., according to taste.

Onions.—When the tops have fallen, it is time to harvest them. Do not store in large heaps, but spread thinly in a dry, airy place.

Radishes.—Sow Chinese Rose-colored Winter Radish for winter use this month.

Shallots.—Plant in rows one foot apart; allow six inches between the bulbs. Keep clear of weeds as long as the ground can be worked. A slight covering of hay is beneficial.

Spinach may be sown for wintering over; sow in 15-inch drills, and if too thick the rows may be thinned and the thinnings used.

Sweet-Potato Vines must be lifted occasionally to prevent their rooting. Keep down all weeds between the rows.

Squashes.—The early summer sorts which have done bearing should be pulled up, and not be allowed to remain a breeding nest for insects. Allow the vines of the winter sorts to root freely at the joints, and do not disturb them after they cover the ground, as they are often injured if handled roughly.

Tomatoes.—If there is a surplus of ripe fruit, it

can be canned and preserved for winter use. Place either straw or brush around the plants to keep the fruit from touching the ground and decaying. Destroy all green "worms" found upon the vines.

Turnips.—Use the hoe between the rows of ruta-bagas. Sow flat sorts early this month.

Flower-Garden and Lawn.

A large number of annuals and bedding plants will make the garden attractive at this season if plenty of them were planted out in the spring. Pull out all weeds from the beds and borders.

Bulbs.—The hardy bulbs may be planted late this month or early next. Make the beds planted rich by the addition of well-rotted stable-manure.

Dallias and all plants requiring stakes must be attended to at once, before the high winds have broken or otherwise disfigured the plants.

Herbaceous Perennials do best when moved in the fall, as they then have time to recover and form new roots ready for an early start in the spring.

Pits and Cellars for preserving half-hardy plants should be put in order, so that they may be ready in case of an emergency.

Gladiolus should be tied up to stakes, as they are very easily broken by the wind.

Perennials and Biennials.—Sow seeds of these in pots or boxes of well-prepared earth; this is a much better way than sowing them in the open ground, unless one has a great many seeds. Keep the pots and boxes watered, and if the sun is too hot they may be sheltered by a lattice or wooden shutters.

Greenhouse and Window Plants.

All alterations and repairs ought to be finished by this time, so that in case of a sudden frost the tender plants can be carried into the greenhouse. Plenty of coal, soil, and everything necessary must be provided at the earliest opportunity.

Potting of plants that have been turned out into the border needs attention, and also the potting of plants which are to be used for propagating from.

Annuals.—Plant seeds of these for early winter flowering; Mignonette, Sweet Alyssum, Candy-tuft are the sorts usually planted.

Hanging-Baskets and Window-Boxes.—Refit these early, in order to get a good start before cold weather.

Cuttings of bedding plants may be put in if any young plants are wanted for house decoration.

Commercial Matters—Market Prices.

Gold advanced to 115 1/4 @ 115 3/4, closing August 13th at 115 1/4 against 114 1/4 on the 13th of July. Flour has been in better demand and has been much firmer in price, with lighter supplies available of desirable brands. The Wheat stock has been reduced to an unusually limited amount, and prices have advanced materially, checking business, though there has been a fair export and moderate home demand. Corn has been in brisk request and dearer. Rye and Oats have been more sought after at stronger rates. Provisions have been more freely dealt in and quoted firmer. At the close other than the finer makes of Butter were difficult to market; and most grades of Cheese were weak and drooping. Hay and Tobacco attracted more attention on the basis of our quotations. Hops and Seeds quiet. Domestic Fleece Wool has been moving slowly in most instances. Holders have been somewhat more confident in their views, and insisting on full asking rates on restricted offerings of stock, thus checking operations. Manufacturers have not been eager to make purchases beyond the limits of present requirements. The trade bids have been reserved, and generally under the views of sellers. Domestic Felled has been in light request within the previous nominal range. Texas Wool has met with a moderate call, particularly grades available at from 35c. @ 45c. Oregon Wool has been in some demand and about steady. California Wool has not been in much favor with buyers, especially spring clip, the chief inquiry having been for fall clip, at the ruling figures. Cotton has been depressed and lower, closing about steady. The following condensed, comprehensive tables, carefully prepared specially for the American Agriculturist,

show at a glance the transactions for the month ending August 13, 1872, and for the corresponding month last year.

TRANSACTIONS AT THE NEW YORK MARKETS.

Table with columns: RECEIPTS, FLOUR, WHEAT, CORN, RYE, BARLEY, OATS. Includes data for 26 days ending 1872 and 27 days last month.

Table with columns: SALES, FLOUR, WHEAT, CORN, RYE, BARLEY, OATS. Includes data for 26 days ending 1872 and 26 days last month.

Exports from New York, Jan. 1 to Aug. 13.

Table with columns: FLOUR, WHEAT, CORN, RYE, BARLEY, OATS. Shows monthly export data from 1872 to 1868.

Receipts at head of tide-water at Albany each season to July 25th.

Table with columns: FLOUR, WHEAT, CORN, RYE, BARLEY, OATS. Shows monthly receipt data from 1872 to 1870.

Stock of grain in store at New York.

Table with columns: WHEAT, CORN, RYE, BARLEY, OATS, MALT. Shows stock levels for 1872 and 1871.

CURRENT WHOLESALE PRICES.

Large table of current wholesale prices for various commodities like Gold, Flour, Wheat, Corn, etc., with columns for July 13 and Aug. 13.

New York Live-Stock Markets.

Table showing weekly ending prices for Beesves, Cows, Calves, Sheep, Swine, etc., from July 15th to August 12th.

Table showing average per week prices for Beesves, Cows, Calves, Sheep, Swine for the current week and previous weeks.

Beef Cattle.—Soon after the close, one week ago, the markets began to improve, and now we have a strong, active trade, with all that was lost during the first week or two fully restored. There are a great many Stock Markets

coming forward, some of them very green, and have to be sold low, but well-matured stock sells even better by contract. Fat Illinois, Ohio, and Kentucky grades readily command 13c., while the best selections sell at 13 1/2c. The bulk of Texas go at 8 1/2c. @ 9 1/2c. Sales were made below 8c. in one of the glutted markets. More than 300,000 Texas have already been driven into Kansas this season, and they are still coming, showing that this is an important branch of the trade.

The prices of the past 5 weeks were:

Table showing price ranges for Large Sales and Average prices for various dates from July 15 to Aug. 13.

Milk Cows.—Seldom have we had so bad a cow trade at any season of the year, much less in hot weather, when the demand for milk is usually such that all the producers are anxious to add to their stock of milkers. Milk has sold at \$1 @ \$1.25 per 40-quart can, much of the time during the past month, which leads those in the business to lessen rather than increase the number of cows. Common cows sell at \$25 @ \$40, fair at \$50 @ \$60, and good to prime at \$65 @ \$70. Calves.—There was a good demand for veals during the first half of the month, and prices improved. Fat milk calves sold at 10c. @ 10 1/2c. Just now there is a surplus, especially of grass calves. The latter sell very low, and ought not to be sent in, or, if they are, farmers should buy them for raising. Quotations of grass calves are 2 1/2c. @ 3 1/2c. per lb., live weight; common to fair milk veals, 7c. @ 8 1/2c.; good to choice, 9c. @ 9 1/2c. Sheep and Lambs.—We have had an increase in numbers and not much variation in the price of sheep, but lambs are very much lower, and glut the market. They are coming from the West, but largely from this State, from Canada, and from Kentucky. Fat sheep reached 7c., and even 7 1/2c., a fortnight ago, but it now takes good lots to sell above 6 1/2c. The majority of the lambs sell at 8c. @ 9c. Quotations: Ordinary sheep, 5c. @ 5 1/2c. per lb., live weight; fair to good, 6c. @ 6 1/2c.; prime to extra, 6 1/2c. @ 6 3/4c.; few very choice, 7c. Lambs, 7c. @ 7 1/2c. for poor; 8c. @ 8 1/2c. for medium to good, and 9c. @ 9 1/2c. for extras. Swine.—With lighter receipts hogs have improved in price. They are now being sold alive, and the close is strong, with rather an upward tendency. Live are worth 4 1/2c. @ 5c. city-dressed Western, 6 1/2c. @ 6 3/4c.



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 Volume Thirty are now ready. 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.

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 \$3; making a club of 20 at \$1 each; and so of the other club rates.

State and County Fairs.—According to our usual custom we give, on pages 353 and 354, a list of the Fairs to be held during the present month and the two following ones. The preparation of a list of this kind demands a great deal of patient labor, and we have endeavored to make it as perfect as possible. If Secretaries would send us notice of their Fairs earlier than most of them do, our list would be very satisfactory.

Whiskey Pickles.—Several correspondents have asked how to make whiskey pickles. We have had no experience in making pickles in this manner. A correspondent of the Rural New Yorker gives the following: "Take one gallon of whiskey and three of water. Put into a tub or cask as you pick them, the cucumbers; put them in the pickle and cover with a cloth, which will have to be washed every few days, as often as the mold gathers on it. That is the way I did and had splendid pickles. You must use pure whiskey." In this process the vinegar is made in contact with the cucumbers. All vinegar comes from the decomposition of alcohol, whether made from cider, wine, molasses and water, or by whatever process. In the above a dilute alcohol—probably through the influence of the fermenting matter in the cucumber—becomes converted gradually into vinegar. The process does not seem to be an economical one.

Preserving Okra.—"J. T. S.," Sullivan Co., Mo. Okra is preserved by slicing the pods (tender and fit for the table) crosswise in sections about half an inch long, running them upon a string and drying them in the sun. When wanted for use they are soaked until soft. Besides its use in soups and stews, fresh okra is liked by many boiled and dressed with drawn butter in the manner of asparagus.

Lombardy Poplars.—"E. E. W.," of Nebraska, asks: "How far apart should Lombardy poplars be planted to appear best as a feature in the landscape on a rolling prairie. I wish to set out a single row for three quarters of a mile, in the shape of a carpenter's square."—We should say that fifty miles was near enough for Lombardy poplars in Nebraska or anywhere else. A more worthless tree can not be planted. It makes an insufficient wind-break, and is almost valueless as timber and fuel. Besides, it is excessively ugly, having no more beauty than a telegraph-pole. A plantation of the size proposed would be "a feature in the landscape" that would be horrible to contemplate. Plant Silver Maple, Black Walnut, White Willow, or even Cottonwood or Ailanthus, but don't disfigure your place with miserable Lombardy Poplars.

A Book on Gardening—How Not to Do.—We print the following as a specimen to show the queer things people will do, and how they seem to take pains to defeat their own objects: "May 23. Would you please tell me in your next issue of *American Agriculturist* where to get a good book, not too expensive, about gardening? If you have any in stock, please let me know the price. Yours respectfully, W. C."—Had the writer signed his name we could have sent him a marked catalogue, and he would not have been obliged to wait until September for an answer. Even now we do not know whether he wants a book on kitchen, fruit, flower, or vegetable gardening. Month after month we advertise the largest collection of works on gardening in the country, and yet our correspondent writes to know where to get one. We have hundreds of just such indefinite letters. If "W. C." will tell us what he wants, we shall be very glad to reply. "A. E. S.," who writes for Pastel Board, may consider the above. Had he sent his name we should have replied by letter. We do not answer purely personal matters through the paper.

Landscape Gardening.—The author of that valuable work, "Beautifying Country Homes," Mr. J. Weidenmann, having returned from a residence of some years abroad, is again practicing his profession in Hartford, Ct. Mr. W.'s work at Hartford and elsewhere attests his ability, and those who wish to consult a landscape architect can be sure of being well served if they apply to Mr. Weidenmann.

Castor Beans.—"D. W.," Polk Co., Texas. There are several kinds of beans cultivated for ornament, but, so far as we are aware, only one species is grown for commercial purposes. As this is a plant largely affected by climate, it would be advisable for you to procure seed that has been found profitable in your State. Probably your seedsmen could supply you. The pomace or cake, after the oil has been expressed, is of positive value as a fertilizer. It contains a large amount of nitrogen, and forms a highly stimulating compost.

Rock Oil for Caterpillars.—Jas. H. Robinson, Lawrence Co., Pa., writes that for the last eight or ten years he has used crude rock-oil with great success. He keeps a vessel of oil at hand, and when he discovers a caterpillar's nest, he applies the oil by means of a quill. He also uses it effectively for worms that molest his grape-vines. The oil he uses is the Mahoning crude oil, and no injury has resulted from its application. Whether this particular kind of petroleum is different from that from other localities, we are not informed. The

use of petroleum in general upon plants has been attended with variable results—sometimes injury has been done, while others, like Mr. R., use it with impunity. This induces us to think that there is a difference in petroleum as far as its influence upon vegetation goes.

Agricultural Colleges.—The "Kansas Farmer" is doing a good work in showing up the manner in which in several States the Agricultural College Fund has been misappropriated. It is through the efforts of this paper that the management of the Kansas College has been kept out of the hands of lawyers, doctors, and antiquated clergymen.

Crops in Southern Ohio.—Col. J. T. Worthington, of Chillicothe, writes: "The hay crop is short all over Southern Ohio, wheat very good in quality but not over two thirds of an average in quantity. Our main crop, corn, promises well, and will probably be over an average. We have a fine fruit year. Apples, peaches, pears, grapes, melons, and figs are doing or promising well."

Budding.—In the article upon "Propagation by Budding," pages 343 and 344, it should have been stated that figure 1 was from "Warder's American Pomology," figures 2, 8, and 9 are from Mr. Fulton's very thorough work upon "Peach Culture," and figures 3 to 7 from "Barry's Fruit-Garden," a work that should be in the hands of every one who wishes to propagate or grow fruit trees. There is no other work that contains so much of just the information that every grower of fruit, whether on the large or small scale, requires.

English Gardeners in America.—Our associate, Peter Henderson, now in Europe, has written an article to "The Garden" with the above title. Its object is to give advice to English gardeners who propose emigrating to this country. One point that he particularly insists upon is that they should not arrive here during the summer and fall months. In February and March labor is always in demand, and there is no difficulty in obtaining places, while at other seasons it is very rare that a competent man can find a situation. He also advises men with families not to come out unless they have first engaged a suitable place.

Wire for Pegs and Stitches.—The American Cable Screw Wire Co. manufacture boots and shoes in which a screw-twisted wire takes the place of pegs or stitches. A trial of these goods for several months past, and the testimony we have from dealers, proves this method of fastening soles to be a good improvement. There is no ripping; the wire holds until the sole of the shoe is fairly worn out.

Sowing Clover on Timothy.—"B. H. W.," Iowa City, Iowa, asks if he can get a catch of clover on a timothy meadow, by sowing the seed on the snow. It would be better to wait until the sod can be harrowed in the spring as early as possible, and sow six quarts of clover per acre, immediately afterward, and then run over the field with a brush harrow.

Injury to the Hoof.—"J. G.," Macon Co., Mo., has a horse which injured its hoof, and proud flesh has appeared in the wound. He wants to know what to do in this case. A solution of sixteen grains of chloride of zinc in a pint of water, applied as a wash to the wound, would probably remove the proud flesh and cause a healthy action.

Jersey Cattle.—Col. Waring, of Ogden Farm, Secretary of the American Jersey Cattle Club, has edited a very comprehensive essay on this breed, as a contribution to the first volume of the Club's Herd Register. This essay is now published in pamphlet form, together with the Constitution of the Club; a list of its members, with their addresses; and instructions for offering pedigrees for registry. The price is 50 cents, by mail, post-paid; for sale by Orange Judd & Co., 245 Broadway, New York.

Parsons & Co.—This well-known firm has dissolved, and formed two separate establishments. The extensive stock of evergreens, rhododendrons, camellias, and other specialties, has been divided between the two new firms, Samuel B. Parsons & Sons, and Robert B. Parsons & Co., both of which will carry on the business in Flushing.

Jersey Herd-Book.—R. Q. Teuney, Colorado. The cost of a record in the "Jersey Herd-Book" is two dollars.

Smith's Traveling-Chairs for Invalids.—It often happens that invalids who are unable

to walk, and persons who have received injuries, retain considerable strength in their hands. All such can enjoy the pleasures of locomotion in-doors and out, by using Smith's chairs. These are made of different sizes and patterns, but the principle is the same in all. There are large driving wheels which are easily moved by the hand, and the contrivance for changing direction is very simple and easily managed. Hundreds of invalids would derive great comfort from a chair of this kind.

SUNDRY HUMBUGS.—"Stealing the Livery of Heaven" to serve mammon, is variously practiced. We don't like to throw a straw in the way of securing wide contributions to assist feeble churches, and, whenever there is a spare dollar in the exchequer, we enjoy taking a hand in any effort to establish a beacon-light of the gospel in a dark corner. But those who send out circulars to the general public, asking for small sums in aid of churches, will need nowadays to furnish pretty strong evidence of the genuineness of such appeals, and that the money will be properly used, because sordid thieves, locating themselves in out-of-the-way places, make up very plausible appeals for such objects, which are well calculated to deceive unwary benevolent people. The money generously sent to aid such churches is pocketed by pseudo "treasurers," who usually assume a name of the feminine gender. We have exposed some such operators, and have before us circulars not yet investigated fully, that are suspicious, to say the least. In one case of this kind we wrote for information, and received an answer "All right," but, as it afterwards appeared, our letter was intercepted and answered by the operator himself. Every leading Christian denomination has a regular organization (called Church Extension Society, or similar name), which will receive and properly apply contributions of this kind. . . . Another Thief of Heaven's Livery is the following:

TO CONSUMPTIVES.—The advertiser, having been permanently cured of that dread disease, Consumption, by a simple remedy, is anxious to make known to his fellow-sufferers the means of cure. To all who desire it, he will send a copy of the prescription used (free of charge), with the directions for preparing and using the same, which they will find a **SURE CURE FOR CONSUMPTION, ASTHMA, BRONCHITIS, &c.** Parties wishing the prescription will please address: **REV. EDWARD A. WILSON, 194 Penn street, Williamsburgh, N. Y.**

This fellow has been operating for many years. We have often exposed him, but he still finds plenty of ignorant dupes, for we see the above advertisement in many papers, marked to be inserted for a whole year, and he has paid a great many thousands of dollars for advertising, all of which has of course come out of the pockets of poor, deluded sick people, or those who think they are sick. This so-called Rev. Wilson claimed to belong to the "Methodist New Haven Conference," until we published the fact that there was no such conference known to Methodists, since which time he has used other subterfuges. In his circulars he talks very sanctimoniously, and works upon the feelings of his patrons—says "he sends the prescription to consumptive sufferers, not from any mercenary or selfish motive, but from a sense of Christian duty," etc., etc.—a lot of bosh that ought to put any intelligent person on his guard. For the benefit of our newer readers, we republish his prescription as he now gives it to those who answer his advertisements:

Extract Blodgett's, 3 ounces; Hypophosphites of Lime and Soda, $\frac{1}{2}$ ounce; Alutln (pura), 1 drachm; Meconin (pura), $\frac{1}{2}$ scruple; Extract Cinchona, 2 drachms; Loaf Sugar, 1 lb.; Pure Port-wine, $\frac{1}{2}$ pint; Cold Water, 1 quart. Mix well, &c. Dose, one large table-spoonful before each meal, and a fourth one before going to bed. This for adults. For delicate females, and persons under 18, one third less for the first week.

There you have what the very Rev. fellow pays thousands of dollars in advertising, to inform you you can get free by sending to him. We make you no charge for giving it to everybody free. But we will just hint that you can not get any such dose put up by a druggist, even if it were worth buying. But here comes the benevolent, very Rev. Wilson (so called), and offers to supply it to you for \$4, you paying the express; or, he will send all *except* the wine, sugar, and water, by mail, post-paid, for \$3.50; and here is where the "prophet" comes in to this fellow, who claims to be a "poor man." He is an outrageous swindler, one of that mean kind who work upon the fears and hopes of poor sick people by his hypocritical, pious asseverations, and take from them money which they can ill spare, without returning an equivalent. We are sorry to see editors of respectable papers helping him, by inserting his advertisement—because he divides his profits with them in the form of pay for the use of their columns. . . . And here let us remind the reader that, as a rule, they can place no reliance on quotations from newspapers recommending various medicines, etc. It is a trick of operators to insert notices, letters, and other commendations of themselves, or their wares, in the advertising columns of newspapers, and then give quotations from these advertisements as if they were editorial endorsements. . . . "Married women," and all others, should promptly burn all the printed trash sent them by the fellow calling himself "Madams (Mmes.) Geary,

Stevens & Co.," who, to dodge the surveillance of the New York Post-Office and the new laws of N. Y. State, puts his P. O. address at Jersey City (N. J.) P. O. Their (his) medicines, instruments, etc., if ever sent at all, are villainous, and of no effect except to deceive people into vice and trouble, and put money into his pocket. He operates safely because no one of his patrons would dare to publicly appear as a witness. . . . Why will the press continue to advertise J. H. Reeves, 73 Nassau st., N. Y.? Has he not sent cantharides "love-powders" enough, and cheated enough "victims of early indiscretions," to be shut out of all decent journals? . . . Robt. E. Bell, 147 E. 15th st., N. Y., and what he calls "the Clinton Medical and Surgical Institute," are not found in the New York City Directory. . . . W. H. Chichester has appeared too often in these columns to need further attention from us at present. . . . Hugh Lassing, 170 Broadway, pretends to be Supt. of a Safe Deposit Company, and writes to parties to send him the storage dues on valuable parcels left for them—an out-and-out swindle. . . . Several parties advertise to secure loans, etc., on Southern real estate—always asking from \$5 to \$20 in advance. We have inquired after several of these, and in every case found them swindlers. We advise all who receive such circulars and blank forms of application to give them no heed whatever, and especially to send no money to them, unless through a trustworthy friend in the city, who will go in person and see the parties—if they can find them, which is seldom if ever the case. As a rule, they hither you for particulars, report against your application, and pocket the money you have sent, which is what, and all, they are after. . . . The "N. W. Fire Relief Concert," and "National Benefit for Needy Families of Soldiers and Sailors," 267 Broadway, is an exploded concern, if ever anything but a humbug. . . . An adventurer in Lincoln, Neb., is advertising a \$250,000 legal drawing, ostensibly for the benefit of a City Hospital there. Prudent people will avoid the loss of their money by keeping it out of this concern. If disposed to invest, first write to the Mayor of Lincoln, Neb., and see how much he indorses it. . . . Pardee & Co., Binghamton, N. Y., still operate upon greenhorns, selling them "tickets" at fifteen to twenty-five cents each, which tickets are so many falsehoods, as they promise, for example, that for \$2.24 sent to the said Pardee & Co. you will receive a \$20 watch. Will not the authorities of Binghamton conserve the credit of their beautiful city, and benefit the public by speedily quenching or jugging this swindling concern? We are tired of receiving from all over the State the circulars and tickets sent out by Pardee & Co., so called. . . . R. H. Foster, Fourth street, Williamsburgh, N. Y., is like Pardee, or worse if possible. We thought this swindle dead last year, but we have new circulars dated 1872. He orders money sent to "R. H. Foster, care of Westcott's Express, Brooklyn, N. Y." We hope no decent express company favors this swindle. . . . The "Spanish Policy" swindler, at 16 S. 5th ave., N. Y., works under such new names as C. W. Alter, D. B. White, C. M. Payne, etc. Would it not be well for the N. Y. P. O. to deliver no letters, except for well-known, responsible parties, at No. 16 S. 5th ave., or No. 22 W. 4th st., or No. 34 Amity st., or No. 89 Fourth ave., etc.? . . . Among the names assumed by the "Queen" operators we find for 22 W. 4th st., James Hippel, *alias* B. S. Carey, *alias* F. Benton; at 24 Amity st., Geo. W. Beach, *alias* D. M. Palmer, *alias* James P. Sargent; at 89 Fourth ave., J. E. Morrell; at 23 Wooster st., W. B. Messler; at 105 Bleeker st., Levi P. Rose, *alias* Warner Ely; at 292 Chestnut st., Philadelphia, Brown & Billings. . . . In reference to "Lock-box 26, Lincoln, Ill.," spoken of last month, the Postmaster, H. D. Cadwallader, Esq., writes us that one James P. Freeman edited a little sheet, there called the "Silver Leaf," and took the above box, and that letters were delivered to him on the supposition that they were upon business connected with the paper; but that they are now sent to the Dead-Letter office. All right; we are glad for the credit of both the people and the Postmaster that they are rid of that discreditable nuisance. Of the political operations of Freeman we have nothing to say in this journal, because we admit no political matters or allusions whatever. . . . John M. Tullman, 3 Dutch st., N. Y., is on a stealing raid. No one offering such vile hooks as are named in his circular would hesitate a moment to steal and appropriate every penny sent to him. Wesley Smith, of Palatine, Cooke Co., Ill., is no better. Let no one be deceived by his "Private Instructions." He will pocket your money, or at most send you a small, villainous sheet, unreliable, deceptive, and dangerous.

The Old Trouble.—"J. M.," Camp Hill, Pa., has the same trouble we all have—want of manure—and wants to know how he can get over it. His rotation is that usual in the East—corn, oats, wheat, grass, with manure on the oat-stubble; and he asks would 300 pounds of superphosphate, at three cents per pound, pay to use.—"J. M." should read the article in this present number of the *Agriculturist*, "Hints about Wheat," which will

convey the information wanted. It will be useful for him to consider whether it would not pay to put all his manure on half his land, and raise larger crops, and so gradually increase his supply of manure.

Hay-Press.—J. Newton, Alstead, N. H., writes us that there is a hay-press made in Albany, N. Y., which will pack 500 pounds in a bale. This is intended for the benefit of G. L.

Salt.—"A Young Farmer," Chester Co., Pa., asks what is the effect of salt on land.—Practically, salt is found to stiffen the straw of grain crops, and to increase the amount of the clover and grass crops. This is doubtless due to the fact that water in which salt is dissolved is able to dissolve more silica than pure water, and this helps to improve the straw, the ash of which consists almost wholly of silica; also, salt enables water to dissolve more gypsum, or other forms of lime which improve the crops of grass and clover. Thus far we can speak understandingly, but little further, as salt itself, or its component substances, chlorine and soda, are but very sparingly found in the substance of plants grown on farms.

Fair Lists.—For very full list of Fairs see pages 333 and 334.

About Beans.—A. Chavannes, Knoxville, Tenn., wants to know all about gathering beans and keeping them from the weevils. Beans should be gathered by pulling them up by the roots when they are ripe, leaving them on the ground until dry, or, if there is danger of rain, stacking them around a pole five feet long stuck in the ground, in tall narrow stacks, and capping them with straw, until they are ready to thrash. They should be well preserved from rain, as their color is much injured by damp or mildew. The weevil gets into the bean during its early growth, when the pod is soft, at which time the parent beetle deposits its egg in the pod, and the grub eats its way into the bean, where it remains until the next spring. Therefore no management after harvest can affect it.

Fish-Nets and Sheep-Nets.—The various inquiries about fish-nets and nets for folding sheep on pasture need illustrations for satisfactory replies; and these require time to prepare. We shall endeavor to have these in season.

Size of a Quart Measure.—"J. C. B.," Eau Claire, Wis., asks what is the size of the quart used by milk dealers.—The quart is the fourth part of a gallon. A gallon, by United States law, in force where no conflicting State law fixes any other standard, is 231 cubic inches, and contains 8.355 (eight and three hundred and fifty-five thousandths) pounds of distilled water at a temperature of 62°. This measure is, or ought to be, used by milk dealers and all sellers of liquids.

A Leaky Cistern.—R. Ripley, Brown Co., O., has a cistern, in the bottom of which a vein of water has forced its way through the cement, and now the soakage from the barn-yard finds its way into it; how shall he remedy it?—There is no remedy but to dig a new cistern. Where a stream of water is cut it is useless to try to keep it out; it will work through sooner or later, unless means are taken which will be more troublesome than making a new cistern.

Pumping by Clock-Work.—Geo. E. Johnstone, Louisville, asks if it would be practicable for a machine run by weights to pump water from a well, and to raise in twenty-four hours 100 gallons to a height of 35 feet.—This is perfectly practicable and easy, and a machine on the principle of that figured in the *Agriculturist* of March, 1872, page 97, to be wound up by a horse, might be constructed at a slight cost, that would run twenty-four hours, and do the work required.

Weather Indicator.—"A Reader" wants a cheap weather indicator that will foretell rain and storms. A barometer is the most reliable. The cheap weather indicators soon become useless, and are not to be depended on at the best.

Tanning.—"T. S. S." sends the following directions for preparing skins when, as it often happens, "brains" can not be procured for dressing them: If the skins are dry, soak them two or three days; then break them—that is, rub them on the flesh side with the back of a fleshing-knife until they are perfectly soft. Remove the hair by immersing them in lime-water. Then steep them a week or ten days in a fermenting mixture of bran, say two pounds of wheat-bran to every gallon of water. Then scrape and clean them, and put them into what is called the "white bath," composed, for one hundred deer or sheep skins, of a boiling solution of twelve

to eighteen pounds of alum in twelve gallons of water, to which add two and a half pounds salt. Pass the skins separately through the bath, and then immerse the whole together for ten minutes. A paste is then made, by gradually adding, during careful stirring, first fifteen pounds of wheat-flour to the above alum bath, gently heated, and subsequently the yolks of fifty eggs, and then incorporating the whole thoroughly. The skins, after being passed through this paste singly, are then transferred to it in bulk and left for twenty-four hours. They are then stretched on poles to dry, when they are worked on the "softening iron"—that is, rub them over a shovel or any kind of round iron to stretch them and develop whiteness. They will be white as snow and soft as velvet. Color can be imparted with dye stuffs.

To Remove a Cow's Horn.—"R. M. H." wants to cut off a cow's horn which grows too close to her face, and wants directions.—If the end of the horn only requires removal, merely sawing it off with a fine sharp saw will be sufficient. But the lower part of the horn is filled with a sensitive cellular substance, and if the horn needs cutting there the animal must be secured, and when the horn is removed by means of the saw the stump must be bound up with a cloth saturated with tar to exclude the air, when the wound will gradually heal over. The same treatment should be applied to a horn broken off at the lower part.

Ventriloquism.—"Sailor-boy." This is something so far out of our line, that we are unable to give you any advice about it.

Colorado Wheat.—Spring wheat raised by irrigation in Colorado the past season, stood five feet five inches in height.

New York State Poultry Society.—The Semi-Annual Meeting of the New York State Poultry Society was held at their rooms, No. 27 Chatham street, New York, on Tuesday, July 9th. After some preliminary business, it was "Resolved, That the business of the Poultry Bulletin having become a burden on the Executive Committee, and personally upon the Treasurer, if, in the judgment of said Committee, any arrangement can be made for the conducting of the Journal by another publisher, they are empowered to take any action they deem best in the premises, considering the interests of all concerned." The time and place for the next Exhibition were then considered, and it was finally "Resolved, That this Society do not now decide upon holding an Exhibition, but that the whole subject be referred to a special meeting of the Society, to be called by the President, and held at Elmira, N. Y., on Wednesday, October 2d, at 2 o'clock p.m., during the Annual Fair of the New York State Agricultural Society."

Pickles.—G. W. Drew, Menomonee Co., Mich., and several others. All that we know about the pickles "such as you see in the stores," is that they are put up in perfectly white vinegar made from whiskey. Pickle-making is a trade that has to be learned the same as the confectioner's, baker's, or similar trades. If you wish to go into the business, it would be best to employ a workman who understands it.

The Best Breed of Dogs.—"A Sailor-boy," of Canada, wants a dog of the best breed for a watch-dog, one that is faithful and kind.—Old Dog Tray would just suit him, "for he was faithful, he was kind," but we believe he is dead, unfortunately, and there is no help for the sailor-boy but to get a Newfoundland dog. Bot, like all other dogs, they like mutton "ow'er weel."

Plowing Under Weeds.—"H. H. H.," Fennville, Mich., sends us a plan of plowing under weeds and long grass, which we supposed everybody knew of, but as he thinks it new perhaps it may be worth repeating. It is to hang a chain from the plow-beam near the conter to the right-hand end of the evener, and allowing it to drag in a loop in the furrow, so as just to clear the falling earth and drag the weeds under it.

Level for Irrigation.—"R. Q. T.," Fort Collins, C. T., asks if there is any simple instrument that can be used for taking levels for irrigation, which would serve the purpose of the costly surveyor's level. A very good substitute for the surveyor's instrument may be made with a common mason's spirit-level, to the ends of which sights, with cross-hairs, may be attached. The level may be rested on a "Jacob-staff," or a tripod furnished with a small table at the top. Any carpenter or mechanic can get it up at the expense of two or three dollars in addition to the cost of the level.

Exhibitors at Fairs will find our list of coming Fairs on pages 333 and 334.

Bed-Bugs.—"J. W. W.," Windsor, N. S., has purchased a wooden house, which he finds tenanted with bed-bugs, and asks what to do. One of our associates was troubled in a similar manner, and completely conquered them by blowing the Persian insect-powder into every crack and cranny. This powder to be effective must be fresh, and have been well preserved. That put up in small tins, as "magnetic powder," and under various other names, is often worthless. Get your druggist to order from a New York importer a pound-bottle, and you will be likely to get the real thing.

Cold-Frame Cabbage Plants.—"R. H.," Chester Co., Pa. Your questions indicate that you should have Henderson's, Drill's, or some other practical work on market-gardening. We must assume that our readers are familiar with the first principles, and can not in every issue repeat the alphabet of gardening. In the case in point, cabbage seed is sown in the open ground about the middle of September. Before cold weather the plants are pricked (set out with a dibble) into cold-frames. Here they are kept in a dormant state as much as possible by the proper management of the glass. They are not to grow, nor are they to be subjected to sudden alternations of temperature. As soon as the ground can be worked in the spring, these plants are set out where they are to mature.

Grape-Vine Leaves.—"S. T. Gilbert, M. D., Memphis, Tenn. The leaves sent are covered with the excrescences of the Grape-leaf Gall-louse, *Phylloxera vitifolia*. It has heretofore been mainly confined to the Clinton, and the only remedy that has been suggested is to root up that variety. We have not before known it to attack the Delaware and Creveling. You will find a full account of this insect in the report of C. V. Riley, Entomologist of the State of Missouri, in the report of the Board of Agriculture of that State for 1871.

Strawberries.—"G. H. T.," St. Catharines, Ont. We had written a letter in reply to your inquiry, but upon looking at the bottom of your note we found that you had given only your initials. We have so often stated that we did not answer personal inquiries through the paper, that we supposed all our readers were aware of the fact. As you live over the border, we will so far depart from our rule as to say that we think you can get what you desire from Louis Ritz, Plainville, Ohio. People in writing to business men usually give their names. If they write to editors, they must give names or expect no reply.

The Radish-Bug—A New Insect.—Mr. W. R. Howard, Entomological Editor of the *Southern Farmer*, sends us an account of a new bug which has not been before described. It is called *Nysius Raphanus*, as it was first noticed upon the radish. It seems to be a universal feeder, attacking radishes, cabbages, grapevines, and potatoes, to which it is particularly destructive. It is related to the Chinch-bug. The description sent is so thoroughly technical that it would be of no use, except to entomologists, were we to publish it. We regret that Mr. Howard did not give a popular description by which any one could recognize the insect.

Failure of Spring.—"J. S. Frederick, Dubuque, Iowa, has a spring which for the past five years has been gradually failing, and would like to know if he may expect to lose it altogether, or if there is any way to restore it.—The probability is that the underground stream has opened a new channel or found a new outlet, which sometimes happens, and whether or not this can be remedied is doubtful. On some occasions flowing wells which have fallen off have been restored by pneumatic exhaustion, but we know of no way of applying this to a surface spring.

Imperfection in a Bull.—"O. C. G.," Lynd, Minn., has purchased a full-blood Devon bull, but finds that it has but one testicle, and he asks will that destroy his usefulness.—Probably the other is not far off, though not in sight; and were it altogether wanting, would not necessarily render him useless.

Lawn on Sandy Soil.—"J. H. K.," Dunn Co., Wis. You do not say what kind of grass you have on your lawn. At all events, we should sow some Red-top, and give a dressing of ashes and ground bone. Manure will bring in weeds, of which you have enough already; frequent mowing will eradicate the sorrel.

Land for Stock-raising in the West.—John A. Oakes, Elkhart, Ind., asks where in the West can land be procured for stock-raising purposes, and at what prices.—In the northern parts of Kansas there are railroad lands to be purchased for five dollars and upwards per acre, suitable for stock-raising,

and in other parts of that State government lands may be pre-empted or "homesteaded." Particulars may be learned by writing to the United States Land Office, Topeka, Kansas. Nebraska and Minnesota also offer favorable locations for stock-raising.

Clover Seeding in Fall.—E. Weimann, Mecosta Co., Mich., has had trouble in getting his clover to catch in the spring by reason of the drouth; he would like to sow it with rye this fall if it would be advisable.—It would not be advisable. The frosts of early winter would destroy the young plants. It would be better to try again in the spring, and harrow the rye with a Thomas harrow just after the clover is sown, when it would not be so likely to fail.

Molting Hens.—G. E. Harris, Lowell, Mass., asks what is the best treatment for hens during the molting season. Keep them dry and their houses clean, give them fresh dry ashes or road dust to wallow in, feed the best of food and give them some ground pepper or other warm stimulant with it, and fresh water with a very small quantity of sulphate of iron (or common copperas) dissolved in it. As soon as they recover they should be fed wheat until they commence to lay again.

Mange.—"Monarch," Perry Co., Mo., wants to know what ails his mare, which is constantly rubbing her mane and tail, and making sore spots on her neck by so doing, and what shall he do for her.—The mare has the mange, which is a skin disease similar to the itch. Give a table-spoonful of sulphur in her feed once a day for a week, and wash the tail and neck with soap and water, and then rub lard and sulphur ground up together, on the spots or the itchy parts.

Peas.—A farmer wants to know how he can grow peas free from "bugs." The only way is to sow them after the weevil has disappeared, which is generally about the 10th of June; at least peas sown after that time are seldom affected, when early peas are much injured. The best pea to sow with oats for fodder is the black-eye marrowfat, or some other pea with large vine; this variety should be sown early.

What is a Bushel?—"J. H. J.," Frankfort, Ohio, says that the rule given in the *Agriculturist* of April, 1872, for measuring corn in the crib has been pronounced incorrect by our readers in that neighborhood, and he asks why we take 2,750 inches for a bushel when 2,150 inches make a bushel all over the commercial world.—Our rule is correct. We take 2,750 inches for the simple reason that *corn-ears* are sold and measured by the heaped bushel, which is 2,750 cubic inches. 2,150 inches is a *struck* bushel, by which shelled grain is measured, and generally two bushels of corn-ears, of 2,750 inches each, make one bushel of grain of 2,150 inches. Corn, measured in the *crib*, of course is understood to be ears of corn, and the bushel in that connection is the heaped bushel.

Greasing Cog-Wheels.—C. Wade, Fairview, Ky., asks if it is necessary to grease or oil the cog-wheels of machinery, and if so, what is the best oil?—As there is considerable friction in the contact of cog-wheels, they should by all means be lubricated. The best lubricator is tallow and black-lead, rubbed together. In mowers, reapers, and thrashing-machines, this should always be attended to.

Bets.—We do not desire to be made a party to the decision of a question on which a bet is depending. Such disputes are never settled by such a decision, and the defeated party is never convinced of anything but that he is an injured individual. We desire to give information that may be useful to our readers, and are willing to respond to requests for such, but not to decide bets or even disputes.

Shares Harrow.—O. C. Gregg, Lyon Co., Minn., asks where a Shares harrow can be procured, and if we think them the best for prairie sod.—This harrow can be purchased of or ordered through any agricultural implement dealer. It is undoubtedly a very good harrow, if not the best, for mellowing plowed sod without turning it back.

Smut.—"Orion," Clarksville, Neb., complains of his spring wheat being smutty; not single grains, but the whole ear is a bunch of smut. What is the cause and the remedy?—This is only a bad case of ordinary smut, which is a fungus often appearing on grain of all kinds, and sometimes completely destroying it, as in this case. It is worse in hot damp seasons than in others. A remedy is to soak the seed in strong brine or a solution of blue vitriol for a few hours, drain, and dry with lime, air-slaked, in a state of fine powder, just before sowing.

How Can it be Done?—It is often asked, How can the Publishers possibly give so large a paper as this, with all its Engravings, etc., at \$1.50 to \$1 a year?—*Answer:* The circulation is so great, that the Thirty-odd Thousand Dollars laid out in engravings, getting information, proofing, electrotyping, office expenses, etc., amount to but a trifle for each subscriber. (If there were only 30,000 subscribers, this would cost over a dollar each.) But the publishers are satisfied if they get from subscribers just about the cost of white paper to print on, because the large circulation brings an income from good advertisers to pay other expenses and a living profit. The advertising pages are valuable to the reader, because only good advertisers are admitted, and they can go with confidence to these pages for business information. The reader will thus see why it is that so much can be given for a small amount of money. More subscribers bring more advertising money, which in turn enables the publishers to give a better paper, as well as premiums, and the extra numbers offered on page 328.

Ten Cents a Month, or 2½ Cents a Week, or ½ Cent a Day, will be the cost to any one of having himself and family supplied with the forty-four pages of good reading, of useful information, of fine pictures, etc., given in each number of the *American Agriculturist*—that is, to those who subscribe this month, and get the extra three months offered free. If four, or ten, or twenty or more persons club together, the cost will be even less than the above. See page 328.

Eggs at 12½ Cents a Dozen.—In New York they retail now at 35 to 45 cents a dozen, but at 12½ cents a dozen, a little more than two eggs a week would pay for the *American Agriculturist* during the next fifteen months, at the extra offer made to single new subscribers on page 323, with a further reduction to clubs of four, ten, or twenty. One good hen ought to yield this much. *Result:* Keeping one hen more will supply a family with the constant reading of this journal. Why, the \$15,000 worth of fine pictures given in every fifteen months are worth a hundred times as much as this.

How about the Four Millions?—There are probably about five million men in this country who are engaged in cultivating some portion of the soil, varying from a garden plot up to large farms. From four to five hundred thousand read the *American Agriculturist*, directly and indirectly, and enough more to make up one million read other journals devoted to practical cultivation, while some four millions plod on, using only their muscles and what knowledge they have picked up by experience and limited observation. Every man of them all ought to be observing, reading, and studying about his business—making his head help his hands. What would be the effect if, for one year only, every cultivator in the land should become a reader of books and papers devoted specially to his own pursuit, or even of only one such paper? We firmly believe it would add millions upon millions of dollars to the products of the country. It would give each one something more to think of during the hours and days and weeks of hard toil, and they would be so much happier and so much elevated above the animals whose muscular force they employ. It would dignify their calling, and make it more attractive to themselves and their sons. Suppose, now, that each of our present readers should induce one or more brother cultivator to become a reader also. Would it not be a grand contribution to the general good! We believe so, and invite each of our readers to do this much. *As an extra inducement to such non-readers, the Publishers propose to present to all new subscribers, who come in this month, a whole quarter-year's subscription; that is, any new subscriber coming in during September, will get the Agriculturist from now to the end of 1873 for a single year's subscription, as noted, page 328. Will our friends please make this offer known among their friends and neighbors at once?*

Weak Hoofs.—"M. E.," Walla Walla, W. T., wants something to prevent the hoofs of his horses and colts from breaking as they do in his dry climate. They are too dry, and if they are washed in water occasionally and then well rubbed with tar they will become tougher. It would be well in addition to keep the loose ragged parts pared off.

Curb.—T. B. Townsend, Washington Co., Maine, asks for information relative to curb in horses, and whether it is likely to cause permanent lameness. This is a disease of the tendon at the rear of the hock-joint and its sheath, resulting from a strain, and appears in the shape of a swelling immediately below the joint at the back of the leg. It does not affect the bone as a spavin does. It is curable by cooling applications and bandages on the parts, if curable at all. Blisters or firing irritate it and render it totally incurable.

Substitute for Wood-Ashes.—I. Little, Akron, Ohio, wants to know if there is a substitute for wood-ashes. The German salts, or kainit, and sulphate of potash are all sold as substitutes for wood-ashes, and have been used in England with success.

Fallows.—T. B. White, Sherburne, Mass., asks if fallowing will help light soils, and if a fallow is plowing land and keeping it for a year free from weeds.—Fallowing is not profitable on light soils unless they are excessively weedy, and then a hoed crop would be better. But on heavy clay soils which are very weedy, and have been severely cropped, a fallow, which consists of several plowings and harrowings and a complete mellowing and clearing of the soil from weeds, is very often highly beneficial.

Roots for Stock.—"C. B. J.," Bear Lake, Wis., is preparing land for roots, but is doubtful which sorts would be best to plant for cows and young heifers. There are no roots which exceed the ruta-baga and the sugar-beet for feeding purposes, and as a variety to some extent is desirable, it might be better to plant both of these kinds. For a good crop rich clean land is needed.

Milking Machine.—Ernest Beckert, Montana, asks if there is a milking-machine, and if so where it can be got. We do not know of any better machine, or one so good, as the ordinary one that sits on a three-legged stool and sings while it milks. The patent machines are merely curious failures.

Sweet-Corn Fodder.—A "Youthful Farmer" says he believes that sweet-corn fodder contains more nutriment than that from field corn, and he is cultivating six acres for his stock. Is he doing wisely?—This is a question which has two sides to it, as many others have. Sweet-corn fodder contains more sugar but is less bulky, and the yield is not more than half or one third that of common Western or Southern corn. However, the result of the experiment will test the question, and we should be glad to hear how it turns out.

Best Stump-Puller.—"R. S.," Cox's Mills, Ind. There are several kinds of these implements described in late numbers of the *Agriculturist*, which are useful in their way. There are several others made throughout the country which are patented, and which are said to be good machines, and which it would be for the general interest if they were advertised. We do not know the makers' names.

Ditching Machines.—We have several inquiries for ditching machines, also about their relative merits. We do not know the addresses of any of these makers, but we know there are machines which will do good work where there are no stones or roots to interfere with them. The best we have seen was at Duquoin, at the Illinois State Fair last year, but unfortunately can not give the address of the makers.

A Six-Acre Farm.—"A Constant Reader," Portage City, Wis., asks what shall he raise on six acres of light sandy soil to get the greatest revenue out of it when he can not attend personally to it? He suggests hops.—Hops thrive best on deep, strong loams or clays, and this light soil would not be suitable for them. Such crops as potatoes, cabbages, carrots, sweet-corn, and others, called market crops, would be most profitable on such a small tract near a town, if, as we may suppose, there is sale for them; or strawberries or small fruit might do. But the question is, How can these be profitably raised without personal attention? There is no resource here but to get a good market gardener to raise the crops on shares or on long rental.

Abortion in Cows.—"T. B.," Mass., says this complaint has got amongst his cows, and asks if it

will do good to allow them to go farrow a year. Generally, in such a case, it is found best to sell off the whole herd and buy a new stock. The loss of a year's profit would be too considerable, and would be far greater than thus changing. The change often results in bringing about a cure in the cows. Then the whole premises should be disinfected or cleaned, whitewashed, and renovated most thoroughly before the new stock is brought in. The nervous system of cows has more to do with this than is generally supposed, and once the trouble occurs by accident, as in this case, it spreads as by contagion. Then medicine and treatment are found of no avail, and dispersion is the simplest remedy.

Punctuation.—"C. L.," Portage City, Wis., wants to learn the rules of punctuation. "Wilson on Punctuation," which may be ordered through any bookseller, would be a useful work to study. The writing would be a fair business hand, with more care. The main thing in business writing is to write legibly.

The Cook Evaporator—Patent Extended.—The patents covering this machine—an invention that has proved of great value to the sorghum and sugar-cane interest—which expired on the 22d ult., have been extended seven years. These patents cover all channeled pans in which a cooling surface is used as a resting-place for the scum, and all pans which afford facilities, either by rockers, gate, or otherwise, for regulating the flow of the stream of juice on the bottom. As the entire control of the Cook patents has passed into the hands of one party, and prosecutions will be commenced against all parties infringing, it is important that those using, or about purchasing, an evaporator that infringes on these patents, should know that not only are the makers of such machines liable to heavy penalties, but the dealers and those using them also.

Condition Powders.—"M. Z. F.," Van Buren County, Mich., has some blooded pigs which he wants to grow rapidly and look well; he asks if condition powders will be good for them, and if fed in large quantities can harm result?—These powders have generally tonic and alterative properties, or are intended to have, and are supposed to increase the appetite. But it is not wise to depend on them to the neglect of good sufficient food and cleanly and healthy lodging. If given in excess, undoubtedly they would be harmful.

Danger of Choking by Turnips.—A. C. Knoxville, Tenn., asks if there is danger of cattle choking when feeding in a field of small turnips. Yes, more so than in any other way, and it should not be permitted. Better pull the turnips, and chop them up in a trough with a sharp spade, and feed them in the yard.

Disease of Poultry.—J. R. Williams, Raleigh, N. C., wants a remedy for his poultry, which have lost their appetite, keep their eyes shut, and hold their heads to the ground; their feathers fall off, and their bowels are costive; after twelve to thirty-six hours they die.—This seems most like pip, which affects the point of the tongue and prevents the bird from feeding, and results in fever and starvation. On examining the tongue, if a horny scale is seen on the point of it, remove it with the finger-nail, and give soft feed.

Gail Borden.—We are indebted to Mr. S. L. Goodale, Sec. Maine Board of Agriculture, for a very neat pamphlet, of which he is the author, giving an account of our friend Gail Borden's inventions in preparing condensed milk, concentrated meat, etc. The memoir has an excellent portrait of the "great condenser."

Col. Waring's \$100 Premium for 1872.—The annual premium of one hundred dollars, offered by Col. Waring, of Ogdon Farm, for the best Trophy Tomato raised this year from seed of his "head-quarters" stock will be awarded by the editors of this paper to the heaviest tomato, of perfect form and well ripened, that may be sent, express-paid and in good condition, to Messrs. Orange Judd & Co., 245 Broadway, New York, before October 1st. The specimens sent will be exhibited at this office, and will be well worth a visit. The Trophy has, from all accounts, and from our own observation of it, surpassed itself this year—especially in carliness of ripening and in profusion of bearing.

Grub in the Head.—A "Doctor," of Westfield, Mass., says that "grub in the head" in sheep may "be cured by pouring into the ear a table-spoonful of butter melted and mixed with a teaspoonful of spirits of turpentine."—Now this wise, or rather otherwisc doctor, seems not to know that the grub exists only in the nasal sinuses, and can only be reached through the nostrils, and how his physic is going to reach the grubs through the sheep's ear is a mystery which he ought to fully explain. We have tried all reasonable remedies,

but have found prevention by keeping the sheep's noses tarred to be much the best "cure." It is very rare that a sheep dies from the effects of these grubs; but turpentine in the ear would be far more injurious than a good many grubs in the head.

Irrigation.—"A Subscriber," Riceville, Tenn., writes that he is situated on a muddy stream, has an improved 25 horse-power, and 150 acres of land around the water-power, and from 30 to 60 feet above it; can he profitably use a pump to raise 1,000 gallons of water per minute to irrigate his 150 acres?—The way to figure this out is to take the weight of 1,000 gallons of water = 8,333 pounds, multiplied by the height it is to be raised, 60 feet, and divide by 33,000 = to the pounds raised by one horse-power per minute, which gives 15, the horse-power required to raise 1,000 gallons per minute 60 feet high. The power is thus seen to be ample. The only remaining question is, would the expense of raising and distributing the water be repaid by doubling the crops of grass, as this is the utmost result to be anticipated in all probability.

Shall he Farm?—"W. F. P.," Newark, N. J., writes us a letter which we like. He is a carriage-maker, but is strongly attracted towards farming, of which he knows considerable; is sober, careful, and industrious, and can rent a small farm near New York on favorable terms, and has eight hundred dollars cash. Though we do not profess to recognize character by handwriting, yet there is that in the tone of this letter which leads us to encourage W. F. P. in his desire, and gives us the belief that if any man can succeed he will.

The Boston Cattle Show.—The exhibition of cattle which the Massachusetts Society for Promoting Agriculture had proposed to hold this month in Boston, has been postponed until next year, because the only available ground for the purpose is occupied by the "Coliseum," in which the Jubilee was held, and arrangements for securing it could not be completed in time to give sufficient notice of the show. We trust that nothing will next year prevent the carrying out the very promising plans that had been formed.

Cucumber Catsup.—J. D. Boggs, Md. The item referred to should have said cucumber catsup instead of "salad." To make the catsup, gather the cucumbers when full grown, but before they turn yellow, peel and grate them. Let the pulp remain upon a colander until the juice drains off, then rub through a coarse sieve, to separate the seeds. Half-fill bottles with this pulp, fill up with vinegar, and keep well corked. This retains in a marked degree the odor and taste of fresh cucumbers, and is excellent with cold meats. When served upon the table, salt and pepper are added. We extemporised an efficient grater for this purpose by punching holes with a large nail in the cover of a superannated wash-boiler.

He goes Two and a Half Better.—"Subscriber," Symmes, Ohio, in reply to the inquiry made in *Agriculturist* of Augst, says a Durham cow, owned by John Gardiner of that place, had a calf on the 16th May, and on the 25th gave 104 gallons of milk (42 quarts), and the calf at nine weeks old weighed 326 lbs. This is the largest milking by 2½ qts. we have heard of, and is extraordinary. But is there no mistake?

West Virginia Farm Journal.—We find among our exchanges a new-comer, bearing the above name, which is a weekly, published at Union, Monroe Co., West Va. While especially devoted to the local farming interests, the editor has the good sense to let his readers know what is being done elsewhere, by means of judicious selections.

The Bushberg Catalogue.—Isidor Bush & Son, Bushberg, Mo., send us a wholesale catalogue of grape-vines and small fruits, which is noteworthy for the extent of the collection and the condensed descriptions. We notice that Mr. G. E. Meissner, formerly of Staten Island, is now with the Messrs. Bush.

Tree Seeds.—L. A. Gregg, Minn. It is better, when practicable, to sow all the seeds you mention in the fall. If they are to be kept through the winter, mix with sand, and keep in a cool place. If planted in the fall, they come up next spring; if in the spring, they should, if properly kept, come up the same season.

Breachy Cows.—W. F. Humphrey, Poultney, Vt., asks how he may prevent a cow from breaking down and jumping over fences. Sometimes a board hung from the horns over the face will do it. But if the cow is an old one she is most likely incorrigible, and the butcher would cure her of all her bad habits.

Wolf-Teeth in Horses.—W. D. Harry, Rockwood, Ill., asks, What is the truth about wolf-teeth in horses—do horses go blind if they are not removed?—There are some well-authenticated cases of relief to the eyes of horses having followed the drawing of what are called the wolf-teeth, but it is very doubtful that the teeth caused the trouble. They may have indirectly been the occasion of inflammation, and no harm can follow their removal, if not occurring naturally, when the horse is five years old. That they produce blindness is an error.

That Fruit-Wash.—If we were desirous that any writing of ours should live, we would put down something thoroughly absurd and nonsensical, for then we should be sure that it would be quoted every few years. An absurd tree-wash has a vitality that almost approaches immortality. The Country Gentleman has it this time through a corresponded. The wash is made by heating sal-soda until it becomes a dry powder, and then dissolving it in water. Will the Country Gentleman, or any one else, please tell us what is the use of heating the sal-soda before dissolving? If a wash of sal-soda is desirable—and we do not doubt its utility—why heat it first? The merest novice in chemistry knows that all the heating to which we can possibly subject sal-soda (carbonate of soda) will drive off nothing but water, which is immediately restored when a solution is made. Caustic soda can not, like caustic lime, be made from the carbonate by any amount of heat. Then why publish such nonsense?

The Northern Pacific Railroad.

This is one of the grand enterprises of our day, of so great interest not only to every American citizen, but to many millions in Europe, that it is worthy of the freest attention of the press, and of the careful study of every one who would be up with the times. Let the reader open a map of the United States, and follow its general line from Lake Superior westward through Minnesota, 252 miles (completed) from Duluth, on Lake Superior, to the Red River; thence 200 miles through Dakota to the Missouri River, near the entrance of the Jamez River, where it meets the fleet of thirty or more steamboats already plying the thousand miles of navigable waters of the Missouri above, up to Fort Benton in Montana, which is less than 400 miles from the constant steam navigation of the Columbia River in Oregon. The cars, now moving from Duluth west of the Red River, will next month reach the Missouri. From this point the line extends westward, 226 miles, to the crossing of the famous Yellowstone River in Montana, and thence on through an easy pass in the Rocky Mountains to Puget Sound on the Pacific, where track-laying eastward has already begun, with 65 miles about completed. We shall therefore have in October 517 miles of the road in operation, or an average of about a mile a day since the work began, despite all the preliminary examinations, surveys, gathering of materials, and other preparations. The track-laying is now approaching the Missouri at the rate of two miles a day or more. So much for the progress of the work, which will undoubtedly be carried on with all rapidity consistent with due economy.

In looking at the country traversed by the Northern Pacific Railroad, one must remember that the isothermal line (the line of equal temperatures) does not run with latitudinal lines—that is, directly east and west. Paris, in France, with the climate of Philadelphia, is about 200 miles further north than Montreal in Canada; while London is 15°, or a thousand miles, further north than New York, though subject to less of cold weather. The isothermal line running westward bends northward so much that Dakota and Montana are warmer than the northern New England States, while Washington Territory averages in temperature about the same as New York State, we believe.

The vast territory traversed by the Northern Pacific Railroad is, from all accounts, generally well adapted to agriculture, and untold millions of industrious people, from all parts of our own country, and especially from the whole northern half of Europe, will soon occupy this domain. The alternate sections of land owned by the Railroad, on either side, along the portions already completed, or nearly so, amount to some 10,000,000 acres—twice the size of the State of Massachusetts—and, with a wise enterprise, the Company is affording excellent facilities to promote its settlement. A Land Department is established, and a Bureau of Immigration with agencies in various parts of this country and Europe. Large, convenient Reception Houses have been built and furnished at each of several principal points on the road, to serve as temporary free homes for settlers and their families while engaged in selecting lands and preparing their own houses. The Bonds of the Road are taken at

ten per cent premium in payment for lands. The sale of lands not only cancels the indebtedness of the Company, but builds up a local business which must soon render the road a good paying enterprise, aside from any through business to the Pacific coast. The country being developed is so vast and so valuable, that the enterprise must continue for some time to come to occupy a large place in the public attention, and we will try to keep our readers informed of such items as are of public interest.

National Swine-Breeders' Convention.

Report of Committee appointed to prepare Work for the Adjourned Convention to be held at Indianapolis, Ind., November 20th, 1872.

The committee appointed by the National Swine-Breeders' Convention, held at Cooper Union, May 14th, to name committees to prepare reports upon the history, characteristics, and a scale of points for the respective breeds of swine, and upon the question, "What constitutes thorough-bred swine?" also to name the time and place for holding the adjourned meeting of the Convention, respectfully report to the swine-breeders of America:

1. The adjourned meeting will be held at Indianapolis, Ind., Wednesday, November 20th, 1872.

2. It will consist of one delegate, at large, from each State, and of one delegate from each State for each breed of swine raised therein.

3. These delegates shall be named by the State Swine-Breeders' Associations where such organizations exist. Where they do not exist it is recommended that the Executive Committees of the respective State Agricultural Societies, or the State Boards of Agriculture, call Conventions of the Swine-Breeders of their respective States at the time and place of the State Fairs, for the purpose of naming delegates to this Convention. In the absence of any such call, the Committee recommend that the exhibitors and breeders of swine at the State Fairs meet, name, and accredit such delegates. In case any States neglect to do this, breeders from such States present at Indianapolis will be recognized and received as delegates, so far as is necessary to secure just representation from each State.

4. The Committee think it proper to assert that the gentlemen named on the following committees are selected from lists of names furnished and recommended by prominent swine-breeders in the different States and Canada, with a view to securing the most impartial representation upon said committees and the most carefully and intelligently prepared reports upon the respective breeds to be submitted to the Convention for its action.

5. A circular letter was sent to the chairman of each of the committees named, asking whether he would accept the position and duty. Responses have not been received from all. Only two have declined, naming, however, men who would act in their respective places. These names have been substituted. The near approach of the Fairs renders it impracticable to delay this report longer in order to receive further responses. It is, therefore, recommended that the members of the respective committees place themselves in communication with each other, and act as they may mutually agree—or that each member prepare a written report prior to the Convention, and mail it to Alexander Heron, Secretary of the State Board of Agriculture of Indiana, at Indianapolis, Ind.

6. The Committee respectfully urge upon the swine-breeders of the country the importance to them of the work it is the object of this Convention to accomplish; and that since it is to be a delegated and, in a sense, a legislative body, their representatives should be their best posted, most intelligent, and impartial breeders; that if the work projected is well done, it will inaugurate a new era in swine-breeding, and help to protect both swine-breeders and buyers of swine in their mutual relations.

7. The following are the Committees named to report upon "What Constitutes Thorough-bred Swine?" and upon the history, characteristics, and a scale of points for the respective breeds:

On "What Constitutes Thorough-bred Swine?"—John P. Reynolds, Chicago, Ill.; Fred. Wm. Stone, Cinch, Ontario; S. L. Goodale, Augusta, Me.

On *Berkshires*.—A. B. Allen, P. O. Box 376, New York City; J. T. Hudson, Kansas City, Mo.; Daniel McMillan, Xenia, O.

On *Improved Cheshires*, or "Jefferson Co."—C. V. Maxon, Adams, N. Y.; J. H. Sanders, Sigourney, Iowa; J. J. De Forest, Duaneburg, N. Y.

On *Chester Whites*.—Thomas Wood, Doc Run, Pa.; Dr. Calvin Cutter, Warren, Mass.; W. W. Thrasher, Groves, Ind.

On *Essex*.—Joseph Harris, Rochester, N. Y.; Dr. A. C.

Stephenson, Greencastle, Ind.; George Roach, Hamilton, Ontario.

On *Neapolitan*.—M. W. Phillips, Memphis, Tenn.; F. D. Curtis, Charlton, Saratoga Co., N. Y.; Mason C. Weld, Closter, N. J.

On *Magie or Poland-China*.—John M. Millikin, Hamilton, Ohio; Rankin Baldrige, Hagerstown, Ind.; Shepard (of Shepard & Alexander), Charleston, Ill.

On *New Jersey Reds*.—David M. Brown, Windsor, N. J.; David Petit, Salem, N. J.; John C. Tatum, Woodbury, N. J.

On *Suffolks and Other Small White English Breeds*.—John Wentworth, Chicago, Ill.; John Snell, Edmondston, Ont.; T. L. Harrison, Moreley, N. Y.

On *Yorkshire and Other Large White English Breeds*.—O. P. Cobb, Aurora, Ind.; James Brodie, Rural Hill, N. Y.; M. H. Cochrane, Compton, Quebec.

On *Victorias*.—Charles Leland, Albany, N. Y.; W. S. King, Minneapolis, Minn.; George S. Lonsbury, Aiken, S. C.

Any inquiries with reference to this Convention or the Committees may be addressed to the Secretary of the Committee, CHAS. D. BRADGON, 5 Beekman street, New York City.

Committee { HENRY STEWART,
M. C. WELD,
FRANK D. CURTIS,
L. A. CHASE.

Prize Shorthorns.

At the last fair of the New York State Agricultural Society there were some notably fine Shorthorns exhibited. Our artist who was in attendance upon the fair made sketches of several of the prize-winning animals, three of which are given in the engraving upon our front page. The two heifers presented in the upper part of the engraving were shown by Messrs. Walcott & Campbell, of York Mills, N. Y., and well sustain the reputation of the celebrated herds of these gentlemen. These animals were justly admired by lovers of fine stock, and, if we mistake not, the lower of the two has been sold at a large price for shipment to England. The bull in the lower part of the picture is "Treble Gloster," 7331, the property of Geo. Butts, Esq., Manlius, N. Y., by whom it was reared. This bull is considered as a remarkable result of in-and-in breeding. It was calved March 31st, 1867, got by Apricot's Gloster, 2500—out of Spring Beauty, by Apricot's Gloster, 2500—Silkie, by Apricot's Gloster, 2500—as we are informed by the printed pedigree. It will be seen that this bull can find his father, grandfather, and great-grandfather in the same animal. He took the first prize for Shorthorn bulls against considerable competition.

Jersey Cattle, and Scales of Points.

BY GEORGE E. WARNO, JR., OF OGDEN FARM,
(Secretary of the American Jersey Cattle Club.)

The article from the London Field in the July *Agriculturist* suggests several questions which it will be well for intelligent breeders to consider with care.

The American Jersey Cattle Club recently appointed a committee to investigate the subject of a Scale of Points applicable to this breed. The chairman of the Committee (Mr. J. Milton Mackie, of Great Barrington, Mass.) made at the April meeting of the Club an elaborate report on the subject, in which he submitted a scale founded on an entirely different basis from that in use in the Island of Jersey. This is now before the Club for discussion, and may or may not be adopted at the next annual meeting. In the mean time it has no more force than any other expression of opinion, and no one will be more glad than Mr. Mackie himself to have it intelligently criticised. The scale adopted by the Society in the Island of Jersey

is given in the article above referred to. That suggested by Mr. Mackie is (for cows) as follows:

SCALE OF POINTS.

COWS AND HEIFERS.

Points.	Counts.
1. Head, small, fine, and rather long.....	4
2. Face, dished, broad between the eyes, and narrow between the horns, with receding forehead....	3
3. Cheek, small.....	1
4. Throat, clean.....	2
5. Muzzle, encircled by a light color.....	2
6. Nostrils, high and open.....	1
7. Horns, small, smooth, crumpled, tapering, yellow at the base and black at the tip.....	6
8. Ears, thin.....	2
9. Ears, of a deep orange color within.....	5
10. Eyes, full and placid.....	2
11. Neck, rather long, straight, thin, fine at junction with the head, and placed lightly on the shoulders.....	6
12. Chest, deep.....	3
13. Withers, thin, and not too high.....	2
14. Barrel, hooped, broad, and deep.....	10
15. Well-ribbed, having but little space between the last rib and the hip.....	1
16. Back, straight from the withers to the top of the hip.....	3
17. Back, straight from the top of the hip to the setting on of the tail; and the tail at right angles with the back.....	2
18. Hips, of good width between.....	3
19. Hips, long from point to end of hanch-bone.....	2
20. Tail, fine.....	3
21. Tail, hanging down to hocks, with switch reaching the ground.....	2
22. Hide, thin and movable, but not too loose.....	4
23. Hide, covered with fine soft hair.....	6
24. Hide, of a deep orange color where the hair is white.....	6
25. Fore-legs, short, straight, and fine.....	3
26. Fore-arm, swelling, and full above the knee.....	1
27. Hind-quarters, from the hock to the point of the rump, long, rather straight, and thin.....	3
28. Hind-legs, short, straight, and rather fine.....	2
29. Hind-legs, squarely placed, not too close together, and not to cross in walking.....	2
30. Hoofs, small.....	1
31. Udder, full in form—i. e., well in line with the belly, and not fleshy.....	25
32. Udder, well up behind, and not fleshy.....	25
33. Teats, large, squarely placed, and wide apart.....	25
34. Milk-veins, very prominent.....	25
35. Escutcheon, or milk-mirror, high and broad.....	100
36. Size, medium.....	1
37. Disposition, quiet and good-natured.....	5
38. Condition, medium.....	1
Perfection.....	300

The elaborate argument with which this schedule was submitted may be thus condensed: The present scale is defective, because it gives the same value to minor as to greater points, so that the nostrils or the tail may carry the day over the udder, a worthless cow being judged finer than a good one simply because she is prettier. The only way to remedy this fatal defect seems to be to construct a scale in which the relative values of the most important points shall be expressed by high numbers, and the values of the less important by lower ones. We know of no more correct principle than the adage, "Udder means dairy cow." If this be so, we may safely express the total values of the lacteal organs by the same number we fix upon for the values of the minor points (100). We thereby protect the lacteal organs from being outweighed in the scale by the less important organs—as they are in the scale of the Jersey Society. What number shall be assigned to the escutcheon, or milk-mirror? The only principle by which we can be rightly guided is, we think, this: *The escutcheon shows, as in a glass, the milk-giving capacity of the cow.* Its significance can not be truly expressed by the same number that is used to denote the value of a single one of the lacteal organs. It requires for its expression the sum total of the values of all the lacteal organs. If these be denoted by 100, that is the proper number to express the escut-

cheon. Let us give the escutcheon the place of honor which its significance deserves. We arrive thus at a Scale of Points in which perfection is indicated by 300—minor points counting 100, the lacteal points 100, and the escutcheon 100. Our knowledge of the value of the different points of an animal is not sufficient to enable us to express them with scientific accuracy. The most we can do is to frame a scale of comparative numbers which shall prove convenient and useful in judging of the value of animals. We can not wait for science to inform us of the exact worth of the head compared with the tail, but must accept such rules of judging as our present imperfect knowledge can give us.

In discussing the relative merits of these two standards by which to judge the breed, we find that the Jersey scale has the advantage of precedence; that it expresses the points of character under which these cattle in their native home have been greatly improved; and that it is of questionable promise to attempt to change a system which has produced such decided good results. Mr. Mackie's scale, on the other hand, while it has the disadvantage of being novel, applies its standard of excellence most emphatically to what we may justly consider *the more essential* qualities of any dairy animal. Without disregarding those points which give their ornamental value to the Jerseys, it subordinates them to the milking characteristics. The motive with which this is attempted no sensible farmer will question. The manner in which the motive is carried out meets with opposition from men whose judgment is worthy of much consideration. In my position as Secretary of the Jersey Club, I have received many letters on all sides of the subject, and have thus been led to give it more consideration than I otherwise should have done.

It is stated on one hand that the escutcheon or milk-mirror is an *ignis fatuus*—a chimerical creation—and a pack of nonsense; and, on the other, that except for the improvement of beef cattle any Scale of Points is worse than useless, because it must tend to encourage the development of the body rather than of the milk-producing tendency, and that the only standard should be a record of the yield of milk or butter. They are not few who claim that, as the Jersey breed has been brought to its present development by the aid of the existing Scale of Points, it would be extreme presumption for us (who know the breed only by adoption) to attempt to set it aside and raise a standard of our own.

The friends of the new scheme meet these objections thus: If the theory of the escutcheon is not a correct one, Guenon, its discoverer, must have had a superhuman insight into the character of the cows he examined, for in hundreds of test cases he gave an account of the amount of produce, the quality of the milk, and the duration of the flow during pregnancy, which agreed in all essential points with the statements of the owners, who were examined apart from him. Furthermore, it is claimed that his system is a real system, and capable of being taught to others, because in the trials which resulted in its approval by the French agricultural societies, he and his brother examined the same animals separately, and their estimates concerning them tallied exactly with each other, and with the records previously furnished by the owners. This system is not generally accepted in all its details, but very many, if not most, of the most skillful dairymen in this country and in Europe do pay much attention to its general features in buying and selling dairy cattle—believing the escutcheon to be a

valuable if not an unmistakable indication of milking tendency. It is not unlikely that those who object most strongly to the escutcheon, do so from lack of knowledge concerning it. Guenon did not claim that he who runs may read its record, only that it bears a record which he who understands the handwriting may decipher.

Concerning the necessary tendency of any Scale of Points to foster only the beef and fat-forming tendency, it is claimed (and with reason) that it depends entirely on what the scale is. If we say that no cow shall be considered perfect unless we can hang a hat on her hips, surely it can not be claimed that our standard tends to develop beefiness, and so it is with every point that comes under consideration; if we give value to all of the features that indicate great butter-making capacity, and to all that directly oppose the beef-producing quality, we shall encourage the development of a race eminently fitted for the dairy. If prizes are to be awarded according to the records of performance at the milk-pail or churn, who shall verify the records? The premiums would go to those who had the largest yield of brag and dishonesty in their milkers. We can not know whose figures are true and whose untrue, and we must judge of the cow by her pedigree, and by what we can learn from a personal examination of her. In order that we may judge wisely and fairly, we must have a judicious and an invariable standard or Scale of Points.

(TO BE CONTINUED.)

Ogden Farm Papers.—No. 32.

Inquiries are still made about the details of the "deep-can system," most of which are fully answered by previous papers of this series, and it would be unfair to old readers to occupy space with their repetition. The recent hot weather, however (hotter than Newport has often known), has given us a better opportunity of testing the plan than we have had before. For two or three weeks we had by spells intense heat, high winds, thick fogs, heavy thunder-storms, chilly nights, and, in fact, every variety of weather of which an American summer is capable. In all this time, our butter was absolutely uniform in quality, and as good as it is possible for butter to be.

The secret of this uniformity (which under the common system of setting milk in shallow pans on shelves would have been impossible in such weather) was that the milk was kept at a *uniform temperature*. The surface exposed to the air was very small, and the milk took its temperature from the water in which the cans were immersed. This water (pumped up by a windmill from a well 1,000 feet distant, and conveyed through wooden pipes three feet under ground) was not perceptibly affected by the heat of the atmosphere. It varied but little from 53°.

We hope to secure the same advantage in winter by heating the tank-room sufficiently to prevent the water from becoming too cold—which it occasionally did during the past winter—and by heating also the room in which the skimming, churning, and butter-working are done. To effect this heating by the use of common stoves would involve the necessity of keeping up two fires, and the certainty of occasionally having the air tainted by coal-gas. The plan decided on is to build a small hot-water furnace in an outer apartment, and to carry the water-pipes around each of the two rooms.

This will enable us to keep up a moderate heat with the least expenditure of labor, and with the total exclusion of the smoke and gas of the fire. The cost of construction will not exceed the value of two weeks' product, and the expense for fuel will not exceed two cents per pound on the amount of butter made. I am confident that my customers will cheerfully pay ten cents per pound extra for the certainty of *always* having their butter of first quality, while the new customers that the increased capacity of the dairy will require will be much more readily secured.

A neighbor, who also keeps Jersey cattle, recently bewailed his inability to get my prices, and ascribed his failure to the fact that he could not advertise his butter and "write it up" as I do. The reply to this was that my butter is never advertised at all, and that it is only "written up" in these Ogden Farm Papers, which, so far as I know and believe, are never seen by a single one of those who buy the butter. "Good wine needs no bush," and good butter is equally successful in making its own way. The reason why "O. F." butter sells for a better price than common butter is that it is better—made from the milk of better cows, by a better system, and (to give Frau Haubrich her well-earned share of the credit) by a better butter-maker. Any other farmer who will use the same means that we do will achieve a corresponding success; until so many of them do it as to make the supply of good butter equal to the demand for it—and that will not be in our day.

In an article in this number on Earth-Closet Manure I have alluded to the question of fallows—the "pet idea" of my friend who "Walks and Talks on the Farm." I shall not have the temerity to oppose any recommendation of so good a farmer as he is, especially when he is sustained by the recorded experience of many generations of good farmers who have preceded him, notably by Jethro Tull, who believed that the frequent and thorough stirring of the soil might be made to do away with the necessity for manure. At the same time, Dr. Voelcker's statement concerning the small amount of ammonia found in earth which had passed five times through the closet, confirms a suspicion that I have long had, and for which I have found some authority in my reading, that loose, dry earth (loose enough and dry enough to admit air freely into its pores) is a destroyer of the ammoniacal products of the decomposition of organic matter. Or, to be more precise, the air is the destroyer, and the earth condenses or concentrates the air, and makes it more rapidly active.

Investigations made in England with a view to determining the value of sewage-water as manure, and others to decide on its contaminating influence when mixed with the water of rivers, have shown that under the condition of exposure to the air to which the movement of the water subjects it, its organic impurities are after a certain distance traveled entirely annihilated. Not only are the original compounds of the sewage destroyed, but the resultant impurities of their decomposition, and even the ammonia, etc., into which these are finally resolved, are utterly consumed (or withdrawn) by the air after a certain amount of exposure, so that the water becomes safe to drink, and useless as manure. This effect is ascribed to the action of the oxygen of the air, which consumes, under favorable circumstances, all organic matters.

The ability of animal charcoal to disinfect large

volumes of foul gases is in like manner ascribed to the fact (or to the supposition) that it condenses within its pores much oxygen (or active ozone), which there exists under circumstances favorable to its powerful and repeated action—destroying and dissipating (not storing up) the products of organic decomposition with which it comes in contact. It seems to act like a mill, grinding all the foul grist it can receive, and ever ready for more.

In like manner, but in less degree, the earth used in an earth-closet does not store up all the ammonia that the decomposition of urine and solid feces supplies to it, but aids in its destruction and dissipation. Dr. Voelcker seems to have demonstrated the fact that a mass of dry earth, in the loosened condition in which it is used in the closet, is a poor storehouse for the ammoniacal parts of manure.

If this is true, then the same property of earth should exist in the soil of a cultivated field. Lying in a compact bed, it may retain animal manure indefinitely. Plowed and covered with a crop, it may be able to carry the decomposition of effete organic matter only to the point of preparing it for use before it is taken up by the roots of the crop. But in the naked fallow, which is opened to the admission of air to the fullest possible extent, I see no reason why the destructive conditions of the earth-closet manure should not be present in the most active degree. I have heard farmers say, "That land has been plowed to death; the manure has all been burned out of it," and I think the above possible explanation of the destructive action of disinfectants accounts in a way for the injury to which they refer.

There is no doubt that the naked fallow system—the fine comminution of the soil—is very beneficial in developing the latent mineral sources of fertility. That it does not lead to the dissipation of its organic sources of fertility we can hardly believe. This is not to be taken as a conclusive argument against fallows, only as a suggestion about them. They offer an excellent means for destroying weeds, and if these are allowed to grow nearly to maturity (flowering) before being plowed under, they secure a large and valuable addition of organic matter (green manuring).

If the suggestion made constitutes a real objection, it is one which will have more weight with those who adhere more strongly to the modern English idea of the supremacy of *nitrogen* in manure, than to the "mineral theory" of Liebig, which is still not without its defenders. My knowledge of the subject is not sufficient to give especial weight to my opinion that the fundamental and permanent fertility of the soil depends mainly on its mineral wealth, and but slightly on its content of nitrogen, and that, therefore, we shall be better off in the long run if we develop the mineral element even to the sacrifice of the ammonia. At the same time, I would hold very tenaciously to the crude organic matter on which the fertile *physical* condition of the soil (and the chemical condition too) so largely depends, and my fallows should always be "green fallows." Rag-weed or some other rapid grower should carry into the furrow a good supply of organic-matter at each plowing.

My relations with the Island of Jersey have brought me acquainted with a work on "The Varieties, Properties, and Classification of Wheat," written by Col. Le Couteur, who has long been known as a leading authority on Jersey cattle. This work on wheat contains the

results of thirty-five years of careful experiment and study in connection with the growth of wheat on a large scale and in experimental beds—results which can not fail to be of the greatest value to all practical cultivators of the great cereal. I call attention to it in this way because it is not a work that is likely to be reproduced for the American market, and many of the readers of the *Agriculturist* may be interested to know of it. It has determined me to attempt the cultivation of some suitable variety of wheat at Ogden Farm, although it is accepted by my neighbors as a fixed law that on the Island of Rhode Island, with its open winters and high winds, it is impossible to grow it at all. Col. Le Couteur's work encourages me to think that I may find a variety that, on our excellent wheat soil, will withstand our unfavorable climate. Whether its cultivation will pay, even if it is successful, is yet to be proven, but the chances are worth the trial.

Water Running into an Underdrain.

A subscriber to the *American Agriculturist* in Ulster Co., N. Y., writes: "I have a large ditch into which empty two or three springs, which form quite a large stream at some seasons of the year. It starts from a farm above me, and flows through 20 rods of my land. I want to cover it up. How shall I manage to run it no further up than my line, and yet not have it fill in at the head? I also want to have my branch underdrains to flow into it."

There is no difficulty in regard to the side underdrains discharging into the main covered drain, provided the main drain has sufficient capacity to carry off all the water. The real difficulty in the case is the water flowing from the open ditch into the covered drain. It is apt to carry sticks, weeds, grass, etc., into the drain, and stop it up. We have on our own farm a covered drain, four to five feet deep, and over one hundred rods long, laid with five-inch tiles at the upper end, and towards the lower end we have two five-inch tiles to carry off the increased volume of water that is discharged from the lateral drains. At the upper end there is more or less water coming from a ditch on the side of the highway which flows into this main underdrain, and the plan we adopted was this: For about eight or ten feet from the open ditch at the upper end of the underdrain, we cut the underdrain three or four feet wider and deeper than the other portion of the underdrain, and filled it in with stones up to the surface. These stones act as a kind of filter. The object of making it deeper than the tiles is to allow any sediment that may be in the water flowing from the open drain to settle. If our correspondent will adopt this plan, and do the work thoroughly, we apprehend he will experience no trouble from his underdrain filling up. On Mr. John Johnston's farm, which consists of high rolling land, and on which he has laid over fifty miles of underdrains, there are several places where a considerable body of surface water at certain seasons of the year flows into the underdrains from the highway, and the plan he adopted is substantially the same as the one described above. The drains have been laid for over twenty years, and none of them have ever stopped up, except one where the roots of an elm-tree grew into and choked up one of the tiles. There has been no trouble with the surface water flowing into the tiles from the road. The stone-filters exclude leaves and other matter suspended in the surface water.

The White Dorkings.

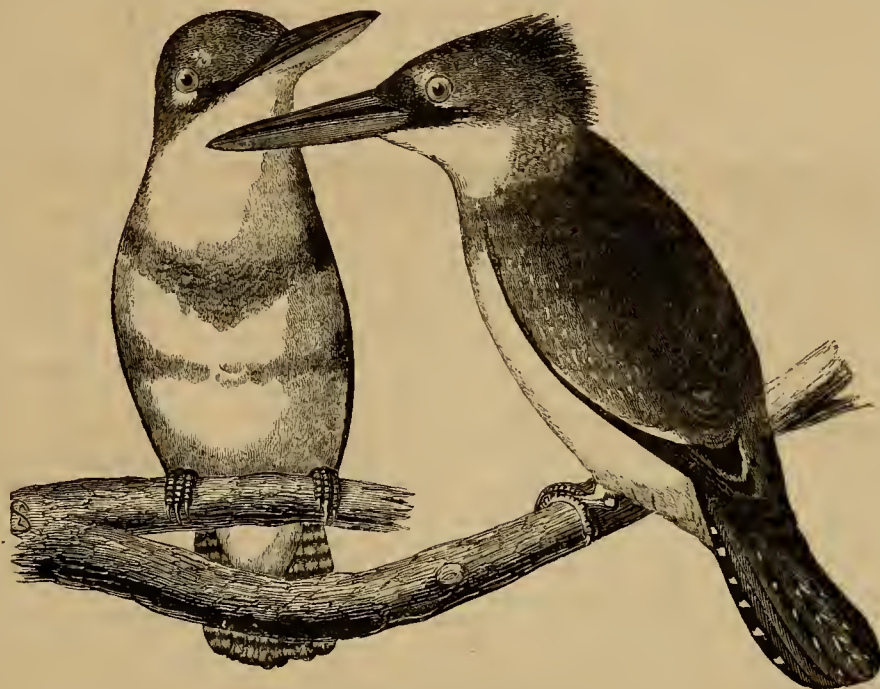
Some twenty years ago, more or less, when the memorable "hen fever" was on, the Dorkings were among the prime favorites. At that time, the now popular Asiatic breeds were scarcely known, save in the gigantic, grotesque, and altogether useless Shanghai. There are Gray, Fawn-colored, and even Black Dorkings, but these are all believed to have been produced by the crossing of the original White Dorking upon other breeds. How the Dorkings originated is not known, but all poultry authorities agree that they are a very old English breed, and that the standard plumage is white. The pure Dorkings are of a clear white, or it may be a slight cream-color throughout, the legs white, with perhaps a rosy tinge, and a rose comb, broad at the front, ending with a raised point behind, and no depression in the center. The breed in whatever color presents the extra or fifth toe, and in well-bred fowls this does not appear as a monstrosity, but is perfectly developed. The Dorkings are good layers when young, but not good winter layers. The great merit of the breed consists in the quality of the flesh. As a table bird the Dorking is excellent.

Belted Kingfisher.—(*Ceryle Alcyon*, Boie.)

BY ERNEST INGERSOLL.

The design of much of classic mythology seems to have been to account for the appearance of favorite animals upon the earth. Prominent among these, and one of the most beautiful, is the touching story of Alcyone, the fond wife, who, awaiting the return of her husband from his long voyage, one day beholds his dead body tossing in the surf. Overwhelmed with grief, she springs to catch him from the sea, but ere she touches the water she is changed into a Kingfisher, and with her husband, alike transformed, she glides away over the billows. Many a time after were they seen resting upon old Ocean's bosom, and whatever the violence of the storm, around their nest the sea was ever tranquil. What wonder that the mariners protected

and venerated Alcyone, the Kingfisher! But for these old fables we have no room. Over the winds and waves the humble Kingfisher of our day has no control. Its nest is neither constructed of glue nor fish-bones, nor is it thrown on the surface of the water to float



THE BELTED KING-FISHER.—(*Ceryle Alcyon*.)

about with its proprietor at random, but is snugly secured from the winds and the weather in the recesses of the earth. Nor, as of old, do even the most illiterate of our rustics or seamen believe its head or feathers a charm for love, a protection against witchcraft, or a security for fair weather. "It is neither venerated like the Kingfishers of the Society Isles, nor dreaded like those of some other countries; but is considered merely as a bird that feeds on fish, is generally fat, relished by some as good eating,

representatives elsewhere, particularly in Australia, where a common variety, styled by the colonists the "Laughing Jackass," makes the woods ring with his hoarse cackinations.

Our friend ranges all over the United States, from the Rio Grande to Labrador, and probably inhabits the Bahamas. In the northern portions of the Union he is migratory, flying away to the South on the approach of winter, and returning by easy stages in the spring as fast as the ice thaws in the rivers. Yet they do not altogether follow the river-courses, but often fly straight across the country thirty or forty miles, their flight consisting of a series of six or seven slopes, followed by a long slide on motionless wings. Thus progressing, they reach us by the first of April in ordinary seasons, and lose but little time before pairing. A mate is soon found, and together they seek out a soft, steep bank, at the base of which is a meadow brook or larger stream. They ask but two conditions—that the earth be easily worked, and that

water be near. In such a spot they dig a straight, sometimes winding hole, three or four inches in diameter, and from two to ten feet in depth, near the enlarged extremity of which a little carpeting of loose grass and feathers constitutes their nest. The eggs are usually six in number, nearly round, and of a most beautiful whiteness.

The Kingfisher ranks among the most brilliant of our birds, though his great head, short wings, stumpy tail, and little sparrow-like feet are sadly out of symmetry in their proportions.

We all know him, with his high, brave crest, blue coat, and chestnut vest, and admire him, too, as he shakes the glistening drops from his plumage, and looks sharply down from some high sycamore, ready for a new victim. See how sharply he glances, and woe to the luckless fish who swims under the range of his piercing eye! There! he sees one. And down he goes with a swift, circular plunge. Splash! into the water. Ah! he has it. But the shining scales glitter but an in-



WHITE DORKINGS—ROSE COMB.

and is now and then exposed for sale in our markets."

The Belted Kingfisher is one of two of its kind in North America, but the family has many

stant before they are gulped down, and he is eager for another. Mill-dams and cataracts are favorite resorts of the Kingfisher, and here you may see him in some out-of-the-way place, be-

neath the shade of the gray alders, sitting motionless as a statue upon a branch that projects over the stream, or catch his rattling note as he scuds along the surface of the water to some distant point.

I have not pointed out any practical utility in his character. Yet what need of it, if he ministers to our pleasure and teaches us to more closely observe and better love all the birds?

Walks and Talks on the Farm.—No. 105.

We finished haying this morning, July 18th, and shall commence cutting wheat to-morrow. There is a good deal of grass yet uncut, and it will have to stand until after wheat harvest. We have had "catching" weather in this section, and haying has been slow and tedious. I was determined to get my hay out of the way before we commenced cutting wheat. I started two mowing-machines, and kept them going without regard to the weather. I cut all one day in the rain, and the next morning it rained again, and I still kept on cutting. I tried to keep up my courage, but must confess that my faith commenced to waver. By ten o'clock the rain ceased, the sun came out, and there was a good drying wind, and we got all that was cut the previous day into cock, and the next day we drew in twenty-two acres of hay. It was not injured in the least.

Clover can not well be cut while wet, but timothy can be cut in the rain just as well as when dry. The Deacon came up to congratulate me. He is one of the cautious kind, and only cuts down a few acres at a time, and then stops the machine until he has got it all in. The result is he is not yet through haying, and what he has got in is in no better condition than mine. "But you have a large force," he says; while in point of fact I have no more men in proportion to the amount of hay than the Deacon has. In fact not so many. The only reason why I am ahead of the Deacon is because I regarded not the clouds. My theory is that so long as the grass is green rain does not hurt it. But whenever it is partially cured, then rain or dew is very injurious. If because it rains to-day it is less likely to rain to-morrow, it is better to cut in the rain, and get everything ready to put all hands to curing and getting in the hay to-morrow—or at any rate to get it into cock.

A tedding-machine is a grand implement for meadow or timothy hay, and may also be used to great advantage in a field of early-cut clover that is full of sap. We have the best climate in the world for curing hay, and our implements are about as nearly perfect as we can hope to get them. It is difficult to see how our mowers can be improved, unless it is in hardening and strengthening the parts most liable to wear out and break. My land is pretty rough and stony, but we did not break or injure a single thing about the machines this season. When I think of how much trouble we had with our old machine eight or ten years ago, I have a gratifying realization of the great improvements that have been gradually effected. What we want to do now is to grow larger and better crops of hay.

I have just read with much interest a paper in the last Journal of the Royal Agricultural Society of England on the Management of Grass Land, by H. S. Thompson, of Kirby Hall, Yorkshire. I do not know that it presents anything especially new, but as I grow older new

things have less attraction for me. I like to see old truths presented in a new light, and illustrated and enforced by practical experience. I never get tired of reading about a wet farm that has been drained, or a foul farm that has been cleaned, or a run-down farm that has been brought to a high state of fertility. Such accounts are always interesting and always useful. They encourage us to go ahead with our own farm improvements. We need line upon line and example after example. We need to have our faith in good farming strengthened. It does one a great deal of good to get a splendid crop, or even to hear of others getting it by the same processes that we are adopting. When I put a five-inch-pipe drain through the old swale in the corner adjoining the Deacon's west line, where we used to have a foot of water in June, I felt sure that it would "knock the bottom out" of the pond and give me good land, but it was none the less pleasant to see the water soak rapidly away, and the dry land appear early in the spring. And now when I stand by the fence that divides the two fields, and see forty bushels of Diehl wheat per acre on the old swale on the one side the fence, and a crop that will not yield eight bushels per acre on the other, I know there is nothing "new" in all this, but it is none the less encouraging and gratifying for all that. It is a result which all experience and observation would lead one to expect, but it is very pleasant and profitable to see it with one's own eyes.

There is one phrase in Mr. Thompson's essay that is new to me. When speaking of top-dressing grass land with barn-yard or artificial manures, he calls them "tillage" or "tillages." "All tillage," he says, "should be applied to strong land pastures early in winter." . . . "If the application of tillage be delayed until March or April, and a droughty spring follows, the application loses a great part of its effect for that season." I like this use of the word. It is very significant. It is a recognition of the fact that tillage is manure and manure is tillage. In other words, that plowing and working the land is, in a certain sense, equivalent to manuring it, and on the other hand that manuring the land is equivalent to working it.

In England, summer-fallowing as a means of enriching land has been pretty well abandoned. Land is high, and meat in great demand, and it pays better to keep a large amount of stock, and buy American oil-cake, cotton-seed cake, and corn to feed out, and make a great quantity of rich manure, than to adopt the slow method of enriching the land by fallowing. They have also another advantage over us. They can buy artificial manures at something like what they are worth. The time will come when we can do so here, and then we shall use them in enormous quantities. Mr. Thompson's favorite "tillage" for grass land is 1 cwt. of nitrate of soda, 2 cwt. mineral superphosphate, and 3 cwt. of kainit per acre. These manures cost about \$10 per acre. For mowing land, he would increase the quantity of nitrate to 1½ cwt. per acre.

Almost all English writers who have visited this country seem to be struck with the poor, brown, weedy, burnt-up look of our pastures. I have always believed that we can raise just as good grass here as in England. Who can doubt that we could if we should top-dress a field of good pasture land with ten or fifteen tons of well-rotted barn-yard manure per acre, and then feed off the grass to sheep which are allowed one pound of oil-cake each per day?

Then late in the fall sow \$10 worth of artificial manures per acre. The next fall top-dress again with barn-yard manure, and the next year repeat the artificial manures, and in the mean time feed off the grass with sheep eating cake or grain. If we took pains to mow down the weeds and coarse tufty grass, and harrowed and sowed a little grass seed occasionally, can any one doubt that we should have just as good a pasture as they have in England? I believe we should have better. Whether it would pay or not is a question I have not now time to answer. But I believe there are thousands of farms on which some such a system would prove very profitable.

The great defect with our permanent pastures now is that at the season of the year when we need the most grass we have the least. The pastures dry up and fail us at the critical point. We can afford to pay liberally for means to avoid this difficulty, and it is certain that top-dressing with manure will go far to prevent pastures from drying up during even our severest drouths.

A miller who resides in one of the dairy districts tells me that the farmers are buying more and more corn-meal and bran every year to feed their cows. They feed it not only in winter and spring, but during the summer and autumn while the cows are at grass. I was exceedingly glad to hear it. It is a very encouraging sign of agricultural improvement. I have thought for some time that the dairymen were improving faster than the grain-growing farmers. The cheese-factory system, contrary to my expectations, proves a great stimulus to liberal feeding. I thought that rich food would give rich milk, and that if the factory paid a uniform price per quart there would be far less encouragement to produce rich milk by liberal feeding than if the milk was made into cheese and butter at home. I am glad to learn that such is not the case. The milk is weighed every day, and a farmer soon finds out whether his cows are giving less or more milk than those of his neighbors. If I were a dairyman, I should not only feed all the grain and bran I could afford to buy, but I should keep a sharp lookout to see if a few tons of artificial manure could not sometimes be obtained at reasonable rates. Kainit (sulphate of potash) and nitrate of soda ought to be sold here for about the same price as in England, and I do not see why mineral superphosphate (from the Charleston phosphates) can not be manufactured at such a price that we can afford to use it.

The Blood Manure I put on my wheat last fall I have no doubt paid me well. But I have not yet thrashed. The wheat generally is miserable. Much of it was thin on the ground, full of weeds, late, rusty, and badly damaged by the midge.

But I must say no more about our failures. I have thought many times of the remark made by one of my correspondents, that, "judging from 'Walks and Talks,' you must live in a poor neighborhood"! It is not so. I live in the "Garden of the Empire State." There are no better farmers in the country than can be found within a few miles of me. But still it is nevertheless true that our system of agriculture, taken as a whole, is very far inferior to what it should be. And is it not so all over the country? The really good farmers are the exception rather than the rule. No one feels more keenly than I do the difficulties under which we labor in all our efforts to improve our farms. But

this does not prevent me from seeing and feeling that there is no real profit in working land unless we raise good crops. Many of us must turn over a new leaf. We must make our land cleaner, drier, and richer. We must get rid of stagnant water, kill the weeds, and mellow the soil. We must keep better stock, and feed it more liberally, and thus make more and better manure. We must grow more and better grass. Now, because I say all this, and have said it over and over again, do not imagine that I live in a section where good farmers are unknown.

O. M. Richards, of Wisconsin, writes that his farm contains 360 acres, 160 of which is in pasture and 200 under the plow. "I propose," he says, "to raise 140 acres of corn, 10 acres of wheat, 20 acres of oats, and 30 acres of clover, so that I shall have 30 acres of clover to plow under in July. I have for some years sowed ten pounds of clover-seed to the acre in all of my small grain, and usually plowed it under the following October. It generally makes a fine growth. By this process, and feeding all I grow, my land is constantly increasing in fertility. Now, the point I wish to be clear on is this: I want to feed off my corn on the ground without gathering it, so as to save that job, and also drawing so much manure. My plan is to first snap off the corn on 40 acres; then put a fence between that and the ungathered corn; turn my cattle into the ungathered corn once a day in the morning, and let them stay just long enough to get all the corn they will eat. Then turn them back into the field where the corn is gathered, where also will be my hogs, and so on until the crop is consumed. You will bear in mind that labor is dear and produce comparatively cheap, and that corn is the cheapest food that we can raise. With our improved tools, the labor of one man and team will plow, plant, and cultivate an acre of corn in one day's time or its equivalent. I will say that my corn crop seldom falls as low as 50 bushels per acre, thanks to manure, clover, and 'Walks and Talks.'"

I do not know that I fully understand the point. And at any rate I have had no experience in this kind of farming. So far as making manure is concerned, the manure dropped on the land will be just as valuable as if it was dropped in a yard and afterwards drawn out. But still I am inclined to think that it would pay far better to feed in yards or sheds where the cattle could be kept warm and comfortable. Mr. Richards, as I understand him, now adopts the latter plan, and proposes to change to the rougher and more primitive system. This is going back instead of forward. I am well aware that labor is high. But it is no higher with him than with us. I should aim to raise good grade Shorthorns, feed liberally, and crowd them forward rapidly to maturity. I think I should adopt a modification of Mr. Richards's plan: feed on the land as long as the weather was favorable, and then finish off in the yards. It can not be long before we have a good machine for cutting up and husking corn.

Sowing clover in the spring and plowing it under the same fall does not commend itself to my judgment. It seems to me that it would be better to let it grow until the following May, and then plow it under for corn. But I have had no experience. It is merely a theoretical opinion. I should aim to grow more clover and less corn. But how this can best be done will depend on the character of the land and

on the kind of stock kept, and the mode of feeding. I should want to keep more or less sheep. It seems to me if I raised such a large proportion of corn I should see if it could not be seeded down with clover after the last cultivating in July. I have seen a capital crop of clover obtained in this way.

"I have made up my mind on one point," says the Deacon; "it does not pay to sow wheat unless the ground is in good order, and rich enough to produce a good crop." Good for the Deacon! I think thousands of farmers have had this truth brought home to them by the results of the present wheat harvest. The difference in the crops on good and poor land was never more striking. I saw wheat to-day (July 24th) in a field planted with apple-trees. Some manure had been spread for two or three feet round each tree. Here the wheat was four or five feet high, the straw stiff and bright, and the heads well filled. On the rest of the field the wheat was not over eighteen inches high. It was thin on the ground, the straw flimsy, and the heads empty. It would not yield five bushels per acre, and the wheat would be good for nothing but chicken feed.

I have made up my mind to sow my wheat early this fall—say the first week in September—two bushels to the acre, and drilled in pretty deep. Then as soon as it is well out of the ground, I will harrow it with Thomas's harrow every three or four days, to see if I can not kill red-root and other weeds. Harrowing in the spring will not kill the red-root plants. But in the fall, just as the weed-seeds germinate, I see no reason why the harrow will not kill them. At any rate, I mean to give it a thorough trial, and I wish others would test the matter.

We must do something to destroy the weeds on our farms, and we should try every method that commends itself to our judgment. The great aim should be to kill them before they get to the surface, or as soon after as possible.

Pure Water.

A correspondent writes us that he has a well thirty feet deep, situated twenty feet from a cesspool, into which the refuse of a family is discharged. He asks us if there is any danger that the water in the well will become defiled when the well is cemented from top to bottom. This is an important question, as these circumstances are very common, and in very few cases is there even the partial protection of the cement coating given to the well to prevent the influx of drainage. It is quite common to see wells surrounded with slops from the kitchen, or drainings from barn-yards. Sometimes the immediate vicinity of the well is constantly visited by farm stock of all descriptions, and its condition in the spring when the winter's accumulations become thawed is disagreeable and unwholesome in the extreme. It is too commonly supposed that earth will defecate and render pure all liquids which may pass through it. While this is true to some extent, it is just as true that there is a point of saturation which is easily reached when the earth no longer exerts this purifying property. It has been found that when soil has been abundantly manured, although heavily cropped, liquid manure spread on the field causes the water passing off in the drains four feet beneath the surface to be colored with it. This shows how easily the point of saturation of the soil can be reached. Now, what must be the condition of the soil beneath

an old barn-yard and that adjacent to it, or to a long-used cesspool! The large quantity of liquid passing into these places, and that from the rains constantly falling upon and percolating through the soil around the well, have completely charged it with offensive matter which must eventually pass into the well; and although it may not color the water, nor give it a disagreeable taste or smell, it will exert a most injurious effect upon the health of persons using it. It is well known that many diseases have been traced to a cause similar to the one referred to, and that its removal has immediately restored the locality to a healthy state. The peculiar poison generated by decomposing animal refuse when taken into the system produces a class of fevers known as typhoid, which are often fatal, and always dangerous. As a matter of course, this poison affects all animal life more or less acutely, and it is worth while for those who have written us from several localities about the suffering of their stock from diseases of a typhoid character, to consider if they have not originated in some manner similar to this. Pure water is imperatively necessary to human health, and it is equally necessary to that of our animals, and the farmer who violates this law can not escape the consequences. It is only a matter of time how soon the unwholesome matter will reach the well; and even though it be protected by a cemented lining, a passage will sooner or later be found for it.

Irrigation—Storage of Water.

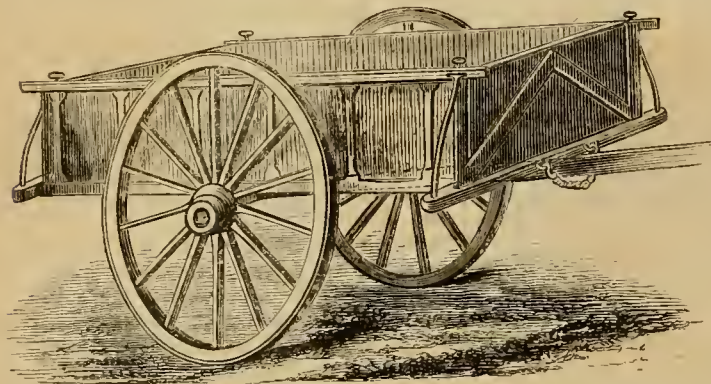
The two past summers have been so dry as to cause heavy losses in various crops throughout great portions of the United States. If the excess of rains not wanted for the spring crops could have been stored in ponds, and then carefully used for irrigation as required through July and August, millions upon millions would have been added to the wealth of the country. There are few farms on which suitable spots may not be found for ponds, into which the waste water may be conducted, to be stored up against a drouth. Where springs or rivulets prevail, across which dams can be constructed for the same purpose, artificial ponds may be dispensed with. These ponds would also be very convenient for watering the live-stock of the farm; in fact, in many places where springs or rivulets do not abound, they are essential.

A Mr. Brown, of Edinburgh, Scotland, has recently invented an apparatus by which a fine shower of water, like fine natural rain, may be applied to the surface of the land as required. This is found far superior to the usual method of irrigating by ditches, and it has the further advantage of dispensing with the digging of these and leveling the surface of the ground through which they conduct the water, thus saving a large outlay to begin with. It is of no consequence how rough or uneven the land is where Mr. Brown's apparatus is used. It is affirmed that two men with it can shower a thousand acres in a single night. The best manner to use the water is to apply about as much at night as is evaporated by day. This gives the largest and best quality of crop that it is possible to grow. Will some of our wealthy and enterprising farmers import a set of Mr. Brown's apparatus, and show what can be done with it on American soil? A.

[The above comes from an esteemed correspondent, but we think there must be an error in stating the number of acres that can be watered by the apparatus referred to.—ED.]

How to Catch Down an Ox-Cart Body.

There are a number of simple ways to fasten down the front end of the body of an ox-cart. We have never found one more simple and

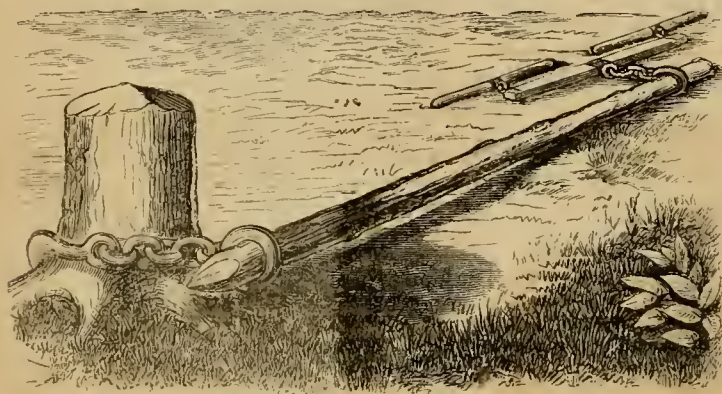


FASTENING DOWN AN OX-CART BODY.

effective than that shown in the engraving—which is simply a short chain passing loosely under the tongue. It is long enough to allow an up-and-down play of five or six inches in the front end of the cart-body. This enables us to fasten the free end to the body with a long hook which can not rattle out of its place; and it prevents every little movement of the load from throwing up the tongue in the yoke-ring, thus avoiding a very serious annoyance to the team. The cart should be so loaded that it will bear but lightly on the yoke, and then it will play up and down without disturbing the pole.

A Simple Stump-Puller.

Mr. J. H. Morse, of Morse's Mills, Mo., has kindly sent us a sketch of a contrivance for pulling stumps, which he has successfully used to clear forty acres of land very cheaply. It consists of a hook, a chain of more or less links, as may be needed for large or small stumps, and a ring twelve inches inside diameter, made of the best and toughest iron. Mr. M. makes his ring of two-inch round-iron, and the links of one-and-three-quarter-inch iron, but as it is an axiom



A SIMPLE AND EFFECTIVE STUMP-PULLER.

in mechanics that the strength of a chain can not be greater than that of its weakest part, the ring need not be of any heavier material than the links. The hook should be flattened on the sides, at the bend, to resist as much as possible the tendency to straighten out when the strain is brought to bear upon it. To remove the stumps if they are large and green, the roots should be partly uncovered, and the hook placed on the strongest of them. The butt-end of a

passed through the ring, a team attached to its other end, and the stump twisted out by driving around it. With two yoke of oxen, white-oak stumps of three or four feet diameter may be taken out with ease. If the roots are very fresh and tough, a man with an ax should stand near by to sever with a blow any one of the roots which offers great resistance. One acre per day can be cleared with this machine, worked by two or three men and a pair of stout oxen or a heavy pair of mules. In case very large stumps are to be taken out, it would be better to leave them to the last, and bring an extra team to finish them.

Saving Corn-Fodder.

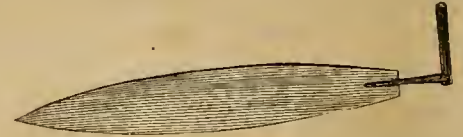
A ton of well-saved corn-fodder is worth, if well used, the price of a ton of hay; yet how rarely is it well saved or well spent! Exposed, after husking, to all the storms of October, it is tardily stacked or housed in November, and, musty and mildewed, washed and weather-beaten, it is not only the poorest fodder but absolutely injurious to stock, to which it is thrown in the roughest and most careless way in the barn-yard. Then it is trampled down in the snow and mire, and next spring is cursed as the greatest nuisance a farmer has to contend with. But let corn-stalks be shocked up carefully, spread well at the butts of the shock, and tied closely at the top until the corn is husked, and then put up in convenient bundles, and again

set up, so that the rain can not penetrate the shocks, and as soon as cured be carefully stacked or put away beneath a tight roof, and it becomes agreeable-looking, sweet-smelling, nutritious fodder, which will be readily eaten by all sorts of stock. If it is cut up with any one of the various fodder-cutters into short lengths, or even chopped up with an ax on the barn-floor, wetted

and sprinkled with a little salt and a handful of bran, it will be entirely consumed; and the manure pile in the spring will be altogether freed from the objectionable, unrotted, and tangled stalks, while it will be equally enriched by their fertilizing remains. In this way the supply of feed will be economized, often leaving hay to spare for sale or permitting the number of feeding stock to be doubled, and besides what is often a source of trouble and annoyance may be turned to good account and money made by it.

A Hay-Knife.

Where hay is stacked, much waste occurs in using it during the winter season. Generally the hay is removed from the top of the stack as it may be needed for feeding, and thus the stack is exposed to snow and rain, and much hay becomes damaged, to say nothing of what is lost by being thrown down, scattered, and trodden under foot. This may be partly avoided by



A HAY-KNIFE.

having room in the barn to stow away one stack at a time, but still loss occurs in the removal, and very often the needed space is not to be found. Then the use of the hay-knife, as figured on this page, comes in as a very convenient means of preventing any waste. It may be made of a worn-out cross-cut saw, cut to a proper length, four feet or thereabouts, fixed to a handle, and ground to a sharp edge and point. This is to be thrust into the stack with a downward motion, and slices of the hay cut off of one side, sufficient to supply the needs of the



HORSE FOR SHOCKING CORN.

stock for a day or two. The hay can then be removed in a compact state, and the stack gradually cut up and used without the waste of a pound. Like all other cutting tools, a hay-knife cuts very much better when kept sharp and bright than when dull and rusty; it should therefore not be left out, exposed to the weather, leaning against the stack, but be brought into the tool-room when out of use.

A Shocking Horse.

P. M. McClure, Minn., sends us his method of shocking up corn, which is, he says, the simplest and quickest method he knows of. He uses a horse made of a small pole three inches in diameter and ten feet long, furnished with a pair of legs to elevate the end sufficiently, as shown in the illustration. A hole an inch and a quarter in diameter is bored through the pole, and a rod four feet long is so fitted as to slip in and out easily. The horse is placed where a shock is to be set up, the corn is leaned against the pole and the rod by which it is sustained until the shock is bound, when the rod is slipped out, the end of the pole picked up, and the horse drawn along to where another shock is needed.

Fall Treatment of Grass Lands.

A fellow-feeling, as it were, teaches us that it is inconsistent with the comfort and well-being of our live-stock to permit them to go unprotected through the winter, and exposed to cold and frost and the rigors of the weather. But

we never or seldom thus think of our meadows, and they in a sense are live-stock, and suffer from want of protection as much as cows, colts, or calves. On the contrary, a mistaken economy tempts us to deprive them of the natural pro-

tection of the aftermath, and generally they are eaten bare and close throughout the fall months, and go into winter quarters with their tenderest parts exposed to the killing blasts and biting frosts. Then the roots are winter-killed or thrown out, and in the spring, instead of the living green, we see the dead sere brown, and the season gets the discredit, when it is the result of mismanagement only or chiefly. A good coat of decaying aftermath would furnish protection and future nutriment as well, and by all means meadows should be so managed as to secure all the aftermath, or at least a large portion of it, for this purpose. Young lambs or calves may be pastured if necessary, but it is a most costly economy to turn horses or cows on to newly-sown clover or grass or to newly-mown fields. But considering that the fields are in danger of becoming poached while sodden with rain by even the lightest hoofs, it will be found cheapest in the end to keep all stock off from the fields to be mown next season.

and streams. A new plantation should be kept cut closely every year, so as to force out a good annual growth of shoots from the stumps, and the osiers may be gathered after the second or third year. But osiers may also be

shaped like that shown in fig. 3. This is made of two half-inch iron rods, eighteen inches long, welded together at one end, and gradually separating like the prongs of a fork at the other end. A stem welded on serves to retain it in a hole bored to receive it. The osier is drawn through this instrument, which strips off the bark, and it is then laid on one side until a bunch is gathered, when they are tied up, and are ready to be sent to market.

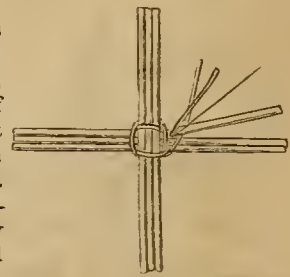


Fig. 6.—BEGINNING OF BOTTOM.

These operations are shown in fig. 1. Some osiers for coarse work are used without being peeled, but none are sent thus to market for sale unless specially ordered.

The growth of osiers may be made a means of adding to the resources of many farms, as willows will grow wherever their roots can get plenty of moisture. The making of baskets might also furnish employment for stormy days or long, dull winter evenings, when otherwise there might be no profitable employment. Weaving osiers into various kinds of baskets is an art which may be easily learned, and once the rougher methods for coarse work, such as barn baskets, or market baskets, or hampers for packing bottles, which in themselves are considerable branches of trade, are well mastered, and facility in them is acquired, the finer sorts of work will come quite handy, and can be easily performed. The commencement of all basket-making consists in laying the foundation, and this is shown in figs. 4, 5, and 6. Figs. 4 and 5 show the frame for a round-bottomed basket with handle. Fig. 6 shows the frame for a flat or square-bottomed basket, which consists of three coarse osiers, laid crosswise of

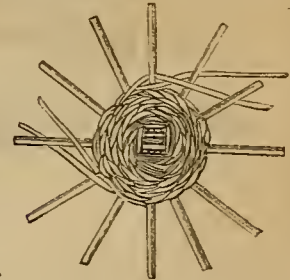


Fig. 7.—WEAVING BOTTOM.

three other similar ones. The weaving commences by passing finer osiers round the coarse ones where they cross each other, and when they are secured together they are spread out until they radiate like the spokes of a wheel, as shown in fig. 7.

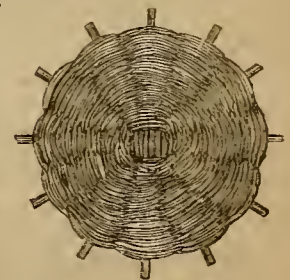


Fig. 8.—BOTTOM FINISHED.

Fig. 9.—WEAVING THE SIDES. The weaving commences by passing finer osiers round the coarse ones where they cross each other, and when they are secured together they are spread out until they radiate like the spokes of a wheel, as shown in fig. 7.



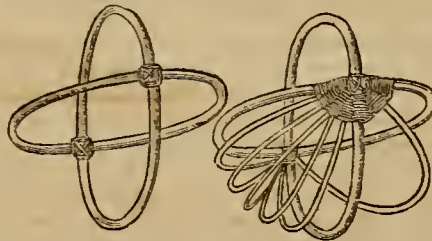
Fig. 9.—WEAVING THE SIDES.



Fig. 1.—PREPARING OSIERS FOR MARKET.

grown by cutting off the mature trees a few feet above ground, and thus causing them to throw out numerous small branches, as in fig. 2. This is called "pollarding," and a willow thus cut off is a pollard or pollarded willow. In one year these shoots will grow several feet in

length, and in the fall are cut off close to the tree, and laid away in heaps until the following spring, when at the commencement of the growing season they are placed in water until the buds swell. They are then trimmed and peeled. A boy or girl removes with a sharp



Figs. 4 and 5.—FOUNDATION OF ROUND BASKET.

knife all the twigs, and hands them over to the peeler. This operator sits on a bench or before a log or stump in which is fixed an instrument



Fig. 2.—POLLARD WILLOWS.

Willows and Baskets.

The culture and preparation of willows for market is sufficiently easy and profitable to make it worthy of being carried on more systematically than it is at present. Osiers at the present time bring ten cents per pound in the New York market, and good ones are always in demand. There are several varieties of willow which may be made to produce osiers—the common White Willow (*Salix alba*) and its variety the Yellow or Golden Willow, the twigs of which are used for coarse work, and generally without being peeled, and the Basket Willow (*Salix viminalis*), which furnishes osiers superior to any others in length, flexibility, smoothness, and whiteness, and fitness for the finest kinds of work. These willows are readily grown from cuttings on rich soils or on the banks of ponds



Fig. 3.

and streams. A new plantation should be kept cut closely every year, so as to force out a good annual growth of shoots from the stumps, and the osiers may be gathered after the second or third year. But osiers may also be

shaped like that shown in fig. 3. This is made of two half-inch iron rods, eighteen inches long, welded together at one end, and gradually separating like the prongs of a fork at the other end. A stem welded on serves to retain it in a hole bored to receive it. The osier is drawn through this instrument, which strips off the bark, and it is then laid on one side until a bunch is gathered, when they are tied up, and are ready to be sent to market.

The finer osiers are then woven in amongst them, and the filling goes on until the bottom (fig. 8) is finished, when the frame-pieces are bent upwards (fig. 9), or fresh osiers are inserted, to form

a foundation for the sides. When the sides are carried up sufficiently, the frame-pieces are bent down and woven in amongst the filling, so as to hold them securely in place for a short piece, when they are cut off, and the top of the basket finished off. Figs. 10 and 11 show how the filling and finishing are done. The last work of all is to sharpen off the last remaining osiers

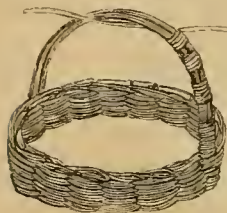


Fig. 10.—MAKING HANDLE.

and thrust their ends through the frame in such a manner that they can not work out. The basket is trimmed inside, all ends sticking out are smoothly cut off, and the basket is done.



Fig. 11.—A FINISHED BASKET.

and thrust their ends through the frame in such a manner that they can not work out. The basket is trimmed inside, all ends sticking out are smoothly cut off, and the basket is done.

WOLF-TEETH.—In reply to numerous inquiries as to whether "wolf-teeth" in horses cause blindness, we explain this question somewhat fully, that our correspondents may see the matter in its true light. At the age of five years every horse has or has had what are called wolf-teeth. They are pointed teeth, situated at the sides of the jaws towards the front. These teeth are naturally shed soon after their appearance in most cases, but sometimes remain, during a lengthened period, and as they are followed by other teeth, it sometimes occurs that an interference is occasioned when they do not fall out, and they are crowded in the gums, and cause irritation. In cases when from cold or neglect the eyes of the horse are injuriously affected and at the same time there is trouble with these teeth, it is very probable that the irritation may sympathetically increase the trouble with the eyes. But it is altogether an indirect effect, and if the eyes are properly cared for, the teeth would never affect them. When the interference is noticed, the wolf-teeth should be drawn, not knocked out; when there is no interference, they may stay in their place, without inconvenience, until they drop out.

Moule's Earth-Closet System and the Manure it Produces.

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

Having taken an active part in the introduction of the earth-closet in this country, and having attached especial importance to the economical bearings of the question, I desire to say a word in reference to a new development concerning it recently made in England. Dr. Augustus Voelcker, the Chemist of the Royal Agricultural Society, has long been known as an able investigator whose conclusions have

been stated with so much clearness and moderation as to command the highest respect. In the last number of the Society's Journal he publishes the result of a careful investigation of the effect produced on the earth used in closets by the feces they receive, which must radically modify our previous conclusions. The substance of his paper, briefly stated, is that human feces are of less value, or rather that they amount to less, than has generally been supposed, and that the quantity of earth required to disinfect them is so large that they produce an almost inappreciable effect in increasing their content of ammonia, phosphates, and potash—the three important constituents of manure. This he states with such evidence as to settle the question definitely; but in doing so he bears the strongest testimony to the value of Moule's system as a domestic and sanitary convenience, and expresses the opinion that under suitable circumstances it is the most desirable. Dr. Voelcker's investigations were made upon earth that had been used five times, and, so far as the earth that he examined is concerned, the argument seems to be closed.

Of course he does not intend to gainsay an opinion which he must hold as firmly as any other scientific man in the world, that however little the feces produced by a single man may be worth, the feces produced by all mankind it is of vast importance to save. It would extend this article too much to repeat what has been so often stated before concerning the manurial constituents of the food of large populations—the item of phosphoric acid contained in the food of the inhabitants of New York City alone amounting to 7,000 tons per annum. It would be impossible to review Dr. Voelcker's whole paper without reopening the discussion of the entire subject. The point that it seems to me most important to make relates to the application of his argument. He claims that earth which has been used five times contains so small a proportion of the remains of the fecal addition as not to be worth as a manure the cost of handling that would attend its collection and transportation in the case of large towns. It seems to me that this is the very best argument that could be used in favor of the speedy adoption of Moule's system under these very circumstances. If the earth remains nearly pure after five uses, it is evidence (confirming my own observation) that the earth may be used much more than five times. Viewed in the light of his experiments, it seems evident that it may be used even twenty or fifty times over, and that with proper facilities for redrying (which may be of the simplest character), the adoption of the system will require but one fourth or one tenth of the quantity that has been supposed to be necessary. A few tons of prepared earth, used over and over again, would suffice for an ordinary family for some years. Not until the accumulated matters had so far increased as to make the earth a valuable manure would there be the least objection to it for use in the closets.

There is one branch of the subject of which Dr. Voelcker has omitted to speak—that is, the effect upon the earth itself of the decomposition of organic matter within it. Precisely what this effect may be is not known, but it is unquestionably true that inert, fertilizing ingredients of the soil are made useful and available by the action of decomposing manure on the compounds or on the particles in which they exist in the soil. I have now had constant experience of the use of earth-closet manure for four years—in the open ground in summer, and under glass in winter—and I can not be mis-

taken in my conviction that it is a very valuable fertilizer. Its effect has been especially marked in the growth of roses and celery, both of which require a very rich soil, and both of which I have grown to greater perfection with earth-closet manure than with any other. My experience has not been singular, but accords with that of many others whose results have come to my knowledge. Even supposing that the effect produced by these manures is not enough to repay the high cost of labor here and in England, we must not lose sight of the fact that the wonderful agriculture of China and Japan is based almost entirely upon the strictest economy and the most skillful use of human manure.

There is still another consideration suggested by the article in question that has a bearing on the question of fallows, to which I refer in my regular paper in this number.

DEEP MILK-CANS.—Captain H. E. Alvord, of Fairfax Co., Va., writes: "The system of deep-setting milk is very old here. On my farm we have a stone spring-house, with deep pools of flowing water, at a temperature of 55°. For seventy years pans have been unknown here. In their place we use deep, straight-sided 'milk-crocks' or stone jars, about six inches in diameter. These stand in the pools. The milk in them is from six inches to ten inches deep, and they are skimmed with a ladle." Verily there is nothing new under the sun.

Ox-Teams vs. Horses.

In this go-ahead age it is a dismal sight to see an able-bodied man toiling along the road at the slow pace of a pair of oxen, and we have probably had as much to say as any one in favor of the substitution of the faster horse or mule team.

We are bound to confess, however, that the picture has another side which is worthy of careful consideration. Ox-teams are slow, it is true, but they are effective, cheap, and convenient. Horses are a necessity for regular road-work and for many operations on the farm, but it is almost indispensable to have for occasions considerably more team-force than is needed regularly. If the extra work of plowing, harvesting, and hauling manure is to be done by horses, we may make up our minds to have them more than half the year eating off their heads in idleness, and to be in constant danger of loss from the thousand ills that horse-flesh is heir to. To state the case in a nutshell, an idle horse is idle capital, invested in an extra hazardous risk, without insurance, and consuming itself month after month.

Oxen, on the other hand, if properly treated, are a tolerably safe storehouse of working power. When not at work, they are laying on flesh which is worth so much per pound in a ready market if we choose to sell, or which may be taken out again in the form of hard work whenever we may call upon it. In case of accident we may realize the full amount of our investment at the hands of the nearest butcher. An idle ox is active capital, the investment is safe and well insured, and his fodder is pretty certain to get paid for, either in flesh or in work.

The difference in returns in the two cases is a very important one, and the extra cost of teamster in the use of the slower animals is probably well compensated for by the saving in saddlery bills. And after all, the question of speed is of less consequence than we often imagine it to be. We have lately had an opportunity to watch two

teams in use in our neighborhood, one of horses and one of oxen, both engaged in similar work (mainly on the road), and we have come to the conclusion, against our preconceived notions, that "slow and steady wins the race." The oxen seem to do more work in a week than the horses. They are three pairs of young cattle, growing thriftily, and so paying a profit on their keep when not overworked—costing less to buy and less to feed than the single pair of horses. When they are needed for work, they are taken up and fed enough grain to keep them hearty. When their work is finished, they are turned out to "eat, sleep, and grow fat." When each pair have got their growth, they are sold to the butcher, and a part of their price replaces them with younger ones.

Starting our farming life with a prejudice against the use of ox-teams, we have been induced gradually to substitute them for horses, until now we have only enough of the latter for our regular road-work, and depend on oxen for all emergencies. In work and in flesh we get a full equivalent for all the food they consume, and we save the heavy cost of keeping idle horses, the risk of a total loss of value by accident or death, and the certainty of depreciation by reason of old age.

Hints about Wheat.

It is a mistake to suppose that wheat is not a paying crop. Very often it is not profitably grown, but it is looked upon as a necessary evil, hardly to be avoided, for the reason that there is no other crop to be substituted for it in the rotation. Yet wheat is absolutely necessary for us, and it would be strange if a crop which the world can not do without could not be grown to a profit anywhere and everywhere. The competition with the easily cultivated and productive new lands at the extreme West need not necessarily be overwhelming to the more eastern cultivator, who on his side has an advantage in nearness to market, and cheaper tools and implements, and less waste and cost in harvesting. But the trouble lies in the small yield with which the Eastern farmers are contented, consequent on the generally careless and insufficient methods of preparing for and sowing the crop. Very rarely is the oat-stubble, which the wheat crop generally follows, plowed more than once, and very often the corn-stubble prepared in the most hurried manner by a simple harrowing is made to bear this crop, which is more than all others dependent for success on a well-prepared seed-bed. The consequence is, that the young wheat is smothered by the more vigorous oats which spring up thickly on the newly-plowed ground, and thus weakened is unable to stand the first heavy frost of the fall or winter, and is killed out. So on the harrowed corn-stubble there is no depth of root to sustain the plant in the hard-beaten soil, and it is in a worse condition in this case even than on the plowed oat-stubble. At present there is not sufficient vigor in the soil to enable the plant to make head against the difficulties it has to contend with, and it succumbs, and the crop either fails completely or is very unprofitable in its results. We must work on a different system. Old things have passed away, and if this crop is to succeed a new system must be adopted. The wheat crop must be the pivot on which our farming must hinge both in the East and West. The West, as we used to understand the term a few years ago, is now the East, and is in exactly the same circumstances as to condition of soil

and needs of cultivation as that part of the country we used to call the East. "Thorns and thistles" have taken possession of the soil, and the "virtue has gone out of it" by which it used to grow crops by merely scratching the surface. No fair wheat crop can now be got by merely harrowing a corn-stubble, or once plowing an oat-stubble; nor can we lay our fields down to grass with a poorly-grown wheat crop and hope to have a good catch or a good crop of clover or grass. Grass is often called our "pivotal crop," that on which the whole rotation depends; but wheat is the precursor of grass, and as it succeeds or fails, so will our clover and grass flourish or fail. Then it will no longer do to hurry it into the ground as we have done. A difference of ten bushels per acre depends on this alone, and this is sufficient to make a crop profitable or otherwise. Two plowings at least should be given, and unless a very fair allowance of fairly good manure can be afforded, some of the purchasable manures should be applied, and those rich in nitrogen or ammonia are preferable to the phosphates, or at least have shown themselves to be more effectual as a fall application. Then, again, there is much in the sowing. It is plain, as the rapidly accumulating result of experience of late, as the attention of farmers has been more closely drawn to this matter, that broadcast sowing must be abandoned as no longer profitable. It is too costly a method. Especially has the late hard winter shown this. Drill-sown wheat has escaped the evil effects of drouth, frost, and excess of wet, while broadcast-sown has been seen dead and cast upon the surface, with its roots all drawn from the soil, and no resource left to the farmer in the spring but to replant his bare fields with other crops. The difference here in the yield of the crop will be from five bushels per acre to the whole crop lost, so that, should farmers generally adopt this and the previously mentioned plans, it is probably safe to say that the yield of wheat would be doubled. Certainly, we have often seen, in fact we have grown, crops of wheat of twenty-five or thirty bushels per acre, which have been carefully put into the ground, which we are satisfied would not have yielded ten bushels had the old-fashioned system here pointed out been followed. In the one case, at least expenses were paid, if no great profit was made, and a good hay crop followed; in the other case, there would have been a serious loss both on the wheat and hay crop. Further, in selecting seed, it will pay to exercise care and judgment. None but the plumpest grain should be chosen. The wheat should be cleaned two or three times, and our experience has been that it will pay to steep the seed in a solution of copperas, which destroys smut, and helps to separate the light grains from those which are fit for seed. A crop sown in good season is to be preferred, but it is far better to delay a week to complete the preparation, and get the soil into the best condition, than to hurry over it and make more haste but less speed in the end.

How to Kill and Hang a Beef.

A farmer should of right be one of the most independent of men. When the need arises, he ought to know how to do himself everything that he may want done on the farm. Amongst other things which he will sometimes find it necessary or convenient to do, is to slaughter and dress a fat cow or ox for home use or for market.

For want of knowing how to do this, a farmer often sells a beast to a butcher for five cents a pound, and buys beef for fifteen cents, and it needs but little figuring to show it to be an unprofitable business.

On every farm there should be an out-house, with a plank floor, which can be washed off clean, for the purpose of killing and dressing sheep, hogs, or a beef. There should be also a stout beam above, on which to hang the carcasses; the window should have a close shutter,

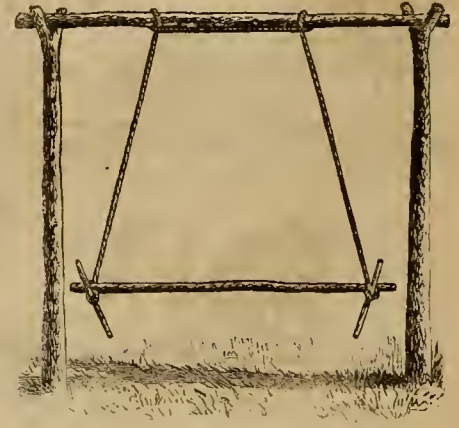


Fig. 1.—RIGGING FOR HANGING A BEEF.

to keep the house close and dark, and the door should fit tightly. Then, when a carcass of beef is to be prepared, the animal is brought into the house. A rope around the horns should bring its head to a strong ring-bolt in the floor, and a well-dealt blow with an ax, delivered on the forehead, just above the eyes, will fell the beast to the floor, and render it insensible. The throat should then be cut and the blood drawn as rapidly as possible. As soon as life is extinct, the skin should be slit along the belly



Fig. 2.—BEEF WHEN HUNG.

and brisket up to the chin, also from the fore-knees down the inside of the forelegs to the brisket up to the first slit. In the same manner down the back of the hindlegs and thighs to the rump. It should then be stripped off the legs, brisket, and belly, and the carcass opened and the inside taken out and removed at once.

The carcass may then be turned over and the hide stripped off completely, the head and feet cut off, a strong gambrel stick placed through the hindlegs at the gambrel-joint, and the carcass hung up. This is generally the most difficult part of the work, but by using such a contrivance as is shown in fig. 1, it may easily be done. A rope is thrown around the beam as shown in the figure, with the ends of equal length hanging down; a short, stout bar is passed

through a knot at each end of the rope, and the ends of the gambrel-stick are laid in the angle formed by the rope and one end of each bar. The bar is then turned around the gambrel-stick, and the rope is wound up and the carcass is hoisted. When sufficiently high, hooks may be used to suspend the beef, or ropes may be used for the same purpose, or one end of each bar may be twisted so as to pass

on the open prairie, all ready for the plow, and who may be carried thither comfortably on the "cars," can have an idea of the straits through which many now wealthy farmers once passed when they made "ashes" on the land now covered by fields of wheat and orchards. Then, far removed from what is called civilization, they were buried in the woods, depending solely on themselves, or on the mutual assistance of

In many rocky, rough parts of the country these potash camps were moved from one point to another as the land was cleared of the timber, and abandoned as worthless for any other purpose, and thus large tracts of mountain lands were stripped of their woods and left to grow another crop. But in all these cases the work and the ways and means of doing it were the same, the labor was heavy and great and

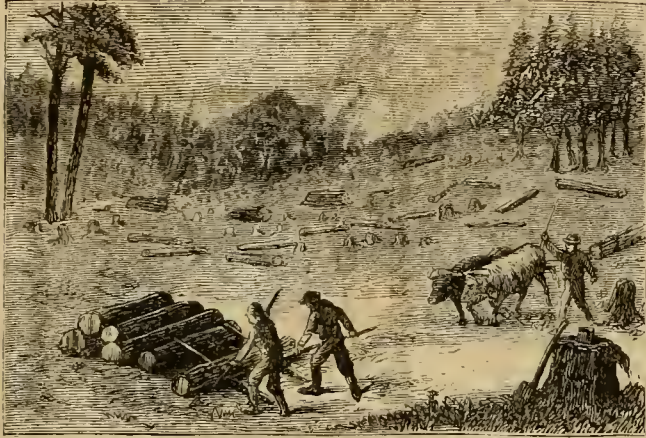


Fig. 1.—LOGGING.

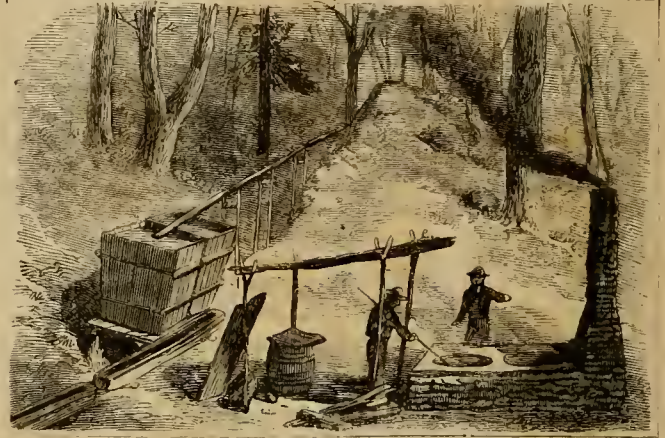


Fig. 2.—LEACHING AND BOILING DOWN.

beneath the beam, and then, resting against it, will prevent the rope from unwinding and keep the beef suspended, or a rod may be placed between the ropes and the bars, as shown in fig. 2, with the same effect. It should be remembered that beef as well as all other meat is always better flavored, and keeps better, when it is permitted to lose all its animal heat and become "set" and rigid before being cut up.

Potash-Making.

The manufacture of potash has heretofore been largely carried on in the heavily wooded parts of this country and Canada, but of late

one or two neighboring settlers situated just like themselves, for all they might require.

There slowly throughout the winter months the great trees were chopped down and cut into lengths of twelve or fourteen feet, and with the help of a "logging bee" rolled up into heaps ready for firing. Thus the land was cleared and prepared for the first crop of potatoes or wheat to be put in, without the plow, but by means of a rough harrow built of logs and armed with wooden teeth. These log heaps were in due time fired and burned down into ashes, which were gathered and protected from the rain by a rough shed roofed with bark or split slabs.

When the scanty crop was sown or planted, the leaches were made, the ashes run off, and

the profit small, and much hardship was endured. In the illustrations, our artist has shown the prominent parts of potash-making—the logging (fig. 1), which is the heaviest part of the business, and needs the assistance of the neighbors, who help each other in turn, and make "bees" for this purpose; the burning (fig. 3), which is done mostly at night, and is a very picturesque scene to outsiders who are not obliged to get black from head to foot with coal-dust, nor be blinded with smoke or sparks, nor have to stir up the heaps with a long pole or handspike to keep them burning, but who can enjoy from a prominent point of rock or a little hill all the beauties or romance of the scene without any of the hard realities; and then the leaching and boiling



Fig. 3.—BURNING THE LOG-HEAPS.



Fig. 4.—BREAKING AND PUTTING INTO CASKS.

years has greatly fallen off. While the manufacture is to be regretted, as it abstracts from the soil a vast amount of valuable fertilizing material, yet the peculiar position of a backwoods settler is such that he is forced to make the sacrifice, and rob his future farm to supply his present needs. Poor in everything but strength of muscle and endurance of hardship, the backwoodsman very often depends on a few barrels of potash as the source whence he can procure those things urgently needed by his wife and young children, and few now settling

the lye boiled down to dryness, and the heat increased until the mass melted. When cold, the potashes were turned out of the kettle, broken up, packed into barrels, and as soon as possible taken to market and exchanged for provisions, clothing, or groceries, and occasionally, though but very seldom indeed did this occur, a dollar or two in money was procured. In this way these hardy pioneers "got along" until their crops were harvested, when the tide of fortune turned for them, and thenceforward they thought themselves independent.

down (fig. 2), which also needs attention night and day until completed; and finally the packing into barrels (fig. 4), which no doubt, as it is the finishing operation, is the most pleasant, and is most cheerfully performed.

The localities in which potash-making is practicable or profitable are annually becoming fewer, and it is to be hoped that some of the many projects for obtaining potash from mineral sources will be attended with success, and that the necessity for robbing the land of this important element of fertility may cease.

Sweet Peas—Improved Varieties.

In our early gardening days we had Sweet Peas, and that was the end of it. There was then no thought of named varieties. The ori-

trellis, and one to which the pea-vines take very readily. To have Sweet Peas continue long in flower, the blossoms should be picked, and no seed allowed to form. We have been much troubled by some insect that eats por-

tenuated look, we cut them back, when they grew very busily and bloomed profusely. The objection to their use as an edging is their height, they being much better adapted to the second line of a border than for the front. At any rate,



VARIETIES OF THE SWEET PEA.



TALL BROWALLIA.—(*Browallia elata*.)

ginal Sweet Pea, *Lathyrus odoratus*, a native of Southern Europe, is one of the oldest of garden plants, and has justly been a favorite on account of its agreeable fragrance. Of late years our catalogues have contained named varieties, which, thanks to the efforts of English amateurs, are very fine and distinct. This spring we received from Messrs. B. K. Bliss & Sons an assortment of seeds of the newer varieties, the results from which have afforded us much pleasure. There was a pure white; a part white and part violet; a striped scarlet; striped purple; an Invincible Scarlet, a very rich color; a variety called black, which is only a very deep purple. In the engraving there is an attempt to represent these varieties as well as can be done in black and white. Sweet Peas, like other peas, do all the better if sown early and the seed covered rather deep. We were at first puzzled to fix a trellis for a row over twenty feet in length, but hit upon the following plan, which is very satisfactory: Strong stakes were driven down, and common shingle laths nailed to them. One lath was placed near the ground, and another at the height of about three feet. Pea-brush was then stuck close against the laths, and bound to the upper one by winding a twine over and over so as to catch the brush in the turns. After the twine was made fast, the tops of the brush were cut off even with the upper lath. This makes a very neat

tions of the flowers and destroys their beauty, but have not yet been able to discover to what insect we are indebted for this little annoyance.

The Tall Browallia (*Browallia elata*).

Several times we have had occasion to notice the fact that well-known and old-fashioned plants would be almost lost to cultivation, and then again would spring up as novelties. The Tall Browallia is an illustration of this. Those who recollect the flower-gardens of a couple of generations ago know that this Browallia was at one time a favorite, but of late years nothing has been seen of it. Two years ago several specimens were brought us to name; last year still more came in; and this spring some of our florists introduced it among the novelties.

So the old Browallia, which has been known for over a century, turns up as good as new, and a great deal better than many really new flowers. It is a vigorous-growing annual of a foot and a half in height, with an abundance of dark green foliage, and small flowers of an intense blue, which is rather lighter at the throat of the flower. Blue flowers are so rare that we are glad to see this old plant brought into favor again. We used as an edging to a bed a lot of plants that had been started under glass and were rather drawn. Dissatisfied with their at-

the plant, on account of its lively blue, is a pleasing one. The engraving shows a small stem of the natural size. There is a white variety which we have not seen. The plant is a native of Peru, and the genus received its name from Linnæus, in honor of a bishop named Browallius. In the greenhouse it is especially valuable, as it remains in flower a long time, and becomes almost a perennial. It belongs to the large Fig-wort Family (*Scrophulariaceæ*). The very small seeds may be sown in the open border, or under glass if plants are wanted early, taking care not to cover too deeply.

The Market-Gardens near London.

EUROPEAN CORRESPONDENCE, BY PETER HENDERSON.

For years I have been anxious to see and compare the market-gardens of London with those of New York, and have this week been able to do so.

The extent and thorough culture of these gardens is something wonderful. One of the best we saw was in the vicinity of Tottenham, owned by a Mr. Hollington. It comprised about a hundred acres, every foot of which was planted in close crop, and, as far as could be seen, it would have been difficult to have picked up a bushel of weeds on the whole of the hundred acres. Mr. Hollington's success in

twenty years equals, if it does not surpass, any of which we have record in America. When he took possession of these hundred acres, twenty years ago, he did so at a nominal rent, but without a lease, with the condition, however (a very unfortunate one for the owner), that the owner might enter upon possession at any time by *paying him the value of the crop upon it*. Mr. H., a man of great energy and shrewdness, at once saw his advantage, and took care that his grounds should at all seasons be cropped to the fullest extent—something which can be better done in England than with us. The result was that when the owner one day took it into his head to take possession, he discovered that he would have to pay more for the crop than the land was worth, and there was nothing for him to do but to sell to the tenant, or go on receiving the nominal sum for rent. The result was that Mr. H. bought the land, and is now perhaps the wealthiest market-gardener around London.

The next grounds we visited were those of George Steele & Sons, of Fulham, a point nearer to the City. These grounds were also models of order and neatness, although a week previous three fourths of the workmen had struck for higher wages, and had gone to hay-making, leaving the owners in a bad plight. The garden comprised fifty acres, and the full number of hands was seventy-five. Now there were less than twenty, and these second-rate.

Why, it may be asked, does it require seventy-five men for fifty acres? Simply because John Bull will not believe that land can be better dug with a plow and harrow than with a spade. I took some time to argue the point with Mr. Steele, and he declared that the morrow would see for the first time a plow in the market-gardens of Fulham. Once there, it will remain, for there is no one who has had practice with both methods but knows that no digging with a spade or fork can bring the soil to the mellow condition that the plow and harrow can. Upon grounds of the extent of Mr. Steele's the use of the plow will save full one third of labor.

Here, too, and at Mr. Hollington's, they were using another very primitive tool, which I did not venture to say anything about, for I thought I had trodden hard enough on John's conservative toes for one day. The tool in question was a planting-stick made out of a spade-handle, just such as was in use thirty years ago by the cottagers of England or Scotland to set out a few dozen cabbage or lettuce plants for their own use. Yet here, where millions on millions of plants had to be set out, no better implement had been thought of. The spade-handle dibber, even in the most experienced hands, is a waggling implement, and is hardly more to be compared in effectiveness to the pistol-handled dibber in use by the gardeners of New York than a sickle is to a cradle in a wheat-field.

This reminds me that I have not yet seen a single machine in the hay-fields in England either for cutting or raking; nothing but the ordinary scythe and hand-rake. No doubt machines are in use in some districts, but are certainly not common, for along the whole line of railroad from Liverpool to London we saw hundreds of mowers all using the scythe. Yet we must not plume ourselves on any particular smartness in the use of implements that lessen labor. The necessities of our condition force us to their use. When it is found that we have two men's work to do, and can only afford to pay the high price of one man to do it, then necessity becomes "the mother of invention," and means are found to accomplish the end.

I found one practice in Messrs. Steele's grounds which our market-gardeners might imitate with profit. The system is a very old one, and has been in use probably for fifty years, but it is certainly not much used, if at all, by market-gardeners in the vicinity of New York, Philadelphia, or Boston, where its advantages would be even greater than those around London. It is the common hand-glass, of a size about two feet on the side. These would cost with us probably about 75 cents or \$1 each. Messrs. Steele use these glasses in large numbers to forward cauliflower for heading. They are placed at distances of two feet apart, and three plants of cauliflower are planted under each. The hand-glasses are tilted up for ventilation in sunny weather—used, in fact, just as we use a hot-bed or cold-frame, and the cauliflowers are forwarded probably two weeks earlier than they would be in the open ground. Of course there is not room under the glasses for the three plants of cauliflower to form their heads there, but the object is to forward them so that they will be large enough to head in the open ground when the glasses are taken off—a most important matter with us, as we find the trouble always is that we can not get the cauliflowers large enough until they are checked by our hot and dry weather in June. Thus forwarded in New York, I think it safe to say they would readily bring \$1.50 for each hand-glass.

Variation in a Peach-Tree.

W. C. M., Barren Creek Springs, Md., writes: "I have a peach-tree, six years old, from the Ohio bud, on the south-east side of which is one small limb which branches into two; the lower one last year ripened its fruit much earlier than the other branches, and this year has on it peaches of fair size, now ripe, while the rest of the fruit is green and hard, scarcely colored. Is this not uncommon? Can it be accounted for? All the conditions of this limb are apparently the same as in the other limbs. Is it a 'sport'? Would buds from this limb bear as early fruit?"—This is an instance of what is now called "bud-variation," to distinguish it from another kind of sporting from seed. It is not very common, but there are a sufficient number of well-recorded instances to establish the fact that it occasionally happens, not only with the peach but with other fruit trees. Some branches of the peach have produced nectarines, and *vice versa*. A tree of the well-known peach *Grosse Mignonne* in France produced a branch with fruit so much later than the rest, that it was propagated as the *Grosse Mignonne tardive*, or Late *Grosse Mignonne*. Such cases have happened with cherries, plums, grapes, and other fruits. We can not account for the occurrence. The peach, as our other cultivated fruits, is in a condition far removed from its original one, and we only know that there is a tendency not only among our cultivated fruits, but with flowers and vegetables, to vary. Buds from the limb in question would no doubt propagate the peculiarity.

PEA-BUGS.—A correspondent says we may rid ourselves of Pea-bugs in two ways, provided we let none escape before applying the means, and provided our neighbors will all take the like pains. By one method we involve the peas and bugs in good soft-soap suds, stirring a little until the bugs rise, and then skim them off and burn them. Probably they might, after the sudsing, be safely planted with the peas, but it

is sure work to burn them. Another method is to pour scalding water with a quick dash over the peas, and almost instantly follow it with cold. This may seem to endanger peas as well as bugs; but we have used this process, losing very few if any peas. But using either process, there must be care to sow the peas quickly, or they will swell, and be in danger of splitting and damaging the germ. A few bugs may escape from not having opened their cells; but in the second year, repeating the means, scarcely a bug need be left to propagate its species. It is best to treat small quantities at a time.

A California Lawn-Sprinkler.

We have recently received from a friend in San Francisco an automatic sprinkler such as is much in use there, where it is necessary to produce an artificial rain to keep lawns green in summer. It is shown in fig. 1.

A light tripod, about three feet high, supports a revolving head, which consists of three arm-like tubes (shown in fig. 2) attached to a hollow washer that plays around the tube to which the

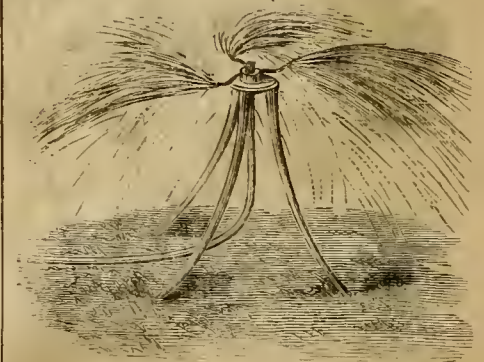


Fig. 1.—CALIFORNIA LAWN-SPRINKLER.

hose is attached, bringing water from a head. The arms are turned a little backward and upward, and the water as it flows out causes them to revolve, flinging a fine spray over a circle of from ten feet to thirty feet in diameter, according to the pressure of the water. We are using ours with a head of about fifteen feet, and it covers a diameter of twenty feet. When this area has been well watered, the machine is

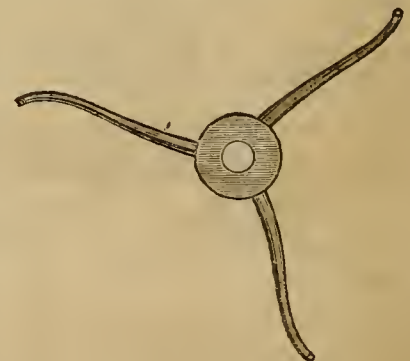


Fig. 2.—TUBES OF SPRINKLER.

moved to new ground. It requires but little attention from a man working in its neighborhood, and is a very useful affair in dry weather. We are not aware that they are for sale in the Eastern States, but any plumber could make one (mainly of gas-pipe) without much expense.

MR. SISLEY'S GERANIUMS.—Mr. Jean Sisley, of Lyons, France, is well known as a horticultural amateur, and now and then he has con-

tributed valuable articles to our columns. He has enriched our collection of Cannas by many fine varieties, and has of late years turned his attention to producing double Pelargoniums or Geraniums. The varieties that he has propagated are highly praised by the French horticultural journals, and some have passed into the hands of the commercial florists. Mr. Sisley has sent us by the hands of a friend two of his best seedlings, "Charles Darwin" and "Emilio Castelar." They were weak when first received, but have recovered by good nursing, and we hope they will give a good account of themselves.

Notes from the Pines.

Correspondents write to ask what has become of "The Pines." When I commenced these Notes I had no idea of continuing them regularly, but chose this gossipy form of presenting from time to time such things as I did not care to put in a regular editorial.

PEGGED-DOWN ROSES.—A little bed of tender roses kept well through the last winter, severe as it was. They were protected after Mr. Henderson's plan, by covering them with sods. Not having been laid down by a careful hand, many of the stems were badly bent, and rather than cut them away, as they never would have come straight, I pegged all down flat upon the ground. This is a common method of growing roses in England, but I had never before tried it, and am much pleased with the result. The bloom has been most abundant, the new growth (also pegged down) remarkable, and I think that the plants have been freer from slugs and other insects than when they grew erect.

DOUBLE PORTULACAS.—What fine things these are when you do get double ones! Some seeds from Mr. Dreer produced almost all double flowers. I have a rock-work devoted to succulents, but wishing something that would make a show while these were getting established, the Portulacas were planted among them. Their flowers every bright day are really fine, as double as roses, and white, crimson, and golden yellow.

BUSH AND CORDON APPLE-TREES.—I wish something could be done to make these dwarf apple-trees better known. They cost but little, and if they were planted only as ornamental shrubs their flowers in spring would be quite as satisfying as those of many things grown for their flowers alone. Then they bear fruit, and it is very pleasant to pick a dozen or two of apples from a little tree. One of my cordons not three feet long ripened twenty-three fine Duchess of Oldenburgs. The apples were almost as close as they could stick. Mind, I don't recommend these trees for profit, but as affording pleasure in fruit-growing.

THAT POTATO.—I think that in an earlier note I mentioned having received for trial from B. K. Bliss & Sons a potato for which great claims were made as to earliness. I made two plantings side by side with Early Rose, and in both cases it was easily ten days ahead of that well-known early variety. I don't know that the potato has any name, nor have I tried it upon the table. I could not afford that, as the gentleman who raised it was offered at the rate of \$4,000 a bushel for his remaining half-peck. I planted one pound each of Early Rose and this new variety in such soil and with such treatment as one would give in ordinary field culture, the object being to make a fair com-

parison of the two without attempting to get the greatest possible yield. When dug, the yield from the pound of Early Rose was 35 lbs., and that from the pound of the new potato was 34 lbs. As several potatoes were taken from the last-named from time to time for the purpose of observing progress, it is probable that had these remained the yield of the two varieties would have been the same, and we are safe in saying that it yielded in this single test quite as well as the Early Rose.

MOORE'S CONCORD CORN.—Last year I gave an adverse report upon this variety, but spoke highly of the quality of Judson's Branching Sweet-Corn, though it did not branch a bit. I procured seeds of half-a-dozen varieties of corn at the same time, and the seedsman who served me is convinced that in putting them up the Moore's went into the bag labeled Judson's, and *vice versa*. This year's experience shows that he was right—or wrong, as you choose to have it. Moore's Concord has this year done well, and is apparently just what my Judson's of last year was. It makes a fine large ear, larger than any early variety with which I am acquainted, and of very good quality, though not so sweet as some smaller sorts. To one not brought up in Rhode Island, where sweet-corn was invented—to the Boston people for instance—Moore's will no doubt seem the perfection of sweet-corn. But put it by the side of Early Narragansett, and then you will see that (as between Rhode Island and Massachusetts) size is not the only quality to be looked for in either sweet corn or States.

STRIPED JAPANESE MAIZE.—This has been "out" these many years, but I never happened to grow it until this season. I planted it in a thicket of Castor-Oil Beans, Cannas, and other quick-growing stuff intended to serve as a screen, and am much pleased with it. I may have got hold of a very good strain (R. H. Allen & Co.); at all events every plant is well marked, and some individual ones are really beautiful.

TOMATOES.—I have usually grown a dozen or more kinds for comparison, but this year my main crop has been the Trophy. The only others I tried were Early Shipping, from Peter Henderson & Co., and the Peach, from a correspondent at the West. The Trophy was ahead of either of these in earliness, while in size and quality there is no comparison. The Early Shipping has a most peculiar foliage, and looks more like a potato than a tomato. The "Peach" is a medium-sized fruit of good flavor, very regular, and of a peculiar light crimson color.

Propagating by Budding.

A majority of the readers of the *Agriculturist* rely upon its pages as their sole source of information upon all subjects relating to agriculture and horticulture. It is easy to refer those who send us letters of inquiry to this or that book to answer their questions, but the fact is, and we are glad to know that it is so, our large circulation is among those in moderate circumstances—people to whom the cost of the paper is an important item, and who can not as a general thing afford to invest much in books. Our great usefulness has been in adapting our teachings to the masses, and if our friends who are skilled in horticulture find us, as in the present article, now and then treating of what seem to them mere elementary matters—first principles—they must bear in mind that to the great multitude of readers such things are new,

and that articles like this are called out by numerous letters.

We are asked by many to give directions for budding and inoculating trees. It is a great misfortune that the term *inoculation* is employed, as there is a confusion of ideas caused by its use. People know that *inoculation* is practiced to so affect the human system as to diminish or destroy the liability to an attack of small-pox. Many quite intelligent people think that the *inoculation* of a tree introduces something into it that will cause it to bear better fruit, and are not aware that budding or inoculation replaces a worthless tree by a valuable one. The mechanical operations of budding are easily learned, but to work intelligently the principles which govern them must be understood. The propagation of plants by cuttings is one of the most common ways of multiplying them. Almost every one has grown a plant from a cutting, or "slip" as it is often called. This cutting or slip is a twig from the parent plant, with usually several eyes or buds upon it.

This being put in the soil under favorable circumstances, roots are formed, the eyes or buds push and form branches, and we have a new plant precisely like the one from which the cut-



Fig. 2.—BUDDING KNIFE.

ting was taken—a part of it as it were. The number of buds upon the cutting will depend upon the kind of plants, some rooting so easily that a single bud is enough. But all the plants that we desire to propagate can not be readily started from cuttings, and notably among these are our most valued fruit trees. In case of these we resort to grafting and budding. In grafting, we take a cutting or slip with several buds, and instead of planting it in the soil, we cut

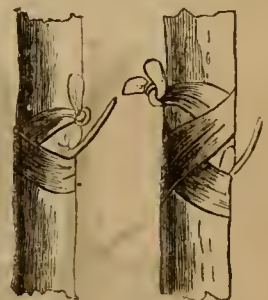


Fig. 8. Fig. 9.
TIES.

off and split a tree or a branch, and plant the cutting in the split. The wound soon heals, and the cutting or graft unites with the branch, and goes on and grows by means of the roots of the tree (stock), in which it is placed, just as readily as if it had made roots of its own. Grafting and budding are essentially the same in principle, though the mechanical operation

is different. It is rather unfortunate that we have two so distinct names for the operations. The French, who make a great many kinds of grafting, call budding "shield-grafting." In budding we have still nicer work than in grafting. Instead of taking a twig with several buds from one tree and planting (grafting) it into another, we take one single bud and plant it in another tree. The tree that is budded or grafted is called the *stock*, which is operated upon or *worked* when of small size. Peach-trees from stones planted in the spring are large enough to bud the fall of the same year. Apple, pear, and most other stocks require to grow two or more years before they are large enough to bud. But we have not space to discuss the subject of stocks. The next thing to consider is the buds, which must of course be taken from the variety that we wish to propagate. It may seem superfluous to state this, but it is not rare to find a person who thinks that there is some virtue in the mere act of budding, and does not seem to know that the future tree will be precisely like the one from which the buds are taken. To obtain buds, we cut twigs of the present season's growth on which the buds, at the angle where the leaf joins the stem, are well developed. The leaves upon this twig are cut away, leaving the leaf-stalk attached. This is called a *stick of buds* (fig. 1), which in damp moss or in a close tin box may be kept for several days. The stocks and buds being ready, then comes the mechanical operation, which can be readily learned by watching a budder, or by practicing a short while upon some worthless twigs or stocks. The time for the operation depends upon the kind of stock and upon the season, it beginning much earlier at the South than at the North. The stock must be in a growing condition, in order that the bark may part freely from the wood. The only implement required is a budding-knife (fig. 2), which is often made with a small ivory blade at one end for use in lifting the bark of the stock. Material for tying is needed, which is usually bass-matting or bass-bark prepared from our native tree. Corn-husks are used by some, as are cotton and woolen yarn, etc. The operation of removing the bud is shown in figure 3. The knife being placed

heres to the inside of the bud separates easily, it may be removed, otherwise it can be left. A smooth place being chosen upon the stock, and such leaves as are in the way removed, two cuts are made, one transverse and the other lengthwise, as in figure 4, the corners of the bark are lifted as in figure 5, and the bud put in

The Venetian Sumac or Smoke-Tree.

The Venetian Sumac or Smoke-tree, also called by some nurserymen the Purple-fringe Tree, is one of our best ornamental plants. It is useful when planted in groups, but shows to the best advantage when grown by itself in a position where it can develop without being crowded by its neighbors. One would hardly suppose it to belong to the same genus with our native Sumac, but such is the case, though it differs from our species in having simple leaves. Its botanical name is *Rhus Cotinus*; it is a native of Southern Europe, and in its wild state is to be considered rather as a bush than a tree. Under cultivation it will grow to the height of fifteen or twenty feet, and if properly managed will form a very symmetrical rounded head. The leaves are oval, very blunt at the apex, and of a rich green color. Indeed, the tree is well worth growing for its foliage alone, and this endures until the occurrence of very hard frosts, and often takes on a fine reddish yellow color late in the season. The flowers are small and greenish, and are succeeded by small fruits which are half-heart-shaped. Usually only a small portion of the panicle bears flowers, the rest of the cluster consisting of abortive flower-stalks, which after the flowering increase very much in size, and are clothed with long hairs. It is these large clusters of abortive flower-stalks that usually pass for flowers, and form the most ornamental portion of the tree. They usually occur in great profusion, their cloud-like masses often nearly concealing the foliage, and so light and feathery are they, that the name Smoke-tree is not inappropriate. When these clusters first appear, they are of a delicate purplish tinge, which afterwards changes to a yellowish green. We are sometimes asked by correspondents, what they shall do to make their Smoke-



VENETIAN SUMAC OR SMOKE-TREE.

its place as in figure 6. The top of the bark attached to the bud is cut off square, so that it may fit accurately to the transverse cut in the stock. The last operation is to tie. A strip of bass or other material is wound around in such a manner as to keep the cut edges of the bark from curling up, and to hold the bud in place, as shown in figure 7, when the tie is put around the stock both below and above the bud. The operation is performed by a skillful hand with great rapidity. In the peach-growing districts there are those who make a business of budding, and put in from fifteen hundred to three thousand buds as a day's work. They have a boy to go ahead and trim the stocks, and one to follow to tie. The peach-budders use a very simple tie, either that shown in fig. 8, where the knot is over the bud, or in fig. 9, where the knot is on the opposite side of the stock. In about two weeks after budding it can be determined if the buds have "taken;" if so, they will remain plump and green, and the leaf-stalk will have fallen. If the leaf-stalk dries and remains, and the buds look brown and shriveled, the operation has failed. As the stock grows the ties may strangle the bud, hence they are cut as soon as the bud has united. The bud remains dormant until the next spring, when the stock above it is cut away, and the bud pushes rapidly and makes a vigorous growth.

trees flower. The trouble is that they do flower, and in such a case the tree makes but little show. It is only when from some cause or other the great majority of the flowers are abortive that the clusters take on their ornamental appearance. We have two trees upon our lawn, but it is not

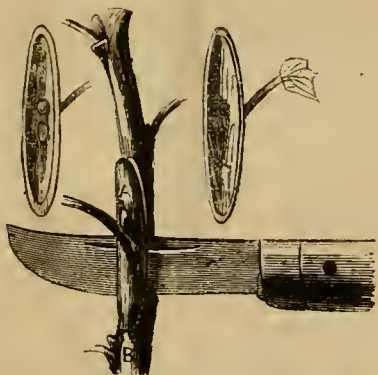


Fig. 3.—MANNER OF REMOVING THE BUD.

about half an inch above the bud, a cut is made so that it will come out about three fourths of an inch below it, removing the bud with an attached shield of bark and usually a small piece of wood. If this portion of wood which ad-



Figs. 4 to 7.—MANNER OF INSERTING THE BUD.

usual for both of them to be showy the same year. The engraving gives a very much reduced flower-cluster, and at one side some of the hairy abortive flower-stalks, with one much less hairy, bearing the fruit or berry.

THE HOUSEHOLD.

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

Short Hair for Women and Children.

A fine head of hair is a beautiful thing. It forms a becoming background or setting for the human features. Other "little women" than Jo March have considered their long, abundant, glossy hair their "one beauty." Some of these same little women have found, however, that they were really better looking than before when they have had their long curls or heavy braids cut off.

It seemed "such a pity" to all their friends, and they felt themselves that it was a great risk to run, because they might not look half as well after the barbering as before, and they hadn't a bit of beauty to spare. But the deed is done, and the friends who remonstrated most earnestly are perhaps forced to confess that short hair can be made very becoming to some persons.

Long hair is often very unbecoming we all know. Thin coarse locks are no ornament. If cut short, and tossed up lightly about the face, they sometimes improve the personal appearance very much, as many have learned during the late frizzing days. Long hair is usually drawn away from the face, so as to afford less of a "setting" for its wearer than short locks give. It is called a covering for woman, but it is drawn up from the neck in such a way, at fashion's demand, that it covers less of the body than hair only two inches in length.

While not advocating the total abolition of long hair, let us see what good reasons may sometimes constrain a sensible woman to have her head shorn of its reputed "glory."

The long, thick hair considered so desirable has considerable weight, and it taxes the nervous power to carry it about. A pound of hair is as heavy as a pound of candles. Worn in braids or rolls over the top of the head, it will actually make depressions underneath the rolls or braids, quite perceptible when they are removed after a few hours' pressure. At the same time, such long hair produces considerable discomfort. One may become so accustomed to this as to pay little attention to it. Worn in a coil at the crown or back of the head, it disturbs the circulation and provokes disease, and it renders any comfortable resting of the weary head almost impossible. What misery there is in the use of hair-pins! What "ridiculousness" in the "rats," cushions, jute chignons, etc.! What an amount of time, and care, and life-power gets used up in dressing and arranging this weight of hair, especially if it must be put in curl-papers or frizzing-pins over night!

Does it pay? Every woman should answer the question for herself. Outward adorning is all right if it does not interfere with the more precious inward adorning of the mind. The adorning fashion ordains is often barbarous in the extreme, and why does not a cultivated taste rebel?

What relief it is to get the head into such a condition that it can be bathed and dressed and rested with ease! How pleasant it is to run the fingers through the hair when the head is tired and heated! What a comfort it is not to have one's hair in the way when hurried or when weary!

But there is an answer ready for all reasoning in favor of short hair: "Oh! I think long hair looks best for a woman." That settles it, of course, for most women. Here and there is a woman who considers health and comfort and convenience of more consequence than prettiness. There are women, too, who can not believe that anything is really beautiful or truly becoming which tends to injure health or destroy comfort. But most of us go from one fashion to its opposite, unmaking slaves of fashion as we are, and everything we are accustomed to is considered tasteful and proper. And then a few women have husbands who consider themselves sole arbiters in all matters concerning their wives' apparel, and such men are pretty sure to like to see women (those belonging

to themselves) looking like duchesses, in plaited hair and brodered apparel.

Little Girlie had long golden curls, and we loved them until we saw how it fretted her and her mamma every day when the task of unsnarling and re-curling had to be performed. And the curls were so warm on her neck and shoulders, and such a temptation for baby's pulling fingers! So they were cut off, and when the pretty head was "shingled" the child actually was prettier than before, and her mamma admires the golden curls laid away in the bureau-drawer more than when they grieved and tormented and cultivated vanity in her child.

RELL.

How to Make a Refrigerator or a Meat-Safe.

In compliance with a request, we give cuts of a refrigerator and a meat-safe, with the following directions for making them:

The refrigerator is a wooden box of suitable size, having a recessed lid. It may be divided into

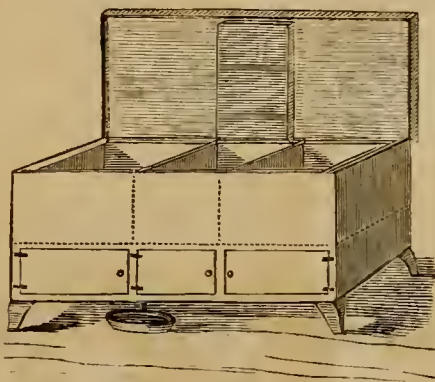


Fig. 1.—HOME-MADE REFRIGERATOR.

chambers if desired, to keep various articles separately, as butter from vegetables, or meat from fruit or pies. A central chamber with a separate lid is made in the upper part of the box to receive the ice. This should be made of sheet-zinc, and have a pipe in the bottom to permit the water to drain away as the ice melts. The shelves which divide the upper and lower parts of the box should be placed where the dotted line is shown in the cut, and should be made of slats, and movable, so that the cool air will circulate all around, and that they may be taken out to be cleaned occasionally. The

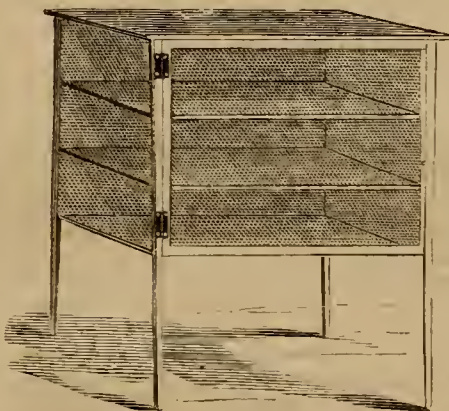


Fig. 2.—HOME-MADE MEAT-SAFE.

box needs lining to retain the coldness communicated by the ice. This lining should be a good non-conductor of heat, and as good a one as any is thick woolen felt, of which two thicknesses may be used, tacked on to the inside of the box, and covered with sheet-zinc soldered closely at the corners. Where the felt can not easily be procured, double walls may be made, and the space between them filled with pounded charcoal. The box should set on feet, so that it is not in contact with the ground, and that the water may drain off.

A meat-safe may be constructed by making a frame of four upright pieces, with a close top, back, and bottom, and two or three shelves, with a frame door at front. Mosquito-net or wire-gauze may be nailed over the frame and door, and the articles kept in the safe will thus have plenty of air, but will be kept free from flies. On no account should any gauze be put on the top, or flies would drop their eggs through it. Fig. 2 shows a safe of this kind.

Home Topics.

BY FAITH ROCHESTER.

SOMETHING ABOUT EYES.—If the remarks I am about to make are not approved by the editor-in-chief, you, dear reader, will never see them. So, if they do appear upon the page for which they are written, you and I may feel additional confidence in these same opinions. I do not wish to imply that all my views put forth in these pages have been "indorsed" by any editor, but I make these opening remarks because I am less and less inclined to speak as one having authority, and because I am more and more distrustful of ignorant tampering with ourselves and our children.

Sight is one of our greatest blessings, and it is a pity that it should so often be lost or impaired through ignorance or carelessness. How often did my mother warn me that I was "trying" my eyes when I was leaning out of the window to read in the twilight, or beg me not to spoil my eyes by reading while riding! I wish she had taken the book away from me, and so I mean to do by my children (gently but firmly), if their fondness for reading overcomes their judgment. We had better try first to convince our children that the pleasure gained by a few minutes' close application of the eyes in a light so dim or unsteady as to make seeing extremely difficult, always "costs a great deal more than it comes to." It is like any other strain, and its repetition will constantly weaken the power of vision, and result in positive disease if continued. Reading while lying down always wearies and injures the eyes, and is one cause of serious disease, especially if such use of the eyes occurs when one is recovering from sickness. The power of sight is very easily weakened when the body is weak or weary. Mothers who are recovering from confinement, and who are conscious of many little stitches needed in the family raiment, are very apt to use their eyes for sewing before they can really spare any strength in that direction. Weak eyes from this source are very common among women.

I have been reading parts of Dr. H. W. Williams's "Diseases of the Eye" lately. I looked to see what he said about near-sightedness, or *myopia*. I knew so many cases of *myopia* among musicians, especially among piano-players, that I had wondered if the study of music, the close attention to the fine notes, was not often a cause of near-sightedness. There can be no doubt that it is often a cause of the rapid development of incipient and before unsuspected *myopia*. Any pursuit or employment that calls for a use of the eyes upon small or near objects has this effect. Children are often discovered to be near-sighted when they first begin to apply themselves earnestly to study, or when they undertake to learn some business in which a steady use of the eyes becomes necessary. *Myopia* is much more common among the educated classes than among the ignorant and unskilled, though a hereditary predisposition may exist equally in all classes. Dr. Williams says that it "results in most cases from anatomical conformation, and is often hereditary; and, except in the slighter cases, is capable of being scarcely, if at all, modified for the better by age or treatment."

Many parents have an idea that their myopic children may outgrow their nearness of vision, and they are unwilling to have them put on glasses for fear they may always have to wear them. Dr. Williams says: "It is evidently useless for persons affected with *myopia* to deprive themselves of the very great aid to be derived from the use of glasses, in the hope that with advancing years their vision may become normal." It is true that a slight

change for the better results as age advances, but is it not too bad to go for years and years without ever getting a clear view of anything not close before the eyes? We were all a good deal moved, many years ago, when a dear inmate of our family exclaimed on first putting on myopic glasses: "Why, how pretty everything is! Oh! I can see the edges of the green leaves!"

Speaking of old sight, or the change that usually takes place in eyes originally normal at about the age of forty-five years, Dr. Williams says: "When these symptoms of loss of adaptive power begin to be felt, the eyes should be aided by convex glasses of sufficient power to compensate for the deficiency; otherwise they are fatigued by futile efforts, and yet more serious disability may result. It is useless to postpone wearing glasses in the hope that the necessity for resorting to them may be overcome." He advises, for near sight and for old sight, the weakest glass which gives distinct vision at the desired distance.

Parents are often alarmed by the sudden appearance of "cross-eyes" (or strabismus) in young children. It is quite common, in a slight degree, when children are teething. This very morning I perceive that my baby's eyes are not exactly straight, and once before I have seen the same slight deviation, but without alarm. At both times a severe crying spell has preceded such a result, and I am only more than ever determined to be, as far as possible, her obedient servant until teething is over. This is a secret, however! I hope she will not find out that her will is law here (and this will not be the case exactly), but any nervous excitement must be warded off from a system already taxed with the great business of getting a mouthful of teeth. My first child looked cross-eyed a very little for many weeks when teething, and it gave me much anxiety. How or when it disappeared I never knew.

But real strabismus is a thing not to be lightly treated. It sometimes results from convulsions or from whooping-cough. An operation by a skillful surgeon or oculist is then of great importance, and Dr. Williams says: "It is impossible to insist too strongly upon the importance of an early operation for the relief of strabismus, and on the fallacy of the popular belief which thinks it probable that 'the child may outgrow it,' or considers it best to 'wait until the child is older' before having anything done. The sight, in thousands of eyes, has been sacrificed to these erroneous opinions."

When one member of a family is afflicted with inflamed eyes, or with any disease of the eyelids, the greatest care should be taken that no one else uses the same towel, as eye diseases are often communicated in this way.

A YOUNG WIFE.—A little note came to me the other day, inclosing a long letter to my sister, whose address the writer had lost. That little note came home to my heart as news from heaven. It said: "I am married now, and am very happy, for a better husband I could not have—one whose constant aim is to do right, to do what is for the welfare of all around him."

Perhaps you think she only felt like all young wives. All the better, if this were true—but I am afraid it is not. The ostentatious appearance of conjugal affection is very common I know, but love like M.'s one does not see every day. I had the pleasure of reading the long letter too, and it was clear as day that a pure and noble love had done a great work for M. in the way of womanly culture. She loves her husband for what is God-like in him. Idolatry is hardly possible in such a case. It is not his mere moral perfection, it is his aim, his motive, his spirit that she loves. Not a word did she say of his fondness for her, and she only mentioned incidentally that he is a farmer, and that they would have to live very economically for some years. She is all alive to learn and to grow, and wisdom and growth are sure to come to a soul that covets only the best gifts. Not for "his sake" simply does she aspire to learn and grow, but this love is to her true woman nature what the warmth of spring-time is to the slumbering earth. I don't believe the great Jubilee in Boston could give my soul such an

"outing" into the heavenly realms as that simple, sincere note and letter gave.

It is very possible that as years go by M. will find that her husband is not all that she believed him to be. One illusion after another may vanish away, until he may seem to her quite a commonplace man after all. Character and temperament are two very different things. M.'s love is based upon character, and yet she may be considerably mistaken in her husband's character. And then her husband's temperament and habits may not always harmonize with her own. If she has disappointments of this kind, I hope she will know how to make the best of them, summoning common-sense and conscience to help her through. For some years I have been watching some of those people who don't believe in living with a husband or wife who is not in all respects agreeable to their own disposition; people who change one "mate" for another by means of divorce, believing that marriage is good for nothing unless one finds one's exact "true mate." The last condition of such persons is almost sure to be worse than the first.

Of course, it is best to avoid mistakes in marrying, as far as one is able, and it is a step to be taken with very great caution. But there are very few persons who do not find some disappointment in marriage. Love throws such a halo around the beloved object; we love our ideal of perfect humanity, and human nature can not yet satisfy that ideal. But all is not gone when one wakes from this young dream. Better things remain for those whose aim is true.

"RYE GRAHAM."—Several weeks ago, Mr. R. brought home from the mill, along with other things, about twenty pounds of rye Graham, recommended as very good. I did not know how to use it, and felt some doubts whether we should like it. But now it is all gone, and it went pretty easily after all. First we tried

RYE LIGHT CAKES, baked in gem pans, and this is the recipe: One pint of milk, three eggs, a tablespoonful of sugar, and a salt-spoonful of salt. Rye flour enough for the thickness of griddle-cake batter. Bake half an hour.

RYE BREAD we made in this fashion: For mixing, take one quart of warm water and one quart of milk. Thicken this with a teacup of corn-meal, and rye-flour enough for a common bread-sponge. Stir in about $\frac{3}{4}$ teacupful of good yeast. Let it rise in a warm place, and when light knead it quite stiff with rye-flour. Let it rise again, and bake it well.

RYE GEMS we make like the Graham gems, mixing them a little stiffer, as rye is inclined to be sticky. I observed that these gems always "took" better at our table when they were made one third wheat Graham and two thirds rye; and then they were best when the whole was sifted with a coarse sieve, which removed the coarsest part of the bran.

RYE ROLLS we made in two ways, mixing them with sweet milk. 1. Make a dough with milk and flour, stiff enough to roll an inch in thickness. Cut in strips an inch wide, and bake on a buttered tin. 2. Mix your batter of flour and milk stiff enough to take up a large spoonful in your hands, previously flouring them to prevent sticking, and roll the dough with your hands into straight rolls about an inch and a half in thickness. If these are floured, the baking-pan need not be buttered.

RAIN-WATER BARRELS.—Where it is desirable to catch rain-water for washing, and there is no cistern for the purpose, kerosene barrels are very useful. You can buy them for seventy-five cents apiece. Light a match and apply it to the oily inside of the barrel, and it will burn away the oil and give you a clean whole barrel. Of course, none but an idiot would do this where the flames would endanger house, barn, or other property.

Mollie Wants to Know.

One of the Household sisters, who signs herself "Mollie," is in trouble. As Mollie lives away off in Oregon, we hope some housekeepers not so near

the setting sun will come to her help, and put her in the way to "suit George."

"I should like to ask how to make good tender doughnuts, raised with yeast; also how to make tip-top stuffing for chicken. I have tried every recipe I know of, but they have all failed to suit George."

Household Items.

BY MRS. F. H. R.

LAMP CHIMNEYS are most apt to crack after being washed. In my own experience, they are less apt to break if moistened with the breath and polished with a cloth or paper, and afterwards with a chamois-skin, which gives them a clear brilliancy.

TIN-WARE.—If a housekeeper is ambitious, and prides herself on shining tin-ware, let her use whitening. Wash the tin-ware clean and wipe dry, and then polish with a dry cloth and dry whitening. That article is cheap, and gives a new, bright look to everything it is used on. For the tea-kettle and large coffee-pot (which finds its way on to our breakfast-table, though there is a silver one in the house) nothing is so effective.

BREAKFAST BREADSTUFFS.—Has any one ever tried what I am pleased to call "corn-muffins"? I make them with buttermilk, corn-meal, a little flour, a little butter or lard, salt, and soda, and bake them in my muffin-irons. They are beautifully crisp and light. They need to be quite thick—almost like "Johnny-cake." They have a chance to bake thoroughly through in the shallow irons, and we are very fond of them. We use cannille a great deal, made into muffins or "gems," in the same way, leaving out the tablespoonful of butter or lard or sour cream.

A great many, in making wheaten pan-cakes, fritters, and pot-pie, use eggs. I think this is a mistake, and never use any in mine. They rarely ever fail of being light, though I use nothing but buttermilk or sour milk, flour, salt, and soda.

CREAM-CAKE.—A cheap and excellent cream-cake for every day is made in this way: Break two eggs into a cup, and fill the cup up with sour cream. Add one cup of sugar, one cup of flour (perhaps a very little more), salt, soda, and nutmeg. This can be used also for a jelly-cake.

Ham and other Omelets.

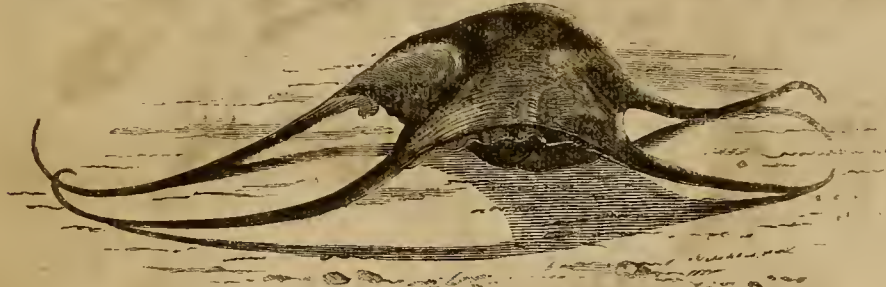
Half a pint of milk with two teaspoonfuls of flour carefully intermixed, and three spoonfuls of finely-powdered cracker, sifted; add six eggs, well-beaten; butter a griddle, stir the omelet mixture well together, and pour thinly and evenly enough to cover the griddle; then immediately scatter over the surface of the omelet a layer of finely-minced ham; then fold immediately half of the omelet over on to the other half; then fold once more, so that it will come off the griddle in the form of a quarter of a circle, four-double. Finely-shred onions and minced veal can be used in the same manner. This quantity will make enough for six persons. W.

To Pickle Martynias.—Pick white yet soft enough to be easily penetrated by the thumb-nail, and throw into brine made strong enough to bear an egg. They are ready for pickling in ten days, or may be kept in the brine longer. When wanted to pickle, they are taken from the brine, washed in cold water, and soaked in vinegar two or three days. Then add about two pounds of sugar to one gallon of vinegar, with cloves, allspice, or other spices to the taste; tie them in a bag, and let them soak in the vinegar until the strength is extracted; heat the vinegar to boiling and pour upon the Martynias, which should previously have been removed from the vinegar in which they were soaking, and placed in a cask or other suitable vessel. After a few days they are ready for use.

BOYS & GIRLS' COLUMNS.

What is It?—Our Guessing-School.

So many odd things come to me with the question "What is it?" that I think I must turn some of them over to the boys and girls, and keep a sort of *Guessing-School*. Guessing-school is not exactly the right name



SOMETHING FOR BOYS AND GIRLS TO PUZZLE OVER.

for it—perhaps "Intelligence Office" would be better, because we do not wish the answers to be mere guesses, but bits of positive information. Still, as we have called it so, we will let it go as "Guessing-School." Now, here is an engraving of a "What is it?" brought the other day by one of my associates who has taken up his summer residence by the sea-shore. He picked up this something on the beach, and brought it to find out what it was. As I was born and brought up alongside of salt-water, I knew it at once, but I thought it would be an interesting thing for you boys and girls to puzzle at—so here is the engraving. The drawing was made by one of "the boys," for you must know that we have boys who do drawing. The thing is shown of the real size. It is black, and very tough and leathery; it shows no signs of life. When found upon the beach, it may be in the position here shown, or it may be the other side up—just as the waves happen to throw it. Now then, who will find out and tell us what it is? The one who gives the best account of it—I don't care how it is found—shall have the *Agriculturist* put down for his or her name, or to whomsoever he or she may direct, for the year 1873. Send answers to The Doctor, 215 Broadway, New York—and to no one else. Time will be up October first. Now, then, go to work for
THE DOCTOR.

A Petrified Squash—Sea-Urchins.

Children, did you ever see a Petrified Squash? I never did; in fact, I never heard of one until the other day, when there came by mail a specimen from a gentleman in Salado, Texas, of what he said was there called a "Petrified Squash." I have mislaid the gentleman's name, but you will thank him nevertheless for sending the specimen which allows me to give you the engraving of it, of the natural size, in figure 1. Perhaps before we go any further we had better see if we all understand the meaning of the big word *petrified*. If I had you all before me, I should ask those who knew what was meant by petrified to hold up their hands. All the hands would not go up I am sure; so, for the benefit of those who do not know, we must explain a little. If you look into the



Fig. 1.—PETRIFIED SQUASH.

dictionary, you will find that the word petrify comes from the Greek word *petra*, a stone, and the Latin word *facio*, to make. So "to petrify" is to make into stone, and a petrified thing is something made into stone. In some waters, which have much mineral matter dissolved in them, wood and other things are gradually changed into stone. So our "petrified squash" would be a squash turned to stone, only it does not happen to be a squash—indeed, it is not a vegetable at all, but an animal which has ages ago been turned into stone, or petrified. An odd sort of animal you think—and so it is. It is the remains of an animal the relatives of which are well known

in the living state as Sea-Urchins. It is only those who live on the sea-coast that are likely to see living specimens of the Sea-Urchins, and they are very unlike any kind of animal you who live inland are likely to meet with. They belong to that division of the animal kingdom called *Radiates*. You know that most of the animals, including the fishes, reptiles, insects, etc., that you have ever seen, have a right-hand side and a left-hand side. Their parts are arranged in opposites. In the radiates

they are arranged around a center, just as the spokes of a wheel are placed around a hub, as you may have seen in dried specimens of what is called a Star-fish, which is like a five-pointed star. These Sea-Urchins have their parts arranged in five or some multiple of five, but they are more or less globular, or more like a flattened biscuit. They have an outer shell or covering which is not

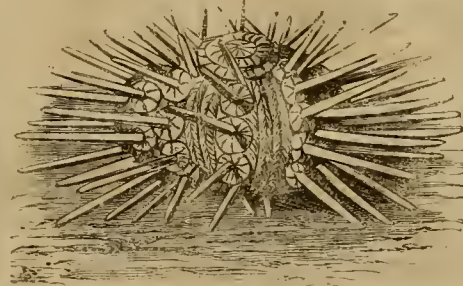


Fig. 2.—PIPER URCHIN.

whole, but consists of plates joined together, and the mouth of the animal is on the flattened side at the bottom. The living Sea-Urchins have attached to their outer surface numerous spines, some kinds having them only a quarter of an inch long, while in others they are three or four inches in length. In figure 2 is given an engraving of a living Sea-Urchin, which is not much unlike the petrified one in figure 1. This living one is called the Piper Urchin, and is found in the waters of India. You will see that it has its spines attached. These spines are of substance somewhat like shell, and are of use in enabling the animal to move about on the bottom of the sea, and probably by their forbidding appearance they protect it from enemies. It was discovered by the missionaries in India that these spines make very good slate-pencils. Besides these spines, the Sea-Urchins have numerous feelers by which they are able to seize their food, and pass it from one to the other until it reaches the mouth. Most of the Sea-Urchins found upon our coast have many more spines, and shorter ones, than the one shown in figure 2. Indeed, the spines are so many and so close together as to hide the body of the animal itself, and it looks as bristly as a porcupine. So our "Squash" is after all a Sea-Urchin, which lived ages ago, when that part of Texas where it was found was covered by the sea. In the wonderful changes which have since gone on, the animal lost its spines, but the form of its body was preserved by being gradually converted into stone. When you get older, you will all of you, boys and girls, I hope, read something of geology, which teaches the wonderful changes that have gone on to make this earth fit for our dwelling-place. Not only will that tell you of the wonderful things that happened in the far-off past, but those which are taking place now. Sea-Urchins and hundreds of other animals are living and dying now, and it may be that years and years to come some one will find a curious thing, and send it to some future Doctor, which will only be a petrified Sea-Urchin that is living on the coast at the time I am writing this for my boys and girls.
THE DOCTOR.

An Ant and a Green Worm.

Here is an account of a remarkable display of both strength and intelligence by an ant. It was sent us by Mr. Thos. S. Collier, of New London, Ct. He intended it for the older people's department, but we think it will find more interested readers among the boys and girls. Watch the ants as you see them at work, and it may be

you will see something equally strange and worth telling about. Mr. C. writes:

Whilst standing under the arbor near my residence this morning, I was somewhat surprised and amused to see a combat between an ant and a green worm or caterpillar of some kind. The worm had either been migrating or fallen from the arbor, and whilst in the path been attacked by the ant.

For a while the contest was very fierce, the ant running along the body of its adversary, and stopping now and then to give a pinch or bite—at least, I concluded such was the case, as it seemed to gather itself together for some muscular work, and when it did so the worm writhed and twisted as if in great agony.

This lasted some three or four minutes, when the worm grew exhausted and became quiet, and then the ant proceeded to drag it along the walk. The worm gave two or three weak struggles after this, but made no strenuous resistance. After dragging the worm some three feet along a level space, the ant came to an inclivity of about an inch, and finding its strength insufficient to cope with the difficulty, it left the worm and proceeded toward its hole. When near the entrance it encountered another ant, and after the usual manner of interchanging communications, by the use of feelers, it returned to the worm, and was shortly joined by the ant it had met.

These two, by their united exertions, managed to drag the worm up the precipice, for such I suppose it was to them. Then they conveyed it through a patch of grass, winding in and out among the spears, as if treading the intricate labyrinths of a dense forest. Beyond the grass they came to a clear space, and here the ant that had come to the assistance of the conqueror of the worm departed on its own business, and the conqueror was left to drag its prize along alone. This it did, until it reached the entrance of the nest, when it and the worm disappeared.

Now I took the trouble to measure the worm and the ant. The worm was one inch long, with a circumference of three eighths of an inch; and the ant was one quarter of an inch long, and belonged to the common brown species. The total space that the worm was carried was eleven feet, and one not performed the greater part of the toil. This, however, is not as remarkable as the fact of the ant attacking the worm, and its sagacity in not leaving it until it was powerless to escape, and its search for and obtaining help when unable to accomplish a task that came in its way.

Aunt Sue's Puzzle-Box.

ANAGRAMS.

- | | |
|--------------------|----------------------|
| 1. Die, saint. | 6. The Coal Co. |
| 2. Tip our son. | 7. Lo! I hold Ike. |
| 3. Not decent car. | 8. Uncle is so lame. |
| 4. Pigs run, sir. | 9. Lovers sue. |
| 5. Patient acid. | 10. Most rare net. |

PI.

Nodrap si het stom sourilog dink fo generer.



430. *Illustrated Rebus.*—The name of an Indian tribe. cross-word.

- My first is in mutton but not in veal.
- My next is in otter but not in seal.
- My third is in haven but not in port.
- My fourth is in mischief, but not in sport.
- My fifth is in mother but not in son.
- My sixth is in bayonet, but not in gun.
- My seventh is in entry but not in hall.
- My eighth is in large but not in small.
- My whole is sure to come every year,
- When flowers begin to disappear.

Dot.



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THE UNWELCOME VISITOR.—Drawn and Engraved for the American Agriculturist.

CHARADE.

My first, some grain, was from a farmer bought,
And on long credit its delivery sought;
But quite without his host the buyer reckoned,
For—answering loud and firmly with my second—
The farmer vowed he'd have my whole or naught.

TEMPY.

NUMERICAL ENIGMA.

I am composed of 10 letters.
My 8, 5, 6, is a metal.
My 3, 9, 10, is a relative.
My 10, 9, 1, is an adverb.
My 4, 2, 8, is an article of apparel.
My 7, 5, 6, is a dangerous medicine.
My whole is a well-known name.

HELEN.

DIAMOND PUZZLE.

1. One thousand. 2. A Portuguese coin. 3. A kind of wood. 4. One who rescues. 5. An ancient Greek. 6. Not insulting. 7. The theme of many poets. 8. A room. 9. Something essential to every one. 10. Not known. 11. An inhabitant of a certain classic country. 12. An animal. 13. A consonant. The center letters, horizontal and perpendicular, give an inland sea.

R. T. ISBESTER.

DOUBLE ACROSTIC.

A scene of scandal in New York,
That erst created so much talk.

1. A building that in Brooklyn does abound.
2. Has lost her throne where she was proudly crowned.
3. The Indian follows it to find his war.
4. And utters this expression of dismay. W. C. O'L.

TRANSPOSITIONS.

(Fill the blanks with the same letters, transposed.)

1. The loss of _____ at the _____ stand, fairly made _____ with rage.
2. _____ went _____ to feed the birds which he kept in _____.
3. Some boys are such _____, one _____ more, and they you would become a _____.
4. _____ vandal! why destroy the _____ which know _____? TEMPY.

ANSWERS TO PUZZLES IN THE JULY NUMBER.

ALPHABETICAL ARITHMETIC.—146624703, 4378 (Key-Profundity.)

EQUIVOCAL WORDS.—1. Apparent. 2. Ball. 3. Baste. 4. Bait. 5. Bear. 6. Art.

ANAGRAMS.—1. Comparison. 2. Recognized. 3. Exemplified. 4. Gibberish. 5. Palmistry. 6. Indolent. 7. Ascertained. 8. Interposed. 9. Distempered. 10. Appertaineth.

Cross-Word.—Steeple.

DOUBLE ACROSTIC.

B — ilboe — S
O — ceup — Y
R — a — M
E — b — B
A — d — O
S — cul — L

PI.

How sweet and fresh this vernal day!
How musical the air!
Flowers were never seen so gay,
Or Nature half so fair.

ARITHMOREMS.—1. Siphon. 2. Chaos. 3. Violet. 4. Exalt. 5. Stone. 6. Deviate. 7. Freight. 8. Ostea. 9. Weighty. 10. Naughty.

NUMERICAL ENIGMAS.—1. Charles H. Delaney. 2. Philadelphia.

REBUS.—Some people say "labor is disgraceful," but on such slanderers should infamy fall.

AUNT SUE'S NOTICES TO CORRESPONDENTS.

JERE PLUMER.—The answer to the numerical enigma in the April number is, "A stitch in time saves nine." How did it happen that that one puzzled you?

E. L. C.—Tell "Auntie" that enigmatical questions are frequent in the scriptures, and that all Eastern nations cultivated, more or less, this species of composition as an efficacious means of calling forth the speculations of the wise men upon the numerous and inexplicable mysteries hidden in religion, nature, and art.

CARRIE.—A little alcohol will remove the stains of violet ink from your fingers; cologne-water, which is chiefly alcohol, will answer the purpose.

I am waiting to report on the "OVEN" squares; it was hardly fair to ask you to puzzle over the *oven* in July, was it? Next summer we will take "snow."

Thanks for letters, puzzles, etc., to Willie S., Mary and Kate, Tom, Lena G., L. N., and Owego.

The Unwelcome Visitor.

Did you ever see a nestful of young owls? If not, you have an odd sight in store for you. There are a number of different kinds of owls in this country, and they differ in the manner of making their nests. Some build a rude nest upon the branch of a tree; some find a hollow tree in which to raise their young; and there is one droll little owl in the far West that makes use of the burrows of the Marmots, or Prairie-dogs as they are called, for its dwelling. Nothing is more comical in appearance than a baby-owl. The thing appears to be all head, and that head nearly all eyes. Such a wonderful amount of blinking and winking as they do! We suppose that, however droll the little owls appear to us, they are in the eyes of Mr. and Mrs. Owl perfect beauties. Years ago, when the writer was studying French, he read a fable, which as near as he can recollect ran something in this way: The Eagle and the Owl had for a long time been at war, but at length they concluded to make peace, and live ever after on friendly terms. So they talked the matter over—birds are said, you know, to have been able to talk in those days—and came to an agreement about various matters. One of the conditions of the treaty of peace was that neither should disturb or injure the young of the other. "But I have never seen your children," said the Eagle; "describe them to me, so that I shall know them." "Oh!" said the Owl, "you will know them at once by their great beauty; they have the most elegant form of any birds, and such beautiful eyes and sweet mouths!" In a day or two, the Eagle, while out hunting a dinner, came across the Owl's nest. "Hallo! what strange things have we here?" said the Eagle; "these can not be young owls, for they are little beauties," and thereupon he gobbled them up. Fables, you know, always have a "moral" attached, but I think every bright boy and girl will be able to see the point of this one without its being shown. The young owls in the picture are old enough to be out of the nest, and they are thrown into astonishment by the appearance of a strange creature, the like of which they have never seen before. The object that engages their attention is the caterpillar of the Royal Moth, which lives upon oak-trees. It is a very large and showy caterpillar, and its long curved horns give it a very formidable appearance. No wonder that the owlets are startled; we have known much larger youngsters, who did not wear feathers, to be frightened at it.

A Railroad Watch.

Travelers by Railroad frequently find their watches completely demoralized by the continuous jar of the train. To overcome this difficulty has long been a problem with watchmakers, and it is now successfully accomplished in the new grade made by the

American Watch Co. of Waltham.

This Watch is made in the most substantial manner, on the most approved principles, and combines all the recent improvements. It has a new micrometrical regulator, by which the slightest variation can be easily corrected. It is carefully adjusted, and may be entirely relied on to run accurately, wear well, and ENDURE THE HARDEST USAGE, without any derangement whatever. We confidently recommend this watch to the trade and the public as the **BEST WATCH FOR THE PRICE IN THIS MARKET.**

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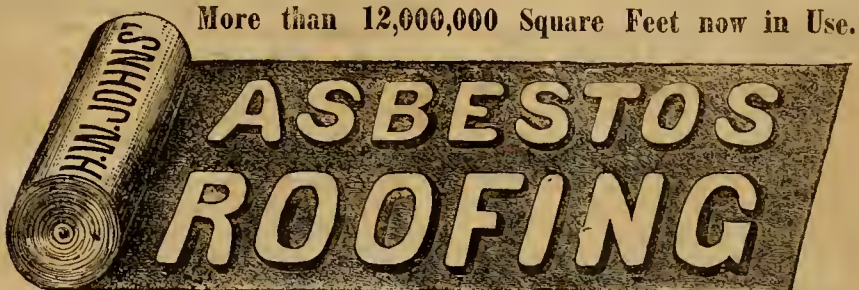
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1872.

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Established 1840.

ELLWANGER & BARRY,
Mount Hope Nurseries, ROCHESTER, N. Y.

175,000 FRUIT TREES.

Apple, 1 yr., 75,000, \$20 per 1,000; 2 yr., 2 to 3 ft. high, \$25 per M.; 3 to 4 ft., \$40 per M.; 3 and 4 yrs., \$10 per 100, \$50 per M. 20,000 1 yr. St. Pear, 8 to 24 inches high, \$9 per 100. Transcendent Crab, 1, 2, 3, and 4 yrs., \$3 to \$10 per 100. 50,000 Apple Seedlings, 3 yrs., and other Stock. Price-list free.
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BLOOD-LEAVED PEACH.

A Colored Lithograph of this startling novelty will be mailed free to every Nurseryman and Dealer if applied for at once. Applicants will please state whether they are Nurserymen or Dealers.
Heikes Nurseries,
Established 1822.
W. F. HEIKES,
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PEACH TREES.

APPLE TREES, one year from graft.

CONCORD VINES.

A general line of Nursery Stock.
CALKINS & BROOKS, Bricksburg, Ocean Co., N. J.

HYACINTHS, TULIPS,

CROCUS, LILIES,

and all other Bulbs for planting in the Autumn; also Bulb-Glasses, Fancy Flower-Pots, Fern-Cases, Winter-Flowering Plants.

The largest and finest assortment in the country. Prices moderate. Descriptive Catalogue mailed to all applicants free.

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714 Chestnut st.,
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SUPERIOR DUTCH BULBS.

Hyacinths, Tulips, Crocus, Etc., Etc.

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Our importations are expected early in September, direct from the most eminent growers in Holland, who have supplied us for twenty years. They can be relied on as of the very finest quality.

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Choice Dutch Bulbs,

In assorted cases, from different celebrated growers, for sale by
C. C. ABEL & CO.,
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BRIGGS & BRO.,

seedsmen and Florists,
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FALL CATALOGUE OF BULBS NOW READY.
Sent free on application.

TREES, BULBS, HEDGE PLANTS,
Seeds, Fruit and Flower Plates, 4 Catalogues, 2c.
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A MONTHLY of 16 pages, at \$1.00 per year, edited by A. M. PURDY—a life-long fruit grower and flower fancier. Published under cultivation at Palmyra, N. Y., and contains two hundred acres of fruits alone. Biggally, it contains horticultural, politics, &c., and no room in it, as a "Fruit Recorder," devoted to FRUIT GROWING AND HOME'S ORNAMENT, its high moral tone and rich store of practical, original and copied matter (from some 50 exchanges) endears it to all. To see a copy is equivalent to subscribing. Specimen copies free, or an excursion trip of four months (Sept. to Dec.) for only 25 cents. Don't judge it to be of no account because printed in an inland town and the editor a working, practical fruit grower but try it four months, and be not set. Address,
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Pure White Winter-Wheat.

All things considered, and on good, clean, rich, dry land, the DIEHL is the best variety of WHITE Wheat now grown. The straw is very stiff, the head very plump and full, and the yield on good land eminently satisfactory. The greatest difficulty we have experienced with it is to get pure seed. It is almost impossible to find it unmixed with Mediterranean and other red varieties. For some years past, many readers of the *American Agriculturist* have written to me for seed, but I have never been able to get any that I thought pure. I have now, however, the pleasure of stating that I raised this year ten acres of DIEHL WHEAT that is the PUREST I have ever seen, and I can send it out with confidence.

I will send four pounds by mail, prepaid, to any address, on receipt of ONE DOLLAR.

I will send by express or as freight, at the following rates:
1/2 bushel..... \$3 00
1 bushel..... 5 00
2 bushels..... 9 00
6 bushels..... 25 00
10 bushels..... 40 00

Larger quantities at the same rate, or \$1 per bushel. The Wheat will be put in strong, new bags, carefully directed, and delivered at express office or freight-house without any extra charge.

Orders will be filled immediately. Address
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Moreton Farm,
Rochester, N. Y.

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For the Autumn of 1872

Is now ready for mailing.
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Seed Warehouse, 15 John st., New York.

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With Prices, full Instructions for Planting, Treatment, etc. Sent free to all applicants. CURTIS & COBB,
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The best and cheapest box in the world. Also, Strawberry Boxes, Peach Crates, etc.
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FARM OF 250 ACRES in Kent Co., Maryland.

Three miles from railroad station. Peach country. For lease perpetually at \$125 per acre.
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The undersigned will offer for sale at the *Public Fair Grounds* near Baltimore,

On **FRIDAY, Oct. 11th**, that being the last day of the Show of the Maryland State Agricultural Society, from

15 to 20 Head of PERCHERON HORSES,

of both sexes, Imported, or the produce of Imported animals, all pure-bred.

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Baltimore, Md.

For Catalogues, which will be ready Sept. 15th, address as above, or the Editors of *The American Farmer*, Baltimore, Md.

Fleetwood Farm, Near Frankfort, Ky.,

Thorough-bred Horses, Trotting Stock, Imported Alderneys, South Down Sheep, etc.

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(State where you saw this advertisement.)

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A monthly, \$1.00 a year. Splendidly illustrated. Tells all about poultry. Send 10 cents for a sample copy. Address **H. H. STODDARD, Publisher,** Hartford, Ct.

THE AMERICAN STANDARD OF EXCELLENCE for Exhibition Poultry. Indispensable to poultry breeders. It governs the awards at exhibitions. Sent, post-paid, for 50 cts.

WRIGHT'S NEW WORK ON POULTRY, containing 50 superb plates in colors. Published in 25 nos. 1—sent semi-monthly. Price 50 cts. per no., sent carefully wrapped, post-paid. *Try one no.* for a sample, and see the *finest work* of the kind ever attempted. Address **H. H. STODDARD, Hartford, Ct.**, publisher of **THE POULTRY WORLD.**

BLACK BASS for stocking ponds.

JERSEY CATTLE. Family cows. Address **W. CLIFT, Mystic Bridge, Ct.**

BONE MANURE AND GROUND BONE, \$30, \$25, and \$40 per ton.

BEST SUPERPHOSPHATE OF LIME, \$50 per ton.

DOUBLE-REFINED POUDRETTE, \$35 per ton.

PURE NO. 1 PERUVIAN GUANO.

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The Celebrated Bone Fertilizers,

GROUND BONE, BONE MEAL, BONE FLOUR.

Fresh Bone Superphosphate of Lime, or Dissolved Bone. Send for Circulars.

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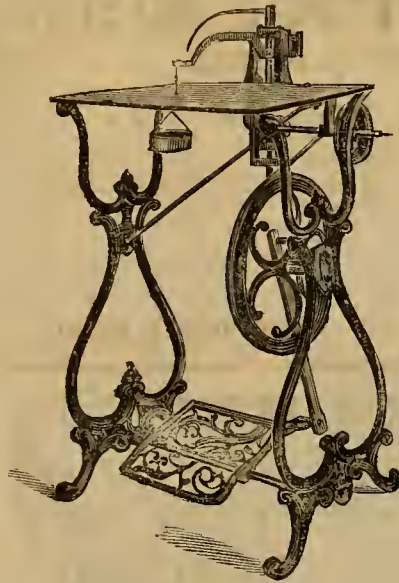
Holbrook's Swivel Plows Do perfect work without dead furrows or ridges. For level land & side hill. Easy draft. Have Hinged Cutters. Adapted to bog meadows. Circulars of **F. F. HOLBROOK & CO. BOSTON, MASS.** Sold by Dealers.

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START A NURSERY HOW TO.—August number. Price 25 cents. Price-list of Trees, Plants, Seedlings, Root Grafts, etc., free. **HEIKES NURSERIES, Dayton, O.** [Established 1822.]

500,000 STANDARD PEAR TREES, at greatly reduced rates. Also, a general line of Nursery Stock. Write for Price-list. **E. MOODY & SONS, Lockport, N. Y.**



PATENTED AUGUST 29TH, 1871.

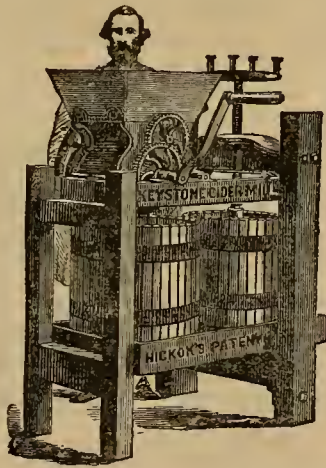
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FOR ALL KINDS OF SCROLL AND WOOD SAWING.

It runs by Foot or Steam Power—will saw from 1-16 to 3 in. in thickness. Also, a small one, that runs the same as a Sewing Machine, for Amateurs. See Cut. Send stamp for Circulars for full description for different styles of saws.

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Keystone, Hutchinson's, & Excelsior



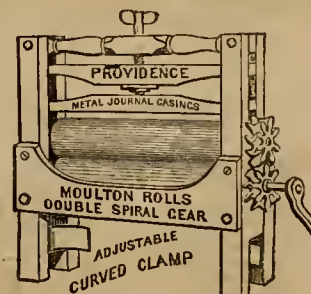
Cider Mills and Presses, Apple Grinders, and large Press Screws. Headquarters for Cider Machinery.

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In each county as Wholesale Agent for **O'Hara's Dollar Champion Corn-Shellor**, patented July 18, 1871, endorsed by leading Agricultural Papers; and **O'Hara's Practical Corn-Husker**, patented Aug. 1, 1871. Sure sale. Very large profits. Samples of both, delivered, \$1.75. **C. M. O'HARA, Hillsboro, O.**

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Moulton Rolls, Most Durable; Double Spiral Cogs, Easiest Working; Curved Clamp, Holds Firmest; Metal Journal Casings, NO WEAR-OUT.

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\$100 to 250 per month guaranteed sure to Agents everywhere selling our new seven-strand **WHITE PLATINA CLOTHES-LINES.** Sells readily at every house. Samples free. Address the **GIRARD WEE MILLS, Philadelphia, Pa.**

900,000 ACRES

OF

EXCELLENT FARMING AND SPLENDID

Michigan Pine Lands FOR SALE,

On which are **ONE THOUSAND MILLIONS OF PINE TIMBER**, and inexhaustible quantities of Maple, Beech, Elm, Ash, Hemlock, Oak, etc.

The grant of lands to the Grand Rapids and Indianá Railroad Company, to build their Road from Fort Wayne, Ind., to Traverse Bay and Mackinaw, Michigan, comprises in its farming lands every variety of soil, from the *rich clay loam* to the light sandy, and they are found in that section of Michigan, north of the city of Grand Rapids, and contiguous to the great fruit belt on the eastern shores of Lake Michigan, now being rapidly developed by railroad and other enterprises.

Farming Lands are sold to actual settlers, on credit, one quarter down, balance in yearly payments, interest 7 per cent. Persons desirous of locations for farms will, on application at the **Office in Grand Rapids**, be furnished with **Tickets over the Road**, entitling them to **Return of Fares**, in the event of purchasing any of the Company's farming land. For information about the lands, prices, location, etc., etc., address

WM. A. HOWARD, Land Commissioner, Grand Rapids, Michigan. **TITLE PERFECT.**

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At "SKIDDY," in Neosho Valley, on **MISSOURI, KANSAS, and TEXAS RAILWAY.** Under the auspices of the **NATIONAL BUREAU OF MIGRATION.**

Mr. Wm. P. Tomlinson, Local Agent, is on the ground, and will give advice and assistance in locating land.

THE AMERICAN COLONIST AND HOME-STEAD JOURNAL,

Containing maps, with full particulars as to the Organization of the Colony, the Lands, Productions, Climate, Wood, Water, etc., **SENT FREE**, on application to **S. R. WELLS, Sec'y of the National Bureau of Migration,** 389 Broadway, New York.

HEALTH WEALTH

AND GOOD HOMES in the midst of good society in the National Colony, for temperate, industrious people. No others need apply. Send stamp for the **Colony JOURNAL** to **MILLER, HUMISTON & CO., Toledo, Ohio.**

THE BEST IN AMERICA.

AWARDED THIS MACHINE.

Harder's Premium Railway Horse Power and Thresher and Cleaner, received, THE FIRST PRIZE

At Great National Trial, at Auburn, N. Y.

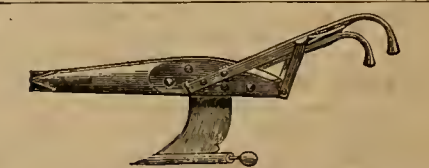
For "Slow and easy movement of horses, 15 rods less than 1 1/2 miles per hour. Mechanical construction of the very best kind, thorough and conscientious workmanship and material in every place, nothing slighted, excellent work, etc." as shown by official Report of Judges. Threshers, Separators, Fanning Mills, Wood Saws, Seed Sowers and Planters, all of the best in Market. Catalogue with price, full information, and Judges Report of Auburn Trial sent free. Address **MINARD HARDER, Cobleskill, Schoharie Co., N. Y.**

CLOSING-OUT SALE.

Very cheap. Hay Presses and Tread Horse-Powers. To close out the business. Address **W. S. SHAW, Buffalo, N. Y.**

CHAMBERLAIN'S Patent Screw Stamp Machine, FOR FARMER'S USE.

Safe, Economical, Cheap, and the best in use. Will pull the largest stamp with ease. Patented June 11th, 1867. For particulars send for circular to **Geo. Chamberlain & Son, Olean, N. Y.**



This is the cheapest and best ditching plow ever used. Will be at the N. Y. State Fair, Elmira. Send for circulars to **GEO. CHAMBERLAIN & SON, Olean, N. Y.**

VINEGAR, Quick! Cheap! Pure! As my plan of making is the best, persons are fraudulently selling Descriptions which I give away. Send three cents to **A. D. STRONG, Ashtabula, O.**

BELLEVUE HOSPITAL MEDICAL COLLEGE.

CITY OF NEW YORK.

SESSIONS OF 1872-'73.

THE COLLEGIATE YEAR in this Institution embraces a Preliminary Autumnal Term, the Regular Winter Session, and a Summer Session.

THE PRELIMINARY AUTUMNAL TERM for 1872-'73 will commence on Wednesday, September 18, 1872, and continue until the opening of the Regular Session. During this term, instruction, consisting of didactic lectures on special subjects and daily clinical lectures, will be given, as heretofore, by the members of the Faculty. Students desirous of attending the Regular Session are strongly recommended to attend the Preliminary Term, but attendance during the latter is not required. During the Preliminary Term clinical and didactic lectures will be given in precisely the same number and order as in the Regular Session.

THE REGULAR SESSION will commence on Wednesday, October 16, 1872, and end about the 1st of March, 1873. For the Annual Circular and Catalogue, giving regulations for graduation and other information, address the Secretary of the College, Prof. AUSTIN FLINT, Jr., Bellevue Hospital Medical College.

NOTICE.

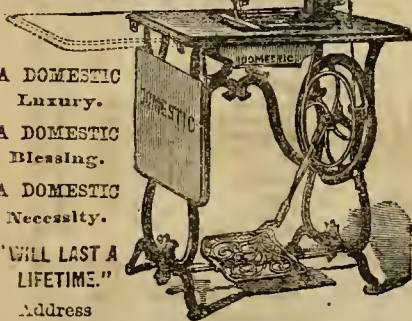
Buckeye Steamer, Drier, Baker, and Range. Most wonderful mechanical combination of the age! One hundred bushels of feed cooked in three hours! Froid dried in five hours without change of position. Apparatus made entirely of iron. Bakes equal to a brick oven. For full particulars, including an excellent essay upon the advantages of cooking food for domestic animals and a fine illustrated pamphlet, sent free of postage, address
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THE UPRIGHT PATENT TRUNK



Opens without removing from the wall. Instead of trays to lift out, it is arranged with drawers. It is stronger, as only a small portion opens, whereas in the old style the whole top comes off. Some room in the bottom of the Trunk for dresses as in the old style. Address
Upright Patent Trunk Co.,
No. 6 BARCLAY ST., N. Y.

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A DOMESTIC
Luxury.
A DOMESTIC
Blessing.
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Necessity.

"WILL LAST A
LIFETIME."

Address

"DOMESTIC" S. M. Co., 66 Chambers St., N. Y.

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Illustrated Price-List sent free on application.

MAGIC LANTERNS.

Catalogue, priced and illustrated, sent free.

T. H. McALLISTER, Optician, 49 Nassau-st., N. Y.

THE WONDERFUL
WOVEN
WIRE MATTRESS
ASK FOR IT. TRY IT. BUY IT.
MADE ONLY BY THE
WOVEN WIRE MATTRESS CO.
HARTFORD, CONN.
FOR SALE BY ALL FURNITURE DEALERS.



IMPROVED FOOT LATHES,

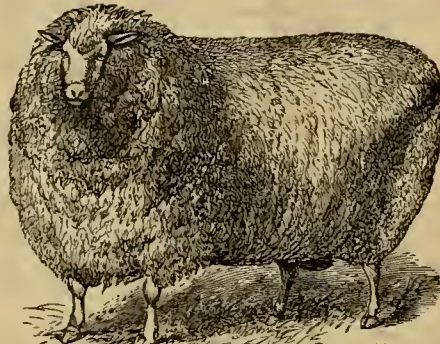
With Slide Rest and Fittings. Just the thing for the Artisan or Amateur Turner.

ALSO HAND PLANERS.

Many a reader of this paper has one of them. Selling in all parts of the country, Canada, Cuba, Europe, etc. Send for descriptive Catalogue. Address
N. H. BALDWIN, Laconia, N. H.

EDWARD S. BROWN, 181 Broadway, New York, Buyer and General Dealer, furnishes for cash anything that can be procured in the New York market. Perishable articles and goods contraband to good morals excepted. Correspondents solicited.

500,000 STANDARD PEAR TREES, at greatly reduced rates. Also, a general line of Nursery Stock. Write for Price-List.
E. MOODY & SONS, Lockport, N. Y.



"MAPLE-SHADE FLOCK."

THOROUGH-BRED COTSWOLD SHEEP.

This justly-celebrated flock was selected from the flocks of the most noted breeders in England, with reference to the best wool-producing and mutton qualities. It is pronounced by competent judges to be the finest flock in America; and some of the Rams and Ewes are believed to be equal to any that can be shown in any country.

The wool is long, fine, and lustrous, yielding from 8 to 20 pounds per head. They are full and square-bodied, very strong in the loins, and weigh from 200 to 300 pounds at maturity—sometimes exceeding even this weight. They are hardy and vigorous, and for breeding pure or crossing with other breeds, are believed to promise more profit than any other sheep. The wool is in good demand at remunerative prices, and the thorough-bred rams crossed with any other sheep, even Merinos, will produce a good combing wool, and lambs of such size as will bring a large price early in the season in market.

Every sheep at present in the "Maple-shade Flock" was either imported or bred direct from imported sire and dam, or has a perfect pedigree.

It will be the aim of the present proprietors to sustain the reputation of the "Maple-shade Flock," and, if possible, add to it; also to show the good results of different crosses with other sheep.

We offer for sale Choice Ewes, Rams, and Lambs.

Address either

LUCIUS A. CHASE,
245 Broadway, New York,

or

JOSEPH HARRIS,
Moreton Farm, Rochester, N. Y.

THOROUGH - BRED STOCK.

Jersey Cows, Heifers, and 3 young Bulls.
Ayrshire Cows, Heifers, and 4 young Bulls.
1 Guernsey Bull, 2 yrs. old, very fine. 1 do., 7 months, do.
Cotswold Sheep. The famous "Maple-shade Flock," as fine as any in the country. Rams, Ewes, and Lambs.

THOROUGH-BRED PIGS.

Berkshire Pigs of the very best blood. My Berkshire Sow "Queen of the Realm" took Sweepstakes Prize for all breeds of pigs at the New England Fair in 1871.

Essex Pigs, equal to any in this country or any other. Splendid young boars and sows now ready for shipping. Prices reasonable. No extra charges for boxing and shipping. Safe arrival guaranteed.

Perfect pedigrees given with all thorough-bred stock, which may be seen at my farm (Herdsdale), Florence, Mass. Send communications to

L. A. CHASE,
245 Broadway, New York.

ESSEX PIGS.

ESSEX PIGS.

ESSEX PIGS.

Pure,

Well-Bred,

Very Choice.

Now is the Time to Order Fall Pigs.

The demand for this valuable breed of pigs is such that many who delay in sending their orders are disappointed. My rule is to enter orders on the receipt of five dollars in advance, and as soon as the pigs are ready, the orders are filled in rotation. My spring pigs, except a few choice sows and one boar, are all gone. I am now ready to enter orders for Fall Pigs, and I should be very glad if those wishing pigs would send on their orders as early as possible. I send out none but choice pigs, and they give good satisfaction. Read the following unsolicited testimonials:

AUGUSTA, MARION CO., IND., July 16th, 1872.

The Essex pig arrived safe and sound June 6th. He gained one pound per day for the first four weeks. Since then he has gained 10 lbs. in a week. He is admired by all my visitors. I think he is the best pig in "Hoosierdom."

A. P. WILEY.

COLUMBUS, OHIO, May 29th, 1872.

I am well pleased with the pig.

C. W. HESS.

NEW BRUNSWICK, N. J., June 8th, 1872.

He is a very fine pig. I am well satisfied.

C. H. NUE.

STEEPSVILLE, HOWARD CO., MD., June 20th, 1872.

I am very much pleased with the determination you have manifested to give me a good start with Essex pigs. The two sows arrived this morning in first-rate condition. The male pig [sent some weeks before], is growing very fast, and is the best looking pig I have ever seen.

JOSEPH BARLOW.

MONTON, IND., June 10th, 1872.

The pigs arrived May 10th. They have completely recovered from the trip, and are doing as well as any pigs I ever saw. I am well pleased with them.

WOODFORD BURE.

HANNIBAL, MO., December 22d, 1871.

The Essex pig I received from you has grown finely, and given perfect satisfaction. I have this fall slaughtered four grade Essex that averaged 303 lbs. each. One weighed 325 lbs. alive, and dressed 230 lbs., making 56 2-13 per cent of his live weight. They were eight months and eight days old the day they were slaughtered.

JAMES C. ASHMORE.

CLARESVILLE, OHIO, Jan. 15th, 1872.

The Essex pig I got from you is growing finely, and I am well pleased with him.

W. CLIMER.

MONMOUTH, ILL.

The Essex sow I got from you is doing splendidly. She is admired by all who see her. I think she is the handsomest pig I ever saw—and I have seen a great many.

IRVINE McCARTNEY.

ARCADIA, N. Y., May 10th, 1872.

The Essex pig arrived safe and in good order, and I am well pleased with him. He is all that I anticipated.

L. J. BENTON.

AUSTIN, TEXAS, Feb. 6th, 1872.

The pigs arrived yesterday, and look remarkably well. To say that I am thoroughly pleased is scarce enough. I am more than pleased, and you have my thanks for giving me more than my money's worth. I have two Scotchmen in my employ who were in ecstasies over them (for Scotchmen). I would not take \$150 for the pair of pigs.

D. R. TOWNSEND.

WHAT I CLAIM FOR THE ESSEX.

1st. Pork and hams of the choicest quality—sweet, tender, juicy, and fine flavor.

2d. The lard is remarkable for its whiteness and solidity.

3d. The pigs are entirely black, but when dressed are perfectly white.

4th. They are the largest of the small breeds.

5th. They are a thoroughly-established breed, and when pure-bred, and have been properly cared for, they have remarkable power in impressing their qualities on their offspring.

6th. They have fine bones and light offal.

7th. They are remarkably quiet and gentle.

8th. They are "easy keepers." They eat well, and then lie down and grow rapidly, and can be fattened at any age. No breed matures earlier or fattens more rapidly.

9th. They are good graziers. My breeding sows keep almost too fat on grass alone.

10th. A pure-bred Essex will improve any breed (for the butcher) with which he is crossed.

I have over One Hundred thorough-bred Essex pigs, and pay great attention to their improvement. I make their breeding a speciality, and believe I have as good Essex pigs as can be found in this country or in England. I shall have great pleasure in forwarding good pigs to any readers of the *American Agriculturist* or *Hearth and Home* who may favor me with their orders. My prices are reasonable. Order early, and you will be sure of getting choice pigs. They will be boxed, furnished with food for the journey, and delivered at express-office without extra charge, and I guarantee their safe arrival. Address

JOSEPH HARRIS,
Moreton Farm,
Rochester, N. Y.

Fairs 1872.

State Fairs.

Table listing state fairs for 1872, including American Institute, California, Carolinas, Cincinnati Industrial, Columbus Industrial, Ct. River Valley, Georgia, Illinois, Indiana, Iowa, Kansas, Kansas City Industrial, Kentucky, Lenoire Industrial, Maine, Maryland, Mass. Horticultural, Michigan, Mich. Pomological Soc., Mich. Poultry, Minnesota, Mississippi, Montana, Nebraska, New England, New Hampshire, New York, Ohio, Oregon, Pennsylvania, Richmond Industrial, St. Louis Assoc., South Carolina, Tennessee, Vermont, Virginia, West Virginia, Wisconsin.

District Fairs.

Table listing district fairs for 1872, including Atlanta Union, Bay District, Central Illinois, Central Iowa, Central Missouri, Central Pennsylvania, Eastern Tennessee, Edinburg Union, Mahoning Valley, North-eastern Iowa, Northern District A. A., Northern Illinois, Northern Kansas, Northern Michigan, Northern Wisconsin, North Georgia, North Missouri, North Missouri, Northern Ohio, North Texas, San Joaquin Valley A.A., Shenango Valley, Sonoma & Marin Dist., South-eastern Mo., South-eastern Ohio, Southern Wisconsin, West Alabama, West Jersey, Western New York, West Tennessee, Western Texas, Wisconsin Valley.

Provincial Fairs.

Table listing provincial fairs for 1872, including Canada (Central, Ontario, Pontiac, Sherbrooke, Stanstead, West Northumberland, Western), New Brunswick (Westmoreland), Nova Scotia (Yarmouth).

County Fairs.

Table listing county fairs for 1872, categorized by state: ALABAMA (Central), CALIFORNIA (Contra Costa, Northern, Santa Clara, Santa Cruz), COLORADO (Colorado A. & I. Assoc.), CONNECTICUT (Fairfield, Litchfield), GEORGIA (Cherokee, De Kalb, Greene, Macon), ILLINOIS (Adams, Boone, Bureau).

Table listing county fairs for 1872, continuing from previous section: Carroll, Cass, Champaign, Clark, Coles, De Witt, Edgar, Fayette, Ford, Franklin, Fulton, Greene, Grundy, Hancock, Henderson, Henry, Iroquois, Iroquois, Jersey, Ju Davies, Kane, Kankakee, Kendall, Lake, Lee, Logan, Macon, Macoupin, Madison, McLean, Marion, Marion, McHenry, Menard, Mercer, Montgomery, Morgan, Montic, Ogle, Pekin, Perry, Peoria, Pike, Putnam, Randolph, Sangamon, Shelby, Stephenson, St. Clair, Union Fair, Vermilion, Wayne, Will, Warren, Whiteside, Whiteside, Williamson, Winnebago, Woodford.

INDIANA.

Table listing county fairs for 1872, continuing from previous section: Bartholomew, Boone, Boone, Cambridge, Clinton, Daviess, Decatur, Delaware, Dubois, Edinburg Union, Fayette, Fountain, Warren, Fulton, Franklin, Gibson, Grant, Greene, Hamilton, Howard, Huntington, Jackson, Jefferson, Jennings, Johnson, Knox, Kosciusko, Lake, Laporte, Madison, Madison, Monroe, Mooresville, Morgan, Noble, Perry, Pike, Porter, Posey, Prairie Farmers', Putnam, Putnam, Randolph, Randolph, Rush, St. Joseph, Spencer, Sullivan, Switzerland and O. Co., Tippecanoe, Union, Vigo, Wabash, Wabash, Warrick, Wayne, Wayne.

IOWA.

Table listing county fairs for 1872, continuing from previous section: Adair, Allemaque, Appanoose, Black Hawk, Boone, Cedar.

Table listing county fairs for 1872, continuing from previous section: Clayton, Clinton, Davis, Delaware, Des Moines, Floyd, Fayette, Guthrie, Hardin, Howard, Jefferson, Keokuk, Lee, Louisa, Madison, Monroe, Muscatine, Paez, Polk, Poweshiek, Scott, Shelby, Union, Union, Union, Van Buren, Wayne, Winnebago.

KANSAS.

Table listing county fairs for 1872, continuing from previous section: Allen, Blue & Kansas Valley, Brown, Coffee, Cowley, Doniphon, Johnson, Leavenworth, Montgomery, Nemaha, Pottawatomie, Republic.

KENTUCKY.

Table listing county fairs for 1872, continuing from previous section: Bourbon, Clark, Daviess, Henderson, Jefferson, Mason and Bracken, McCracken, Owen, Pulaski, Simpson, Washington, Wayne.

MAINE.

Table listing county fairs for 1872, continuing from previous section: Aroostook, Aroostook North, Cumberland, Franklin, Franklin North, North Knox, North Waldo, Penobscot North, Somerset, Somerset West, Washington, Waldo, York.

MARYLAND.

Table listing county fairs for 1872, continuing from previous section: Carroll, Kent, Maryland Institute, Washington.

MASSACHUSETTS.

Table listing county fairs for 1872, continuing from previous section: Barnstable, Berkshire, Bristol, Bristol Central, Deerfield Valley, Essex, Franklin, Hampshire, Hampshire and Hampden, Hampden, Hampden East, Highland, Hingham, Housatonic, Marshfield, Martha's Vineyard, Middlesex, Middlesex North, Middlesex South, Nantucket, Norfolk, Plymouth, Southbridge, Union, Waltham, Watertown, Worcester, Worcester Horticult'l., Worcester North, Worcester North-West, Worcester South, Worcester South-East, Worcester West.

MICHIGAN.

Table listing county fairs for 1872, continuing from previous section: Allegan, Bay, Branch, Calhoun, Easton, Genesee, Grand Traverse, Hillsdale, Ionia.

Table listing agricultural events for Massachusetts, including Ingham, Jackson Co., Lenawee Co., Livingston, Macomb Co., Oakland Co., Saginaw, Shiawasee Co., St. Joseph Co., Tuscola, and Washatanan.

MINNESOTA.

Table listing agricultural events for Minnesota, including Carver, Dodge, Hennepin, Meeker Co., and Oimstead.

MISSISSIPPI.

Table listing agricultural events for Mississippi, including Adams Co.

MISSOURI.

Table listing agricultural events for Missouri, including Boone Co., Buchanan Co., Clarke, Greene, Clay, De Kalb, Henderson, Holt Co., Jackson, Jackson Lafayette, Lewis Co., Linn, Louis, Knox & Shelby, Macon Co., Marion, Monroe Co., Montgomery Co., Nodaway Co., Phelps, Ray, St. Francois, Saline Co., Shelby Co., Shelby, Taney, Shelby, Vernon, Shelby, Washington Co., and Webster Co.

NEBRASKA.

Table listing agricultural events for Nebraska, including Douglas Co. and Nemaha Co.

NEW HAMPSHIRE.

Table listing agricultural events for New Hampshire, including Ashuelot, Cheshire, and Coos and Essex.

NEW JERSEY.

Table listing agricultural events for New Jersey, including Burlington, Cape May, and Hunterdon Co.

NEW YORK.

Table listing agricultural events for New York, including Albany, Broome Co., Cattaraugus Co., Cayuga Co., Chautauqua Co., Chenango Co., Clinton Co., Columbia, Columbia Co., Crown Point & Briarport, Delaware Co., Dutchess Co., Dutchess Co., Dutchess Co., Ellisburgh, Adams & Henderson, Erie Co., Essex Co., Essex Co., Greene Co., Hamilton Co., Jefferson Co., Lenox, Lewis Co., Nlagara Co., Newburgh Horticultural, Newburgh, Ontario, Orange Co., Otsego, Queens Co., Sandy Creek, Richland, Orwell, St. Lawrence Co., St. Lawrence Co., Saratoga, Saratoga & Marshall, Steuben Co., Suffolk, Trenton Union, Washington, Westchester Co., and Winfield Union.

NORTH CAROLINA.

Table listing agricultural events for North Carolina, including Cape Fear, Charlotte, and Wayne Co.

OHIO.

Table listing agricultural events for Ohio, including Adams, Allen Co., Ashtabula Co., Ashtabula Co., Ashtabula Co., Ashtabula Co., Athens, Carver, Carver City, Kasson, Minneapolis, Litchfield, Rochester, West Union, Lima, Andover, Orwell, Hayesville, Jefferson, and Athens.

Table listing agricultural events for Wisconsin, including Auglaize Co., Belmont Co., Belmont Co., Brown Co., Butler Co., Carroll Co., Central, Champaign Co., Clark Co., Clermont Co., Clinton Co., Columbiana Co., Coshocton Co., Crawford Co., Cuyahoga Co., Darke Co., Defiance Co., Delaware Co., Erie Co., Fayette Co., Fairfield, Franklin Co., Fulton, Gallia, Geauga Co., Guernsey Co., Guernsey Co., Hancock Co., Hardin Co., Harrison Co., Highland Co., Hocking Co., Holmes, Huron, Jackson Co., Jeffersonville, Keokuc Co., Lake Co., Licking Co., Logan Co., Lorain Co., Lucas Co., Madison Co., Mahoning Co., Marion Co., Medina Co., Medina Co., Meigs Co., Mercer Co., Miami Co., Monroe Co., Montgomery Co., Morgan Co., Maskingum, Noble Co., Ottawa, Paulding Co., Perry Co., Pickaway, Portage Co., Preble, Putnam Co., Richland Co., Sandusky Co., Sciota, Seneca Co., Shelby Co., Stark Co., Summit Co., Summit Co., Trumbull Co., Tuscarawas Co., Union Co., Van Wert Co., Winton, Warren Co., Washington Co., Wayne Co., Williams Co., and Wood Co.

Table listing agricultural events for Virginia, including Franklin, Loudon, and West Virginia.

Table listing agricultural events for West Virginia, including Berkeley Co. and Martinsburgh.

Table listing agricultural events for Wisconsin, including Adams, Dane Co., Dodge, Fond du Lac Co., Grant, Green Co., Jackson, Kenosha, Lafayette, Marquette Co., Outagamie, Sank Co., Sheboygan Co., Vernon, Walworth Co., Waukesha Co., Waupaca, and Winnebago Co.

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Table listing agricultural events for Wisconsin, including Franklin, Lamville, Orleans, Rutland Co., Washington Co., White River Valley, Wilmington, Windsor Co., and Windsor Co.

Table listing agricultural events for Virginia, including London and Leesburgh.

Table listing agricultural events for West Virginia, including Berkeley Co. and Martinsburgh.

Table listing agricultural events for Wisconsin, including Adams, Dane Co., Dodge, Fond du Lac Co., Grant, Green Co., Jackson, Kenosha, Lafayette, Marquette Co., Outagamie, Sank Co., Sheboygan Co., Vernon, Walworth Co., Waukesha Co., Waupaca, and Winnebago Co.

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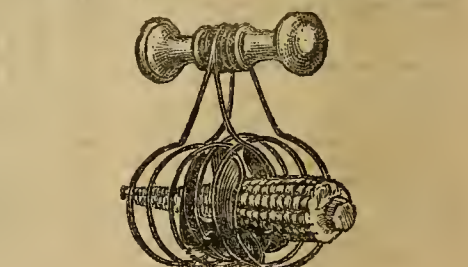
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[*Daily Evening Times (Bangor, Me.)*]

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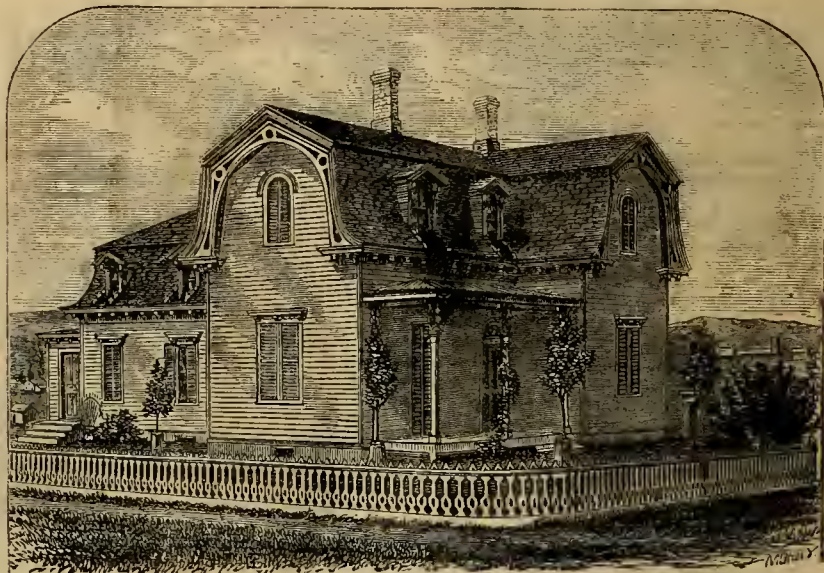
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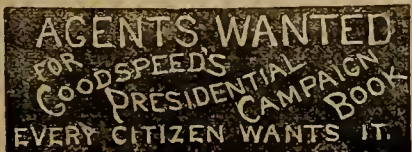


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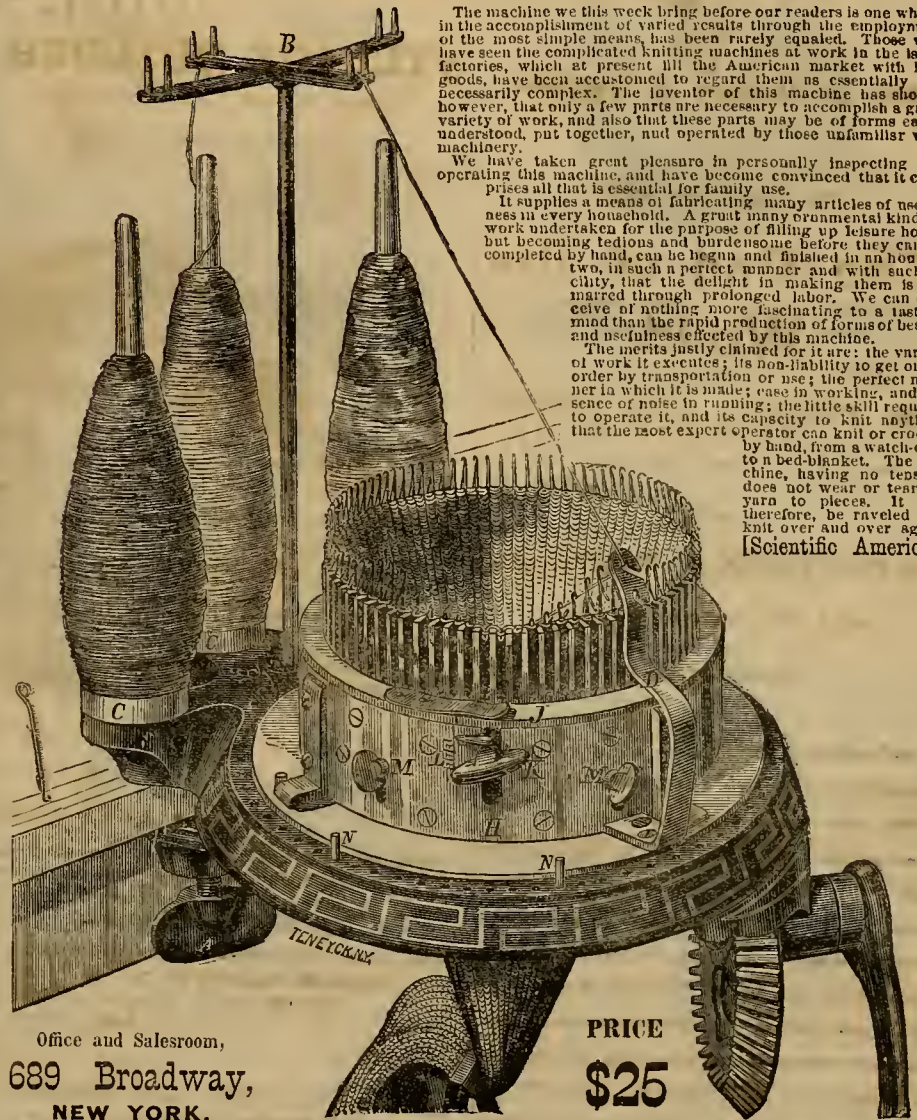


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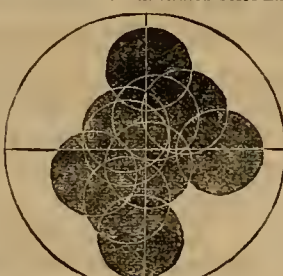
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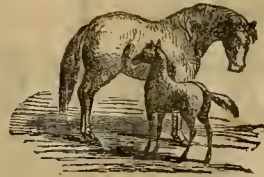
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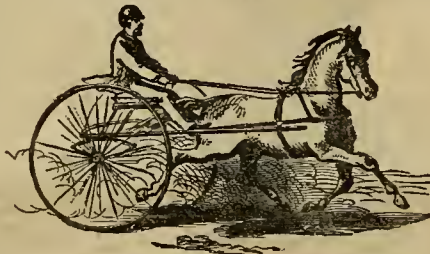
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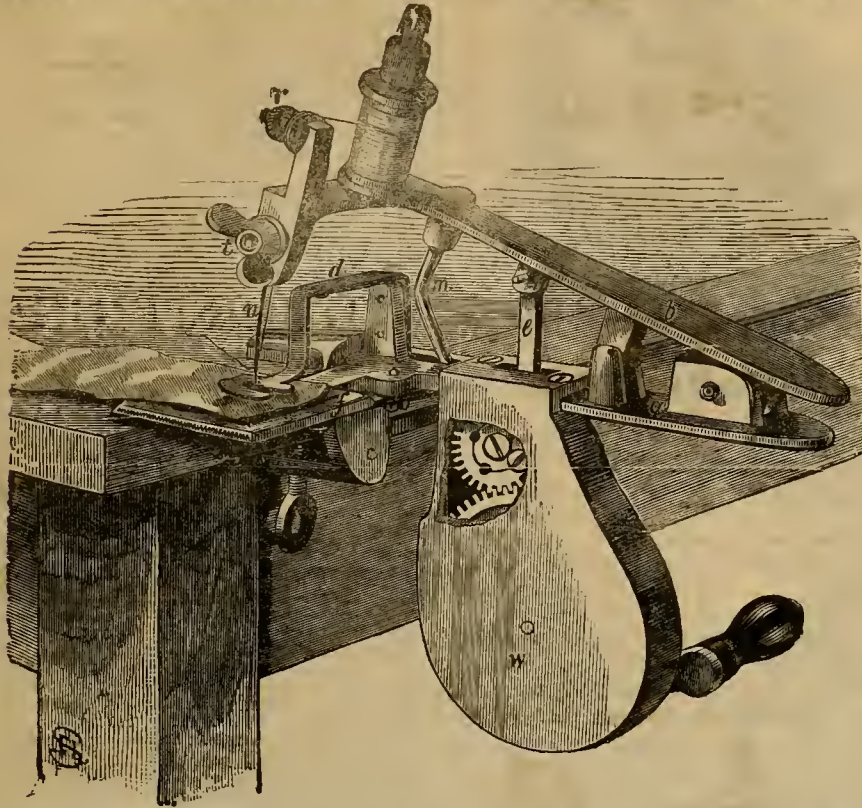
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WM. H. BALL.

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GENTLEMEN: Yours of late date to hand, and contents noted. Am glad to learn your demand is more than you can supply, and hope your every success possible. My machine came all right, and such a novelty you can imagine, and so surprising to do such work, is really astonishing! Have experienced considerably, and am well pleased, and think I will soon be an expert at the business.

Yours truly,
W. S. MORGAN.

SALISBURY, MD., March, 1872.

GENTLEMEN: The sewing machine came safely to hand, and on trial I find it complete. The dearest little machine ever was made. I am quite in love with it. A gentleman told me last night that he believed I could sell a hundred here in town, and urged me to write and get the agency.

Yours respectfully,
Miss SALLIE BUSH.

FOND DU LAC, WIS., March, 1872.

GENTLEMEN: I have received from the office of the *American Agriculturist* one of your \$10 sewing machines, and am so much pleased with it that I would like to know on what terms you supply agents, and what is required of them. An early reply will oblige

Mrs. EDWARD COLMAN.

COLUMBUS, GA., April, 1872.

GENTLEMEN: I purchased a sample of the "Beckwith Sewing-Machine" while in Savannah, Ga., for a lady friend. She has received it, and is perfectly satisfied with it. I am confident, from the merits of the machine, that many of them can be sold in the Southern country, from the fact that thousands would buy machines if they could get a cheap meritorious one.

Yours truly,
L. C. DUER.

LOWER MACON, CUMBERLAND Co., N. S., April, 1872.

GENTLEMEN: I received twice Beckwith Sewing-Machine a few days ago, and am perfectly satisfied with it. It exceeds my expectations, and those who have seen it pronounce it beautiful.

Very truly yours,
ISAAC HARRISON.

BEDFORD Co., VA., March, 1872.

GENTLEMEN: Some time since, I got for my wife one of your sewing-machines, and she and I are so well pleased with it, and think it comes up so nigh to what it promises, that I have determined to apply to you for an agency. I believe I can sell a good many of them, and can make a good thing of it both for yourselves and me. I do not know of there being another machine of the kind in the county. If you choose to entertain my proposition, I refer you (for my character) to our Circuit County Judge, or the Clerks of our County or Circuit Court, or any one you may happen to know in the County of Bedford, Va.

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DR. JNO. S. MITCHELL,
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VOLUME XXXI.—No. 10.

NEW YORK, OCTOBER, 1872.

NEW SERIES—No. 309.



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THE ARABIAN STALLION "SAPPHIRE."—Drawn from Life and Engraved for the American Agriculturist.

This horse, of which we give an engraving, is a late importation direct from Morocco. He is of the pure Abda race, which is now bred only in that country in a district located at the foot of the Atlas Mountains. The exportation of these horses is permitted only by favor of the Sultan of Morocco, and in this special instance was a courtesy granted by the Sultan with the gift of the horse to Mr. P. W. Scott, the interpreter of the United States Consul at Tangiers. They are therefore very rare, and as their excellence is unsurpassed by any strain of Arabian

blood, an importation becomes a matter of great interest and value to American breeders. There are those who pretend that our best breeds of horses can not be improved by foreign blood, and that they have advanced beyond any need for its introduction; but we can not believe this, for as we owe to the Arabian horse much of the excellence of the American thorough-bred, it is consistent with all past experience in stock-breeding that new blood is occasionally needed to keep up the standard and prevent depreciation. If this is a correct view, then this horse

must prove a valuable addition to our stock. He is a dark iron-gray or black and gray, beautifully formed, with an eye indicative of intelligence and spirit. His temper is gentle, and he has been ridden by a lady. He is now in training at Flushing, L. I., and although never in harness until now, shows fine trotting action, and promises considerable speed. He is six years old, and stands 15½ hands high. His attendant, Selim, the Moor who accompanied him, has returned to Morocco. Sapphire is owned by Messrs. J. H. Drake and Edward Annan, of N. Y.

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PHASES OF THE MOON.

Table showing moon phases for Boston, N. York, Wash'n., Philad., and Chicago. Columns include Moon, Boston, N. York, Wash'n., Philad., and Chicago with corresponding times.

AMERICAN AGRICULTURIST.

NEW YORK, OCTOBER, 1872.

On our own farm we usually find October the busiest month in the year. There is not only more actual work to be done, but it is of a character that requires close personal supervision. A farmer needs to rise early, lay good plans, work himself, and make others work. He must look to the details, and see that every hoe, potato-hook, corn-cutter, basket, shovel, spade, fork, rake, scythe, chain, rope, ladder, plow, coultter, plow-point, harrow, cultivator, cart, wagon, wheelbarrow, crow-bar, hammer, nail, bolt, monkey-wrench, and auger is not only in good order, but is in its proper place where it can be found at any moment.

Farmers should not only attend the Agricultural Fairs themselves, but allow their men to go too. We know from experience that nothing so effectually disarms them of prejudice. We like to see a farmer and his boys and his hired men looking at improved stock and examining new implements. You will find it useful to take the addresses of exhibitors of good stock or of implements that you may sometime wish to purchase. All sensible manufacturers have circulars describing their machines; take one of them to read when you get home. It is a great mistake to confine your attention to new things. It is better to look after the improvements that may have been made in old implements and machines. Do not overlook the fruit, vegetable, grain, and dairy departments. A good Agricultural Fair is a grand means of improvement, but it is quite an art to know how to examine the articles to the best advantage. Go at it systematically. Finish one department before you go to another. Do not be in a hurry on the one hand,

or stop to loiter on the other. Do not waste your time and energy in finding fault with the officers. If you are not an exhibitor, look at the articles on exhibition, and see if you have nothing at home that would have taken a prize—and make up your mind to exhibit next year.

Hints about Work.

Cutting up Corn.—Unless it is intended to husk the corn from the standing rows, the work of cutting and stooking, if not already concluded, should be finished as early as possible.

Husking.—In our own case we find it far cheaper to have corn husked by the bushel than by the day. We usually pay from four to six cents a bushel of ears, depending on the quality of the corn. Last year we paid six cents. This year the corn is so much larger and better ripened that the husker can make more at five cents than he could last year at six cents. We say "he," but in point of fact this work is often done by women, or by a man who has a wife and children to help him. It is often with us cheaper to have it husked on shares. A correspondent of the Agriculturist in Wisconsin speaks of paying one third the crop for husking. We often get the work done for one seventh or one eighth. That is to say, the husker takes one bushel and leaves us seven. When corn is cheap it is generally better to have it husked on shares. See that the corn is husked clean, and that the stalks are tied up properly.

Cribbing Corn.—If the corn is sound, dry, and hard, it may be kept in a large crib, but if somewhat soft it will be necessary to take some pains to keep it from molding. The narrower the crib the better, and it is well to make some chimneys in the corn with boards. Soft corn should be spread out on a floor where it will dry, and be turned occasionally. Feed it out at once. It is better for cows and cattle than for fattening pigs.

Corn-Stalks.—Hay is likely to be scarce and high. Wheat-straw is with us of poor quality, and we shall need all our corn-stalks for fodder. Their value for fodder depends a great deal on how they are cured. Make the stooks upright and compact, so that they will shed the rain. Draw in as soon as they are cured, for at this season the weather is very uncertain. A little sap in the stalks is far less injurious than external moisture. Half the stalks in the country are seriously damaged by careless harvesting.

Potatoes.—Dig as soon as they are ripe. Fine weather is important, and there is nothing to be gained and everything to lose by delay. Unless you have every convenience for keeping, it is usually best to sell as fast as you dig them—drawing them from the field to market.

Small Potatoes are of far more value as food in the early spring than in the fall. They pay well for keeping, either in a barn-cellar or in pits.

Pits for Potatoes should be made on dry soil and where there is no danger of water standing in the spring. Our own plan is to make a deep dead-farrow with a plow, and then throw out the soil on each side so as to make the bottom of the pit about three feet wide. Cover the potatoes with four or five inches of straw, and then throw on a light coat of soil, about sufficient to cover the straw, leaving some ventilators at top. Just before winter sets in, put on another coat of straw and cover it with earth. This second coat of straw holds dead air between two layers of earth, and will keep out the severest frost.

Potato-Tops are well worth drawing to the yard to absorb the liquid manure. Allowing them to remain scattered over the field until spring is a very slovenly practice.

Weeds and Rubbish are best got rid of by setting fire to them. They burn better now than in the spring. Be careful that the fire does not spread to fences or the woods or mucky land.

Fall Plowing.—Unless the soil is very sandy and

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N. B.—The German Edition is issued on the same terms as the English one, with the same privileges, and may form the whole or any part of any Club or Premium List.

liable to leach or wash away, you can not go amiss in keeping the teams busy at plowing land intended for spring crops. If possible, plow the corn-stubbles this fall. If there is not time for this, go over them with a two-horse cultivator. It will kill a good many weeds, and level down the hills, and leave the land in far better shape to plow in the spring. It will also do good by exposing the soil to the atmosphere, and thus develop plant-food. It will also cause a great many weed-seeds to germinate, and the young plants will be killed by plowing in the spring. We think so much of this work that we often cultivate between the stooks of corn as soon as the crop is cut. Try the plan. It will pay.

Ditches.—On low, moist land, the fall is a good time to cut new ditches and clean out and deepen old ones. Underdraining on upland is usually best done in the spring, or late in the fall or early winter, when the ground is saturated with water.

Wood.—If not already done, delay no longer in filling the wood-house with dry wood for winter.

Clean up.—Pieces of boards, broken rails, barrel-staves, etc., should be gathered up before they become saturated with the fall rains. A few hours' labor in straightening up would add much to the appearance of many a farm. Nothing pays better than neatness, system, and order.

Harrowing Wheat.—We hope our readers will try the effect of harrowing wheat this month. Let it be done while the weather and soil are dry, so that any weeds that are pulled up will die.

Horses that are kept at steady work should no longer be turned out to pasture. The nights are cold, and the horses are better in the stable. Horses that are only worked occasionally, and never very hard, may be still kept out at pasture during the day. They should be brought up on cold nights and stormy days. As a rule, it pays far better to stable the horses, feed well, and work steadily. But avoid working them on rainy days. If caught in a storm, rub dry when brought in.

Milk-Cows, if well fed, give very rich milk at this season. As the pastures fail, the cows should have plenty of food at night in the yards or stables, such as corn-fodder, hay, bran, soft corn or corn-meal, beet-tops, cabbage leaves, pumpkins, etc.

Steers intended for winter feeding should now be allowed a little grain, say two quarts per day. They should be pushed forward now as rapidly as possible before cold weather sets in.

Sheep.—If you intend to raise early lambs for the butcher, select out the largest and best common Merino ewes from the flock. Give them the best pasture and a little grain, say half a pound each per day. This will cause them to take the ram in a few days. Use a pure-bred ram—either Cotswold, Leicester or South-Down, as may be preferred.

Sheep for Fattening in Winter should now be selected and pushed forward rapidly. On good feed, with a little hay and grain, they will often gain more in the month of October than during the next six or eight weeks. It rarely pays to try to fatten Merinos, in winter until they are three years old.

Lambs should be kept in a flock by themselves, and have the best of care and feed. If not already done, they should be dipped in a solution of carbolic soap to kill ticks. This is especially necessary with the long-wooled sheep. In cold, stormy weather put all, and especially lambs, under cover.

Do not Sell the best Ewes or Lambs.—Sheep are scarce, and the butchers are picking up all the good sheep and lambs they can find. Never let a butcher go into your flock until you have first selected out all that you intend to keep.

Sheep-killing Dogs are apt to be around at this season. Put bells on two or three sheep in each flock. Keep a gun loaded ready for the dogs.

Poultry.—Feed well, and get such as you intend to sell or eat as fat as possible. Keep the hen-house clean. Do not allow the fowls or turkeys to roost in trees or on the implements. A little

attention for a few nights will teach them to go to their proper roost.

Swine.—Do not fall into the common mistake of neglecting these useful animals because pork is very low. A reaction is sure to come, and good pigs will be profitable stock.

Farrowing Sows should have a warm, dry pen, with a rail round the inside about twelve inches from the ground and six inches from the sides. For two or three days after farrowing give the sow warm slops, and gradually give richer food as the young pigs grow and require more milk. At three weeks old the little pigs should have some food in a small trough separate from the sow.

Spring Pigs if not in unusually good condition can probably be wintered over with profit. Pork can hardly fail to be much higher next year than now.

Fattening Pigs should be pushed forward as rapidly as possible this month. It is a great mistake to delay shutting them up to fatten until cold weather sets in.

Young Pigs, like all young, growing animals, should have abundance of food, and the best of care and treatment.

Work in the Horticultural Departments.

Nearly everything in the way of fruit and vegetables at the North will be harvested during this month, and many arrangements can be made for the next season, especially in planting trees and shrubs. As the days grow shorter, and fall work becomes less pressing, more time may be very profitably spent in reading, and in promoting sociability among neighbors and friends, especially those interested in similar pursuits. If no rural club is organized in the vicinity, a little exertion on the part of several live, wide-awake farmers and horticulturists can form one, and sustain an interest in such an organization.

Orchard and Nursery.

Picking the late varieties of fruit will be the main business of this month; the quickest way to gather the fruit from an orchard is to pick the tree clean, and not stop to sort it, but store in large bins, and afterwards assort it, making two qualities, and using those which can not be sold, for cider. The late sorts of apples make the best cider, and it will pay to take considerable pains in selecting the apples, so that no rotten ones are mixed with the others. Cider made in this way is excellent for bottling, or it may be put into good air-tight barrels, when it will keep nearly as well as in bottles.

Packing Fruit.—The great danger in barreling apples arises from their not being packed tight. Clean new barrels should be provided. When one is about half-full, shake the barrel gently, in order to settle the fruit; repeat this when the barrel is full, and then place a layer on the top, so that the apples will be at least one inch above the chime. The head is then put in position, and pressed down by means of a lever. Apples packed in this way can be carried a long distance without danger of bruising. Do not put any poor fruit with the first quality, as it will seriously affect the price. After the fruit is all barreled it should be stored in a cool place, where there is no danger from frost.

Pears.—Late fall and winter pears may be treated the same as apples, but the earlier ones should be placed on shelves, where they can be watched, and as soon as ready sold or used.

Pomace.—Should any seeds of apples be wanted for nursery stock, the pomace may be washed out; if considerable quantities are required, it is necessary to have a running stream of water; this is conducted into a box, containing the pomace, which is constantly stirred, and the lighter parts washed away, and the seed, which is heavier, remains. The seed is then dried, and stored in a cool, dry place.

Manure in the nursery and orchard is needed, in order to secure the best results, and the fall is a good time to haul and spread it upon the land.

Fruit Garden.

Planting may be done this month, when the weather is mild. Raspberries and Blackberries do better when planted in the fall, as the buds start early, and when set in the spring they are not apt to make as good growth.

Raspberries and Blackberries when planted should have the canes cut back to the ground, otherwise they are apt to fruit the first year, and this often injures the plants for future bearing. Set raspberries 4 to 6 feet apart, and blackberries 6 to 8 feet.

Gooseberries and Currants.—Prune when the leaves have fallen, removing enough of the old wood to admit the sun and air, and cut back the new growth one half or more, according to the strength of the branch. The prunings may be used for propagating; cut them into lengths of 6 inches, and plant in trenches, 4 inches apart, leaving the tops an inch above the surface of the ground. The soil should be pressed firmly around the cuttings, and when cold weather comes cover the bed with litter or leaves.

Grapes.—It is desirable to leave these upon the vines until there is danger of frost, as when perfectly ripe they are of better flavor. Before packing in boxes, allow them to remain on shelves a few days, after which they should be packed in boxes containing 5 or 10 pounds; store these boxes in a dry, cool place, and keep at an even temperature.

Kitchen Garden.

The harvesting of the late crops and the fall planting and preparation of the ground for next season will give the gardener enough to attend to during the present month. The soil should be plowed in the fall, as it can be done easier, and can be worked sooner in the spring.

Preserving Roots, etc.—In very cold localities roots will have to be stored this month, and everything ought to be in readiness to do the job if sudden cold weather should come on. When roots are stored in cellars, provide plenty of bins, boxes, or barrels. The best way, however, is to store them in pits in the open ground. A dry place should be selected, and a trench dug, $2\frac{1}{2}$ to 3 feet deep, 6 feet wide, and as long as needed. The roots should be packed in sections reaching across the pit, two feet long and as high as the surface of the ground. Six inches of earth are left between the sections, thus giving two feet of roots, and then six inches of earth alternately. A layer of straw is then placed on the top and covered with a foot of earth, having slant enough to allow the water to run off.

Asparagus.—When the tops begin to turn yellow, cut and burn, so as to destroy all the seeds. It becomes a bad weed in cultivated grounds, and very difficult to destroy when once established.

Beets.—Pull and store on the approach of frosts.

Cabbages and Cauliflowers.—These bear considerable frost, and should not be pulled until freezing weather. Prepare frames for small plants to be wintered. These should be one foot high at the back, and eight inches in front, wide enough for the sash, and as long as necessary. Set the plants $2\frac{1}{2}$ inches apart, and deep enough to cover the stems. The sash must not be put on until cold weather.

Celery.—Finish cutting up, banking the stalks nearly to the top of the leaves. Next month will be early enough in most places for storing it.

Lettuce.—Young plants are to be set in frames as directed for cabbages. In some situations, the more hardy kinds can be preserved in the open ground if covered with leaves or straw.

Horseradish may be left in the ground until it is ready to freeze up, when it should be dug and stored like other roots. Save the small side roots for setting next spring.

Rhubarb may be taken up, divided, and new beds made. Cut the roots so as to leave a bud on each piece. Apply plenty of good stable manure, in order to give it an early start in the spring.

Spinach.—Keep the late-sown crops free from weeds. Thin where needed, and use the thinnings.

Sweet-Potatoes are fit to be dug when the vines are

first touched by frost. Take care not to bruise when digging, as they are very liable to decay. Those that are to be kept should dry in the sun for a day, and then be packed in sand or cut-straw, only using that which is perfectly dry. Keep where the thermometer will not fall below 60°.

Flower-Garden and Lawn.

The cool weather of this month is well suited to laying out walks, drives, laying sods, etc.

Lawns.—The soil for a lawn should be deep and rich, with a good drainage. The quickest way to secure a good surface to a small lawn is to sod it, though sowing the grass seed is cheaper.

Dubs.—Purchase early, and plant in soil well enriched with cow-manure, adding sand if the soil is heavy. When the ground freezes, give a covering of litter.

House Plants which have been kept out of doors should be taken in before cold weather comes. Cut them back well, and they will make a finer growth and be of a better shape.

Chrysanthemums must be tied up to stakes, as high winds will break them down when they are loaded with blossoms. A few may be potted for house decoration after the buds are well formed.

Perennials succeed best when taken up and divided every three or four years. Fall is the best month in which to do this, as they will become established by spring, and flower better than when disturbed in spring.

Peonies seldom flower when moved in the spring. Take up early this month and divide, leaving one bud to a root, and plant in rich soil.

Tender Dubs like the Gladiolus should be taken up after the leaves are dead, dried, and stored in a dry place where they will not freeze.

Protection to half-hardy shrubs, etc., should not be given until quite cold weather, the object being to protect them from sudden changes rather than to prevent freezing.

Greenhouse and Window Plants.

The greenhouse should have been prepared before this for taking in the plants, but if it is not yet done, attend to it at once, as a sudden cold snap may do a great deal of damage.

Annuals.—Sow a plenty for winter flowering, and prick out as soon as large enough to handle.

Bulbs.—Pot those needed for winter flowering, and put them in a dark place until the pots are well filled with roots.

Insects.—Every plant should be washed and cleared of insects before it is taken into the greenhouse, as this will save much time and trouble.

Materials.—See that plenty of soil, manure, moss, etc., are provided for the winter.

Plants to be forced for winter flowering must be taken up, potted, and stored in a cold-frame until next February, when they may be brought into the greenhouse and forced.

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 September 13, 1872, and for the corresponding month last year.

Table with multiple columns showing transactions at New York markets for various commodities like Flour, Wheat, Corn, Rye, Barley, Oats, and comparisons with the same period last year.

Stock of grain in store at New York. Table with columns for Wheat, Corn, Rye, Barley, Oats, and Malts, showing quantities in bushels for various dates from 1872 to 1871.

Current Wholesale Prices. Table with columns for Aug. 13 and Sept. 13, listing prices for various commodities such as Flour, Sugar, Coffee, Tea, and other goods.

Gold declined to 112 1/2, closing September 13th at 113 against 115 1/2 on the 13th of August. The Breadstuff trade has been quite active since our last, but prices have been variable, especially on Wheat and Corn, influenced mainly by the receipts and the foreign advices.

is a moderate call for desirable grades of stock, but the bids generally fall short of the views of holders, who do not appear disposed to make important concessions. Hence the actual dealings in most kinds are on a limited scale, and indicate considerable irregularity as to values.

New York Live-Stock Markets.

Table showing live stock markets for Beef Cattle, Sheep, Swine, and other animals, with columns for date and price.

Beef Cattle.—Taken as a whole, there has not been a great deal of variation in prices of good cattle, but the markets have been glutted with poor stock which sells lower. The average receipts of the past month are the greatest ever known, and it is surprising that prices do not go still lower.

Table showing the prices of the past 4 weeks for various live stock categories.

Milk Cows.—The cow trade is quite dependent, during the summer months, upon the state of the milk market, and that has been very irregular.

Sheep and Lambs.—With larger receipts the trade is dull just now, and sheep are scarcely as firm, while lambs have declined about 1c. per pound. Some of the butchers now prefer fat sheep to lambs.

Fodder-Cutter.—J. H. Snyder, Berks Co., Pa., wants a machine that cuts and crushes or grinds corn fodder at one operation. The horse-power fodder-cutters which feed by means of rollers, crush the stalks to a great extent, but we know of no machine which cuts and grinds, and doubt if there is an opening as yet for such a machine in the present state of our stock farming.



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 Volume Thirty are now ready. 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.

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.

Too Late.—We have a large batch of inquiries too late for this paper. Those who had the good sense to sign their names, will get replies by mail. Those who signed their initials, or "A Subscriber," etc., should remember that such letters do not often receive attention.

Can't Do without It.—"We can't get along without the *American Agriculturist*," is the substance of testimony that comes to us from multitudes of homes in all parts of the land, where this paper has long been a welcome visitor. No additional inducement is needed by such friends, to continue their subscriptions, although they will receive upon renewal the gift (the splendid picture) we promise to all. But will not each one of this host of friends invite at least one other to join our army of subscribers, and receive the *American Agriculturist* with all that we promise for the coming year? Take hold with us, friends, and you shall find you have lost nothing by helping to double the subscription list.

New England Fair.—The New England Agricultural Fair of 1872 may be said to have been a success. An attendance of seventy-five thousand people on the third day of the fair, with satisfactory attendance on the previous days, secured its success financially, while the exhibition of stock and agricultural products and implements was creditable even to New England. Amongst the horned stock a herd of Swiss cattle and another of Brittany cattle were particularly interesting as being something not often seen in the United States. The show of Herefords and Ayrshires was also worthy of note. The greatest attraction, however, was the exhibition of horses, which showed great improvement in this class of agricultural production to have taken place of late years in this section. Our visit was necessarily brief, and the immense crowd prevented anything like rapid movement. If asked what was the most wonderful thing we saw at the fair, we should answer, "the people." All seemed pleased and satisfied, and the fair closed with *éclat*.

A Question in Proportion.—"W. S." asks if cabbages at five cents per head will pay better than tobacco at twelve cents per pound. It is probable that cabbages would be the more profitable crop, on account of the less labor involved in harvesting; a good crop of cabbages at that price should bring nearly four hundred dollars per acre, and the cost of preparation of the ground and cultivation is about the same in either crop until ripe, when the cost of gathering would be in favor of the cabbages. It must be a very good crop of tobacco to bring four hundred dollars per acre.

About Hops.—"S. V. C.," Richland Co., Wis., writes that he has two acres of hops. Shall he sell early?—We can not advise "S. V. C.," or any other man, as to how or when he shall market his crops, for very ob-

vious reasons. The *Agriculturist* is not gifted with a prophetic vision, by which it can tell the price of hops next January. Hops promise to be a fair crop all over the world, and it is not likely there will be much fluctuation in prices. Our experience for some years has been that we have always done better by selling our crops as soon as they were ready for market, and taking current prices. We have speculated, and held for a rise, and have been disappointed and lost money. We do not remember ever making anything by it. Hops are now salable at fair prices, about 50 cents a pound, which may or may not advance, and hops are best marketed while new.

Diseases of the Horse.—"C. H. L.," M.D., Tarentum, Pa., asks if we can not give some information on the diseases of the horse and their treatment. The horse is subject to as many diseases as a man, and to treat of all of them in a satisfactory manner would require several volumes, and to treat of them otherwise would be worse than useless. It is worthy of suggestion whether or not it would be proper and advisable for country physicians to make this matter a subject of study and practice. We can see nothing derogatory in it to the character and position of a physician or surgeon, and our experience has been that no persons could more usefully make this a part of their business than such men, and so do away with an array of quacks who destroy more horses than they cure, if they ever cure any.

Gas-Lime for Cabbages.—"H. W.," Lafayette, Ind. Gas-lime should not be used for cabbages nor any other crop until it has been so long exposed to the air that it has no longer any sulphurous odor. It can then be used like any other lime.

Osage Orange Plants.—"J. N.," Normal, Ill. The size of plants will depend upon the season and thick or thin sowing. They range in size from that of an ordinary lead-pencil to that of one's little finger. They may be wintered out of doors by placing in a heap and covering with earth as you would potatoes, or by laying in trenches and covering. In either case a place where water will drain off must be chosen.

The Baldwin Apple.—In August last we published a gossipy article from a well-known literary lady, upon the Baldwin apple. This has called out several letters, controverting the statements there made, and as these letters do not at all agree with one another, we must decline to publish them. We have not space to give to such controversies. For the sake of peace we are willing to admit that Count Rumford was born in six different places, and that the Baldwin apple originated on as many different farms.

SUNDRY HUMBUGS.—Some persons have sent us the circulars of the so-called "Missouri State Lottery," and ask, "Is this a genuine Lottery?" Suppose it was, would the writers invest in it, and allow the managers to put \$3 of their money in their own pockets, and then give their dupes a chance to draw the remaining \$2? That's the way of all lotteries. But this Missouri State Lottery is not a State Lottery at all—that State has got above dabbling in such swindles. If the writers or any one else are foolish enough to send money to the individuals who call themselves "managers," they need not expect to ever get anything back. The "Sale of the Monat Florence Estate" is merely a lottery at best (or worst), and a poor one at that. If the lots be valuable, they will sell on their own merits, without the bewitchment of a prize, which only one person in a million can get. Wonder if Hon. Chancey M. Depew, Hon. Jas. W. Husted, and others, know how their names are used to bolster up this scheme? The so-called "N. Y. Loan Brokers' Union," offering to sell tickets for a little money, which tickets will tell you what big articles you can get for a little more money, is an old catch-penny. You must send all sums up to \$40 in advance, and 1/2 of all above that is to be C. O. D., which is just the same as if remitted in advance—and just the same as if thrown into the river at first—no, not the same, for in the latter case you might find it again. Wonder where "R. H. Lewis, Business Manager," keeps all that "over \$1,000,000 worth of unreclaimed articles, 67,590 in number"? Why not call it an even 67,600 while about it? We have been looking for Elias to turn up somewhere again, after he sold out those millions of dollars' worth of Geneva watches, and this Loan Brokers' Union looks very much as if he had got into "No. 4 Bond street." No Elias, no Lewis, or their stock was visible when we called there. A little sign on a little room on a top floor reads R. H. Lewis; nobody in at 11 1/2 A.M. And now comes the old Missionary, the very "Rev. Jasper Marx," who has spent 40 years or so, as a self-appointed missionary in Paraguay, S. A., where he learned from an 87-year-old woman how to make "Aya-Pana-Coca," and the "Nicaya," which are to banish all sorts of diseases, "to correct,

neutralize, and banish forever all evils" of the blood, etc., and this very Rev. old Jasper Marx has come home to sell his medicines to poor sick North Americans, through his "business agent" in Jersey City, State of New Jersey. Bah! We grieve to see geniuses that can invent so taking a story as that of "Rev. Jasper Marx" degraded to so low a business. Such a man ought to be in some higher grade of life, an ornament to society, and not a vender of quack medicines. Reader, pray do not be led to dosing yourself for imaginary diseases, or any other, by such pathetic stories as that of old Jasper Marx, the missionary, who never got into any worse heathen country than is to be found in "Jersey City." And after Marx comes 76-year-old "Aunt Lee," a good Methodist, of Glenmarthen, in Wales, who sang an "old-school Presbyterian" "into tears he had not shed in years," as "the good old soul burst into one of those wild refrains" of John Wesley's followers. She—to wit, "Aunt Lee"—had an "all-healing syrup," and being about to "shuffle off this mortal coil," sold the recipe to the aforesaid "old-school Presbyterian" for a "good round sum." He (not she), his "dear wife having long since departed to the promised land," and his "only child being married to a British officer in India," departed to make "the land of the setting sun the scene of his future operations," until it "shall please the Lord to call him" (which we hope will be very soon). In short, he erected "suitable buildings in the State of New Jersey," operated in the Southern States until he "drove out all unworthy competition in that direction," and now proposes to give the "West" a chance at his Aunt Lee's "life-restorer," salves, etc. He wants "agents." We have given the above two specimens of a vast amount of printed stuff sent through the country to beguile the ignorant masses into buying and swallowing the medicines (so called) under the impression that they are doctored by the divinely-sent prescriptions of some old semi-spiritual being. Is this whole quack-medicine business any better than sheer swindling? Beware of the fellows at the fairs and elsewhere who sell envelopes with numbers in them, the lucky numbers to draw prizes. They have their stool-pigeons who draw good prizes before your eyes, but these swindlers know how to get your money and keep it, and they'll surely cheat you out of your money if you invest with them. The fair managers or other good citizens should arrest them as lottery dealers, and give them a dose of "country justice." Among new names for operating the "Spanish Lottery" swindle are: S. W. Cone, 105 Bleeker st., alias Clark Fargo, 22 West 4th st., alias 16 South 5th avenue. The "Queer" or pretended counterfeit money-swindlers have the following new names: F. E. Morrell, 69 Fourth ave.; Arthur Debenham, 190 Broadway; O. Aragon & Co., 12 Broadway, alias J. B. Marlett, Sangerties, N. Y.; Geo. W. Lucas, alias Wade M. Jacobs, 105 Bleeker st., alias F. A. Newton, 34 Amity st.; R. J. Spragg, alias Wm. Layton, alias E. M. Wootz, 609 Broadway; Geo. D. Marshall, alias Wm. O. Paige, alias Col. M. A. Ennever, alias Harrison L. Felix, at 34 Amity st., alias Amos Wainwright, 170 Broadway, in Trenton, N. J., etc., etc. Most of the above use the same circulars—that is, they come from one operator—but new names are continually sent out to hoodwink the P. O. clerks.

Insects on Asters.—"J. N.," Ironton, Mo. The insect sent as the one destructive to your asters is one of the blistering beetles, *Lytta vittata*. It is also destructive to potato vines and other vegetation. It appears to have been unusually abundant this year. We set out a great many asters, and, so industrious were the insects, did not get a single perfect bloom. The only remedy we know of is to shake them off into a pan of water, but we were too short-handed to do this, and had to go without asters.

Hail Insurance.—In an article some months ago, Mr. Henderson alluded to the necessity for insurance against damage by hail. We learn that there is a Mutual Hail Insurance Co. in Milwaukee that commenced business in April, and up to July had issued 1096 policies and paid 19 losses.

Free Lands in Iowa.—John Brennan, Sioux City, Iowa, informs us that he will reply to any inquiries regarding government lands open to settlement under the homestead law.

Steam-Plows.—"C. F.," Abilene, Kan., asks if there are any thoroughly practical steam-plows now made in the United States which do not use tackle. The American steam-plow is as yet unperfected, and as there are in the way of the practical use of those engines which travel over the ground immediately in advance of the plows serious difficulties which have not yet been completely overcome, we have to wait further developments before we can say that we have a thoroughly practical steam-plow which does not use tackle.

An "Axiom."—"G. H." writes us in regard to a question which we consider settled, and therefore can not reopen. But lest he might think we treat him discourteously, we would say that he is as incorrect in his main idea as he is when he speaks of an "almost universally established axiom." An axiom is a self-evident truth, as that "the whole is greater than one of its parts," and therefore can not be said to be "almost universally established," or admit of any qualification at all.

Fall Treatment of Old Meadows.

—Old meadows which have partly run out, and which it is not convenient to plow up, may be renovated by tearing up the old sod and bare spots with a sharp-toothed heavy harrow driven rapidly over it. When the surface has become loosened, fresh seed may be scattered, and a rolling immediately afterwards would be a help. Some fine manure or other fertilizer should be applied, and a light dressing of lime or ashes would also be a great benefit.

Lombardy Poplar—The Other Side.

—"G. W. G.," Iroquois Co., Ill., gives his view of the Lombardy Poplar as follows: "I believe the *American Agriculturist* has proved itself a friend to that much-abused tree the Ailanthus, and now to have it turn around and abuse one of the most beautiful trees our broad prairies possess is beyond my comprehension. We have no tree better than the Lombardy Poplar to protect us from the winds that blow across our prairies. You may talk about your bean-pole Ailanthus and the other trees you speak of, but when it comes to the real facts, which we ought to know, living on the prairie, you will find the Lombardy Poplar supplies a place which very few trees can do, and at least none that you have mentioned. I can go on and tell scores of uses which the Lombardy Poplar can be put to, but will refrain from troubling you now. Please let me ask you to tell the Nebraska man to set a grove around his barn-yard, farm, or anywhere, four feet apart each way, and I can prove to him that there will be in time to come few groves more beautiful, none more useful, and no part or place of ground on his farm more valuable."—As our correspondent speaks of the Lombardy Poplar as "beautiful" and "useful," and the Ailanthus as a "bean-pole," we suspect that he does not know the Lombardy, and must be talking about some other tree.

Potatoes and the Potato-Bug.

—"A. W.," Phillipsburgh, Ohio, asks if the potatoes the vines of which have been defoliated by the bug and checked in growth, will be good to use.—No injury is likely to come to the potato by the work of the bugs upon the leaves. If the potatoes cook well, we should eat them.

Poor Yield of Crops.—The average yield of crops, according to the census returns, is only about fourteen dollars per acre for all the land in cultivation in the United States. This is a poor showing, and shows the great need for improvement in our agriculture.

The Crops of Illinois.—According to the census reports, the State of Illinois produces larger crops of grain than any other State, and in total products of all kinds she comes second only to New York.

Egyptian Beets.—"W. B. H.," Berea, Ky. The Egyptian is the best early beet when you can get it pure. Ours came up full half Bassanos, some rascally European seedsman having mixed them. It is likely that this year our dealers will have home-grown seed.

A Crank Churn.—Mrs. J. F. B., Martin Co., Minn. Try the Blanchard Churn, made by P. Blanchard's Sons, Concord, N. H. We are never over twenty minutes in churning. The butter can be almost entirely worked in the churn. If there is any better churn than this, we should like to know it.

Plums Rotting.—"E. P.," Indianapolis, Ind. The rotting just at the time of ripening is not an unusual thing with plums, especially in some seasons. We have heard much complaint this season. We have seen no satisfactory reason given. Good culture and thinning of the crop are the best advice we can give.

Melon Seeds—Lima Beans.—Mrs. C. R. M., Naples, Ill. The seeds sent are those of the Apple-seeded Watermelon, a good variety, which keeps well after it is ripe... The proper Large Lima bean is always white. There are mottled and purple varieties, which are but little grown.

Sawdust for Bedding.—"A. S. T.," of Center Co., Pa., writes that he has used sawdust to bed horses and cattle for fifteen years. "It is a good

bedding," he says, "but, except for trees, very poor manure. The manure 'firefangs' easily. I once lost a hundred dollars worth of good manure by using too much sawdust." By keeping the manure-heap moist enough, firefanging may be prevented, or the manure might be drawn out and spread on the land directly from the stable.

Draining Timbered Swamp-Land.

—A Pennsylvania lumberman writes: "It pays to drain swamps that are covered with trees for the benefit of the timber. I have seen much valuable timber die for want of draining."—There seems to be some difference of opinion on this subject, and we should be glad to hear from any who can furnish facts bearing on the point.

Farm and Household Help.

—Adrien Briggs. A letter sent to your address was returned as unclaimed. Its purport was that we know of no such facilities for obtaining help as you speak of, nor at the prices named. If you can find us a good woman to do housework who will agree to stay a year for \$100, we will give you \$25 for your trouble. If any Chinese laborers are seeking employment in New York, we have never heard of them. Those who come to the city daily have as much difficulty in finding help as you who live at a distance. You have been deceived by some one.

A Good Cow.

—H. E. Wright, of Meadville, Pa., writes us that he has a cow "the mother of which was part Devon and the father a thorough-bred Short-horn. She gives the richest of milk—none better except the Alderneys. The last time she calved (1871) she gave during the months of May and June 72 lbs. of milk each day, and one day 80 lbs. I milked her three times a day."

A Professor of Horticulture.

—Mr. Charles S. Sargent, of Brookline, Mass., has been appointed Professor of Horticulture in Bausy Institution, which is the "Farm School" of Harvard University. Mr. Sargent is well known to the readers of the *Agriculturist* as the maker of the highest-priced butter sold in America, and as the most successful grower of azaleas. He is still a young man, with much enthusiasm and more knowledge in horticultural matters, and he enters upon his work with a determination to make it practically useful. An important feature of his department is a commercial greenhouse and garden in which pupils can obtain not only practical instruction, but actual experience of the business of gardening. We know of no better opening for any young man who may desire to embark in the pleasant and profitable profession of commercial gardening than to place himself under Professor Sargent's tuition and guidance. Incidentally to the giving of instruction, it is proposed to grow and to distribute at a low price such of the choicest and more useful plants as are not easily to be obtained in the market. We are glad that Massachusetts has at last an institution where horticulture is taught, and shall watch the career of this new school with much interest, believing it well calculated to accomplish most useful work.

An Australian Catalogue.

—Those who are accustomed to regard Australia as a place quite out of the world would be surprised if told that horticulture is there in a most flourishing condition, and that the small cities are far ahead of New York in all horticultural matters. We have just received from Anderson, Hall & Co., Sydney, their seed and plant catalogue, which in mechanical appearance and illustrations, and the character of its contents, will compare favorably with those issued by the New York and London seed establishments. In looking over the seed lists, we find that most of the novelties in vegetables and flowers are offered. Conover's Colossal Asparagus finds a place, and the Early Rose potato is mentioned as of great promise, and just introduced. In looking over the list of fruits we find the varieties, as might be expected, mainly English. The many fine apples of our Southern States should be tried in Australia. The list of Australian seeds, the remarks on tree-growing—in fact, the whole catalogue we have perused with much interest.

Will It Pay to Raise Corn?

—A correspondent of the *Agriculturist*, at Wawatosa, Wis., writes: "As you are a practical farmer, I would like to ask if you think it will pay to raise corn where we give one third for husking, and raise 50 bushels per acre, and sell the pork it makes for five dollars per hundred?"—We do not see how it can pay the farmer. It would pay the man who does the husking very well indeed. He can well afford to sell pork at five dollars per hundred pounds. But the other two thirds, after paying for the rent of the land, the plowing, harrowing, planting, cultivating, and cutting up, shocking, and cribbing, will not leave much profit for the man who raises the crop. We must look for better prices. Staple articles like corn and pork can not long sell for less than the cost of production.

Potomac Fruit-Growers' Association.

—The annual exhibition was held last month, and compared well with the exhibitions of national conventions in quality, showing that we have about us as good a fruit-growing region as can be found. The collections of fruits consisted of some 175 samples of pears, 80 of apples, 60 of peaches, 90 of grapes, also almonds, paw-paws, etc. The principal contributors were John Saul, Washington, O. D. Munson, Va., C. Gillingham, Va., R. A. Phillips, Va., and J. B. Claggett, D. C. The Agricultural Department and the Maryland Agricultural College were also exhibitors.

Seeding Down in the Fall.

—"Inquirer" may seed down in the fall by plowing or harrowing the surface until it is sufficiently mellow to receive the seed, and sowing as early as possible. If clover can be well established before winter, or where the snow gives ample protection, it may be sown in the fall.

Among Railroad Bonds

we judge there can be few if any better or safer ones than those of the New Canada Southern R.R. Its directness between New York and Chicago, its good grade, and the character of the men engaged in it—men who never go into a poor enterprise—are all so many guarantees of its great success. A safe seven per cent gold interest bond, at ninety per cent, is "not a bad thing to take." We would like to have money enough to take the whole. See advt.

Soil for Compost.

—"T. A. O." asks: "In getting soil for compost, how do you keep from skimming the land or leaving the subsoil bare where the soil is not over twelve inches deep?"—In England, where composting is far more common than in this country, the usual plan is to select an old headland or fence-bottom or earth-bank, or soil that has been thrown out of ditches, or road scrapings. We have never known a farmer go into a field and dig up his ordinary soil to make compost with. He uses material that he wants to get rid of.

Bommer's Method of Making Manure.

—"I have just read this book," writes "T. A. O." "Do you fully indorse it?"—No. But it is worth reading. You must exercise your own judgment. Try and separate the chaff from the wheat. If there are any special points on which you want information we shall be happy to hear from you.

Langstroth's Hive.

—In answer to "M. F. N.," who wishes to know if the patent on the Langstroth hive is run out or renewed, Mr. Quiby writes: "In answer to the above, I would say that I believe that the second patent of L. L. Langstroth's hive expires in October, 1872. His patent was renewed in 1865 for seven years. As it could not be renewed again by the Commissioner, many bee-keepers were apprehensive that he would apply to Congress the past winter for an extension. Accordingly, many remonstrances were sent in against it. I believe, however, he made no application." Mr. Quiby must have made a mistake in his date, as Mr. L. advertises that his patent was renewed in 1866, and, this being the case, will not expire until October, 1873.

How many Bricks to a Cubic Foot?

—N. R. Fielding, Decatur, Ala., wants to know how many bricks there are in a cubic foot.—This depends on the size of the brick, for there are various sizes. Multiply the length, breadth, and thickness of the brick in inches together, and divide 1,728 by the amount. There are 1,728 cubic inches in a cubic foot.

Price of Clover-Huller.

—"G. B. L.," Bernard, Mo.—The price mentioned is that of one made by R. H. Allen & Co., Water street, New York.

An Ill-mannered Horse.

—"O. S. C.," Danville, N. H., wants a cure for a horse which keeps his tongue out of his mouth when traveling.—Fortunately we never owned a horse so badly brought up as this, and have no experience. Wearing a muzzle would probably prevent it. It may be that some of our readers can help "O. S. C." in his trouble.

Fall Work on Drains.

—"A Farmer" asks what he can do in the way of draining through the fall and winter.—The fall is the very best time to prepare for making drains, and the winter the best time for completing them. Now is the time to lay them out, staking the ground in the direction the drains should run, and as soon as frosts begin to occur the lines might be covered with coarse litter or swamp hay or stalks in bundles, which will prevent the ground from becoming frozen. During heavy frosts the digging should not advance faster than the drain can be completed.

Sawdust for Mulch.—“L. B. B.,” Lansing, Mich. We have never used sawdust as a mulch for strawberries. Complaint has been made, where it has been used in some Western nurseries as a mulch for young stock, that in its decay the sawdust produced a fungus which was injurious to the young trees. Leaves are the best of all material for mulch. We use marsh hay, as it is cheaper for us than anything else. Has any one any experience in the use of sawdust?

A Double White Zonal Pelargonium.—M. Jean Sisley, of Lyons, France, whose success in raising double Pelargoniums we noticed last month, informs us in a recent letter that he has at last succeeded in obtaining a pure double white from seed. An unsatisfactory double white had been in cultivation, a sport from a single white. Mr. Sisley is an enthusiastic and successful amateur to whom we are indebted for some of our finest Cannas and Pelargoniums, and knowing his experience and judgment in such matters, we look for something very fine in his new horticultural triumph.

Ailanthus-Trees for Posts.—“Reader,” N. Y., has some Ailanthus-trees which he wishes to cut off, and, as we understand him, use as posts for grapevines, where they stand. We do not know how he can prevent the trunks from sprouting. Better cut down the trees, season the posts, and then set them.

Pegging Down Roses.—“Uncle Edward,” The roses referred to were China and Tea Roses, but the Remontants or Hybrid Perpetuals may be so treated. The common garden roses are too robust to manage well. Peg down in the fall or spring, and as the new growth is formed, peg that down. We use hooked pegs, cut from brush. The use of one or several varieties in a bed is a matter of fancy; we have a dozen at least. We shall let our tender sorts remain in the bed, and when the ground freezes cover them with sods.

Bee Notes.—Owing to the illness of Mr. Quinby, the Bee Notes for last month and this were omitted. We are glad to learn that Mr. Q. is recovering, though but slowly.

Fruit in England.—The Gardener's Chronicle, in giving its customary annual report upon the fruit crop in the kingdom (including Ireland, Scotland, and Wales) presents a most melancholy account. That journal says: “Never before have we had occasion to report so complete and so general a failure.” Here we have a crop of almost unprecedented abundance, apples being so plenty that they hardly pay for sending to market.

A Farm Cyclopedia.—“Jas. M. G.,” Oakland Co., Mich., asks which is the best work on farming which treats of all branches, from clearing the ground up to planting, reaping, harvesting crops, and raising all sorts of stock. There is no one American book that treats fully of all these things. “Allen's New American Farm Book” is one of the best hand-books we know of. “Stevens's Book of the Farm” is the best English work, and a valuable help to a farmer.

Fodder-Cutter.—“J. McC.,” Berks Co., Pa., has planted some corn for fodder, and now wants a good fodder-cutter to cut for five or six cows. We have used “Gale's copper-strip” fodder-cutter, and found it one of the best machines of the kind.

Greenhouses.—“A. B.,” Concord, N. H. A reply was sent to your letter which was returned as “uncalled for.” The substance of our note was as follows: The cheapest house you can build is that described in February *Agriculturist* of this year—a lean-to. The cheapest method of heating is by a flue; full directions for building one are given in September, 1871. If you wish to build a span-roof, Henderson's Practical Floriculture is the best work to consult. Other things being equal a span-roof is best, but where expense is a consideration, the lean-to is much cheaper, and answers a good purpose. Henderson's book gives as much about management as you can get from books.

“Vindication of the Entomological and Museum Divisions of the Department of Agriculture” is the title of a small pamphlet by Prof. Townsend Glover. It is intended to show up the misrepresentations of one Swank, who as chief clerk of the Department has published a most uncalled-for pamphlet, “The Department of Agriculture, its History and Objects,” in which the Swank aforesaid, by implication, omission, and misstatement, reflects upon Prof. Glover, the man who of all others has made the Department what it is. It seems an unnecessary labor for a man like Prof. Glover to refute what a man like Swank may say. Those who have not given up all hope that the Agricultural De-

partment may yet be of use to the agricultural community, look in vain for any good results from its present management. The time will come, we sincerely hope, when, with abundant means and competent officers, the Department will take its proper place. In that hopefully looked-for day there will be neither Wattses nor Swanks to stand in the way.

Potatoes for a Hot Climate.—A Kentucky correspondent asks what are the best potatoes for a hot climate. A potato expert says, Early Rose for early, Garnet Chili for medium, Peachblow or Peerless for late. The Shaker Russet, also known as Dyrhight, N. J. Monitor, and by several other names, does well in Kentucky, but is very poor with us. In the far South the Peachblow is a very poor cropper.

Cutting Hay in Wet Weather.—Mr. H. C. Hallowell, of Maryland, writes: “Allow me to say that my experience fully indorses the remarks of Walks and Talks on the subject of cutting grass in wet and cloudy weather. I have for a number of years secured hay from about 100 acres, and generally with satisfaction to myself. My neighbors sometimes express surprise that I secure so much in such beautiful order. I think it is because I keep my Buckeye Jr. moving almost constantly, regardless of the clouds. If it is raining, there is the greater probability of clear weather afterwards. We must run some risks, and I prefer a possibility of some hay being wet, to the chance of its getting over-ripe. My experience fully confirms the remark that ‘as long as grass [and clover] is green, rain does not hurt it.’”

Winter Wheat in Massachusetts.—A. L. Clark & Son, of Hampshire Co., Mass., raised 29 bushels of winter wheat per acre, in 1871. Owing to the severe drouth the straw was not two feet high. The land was seeded down with the wheat, and this year the first crop of hay was estimated to yield 4 tons per acre, and a second crop well worth cutting. And this upon land that in 1864, when it came into their possession, yielded only a crop of white beans of six bushels per acre. The wheat was sown after tobacco. Mr. C. says, “We got our land clear from weeds with two crops of tobacco, and any crop does well after it. We have four acres of tobacco this season, and there is not half a bushel of weeds upon the whole.” Manure and clean culture is what our land needs to produce good wheat and grass.

Jerseys for Butter.—L. C. Flower, Onondaga Co., N. Y., sends us the following statement of the yield of butter from his Jersey cows, viz., Jenny Lind, 2 years old, in seven days in April last, from 94½ pounds of milk produced 10 lbs. 2 oz.; Victoria, 6 years old, in 28 days in June produced 80 pounds; Beauty, 4 years old, in the same period produced 72 pounds from an average of 30 pounds of milk per day. The heifer was fed on hay and oat-meal, the cows on grass alone. What can beat the Jerseys for butter and beauty?

Heeling In.—“E. H. M.,” Danbury, Ct. This term, or “laying in by the heels,” is used by gardeners to designate a kind of temporary planting. In the case of cabbage plants, they are laid closely together, and the roots covered with earth. This operation checks growth, and yet keeps the plants alive. It is often very convenient when one wishes to remove plants from a piece of ground, and the place where they are to go is not yet ready, to heel them in. Trees are often heeled in for the winter, they being taken up in autumn, and laid in trenches at an angle of 45°, taking care to fill in the earth so completely as to leave no spaces among the roots.

“Minnie B.'s” Inquiry.—If “Minnie B.” had sent her name, with her address, we should have replied to her question by mail. Others writing on purely personal matters will please take notice.

Sixth Report of the Connecticut Fish Commissioners.—Much has been accomplished in the Nutmeg State to make cheap fish. Thirty-seven ponds have been stocked with black bass by the Commissioners, and nearly as many more have been stocked by private enterprise. Nearly all the available ponds in the State are now supplied with this superb game fish, and they are known to be doing well. The policy of hatching shad at Hadley Falls is persistently followed. This, without doubt, is the best point in New England, if not in the whole country, for this business. After the public fishing ceases, on the 15th of June, all the fish in the river are compelled to stop at these falls, and fish fully ripe are taken in large numbers for about three weeks. Over sixty-three million ova were taken, and nearly all hatched and turned into the river at an expense of about five hundred dollars. All parties are now agreed that artificial propagation is a complete success. At a very small cost to the State every stream within its

borders may be made to swarm with this delicious fish. A million of shad-fry may be carried in five gallons of water a half-day's journey with very little loss. The Saugatuck, at Westport, and Great Brook, near New London, have been stocked by private enterprise. The Commissioners, united with other parties, formed a stock company, to take salmon spawn on the Penobscot, last fall. The enterprise was successful, and will be continued under more favorable circumstances the present season. About 25,000 salmon-fry were hatched at Poquonoc, and distributed mainly in the Saugatuck and Quinnchaug Rivers. A note from C. G. Atkins, at Bucksport, Me., who has charge of the salmon-spawn enterprise on the Penobscot, just received, informs us that he has already purchased 231 salmon of the fishermen, and has only lost 20 of the lot. The rest are in the reservoirs, doing well. Should he be as successful with the spawners of this year as he was the last, he will take at least a million of eggs, which will mark a new era in salmon breeding in New England. The great obstacle hitherto has been the extreme difficulty of procuring spawn.

A Prolific Sow.—“J. M., Jr.,” Wayne Co., Ind., makes the following statement about his sow: Late in July she produced three pigs, and three weeks later added eight more to her family. Two of the first and five of the latter litters are living and doing well. “J. M.” thinks this a strange freak on the part of his sow, and asks if there are more of her character.

A New Method of Churning.—“L. L. D.,” Wake Co., N. C., sends us a new method of churning, which he thinks an improvement on the old plan; it consists in forcing air through the cream by means of bellows and a system of pipes, contained in a cylindrical-shaped vessel. We doubt the success of this method, as it is necessary to the complete breaking up of the butter globules that a more powerful mechanical action should be produced than would be caused by the mere passage of currents of air. But let “L. L. D.” make a churn and try his method, by all means.

Power for one Run of Stone.—“W. P. S.,” Sidney, Ohio, asks what is the power of one run of stone. This depends on circumstances somewhat. Generally it will take one horse power to grind one bushel of wheat into fine flour, or two bushels of corn into meal, per hour. The less quantity of wheat is caused by the extra consumption of power by the bolts and smut machine. With old-fashioned or badly constructed wheels not more than half this work will be done, but with the best turbines it is often exceeded.

Saving in Feeding Cooked Corn-meal.—“W. A. T.,” Augusta, Ky., asks if it would pay to hire an extra hand to cook the corn for 32 hogs which he wishes to fatten. It would certainly pay to do so, as the saving in grinding corn and cooking the meal is equal to one fourth of the feed, at least, which in feeding 32 hogs would pay for the extra labor. The cooked meal should be fed cold, and in the shape of thick mush.

Boys and Girls—Special Notice.—All contributions intended for the Puzzle-Box should be addressed to Aunt Sue, Box 111, P. O., Brooklyn, N. Y. “The Doctor's” address is 245 Broadway, New York. Puzzlers will specify whether their contributions are for Hearth and Home or for the *American Agriculturist*.

Well-flavored Butter.—How can it be expected that butter of good flavor can be produced from pastures foul with every strong-flavored weed? From early spring, when garlic abounds, up to fall, when the Golden-rod and Ragweed cover the pastures and meadows, cows rarely get a bite of grass or clover free from admixture with weeds. And when it is known that these strong and often disagreeable flavors concentrate in the milk, and that every impurity in the milk seems to concentrate in the butter, how can it then be otherwise than that the great bulk of butter coming to market should be poor in quality, and poorer still in profitable returns to the farmers? Here is the strongest argument for clean pastures and meadows, and such farming as will raise feed and not weeds.

Egg-eating Hens.—“C. G. R.,” North Attleboro, Mass. The best preventive is to provide dark nests, to be approached by a covered passage just wide enough to admit the hen. When the egg is laid, the hen starts for the light and does not turn around to see the egg. So says one who has tried it.

Artificial Manures.—English farmers use yearly nearly a million tons of artificial and chemical manures, the materials for which are drawn from all quarters of the globe. It is thus they raise their heavy crops and keep their soil improving.

A PLEASANT
ANNOUNCEMENT.
—
A \$5.00 Present
To Every Subscriber
TO THE
AMERICAN AGRICULTURIST
For 1873,
Received on and after Oct. 1, 1872.

A Splendid Ornament for every Home.

The Publishers have received from the celebrated American Painter, Mr. B. F. REINHART, a fine Oil Painting, executed expressly for the *American Agriculturist* during the past summer, entitled "Mischief Brewing,"—a beautiful Rural Scene, for which they paid \$400.

This Painting has for sometime past been in the hands of the noted firm of Bencke & Scott, who are executing it in Chromo, on 16 stones (not on metal plates, or by any new uncertain process). From these stones each picture will receive at least 16 impressions in colors, thus producing a perfect copy of the original \$400.00 painting and scarcely to be distinguished from it by one person in a thousand.

At the usual charge for Chromos, the pictures will be worth fully \$5 each, and they will be sold at that price; while, taking into account the design, the character, and quality of the pictures, if valued at \$10 each, they would still be cheaper than most Chromos sold or given.

By arranging for 200,000 copies, so great economy is gained in the multiplication of these Pictures, that the Publishers will be able to present a perfect copy to each and every subscriber to the *American Agriculturist* for 1873 hereafter received. (It costs no more to put the picture on 16 stones for 200,000, than it would for 1,000 copies.) The Picture will give great pleasure to every one receiving it, and be a fine Ornament in every Household. It would be worth purchasing at \$5, or more, if it could not be obtained otherwise. It is a perfect Gem, 11 x 13 inches inside the frame.

The Picture will be given to every subscriber for 1873 (new or old), whether coming singly at \$1.50 each, or in Clubs of Four for \$5, or Clubs of Ten for \$1.20 each, or in Clubs of Twenty or more at \$1 each. Subscribers in Premium Clubs will also be entitled to it. It will be delivered at the Office, unmounted, free of charge, or if mounted, for 15 cents extra. If to go by mail, unmounted, 10 cents must be sent to cover cost of packing and postage.

It will be mounted on heavy binder's board, and Varnished, ready for use, even without any frame,

or for putting into a frame, for 15 cents extra—that is, for 25 cents it will be Mounted, Varnished, Packed, and sent Post-paid to subscribers (to this Journal for 1873 only), who come in now, or hereafter.

We advise all to have them mounted before leaving the office, as in the large quantities we put up, we are able to mount them for a quarter of the cost of doing it singly, and better than it can usually be done elsewhere.

We shall begin delivering the Pictures on Nov. 15th, in the order in which the names of subscribers are received, beginning with this date, Oct. 1st. All new subscribers for 1873 who have been received during September will also be presented with a copy on forwarding the 25 cents for mounting, packing, and mailing. We advise every one to send 25 cents and have it well mounted before it is sent out.

SEE HERE
EVERYBODY!

All Competition Distanced.

MANY DOLLARS For ONE.

The *American Agriculturist* has long excelled in circulation any and every other similar journal, or any half-dozen others. This has resulted from the fact that, taking into account its size, careful preparation, its very numerous fine Engravings, etc., it has been furnished far cheaper than any other journal in the world. [NOTE.—The printed surface of the *American Agriculturist* is nearly equal to most of the \$1 Magazines—the pages being 2½ to 3 times the size of ordinary magazine pages, while not more than one other magazine in the world gives as many costly engravings.]

BUT, the Publishers, warranted by the liberal patronage hitherto received, have resolved, for the coming year, to take

TWO STEPS FORWARD.

1 The former and present character, quality, and value of every number will be maintained, and material improvements be introduced during 1873.

2 A Splendid \$5 PICTURE will be presented to Every subscriber (as noted on this page).

MORE:—Every new subscription now received will be entered at once in the mail-books, and will be furnished with the paper from the time the name comes in until the end of 1873, at a single subscription price. (This applies to all new subscribers now received, whether singly at \$1.50 each, or in clubs of four at \$1.25 each, or in clubs of ten at \$1.20 each, or in clubs of twenty or

more at \$1 each. Those coming in during October will thus have the paper 14 months for a single subscription price.)

STILL MORE!—Very Valuable Premiums are offered (see page 393) to those who take the trouble to gather up and forward clubs of subscribers. These Premiums are 4 to pay for the time and trouble taken in gathering and forwarding the subscriptions (and good pay they are). The subscribers themselves will each get the \$5 picture, and new ones coming in now will get the extra numbers free.

How CAN it be Done?

Many will ask (as heretofore), "How CAN the Publishers afford to give so large a paper as the *Agriculturist*, so many engravings, etc., and also add pictures, premiums, etc.?" Answer: The average circulation of even good papers throughout the country is less than 5,000. It costs just as much to procure information, make engravings, set type, and electrotype, etc., for 100 or 1,000 or 5,000 subscribers as it does for 200,000 or more. When these matters are provided, the only further additions for subscribers is the cost of printing-paper, press-work, and mailing. In other words, the immense circulation of the *American Agriculturist* divides the cost of preparation, engraving, etc., among so many, that it amounts to but a trifle for each.—Again, the large circulation is so valuable to good advertisers, that they freely pay high rates; and any addition to the circulation increases the receipts for advertising. The truth is, the Publishers don't begin to charge the subscribers the actual cost of supplying the paper to them. The advertisers pay a large part of this, and enough more to pay for engravings, chromos, premiums, etc., and leave a living profit to the publishers. And this explains why our subscribers receive so much, and are to receive so much more this year than ever before. The large wholesale mode of doing things in this Office inures directly to the advantage of all our readers. If, for example, only a few thousand of the Chromos were made, they would cost from \$2 to \$5 each; whereas, by making 200,000 or more, the cost is so reduced that one can be presented to each subscriber without even increasing the subscription price.

How to Spend Election Days.

First: Vote right yourself—once.

Second: Get all your friends to vote right.

Third: Have with you a copy of this journal, and fill up all the spare moments in collecting names of subscribers for a premium club. You can thus secure, without cost, very valuable articles from the List on page 393. You have very strong "arguments," as you can not only promise every subscriber for 1873 a good paper, but also a splendid \$5 Picture, also the remaining numbers of this year—all for a single subscription price—a price so small that it merely covers the cost of the printing paper. See the offers on this page and page 393.

Fourth: You can get subscribers enough for one or more premiums before election day, by using evenings and rainy days. Begin to-day and try it.

Strong Arguments are much sought after among politicians just now. The Publishers of this journal are just now giving the strongest possible "arguments" to induce people to read—to wit: They offer not only a splendid paper at the bare cost of printing paper, but even offer to pay people to take it, by giving every subscriber a splendid \$5 Picture, and the bal-

ance of this year **Free**. They also present very **strong arguments** to those who get up clubs of subscribers—viz. the splendid Premiums on page 393.

A Good Paying Business— for Women as well as Men— Honorable and Useful.

Several persons of both sexes, in different parts of the country, devote their chief time to gathering subscribers to the *American Agriculturist* and to *Hearth and Home*, and to selling books on Agriculture, Horticulture, Gardening, Architecture, etc. (see list on third cover page, and notices of some of them in the advertising pages). For the subscribers obtained they take the Premium Articles offered on page 393, and sell them (as they are all very good, wanted generally, and are readily salable). These Premiums, obtained by the Publishers on special terms, are just as good as money, and give much better pay than could possibly be given in cash commissions. These canvassers, who work during the most favorable seasons, realize from \$300 to \$3,500 a year, according to their tact, experience, etc. Experience goes a great way. Some, who succeeded poorly at first, hardly paying their board, have by persevering practice come to be very successful. The success to be obtained is worthy of long practice. It is certainly quite as honorable and useful to engage in urging people to supply themselves with good reading and useful information, as it is to stand behind a counter and show up, and persuade people to buy silks, laces, or other goods, or to engage in any other work or business.

\$66.67 to \$100.00 worth of Engravings for ONE CENT.

At least \$10,000 will be expended in procuring pleasing and instructive *Engravings*, of fine quality, for the *American Agriculturist* during 1873. Every subscriber will have a neatly-printed copy of each of these in the pages of the paper, in addition to all the carefully prepared information given in the reading columns. This will give \$66.66 $\frac{2}{3}$ worth of engravings for every cent of cost at \$1.50 a year; or \$80 worth to those in clubs of four to nine at \$1.25 each; or \$83.33 $\frac{1}{3}$ to those in clubs of ten to nineteen at \$1.20 each; or \$100 worth for each *Cent*, to those in clubs of twenty or more at \$1 each. In addition, every subscriber will be presented with a perfect copy of Reinhart's beautiful \$400 painting, "*Mischief Breeding*," which will be a charming ornament in any home—a picture so much like the original oil painting that none but experienced artists will be able to detect the difference.

Hints to Manufacturers of Mowers, Rakes, etc.—Does it never occur to those who manufacture the various agricultural machines that a farmer's time is of value, and that he can not afford to spend it uselessly in trying to tighten a nut on a round bolt with a round head which turns in the hole? Now, if we can not have square holes and square bolts, at least we could have bolts with square heads by which they could be held while the nut is tightened. Farmers have much to complain of, too, in regard to the quality of the timber sometimes put into axle-trees and other important parts of machines, and in the use of cast-iron of a very brittle character in places where it should be of the very toughest kind or at least malleable iron.

Continued Experience in the use of the Averill Paint confirms the good opinion of it expressed in these columns a year or more since. It wears well—equally well or better—with the ordinary white-lead and oil paints. Messrs. Brown Brothers, the well-known bankers, who formerly used imported white lead to make sure of a good article, have, after fair trial, substituted the Averill paint for all their work. Being already mixed in all desirable shades, it is a great convenience to the many who can do their own painting.

Plants Named.—"Virginian Subscriber," Clifton, Va.—No. 1 is *Phalaris arundinacea*, or Reed

Canary Grass; there is a striped variety of this cultivated in gardens, known as Ribbon-Grass. No. 2. *Dactylis glomerata*, or Orchard-Grass. No. 3. *Festuca elatior*, var. *lolifolia*, Meadow Fescue. No. 4. *Agrostis alba*, White Beet Grass. No. 5. *Poa pratensis*, Kentucky Blue Grass. . . . J. H. Key, Leonardstown, Md.—The plant, very poor specimens of which you inclose, is *Chondrilla juncea*, a recent introduction from Europe; as it is a biennial, there need be but little difficulty in eradication, if it is not allowed to go to seed. . . . "A. A. L.," New Hampshire.—No. 1. *Geum rivale*, Purple or Water Avena, a plant with rather pretty maroon-colored flowers, inhabiting wet places. No. 2. *Saxifraga Pennsylvanica*, Swamp Saxifrage. No. 3. *Tiarella cordifolia*, False Mire-wort; does well when cultivated in the garden. No. 4. *Polygala pumila*, Fringed Polygala or Milkwort; a very beautiful plant, with large rose-colored or, as sometimes happens, pure white flowers. No. 5. *Myosotis palustris*, var. *laxa*, Forget-me-not. No. 6. *Muscari racemosum*, often cultivated in gardens, where it is known as Grape Hyacinth.

New Cocalias.—Mrs. M. Milburn sends us specimens of varieties of *Cacalia* which she claims are distinct in color from the old sorts. One, an orange scarlet, she says is valuable for dry bouquets.

Pigs for Packing.—A farmer in Boone Co., Mo., writes: "I have just finished reading 'Harris on the Pig,' with much pleasure and profit. I am satisfied, from my own experience, that he is right as to the advantages of crossing the Essex or Berkshire boar with the large sow, to get the right pig for the packing market."—We think there can be no doubt on this point.

Pickling Peaches.—"Mrs. A. M. B.," a Georgia lady, sends the following: For two gallons of peaches (when peeled) take 1 pt. vinegar, 3 lbs. white sugar, 2 oz. cinnamon, 2 oz. allspice, $\frac{1}{2}$ oz. cloves—the spices must be whole. Peel the peaches. Use a porcelain-lined kettle if possible. Dissolve the sugar in the vinegar, add the spices, and bring the syrup to a boil. Put in as many peaches as the liquid will cover, and let them cook until clear and tender. Take them out with a skimmer and put them into your jar. Repeat the operation with fresh peaches until all are done. Lastly, pour the hot syrup over them, and keep in a cool place. Peaches pickled without peeling are generally tough, while these will be found as tender as canned fruit.

Potatoes in England.—In addition to the almost total failure of the fruit crop, noted in another item, the English papers bring most unfavorable accounts of the potato crop. In almost every quarter rot is showing itself and spreading rapidly. The reports say that the mining localities where smelting is going on, and sulphurous and arsenical fumes are abundant, are nearly free from disease.

Alfalfa.—"Subscriber," New Jersey, asks if he can sow "Alfalfa grass" seed with oats in the spring, instead of timothy, with success.—Such a plan would certainly fail. Alfalfa is not a grass, but is related to clover. It is simply lucern, and needs to be sown as a crop by itself, with the best of care during its early growth until well established. It can not bear crowding with other crops or weeds. It is a question whether or not it would be best to prepare the ground for the lucern alone, in which case the oat crop would have to be abandoned, or sow the oats and timothy as proposed.

Young Rams.—Jas. Moore, Labette Co., Kansas, is buying rams for stock purposes, and asks if spring lambs, well grown, would do as well as yearlings. It would be more profitable to purchase yearlings, one of which would be equal to three spring lambs, and there would be more certainty in their use besides.

Practical Trout Culture, by J. H. Slack, M.D., Commissioner of Fisheries, N. J., etc. New York: Orange Judd & Co.—We were about to write a notice of this work, when a note from the father of fish culture in this country, Seth Green, came to hand. Mr. Green writes: "Your book on Trout Culture is received. I have read nearly all of it. . . . As far as I have gone, it is the best book on Trout Culture I have seen." The work can have no higher commendation than this, and we have only to add that it is abundantly illustrated, and sent by mail for \$1.50.

Protection to Native Industry.—New Hampshire has adopted a law for the protection of farmers against rapacious and dishonest manufacturers of artificial manures. Each manufacturer must file a bond for ten thousand dollars, payable to the State, to secure compliance with the law, which requires that all fertilizers offered for sale shall be accompanied by a statement of

the date of manufacture and the percentage of its valuable component parts, and that the article sold shall be identical in quality with this published statement. Besides, all dealers in fertilizers shall be licensed. A similar law should be made in each and every State.

The Magic Sifter.—We have an inquiry for the address of the patentee or manufacturer of the "Magic Sifter." If parties who make these things want them to become popular, why do they not make them known in a proper manner? We can not give the information needed.

Heavy Fleeces.—E. H. Worrall, Chester Hill, Ohio, sends us a statement of the shearing of a flock of Merinos, consisting of 20 bucks and 60 ewes. The wool, mostly unwashed, weighed 1080 pounds, and sold for \$36.80, averaging 13 $\frac{1}{2}$ pounds in weight and \$6.71 in money per fleece. The heaviest fleece was that of a two-year-old buck, viz., 24 $\frac{1}{2}$ pounds; the heaviest ewe's fleece was from a two-year-old, and weighed 21 $\frac{1}{2}$ pounds. One yearling buck sheared 19 $\frac{1}{2}$ pounds.

Carrots and Parsnips.—"W. S.," O., who has been vanquished as a potato-grower by the bugs, asks if carrots and parsnips pay to raise for market.—With the single exception of not being in such regular demand, we have found them a far more profitable and advantageous crop either to sell or feed than potatoes.

Salt-Meadow Muck.—"A Subscriber," Suffolk Co., L. I., asks what is the best use that can be made of salt-meadow muck. The best way to use it is to haul it into the barn-yard, and compost it with the manure in the proportion of one load clear manure to ten loads of muck. In the absence of the stable manure it may be composted with lime in the proportion of one bushel to the load, and used as a top dressing for grass or clover. It will be of very little use spread in a fresh state.

Summer Feed for Cows.—J. T. Gordon, Ashland, Va., wants to know what feed he shall give a cow which he is forced to keep in a dry lot, so that her milk will not fall off. He can get plenty of mill-feed and wild hay, but the green feed from the garden has given out.—This is a difficult business to manage. Milk can not be looked for, unless fresh succulent feed is given, and wild hay will not satisfy a cow which has been used to green fodder. But it might answer to ent the hay and mix it with feed and bran, and scald it, and feed it when cooled; there will be some fermentation, which will make it more palatable.

Use the Roller.—A coarse, lumpy soil is not favorable to a successful wheat crop. It requires a compact yet well-pulverized soil. This may be made to some extent by rolling; in fact, this is the only resource now, at this season of the year. A rolling given to the young wheat will compact the soil about the roots, and tend to give them a hold sufficient to resist a good deal of freezing and thawing.

Advertisements worth Reading.—Our newer readers may perhaps not understand that very great care is taken to exclude from the pages of the *American Agriculturist* all advertisers and all advertisements that will be likely to deceive the readers. No patent medicines are admitted on any terms. It is our constant aim to exclude all humbugs and all advertisements deceptive in form or substance. It is not enough that an advertiser pays for space. Our rules say: "Every advertiser unknown to the editors personally, or by good repute, must furnish satisfactory evidence that he has not only the *ability* but the *intention* to do what he promises to do in his advertisement." In short, we would not knowingly admit any advertiser to whom we would not ourselves send money in advance, with an order, if we happened to want the things advertised, and at the price asked for them. In this way we hope not only to make the advertising columns valuable to good business men, but also to guard the interest of our readers, and to make the advertising pages a valuable source of information—almost or quite as much so as even the reading columns. This strictness cuts us off from a large revenue, because the class rejected are just those who can and do pay the highest prices, as they can well afford to, because they give little of value in their medicines, wares, etc. But we feel well repaid for the loss, in the consciousness of doing an honorable business, and it is a source of satisfaction to have such testimony as that given by Messrs. Geo. P. Rowell & Co., the great Advertising Agents, who recently said to one of their customers: "It is very difficult to get an advertisement into the *Agriculturist*; probably no other journal in the land has laid down stricter rules or more persistently adhered to them through a long course of years."

Loss of Cattle.—The progress of the cattle disease in England has become a source of national alarm. The losses last year are estimated to amount to over thirty millions of dollars. American and Canadian importers of stock, fearful of the danger of introducing the disease here, are discontinuing their purchases.

Grubs in a Strawberry-Bed.—"O. M.," Ottumwa, Iowa. We doubt if any special manure or other application to the soil will be of use. In Europe, where a closely-related insect is a great pest, they find no relief save in plowing and picking up the grubs. The underground life of the common white grub extends over three years, and it eats whatever roots come in its way. When a plant is injured, dig it up, find the grub and kill it. This will save many other plants. Watch for the first appearance of wilting, and act promptly.

Lambs in Lincolnshire.—The productiveness of Lincoln sheep is shown by the fact of 107 ewes, the property of Joseph Baker, of Mortoo, Lincolnshire, having produced 209 lambs, which are all living and doing well.

How High Prices Come.—A butcher doing a large business has stated that the stock he buys generally passes through four or five hands before it reaches him and after it leaves the farmer or feeder. This will explain why the farmer gets five cents per pound, and the man who buys a steak pays twenty-five.

Another Duchess Gone.—Mr. Richard Gibson has returned from his late trip to England with an importation of sheep, and has since sent out another "Duchess," the 15th Duchess of Airdrie.

Materials for Tents.—"D. V.," Verden, Ill., asks what is the best material for a large tent, and who are the manufacturers or dealers in such materials. —The best material for a large tent is cotton sail-cloth, which can be procured at any of the large dry-goods stores in Chicago. Farwell & Co., or Field, Leiter & Co., both of Chicago, could supply it. It is probable that a second-hand army tent could be purchased which would exactly suit the purposes for which it is required.

Shad-Hatching in 1872.

So far as we know, the only rivers in which shad are hatched are the Connecticut, the Hudson, and the Merrimac, and this is the sixth season of the use of Seth Green's hatching-boxes—a discovery that is likely to do for the food supply of the nation what Whitney's cotton-gin did for its clothing. About 8,000,000 of shad-spawn were hatched in the Hudson last year, and we learn, unofficially, that the number is considerably exceeded this year. Of the number hatched, 230,000 were put into the river above the Troy dam, 80,000 into Lake Champlain, 20,000 in Lake Owasco, 50,000 in the Genesee River, 30,000 in the Alleghany River at Salamanca, and 25,000 in the Mississippi River, two miles below St. Paul. The remainder were turned into the river below Castleton. The operations began May 18th and ended July 2d.

The ova hatched in the Connecticut last year were over sixty millions. This year operations did not begin until the 24th of June, and ended on the 18th of July—less than four weeks. The fish were larger and finer than ever before, and the hatch of spawn was ninety-two million sixty-five thousand, a third more than was taken last year. The hot weather of the early part of July had such an effect upon the females, that the average number of ova from each one was greatly increased. Of this number 2,000,000 were sent to the Alleghany, White, and Platte Rivers, a half-million were distributed in Rhode Island waters, a half-million were sent to the Sangatuck, and about the same number to Great Brook, in Groton, Ct. All the rest were turned into the Connecticut, just below Hadley Falls. This enormous addition to the finny tribes was made at an expense to the State of Connecticut of about five hundred dollars. If the improvement of only two of our shad streams for five

years has resulted in the reduction of the wholesale price of shad in New York to \$3.50 per hundred, what may be expected when all the States turn their attention to this business, and Seth Green's hatching-boxes are in use upon every shad stream in the country? Is not cheap food for the coming millions a problem already solved?

SHEEP-KILLING DOGS.—"I would like to keep sheep on my hilly farm," writes a correspondent, "but am afraid of the dogs. Is there any remedy?"—There are three remedies: 1. If there is a tax on dogs in your State, see that it is enforced in your neighborhood. 2. If there is no dog law in the State, vote for no man who will not pledge himself to do all he can to have one enacted. 3. Let all the sheep men in the neighborhood form themselves into an association. Let nothing be done to gratify personal spite; but if a suspicious dog is found prowling about the farm, shoot him. Then, if the owner can prove damages, let the association pay them, and repeat the process. City and village dogs must be taught to stay at home. They are often abused and half-starved, and it would be a mercy to them to give them one good meal of mutton with a liberal allowance of strychnine in it. The neighbors might be told that this feast was provided solely for visitors, so that they can keep their dogs at home.

A good plan to adopt is, when a sheep dies, dress it and wash it with water containing a few table-spoonfuls of crude carbolic acid. It will preserve the meat for months. Cut it up into joints and hang it up, and you will always have a piece of mutton on hand for a hungry dog that may visit you from the city or village or swamp. If this work is done systematically and constantly, it will have a wholesome effect. It is rarely that a well-bred and well-fed dog attacks sheep, and it is not often that such dogs wander far from home at night. If there are any good dogs in the neighborhood, inform the owners of the fact that you have set a trap for the half-starved prowlers from the city, and that they had better fasten theirs up at night. In this way no harm is likely to be done.

LARGE ONIONS.—Within a year or two some varieties of onions have been introduced into England from the south of Europe which have produced bulbs of remarkable size. Mr. Peter Henderson writes that he saw at the rooms of the London Horticultural Society a specimen that weighed 4 lbs. 2 oz., and measured 24 inches in circumference. A dozen such specimens were exhibited, which the visitor claimed were of so mild a flavor that they "could be eaten like bread." The name of this variety was the *Early White Maggiojole*. Very large onions are raised in California and New Mexico, but seeds from them brought to the East produce nothing remarkable, and such we fear will be the case with these new European sorts. There are few vegetables more readily influenced by peculiarities of soil and climate than the onion.

CISTERNS.—Unless the house and barn have a permanent spring or water-course near by, they should always be furnished with a large tank or cistern into which all the rain-water that falls on their roofs can be conducted. In addition to these a good well is requisite. It would be better to dig the latter in a dry time, and keep on digging from one to three feet below where water is then found. This will insure a never-failing well. Our well became dry

the past autumn, when, after cleaning it out and sinking it one foot below the original depth, three feet of clear sweet water, or more, rose up in it within a few hours, and we do not think it will ever be dry again, unless outside material should get into it. One great advantage of saving rain-water in a cistern is, that it gives us an abundant supply of soft water for washing, and if it falls from a clean roof is always wholesome to drink. But if impurities get into it, the water is easily filtered, and thus rendered clear and sweet.—A.

KEEPING CABBAGES THROUGH THE WINTER.—"W. R. R.," of Michigan, writes: "You speak of raising cabbages for stock. How do you keep them through the winter? We have no difficulty in growing large crops here, but as yet have found no good way to keep them."—We make a deep and wide "dead furrow" with a plow, in dry, sandy soil; and then lay the cabbages in it, packed close together, with the stalks up. Then throw the earth back on to the cabbages. The cabbages should be dry and the weather cold, and care should be taken that the furrow left on the side of the row of cabbages should be cleaned out, so as to carry off the water. If no water gets to the cabbages, and the heads are sound, large, and hard when put in, we have never experienced any difficulty in keeping them perfectly until spring. And there is nothing that our sheep relish so much. The only trouble about raising cabbages for stock is that they usually command so much more in market than they are worth to feed out, that it is difficult to resist the temptation to sell them.

Husking and Cribbing Corn.

"The way we husk," writes one of our Illinois correspondents, "is to grasp the ear with the left hand, stripping one side with the right hand, then grasping the ear with the right hand and strip with the left, and break in a sort of combined movement, tossing into the wagon with the right hand. Sometimes a husk or silk adheres, but we let it go, for while you are taking it off you can husk another ear. It makes one third difference in the work, and no perceptible difference in the value of the corn to horses, cattle, sheep, or hogs, or to the buyers. Husk from the shock and throw directly into the wagon. It saves much labor. To prevent the corn from being thrown over the wagon, take a wide board as long as the box, nail strips on both sides, a few inches longer than the board is wide. Then place the board on top of one side of the wagon. The strips will hold it in place, making that side of the wagon higher than the other, and enabling the husker to toss in the corn without looking. If the corn must be sorted, throw the poor corn on the ground.

"To facilitate unloading, take a board, fifteen inches wide, three and a half feet long; nail a cleat across it on one end, and an inch from it nail another. Place this end on the tail-board of the box, and let the other end lie on bottom of the box. This will enable one to use a scoop-shovel at once, without the tediousness of hand-picking."—This latter plan was described in the *American Agriculturist* several years ago, and we have found it ourselves a great saving of time and labor. We do not husk into the wagon. If only one man was husking at a shock, it would not pay in our case to let a team stand idle. We would rather hire the corn husked by the bushel and set the team to fall plowing. But many of the writer's suggestions are good.

Ogden Farm Papers.—No. 33.

I have several times resolved to let the deep-can question rest on its own merits, and to take no part in the discussion concerning it which is wending its feeble and uncertain way through the columns of the agricultural papers; but I am called on every now and then to "state but the facts" in defense of my "pet theory"—to make a comparative trial of the two systems and to publish the result. This I would gladly do if I could afford it, but I can not. Butter-making is a *business* with us, and we have, happily, got through with our experimenting. At the same time, we have reached our present point by a very experimental way, and have lost many a large churn in attempting to find some means of making uniformly good butter by the old methods of creaming the milk. I have no favorite idea to advocate on this or any other subject, and I am entirely willing that every other dairymau in this free country should manage his work exactly as he likes. I merely say that I am entirely satisfied that I have hit on a plan that is more advantageous to me than any other I have been able to try, and when my advice is asked, I do not hesitate to recommend the deep-can system as sure to give good and uniform results. If the advice is not taken I am not at all offended, and if I am asked to prove the accuracy of my opinion I trust that my statement that I have no definite proof to offer will only induce those who doubt to experiment for themselves, and to leave me my own opinion.

But, while I have no definite proofs, I have general ones which may be worth considering. This has been the very worst summer for butter that I have ever known—at least so far as the climate is concerned. Intense heat, dense and long-continued fogs, and frequent thunderstorms have conspired to make it often impossible to make good butter from milk that has been subjected to atmospheric influences. Farmers generally have complained of the difficulty of making butter of satisfactory hardness, and customers have complained, still more, of the wretched quality of much of what they have received. "First-quality" fresh butter has ranged at about 30c. per pound, and much of it has been poor enough. Among those whom I know there has been great complaint of the quality of that which was bought for the best, and it has often been necessary to reduce the price to even 20c. to find a market. During all this time, the Ogden Farm butter has always been of the same excellent quality, and I have raised the price from 75c. to 90c. without eliciting a murmur. Of course, the fact that I have only Jersey cows has much to do with it, but with the same animals I was never able to prevent frequent changes in the quality until I withdrew the milk from the changing influence of the atmosphere, and subjected it to the uniform temperature of spring-water—avoiding the access of atmospheric influences almost entirely. I believe that I got more butter than I should get if I used shallow pans, and I have very good reasons for the belief. I am sure that I get more money from my dairy, and that is the sole object for which it is carried on.

I have several times been asked to give a detailed account of my herd and its product. I will premise by saying that it is essentially a breeding herd, and that butter, though an important, is a secondary object. We keep a good cow as long as she will produce fine calves, even though she may have ceased to be a good milker. Also, we turn the bull with the heifers

when they are from ten months to fifteen months old, that they may be made useful as breeders at the earliest possible moment, and that they may develop the milking tendency before they have time to form the other habit (most injurious to a butter cow) of taking on fat. The consequence is that we have always a good proportion of animals on the milking list which are of little account as compared with cows in their prime.

During the week ending August 10th we were milking 30 animals. Of these six had aborted at from four to seven months, and were giving very little milk. (Three of these had previously been the very best milkers in the herd, and had now become almost the worst.) Eleven were two-year-old heifers with their first calves, six were three year-olds with their second calves, and one was very nearly dry. They are therefore far from being an "abled-bodied" herd, nor are they heavy feeders. Yet they made, during this week, 153 lbs. of butter, worth, at 90c. per pound, \$137.70. It was about the hottest and most unfavorable week I ever knew.

One fact developed by the record of this week may surprise those who are not familiar with the Jersey breed. The average weekly yield of butter was (per cow) $5^{10}/_{100}$ lbs. The average daily yield of milk was $13^{21}/_{100}$ lbs. The largest daily yield from a single cow was $23^{70}/_{100}$ lbs. The total yield for the week was 2,774 lbs., and the weight of milk required to make a pound of butter (averaging the whole herd) was $18^{12}/_{100}$ lbs., or $8^{42}/_{100}$ quarts. This is not by guess, nor by "rule of thumb," but by actual weight taken at each milking, the cows being on green summer feed. The product has since fallen off somewhat, as an effect of the hot, close August weather, but the reduction has been more in the amount of milk than in the yield of butter.

The record would not be complete without an account of our manner of feeding, etc. The cows pass the night in the barn-yard. In the morning they receive an average of three quarts of wheat-bran and a good feed of corn-fodder. They then go to pasture, where they remain, on good feed, until 4 P.M. Then they are brought in, and have all they can eat of corn-fodder.

I think they would do better if "soiled" entirely with suitable fodder, but I have pasture land which must be used in this way, if at all, and the high price of winter forage tempts me to cure all I can of the soiling crops.

While on the subject of statistics, it may be of interest to say that I have sold since January 1st, 1872, fifteen bulls and bull calves, as follows: One two-year-old for \$200; seven yearlings for \$695; seven calves for \$350; in all fifteen head, at an average of \$83.

Formerly, my sales were almost entirely to breeders of thorough-breeds, but a very large proportion of this year's sales have been to dairy farmers who are desirous of improving the butter-making quality of their herds by an infusion of Jersey blood—indicating a growing appreciation of the value of this breed.

We made a mistake in our calculation about soiling this year, and it is very fortunate that the later growth of grass has been very good, and that we have been able to secure a good range. Last summer we planted fodder-corn until about August 10th, and the cold and drouth checked the growth of the later plantings, so that the crop was a failure, and our labor was lost. To be on the safe side, we this year planted all before July 20th—mostly before July 10th. The result is that all we now have left is

too far advanced to be readily eaten, and an experiment in feeding only this cut down the yield very materially, so that we have found the grass an indispensable resource. Of course, the corn now standing (about six acres) is very valuable for curing, so that there is no loss here; but it is clear that if we were to depend on this crop for the entire food of the cows we must run the risk of making one or two late plantings which might be of no use. This is a drawback to the system, but in spite of it I consider it a good system, and would on no account abandon it. Last year, in a severe drouth which cut the grass entirely short, we were making a fair amount of butter after our neighbors were very short indeed—simply because we had a good supply of corn-fodder. Whether soiling is adopted as the only reliance or not, it will pay every farmer who keeps cows (or swine) to secure himself against a grass famine by having a good field of corn-fodder. If it is not needed in this way, it will be worth many times its cost as winter forage.

When we commenced our operations we laid out a system of rotation of crops which was to keep most of the land always under the plow. The experience of the past two years has demonstrated the fact that Ogden Farm is "natural grass-land," and that for all other crops except corn-fodder and roots it is more or less unreliable. Such portions as have been put into good condition produce really remarkable crops of hay, and a simple top-dressing suffices to maintain the yield, while the soil is so heavy that for the successful growth of hoed crops it requires a large amount of manure to make it light and open enough. In time, when it is better stocked with the roots of grass (especially of clover) it will be improved in this respect, but now it is evident that grass pays much better than anything else. We are, therefore, seeding down all but about one fourth of the whole farm, hoping to raise on this fourth all the corn-fodder and roots that we shall need. An incidental advantage of this will be a decided reduction of the demand for labor in the field, and with a large herd of thorough-bred animals to clean and care for, the saving in this respect is very important. It is not pleasant to have to change plans which have been deliberately formed, but I confess that the labor question has conquered me, as it is pretty sure to do any farmer in this costly country, and I surrender at discretion. With as good facilities for getting labor as any one could wish, I find it the wisest plan to employ as little as possible, and to raise nothing that I can buy for less than the cost of raising it—as I nearly always can all kinds of grain. I can now safely calculate on a product of 100 tons of hay or its equivalent, 1,500 to 2,000 bushels of roots, and corn-fodder enough to furnish one half the summer feed for 40 head of cows and working animals. This is not a bad return from a 60-acre farm which five years ago would not produce the equivalent of 25 tons of hay, and was yearly growing poorer. It has been "a hard row to hoe," but it seems clear for the future, and under our system of cultivation the improvement can not fail to continue.

I am sometimes asked whether, if I were about to commence again, I would take such a worn-out and run-down farm. It would of course depend on circumstances. I would not do so unless (as in the present instance) the price of the land was very low, for it is far more costly to restore fertility than to preserve it. Other things being equal, I would rather pay \$200 per acre for land that can be depended on for two

tons of good hay at a single cutting, than \$100 for that which will produce only half a ton. The latter must remain unprofitable for some years, and will consume (in time and money and loss of profit) more than the difference of price before it will be as productive as the former.

There is a certain satisfaction in reclaiming worn-out land, but I am yearly more and more convinced that it pays better and gives much more satisfaction to farm land that does not need reclaiming. There are few soils now so rich that they will not make more improvement and pay better returns for the same amount of labor and manure than an exhausted and worthless one will. "The best first" is my motto. When the very best field of the farm has been so far improved that it will not pay for more improving, then go to the next best; but good land, like a good plow, is more profitable to work with than poor land, and should enjoy the concentration of our best efforts. When it is so rich and in such good condition that further outlay will not materially benefit it, then move on to another field; but don't spend money and time in draining and clearing a swamp for the sake of a half-crop, when the same expense will give a double crop on better land.

Jersey Cattle, and Scales of Points.

BY GEORGE E. WARING, JR., OF OGDEN FARM,
(Secretary of the American Jersey Cattle Club.)
(CONCLUSION.)

It is true that the Jersey breed has been made what it is under the influence of the Jersey Society's Scale of Points. It is by no means certain that if it is brought under the influence of a wiser scale it may not still farther improve. Opinions may fairly differ as to whether the Mackie scale is a wiser one, but it can not be assumed that perfection has already been reached, and that it is of no use to try for improvement. For my part, I think there are grave defects in the old scale, and that the fundamental theory of the new one is very good. If I hesitate to applaud its details, so far as I agree with them, it is because it seems the better course to invite further discussion, and to encourage all the suggestions that breeders may have to offer. It is surely safe to maintain that no perfect Scale of Points has yet been made, and that an intelligent discussion of the subject can only do good—never harm. It is therefore to be hoped that those who object to the Mackie scale will state not only the fact that they do object, but the reasons why they object. Only in this way can the best result be achieved.

Some of the reasons why I object to the old scale are as follows (for the sake of brevity, I give only the number of the article considered, following the list for cows on page 250 of the present volume): (4.) If "fine" means *small*, I doubt its fitness. I fancy the opposite, without knowing that it has any particular significance. (5.) This is not of sufficient consequence to count as much as (28) for instance. (7.) I think an examination of the best dairy cows would show that their ears are usually *large*, coarse, and hairy. (10.) Would prefer a "ewe" neck—hollowed out between the head and the shoulders. (11.) Not for a dairy cow; the thinner the better. (12.) Behind, yes, but not at the girth—the smaller the better there, if not out of proportion. (13.) This means beef rather than milk. (14.) Not essential, but comely. (15.) Beef, again, and rarely seen in a first-class Jersey butter-yielder. (16.) Doubtful, except for beef and beauty. (18.) Can it be too loose?

(22.) This generally accompanies large lungs, which a butter cow should not have. (23.) "Well-filled up" means *beef* again—the thinner and more delicate, the better for the dairy. (27.) Unimportant. These are some of the details. The worst fault of the scale is that the same value is given to non-essential as to essential points. It provides that a cow may be branded if she has 29 (out of 34) points, but not otherwise; consequently, a cow would not be disqualified for the highest honor if she was entirely defective in the items of udder, teats, and milk-veins, and had straight, coarse, thick horns; while a cow of the greatest excellence in these all-important particulars might be rejected simply because her cheek, muzzle, ears, eyes, tail, and hoofs were not up to the standard of beauty. It seems to me that this is an unanswerable argument in favor of a change in the scale. If Mr. Mackie's is not good enough to displace it, let us try again. I confess that I should be glad to have it adopted, at least so far as to secure its full discussion and improvement.

So much for the Scale of Points. The writer of the article under consideration says that what we know as "solid color" is popular in England "no doubt in consequence of its more aristocratic appearance." His arguments in favor of this coloring do not seem to be convincing. Aristocratic appearance does not depend on color nor on form, only on usage. If solid-colored animals are in fashion in England so are fat ones, and we can have no fault to find. What I especially desire is that, in this country, the aristocratic Jersey shall fill the niche—for which the breed is so admirably adapted—where the greatest beauty and the greatest utility shall go hand in hand. I have never seen a really good Jersey cow—a deep milker and a large butter-yielder—that was not also a beautiful cow. Those characteristics which indicate good dairy qualities—fine skin, silky coat, full placid eye, crumpled waxy horn, thin neck and shoulder, full flank, delicate limb, and fine udder—are beautiful in themselves, and are suggestive of a generous bounty of yield. Such a cow will attract admiration at first sight from every man or woman who ever fed on milk. It is sometimes necessary to have a *cultivated* taste to admire the aristocratic solid-colored cows whose black switches are flaunted in our faces as compensating for the heavy fore-quarters and light hind-quarters which such animals too often have. I have no sort of objection to the solid color, nor to the "black points," nor to any harmonious coloring that a cow may have. All I claim is that the fashion for these factitious distinctions has been started (in America at least) partly by men who are anything but practical breeders and dairymen, who are fledglings in the whole business of farming; and partly by cattle dealers who have sought to catch their fancy (and their fancy prices), and to encourage their fallacious notions, in order to palm off upon them animals which they have been able to buy at low prices here and in Jersey, because they had little else to recommend them but these "non-essential" qualifications. I have made a personal examination of a number of the "solid-colored" importations that have been sold at high prices on their arrival, and am convinced that if the arbitrary action of the Jersey Cattle Club had not placed a practical embargo on the traffic, the well-deserved and very promising popularity of the breed would have been utterly ruined in a very few years.

I repeat, and with emphasis, that I do not ob-

ject to the solid color. I only assert that most of the solid-colored animals that have been imported were imported because they were solid-colored, not because they were good cows; that neither in this country nor in Jersey do the best and most experienced breeders attach any considerable importance to the question of color; that the best cows (and the most beautiful) very rarely have the aristocratic marking; and that the cows which do have it are more often poor milkers than otherwise. Not because the color is detrimental, but because it has been sought, when sought at all, as a *primary* object, and the indispensable butter-producing properties have been relegated to a secondary position. It is not unlikely that many a bull which might have stamped a lasting improvement on this charming race has been slaughtered in his infancy because of white marks, to give place to a beefy, milkless brute who rejoiced his owner's eye with a black tuft at the end of his tail. Let us make our Jerseys as beautiful as we can, but, above all, let us not forget that "handsome is that handsome does," and seek first a full butter-tub, letting such other good things be added thereto as nature kindly sends us.

Tobacco Culture—The Harvest.

The reports that are now and then published of the large profits received from a crop of tobacco naturally excite in those farmers who are barely making a living a desire to engage in its culture. No one should undertake to grow this or any other special crop upon a large scale at first, as in the large majority of cases failure and loss are sure to follow. While it is true that growers have in certain localities made large profits by this crop, it must be borne in mind that there are few plants more directly affected by soil and climate than tobacco. The leaf raised in the Connecticut Valley is exceedingly poor stuff as tobacco, but it has a color and texture which adapt it to particular uses not found elsewhere. The Connecticut leaf is used for wrappers, on account of its fine, soft, and silky texture, while the body of the cigar is made from tobacco grown elsewhere, which, while altogether inferior in these qualities, is its superior in strength and flavor. Different sections of the valley only a few miles apart produce a leaf largely differing in quality and price. Besides these local influences that the novice must take into account, it must be remembered that there is no crop which demands more constant attention. From the day the plants are put into the field until the cured product is ready for market, it demands in every stage the greatest care, and the omission to do the right thing at the right time will result in the ruin or the great deterioration of the crop. If some tobacco-growers make money, it is only by unremitting attention to their business. As an illustration of some of the difficulties attendant upon the culture, we may state that one planter within our knowledge was obliged to set his field fifteen times before he could get a stand. Then comes a constant fight with weeds and insects, the last-named being often disastrously destructive.

One of our artists, who has been among the tobacco-growers of Connecticut, gives us some illustrations of the operations in the later cultivation and harvesting. The plant being grown solely for the leaf, it is treated in such a manner as to produce the greatest development of foliage. If left to itself, the plant, after having produced a certain number of leaves of a mod-

erate size, would throw up a flower-cluster, and prepare to produce seed. If allowed to do this, the leaves would be inferior in size and quality, so the moment the plant shows a "button," as

fully laying each plant upon the ground, the butts all one way, without breaking a leaf. When the tobacco is wilted it is then ready to be drawn to the barn where it is to be cured.

stick is pointed, to enter the socket of a sharp iron point, which serves as a needle with which to thread the tobacco upon the stick. The iron point is thrust through the large butts of the plants,



Fig. 1.—TOPPING TOBACCO.



Fig. 2.—SUCKERING TOBACCO.

the undeveloped flower-cluster is called, it is nipped off. This operation is called "topping" (fig. 1), and must be done with care not to injure the upper leaves. As the plants will not all be

Those who grow tobacco as a regular crop have barns erected for the express purpose of curing; these (fig. 5) are arranged with openings upon the sides and ventilators upon the roof, that can

which are shoved upon the stick one after another, until the stick is full. The number of plants put upon each lath will vary with their size, eight or nine being the usual number. This



Fig. 3.—CUTTING TOBACCO.



Fig. 4.—STRINGING AND LOADING.

in an equal state of forwardness, judgment is required as to the amount of top to be taken off. Being checked in its upward development by the topping, the buds in the axil of each leaf soon push and form shoots bearing small leaves, and these when the upper ones are three or four inches long are broken out, an operation which is called "suckering" (fig. 2). Being prevented from pushing upward by topping, and from producing side shoots by suckering, the whole energies of the plant are directed to the main leaves, which grow to a greater size than on plants that have not been subjected to these operations. In a few weeks the leaves attain their maturity, and are ready for harvesting. The precise time can only be determined by those familiar with the appearance and feeling of the leaf. Too early or too late cutting has an untoward effect upon the quality. Moreover, early frosts must be avoided, as a light frost will materially injure the crop and diminish its value. Cutting (fig. 3) is performed with a hatchet, the cutter beginning at the right of the row and working towards the left, care-

be opened or closed according to the weather or the condition of the contents. The internal arrangements depend upon the manner in which the tobacco is hung. There are several methods

operation is performed in the field (fig. 4), or the tobacco is loaded upon a cart, and carried to the barn, where it is put upon the laths. When it is done in the field, a cart is rigged for the purpose of carrying it, as shown in fig. 4. Supports are arranged within the barn, upon which the ends of the laths rest, and they are placed tier above tier until the barn is full. At first the laths are put far enough apart to allow sufficient circulation of air, and as the tobacco dries they are moved closer together, to make more room. The success of the curing will depend upon the weather and the proper management of the ventilation. After the tobacco is cured it is taken from the laths in a damp spell, and stripped; the leaves are assorted into different qualities and made up into bundles, called hands. The hands are then packed closely together in what is called bulk, when it undergoes a change or a

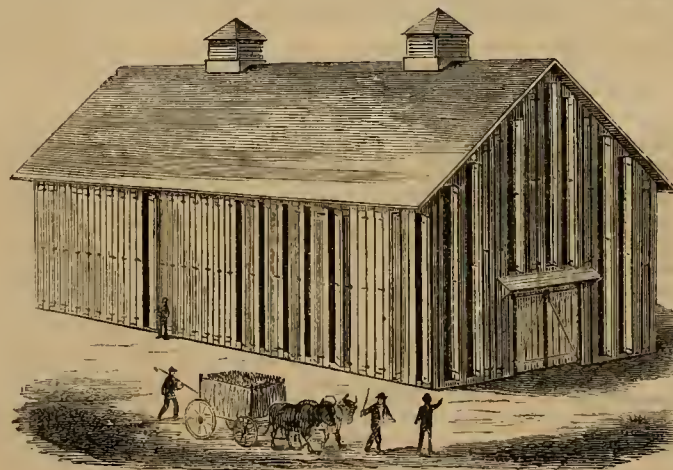


Fig. 5.—TOBACCO BARN.

of hanging, but we will describe the one most generally followed at present. A supply of strong oak laths or sticks is provided; these are about four feet long and three eighths of an inch thick and an inch and a half wide. One end of each

sort of fermentation, necessary to develop qualities which are not otherwise possessed by the leaf. After it has remained in bulk the proper time, it is put into boxes or casks for market, or, as is often the case, sold while in bulk.

Walks and Talks on the Farm.—No. 106.

Mr. Geddes has been to see me. He is almost as enthusiastic in regard to farming as our mutual friend John Johnston. It is a real pleasure to talk with such people. "When you get your south land drained," he said, "you will have one of the finest farms in the State." Thanks to the new drainage law, that will now soon be done. Nearly all opposition has ceased. Even the Deacon is now anxious to have the creek cleaned out and deepened and the low land drained. And Mr. Root has explained away his article, and says he had no intention of discouraging the drainage of swamps. He only thought it would not pay to *underdrain* them. He has a perfect right to his opinion in this respect. A farmer need not underdrain unless he likes. It hurts no one but himself. But opposing the opening or cleaning out of main ditches through swamps injures the whole neighborhood. One pig-headed farmer may completely block the efforts of a dozen enterprising men whose land lies above him. It is to meet such cases that our new drainage law was passed. It does no one an injustice. Those benefited by the work have to pay in proportion to the benefit; if any are injured they can recover damages. In our case, one man claims that we shall do him a great damage by draining five acres of his black-ash swamp. Another says that his land is now so dry in summer that the pasture burns up, and he thinks when the ditch is deepened it will produce nothing at all in a dry season!

Mr. Geddes was much interested in a tile-drain I am laying from five to six feet deep. The land on both sides is high and rolling, sloping down gradually to the drain. It has always been wet, and there was a shallow open ditch running through it. But while it carried off a large quantity of surface water in the spring and fall it did not dry the land. I have been gradually deepening this ditch, as I could get an outlet below. I also laid ten or a dozen lateral underdrains up into the higher land on each side. The ditch was a crooked one, and cut the field into a bad shape, and I finally determined to tile it and close it up. It has been a tough job. Many parts of the ditch were full of large stones that went down much deeper than I proposed to make the ditch. When these stones were got out we found water, and we cut the ditch deep enough to carry it off. To make a long story short, we found little or no water at four feet deep. The soil in some places was a tough clay. Underneath this we found, at the depth of five feet, a stratum of gravel, and the moment we struck it the water appeared. It was so full of little springs, that in a distance of eight or ten rods we found water enough *in July* to form a stream that would fill a two-inch pipe—and that requires more water than many people imagine. There was so much water that the men had to dam it up while working below, and in two hours it would flow over a dam eighteen inches high. This, mark you, was during a severe drouth, with the sun shining so hot in the ditch that the men could barely stand the heat. We put in the tiles and covered up the ditch, and the water continued to run through the tiles for two weeks, or until about the last of July.

The point that interested Mr. Geddes was this: At four feet deep we found no water, but when we got below the clay into the gravel we struck the springs. He thinks, and I quite agree

with him, that this one large, deep ditch will drain a great many acres of my farm, and do away with the necessity of laying so many lateral drains.

It is not exactly the Elkington system, because the drain itself is carried down below the clay into the porous and springy stratum. Elkington reached this stratum by digging a drain three or four feet deep, and then making holes with an augur down into the porous stratum—the water rising up through these holes into the drain. Elkington himself was wonderfully successful in draining extensive tracts of land in this way at a small expense, but since his day the system seems to have been pretty generally abandoned in favor of the "gridiron" plan of laying drains. So far as my farm is concerned, I do not think there is any necessity of laying down drains at regular distances apart. If I can get rid of springs and accumulated surface water (or water flowing from the high land into the valleys), I think there will be little necessity for drains to carry off the water that falls on the land in the form of rain. Of course, there are a great many farms where this is not the case. But I can not help thinking that many writers make a mistake in advocating a fixed system of laying down drains "two rods apart."

It was not a bad system in England, when the landlord found the tiles, and when it was thought better to create work for farm laborers at 25 to 30 cents a day rather than to force them "on the parish." But that day has passed, never I hope to return. In this country, at any rate, we can not afford to waste labor. We must exercise thought and good judgment in planning our drains. I have no sort of doubt that in England, and wherever the "gridiron" system of drainage is adopted, a pretty high percentage of the drains are useless.

I said Mr. Geddes is an enthusiastic farmer. He has faith in good farming.

"If I was ten years younger," he said, "I would go to Michigan and buy two thousand acres of good wheat land. I would hire men and clear it up, and make the necessary fences and improvements, just as I would build a railroad or make a canal."

"But would it pay?" I asked.

"There can be no doubt about it," he replied; and went into figures to show how he could make the interest on over one hundred dollars per acre. He would raise wheat and clover, and keep sheep. He thought land newly cleared, and with the stumps still standing, might be kept in grass and pastured with sheep, and pay the interest on one hundred dollars an acre.

For my part, I always distrust estimates in regard to the profits of farming, especially where the work has to be performed by hired men, but I was nevertheless pleased to know that Mr. Geddes had such faith in the profits of wheat and wool growing. A man who has lived all his life on the farm where he was born has a right to speak on such a subject. I felt quite cheered by his visit, and encouraged to go ahead with my improvements.

I spent last week in Canada. The winter-wheat was represented as a failure, but the spring-wheat, much of it (Aug. 15th) still in the field, is a capital crop. The straw was stiff and bright, and the heads well filled. With here and there an exception, I am not sure that the Canadians are any better farmers than we are. There, as here, many of the farms are evidently

running down. The weeds are getting possession of the land. The low price of produce and high wages are pleaded as an excuse for not employing the necessary labor to keep the crops clean. Turnips are much more extensively grown than with us. It is quite evident that there is nothing in the climate to prevent us from growing good root crops. One farmer who had a field of splendid mangels said the same land was in mangels last year, and would be put in mangels next year. He thought the crop, like onions, did better when grown year after year on the same land. This year he used no other manure except salt, ashes, and plaster. He has great faith in salt as a manure. He says he can put enough on the land to destroy the weeds without any injury to the mangels. He gets damaged salt for about \$4 per ton, and uses it freely on wheat and barley. He thinks it a sure preventive of rust on spring-wheat, sown broadcast at the rate of from three to four hundred pounds per acre.

Mr. Straub, of Hagerstown, Md., writes me that for the past two years the clover crop has proved almost a total failure, owing, he thinks, to the long-continued dry weather. "Now you will see at once," he says, "this leaves us in a bad shape for hay and pasture. For hay I shall rely largely on my oat and barley straw, which I find my stock quite fond of. I will also cut my corn-fodder with a horse-power and cutter, which makes it better suited for easy digestion, and the rejected portion passes into manure to better advantage." This is an excellent plan. If either wheat, barley, or oat straw is bright, and has not been exposed to wet weather, it makes excellent fodder for sheep; but they should have some grain with it, say from half a pound to one pound for each sheep per day. If bran or fine middlings can be obtained at reasonable rates it makes excellent food for sheep, and also valuable manure. Two bushels of cut straw (say 14 lbs.), a peck of bran, and six quarts of corn-meal per day is an economical and nutritious food for a horse. The corn-stalks are best for cows, but I would give each cow two to three quarts of corn-meal per day with them. To use up our straw and corn-fodder to the best advantage we must feed more or less grain. On farms where straw is abundant, grain and straw together are a cheaper and better food than hay.

"To meet the lack of clover," Mr. S. continues, "I will sow 20 acres of ground, now in corn, with rye, for the purpose of getting early pasture to carry the stock until my other grasses take its place; then let the rye grow until it is eighteen inches or two feet high, and then put a chain on the plow and turn the rye under for a wheat crop. What think you of the plan, and how does rye compare in value as a fertilizer with clover?" As a renovating crop, clover is far superior to rye. Rye is a good crop to grow for early pasture for sheep, but so far as my observation extends its growth and consumption on the land add little or nothing to the fertility of the soil. I should as soon think of growing wheat to turn under as a manure for wheat as to grow rye for this purpose. Still, I may be mistaken.

Mr. James M. Budd, of Cecil Co., Maryland, also writes me in regard to the failure of clover in that section. Such a drouth, he says, has never been known there before. "Wells all dry or deepened." The same thing is true here. I have had to drill three of my wells down into

the rock from 12 to 20 feet. Mr. B. says he sowed seven bushels clover-seed on 35 acres of wheat, but it did not catch, and he is now plowing the stubble to sow to wheat again. His wheat this year was badly injured by the Hessian-fly, but his crop nevertheless was two thirds of an average, or 15 bushels per acre. The weather was so dry that the wheat cut off by the fly filled as it lay on the ground without damage. One fourth of his crop was rakings. He got 160 bushels from the first raking, and 30 to 40 bushels the second time. "We ordinarily raise straw," he says, "five to six feet long, and get no wheat. This year the straw was not over three feet and well headed, and although very thin on the ground gave us two thirds of a crop. Tell us why it is so." On rich land wheat always does best in a dry season.

Mr. B. says he uses 60 bushels of slaked lime per acre every four years. He sows it on the clover after the wheat is harvested. He says he would pay 30 cents a bushel for the unslaked lime if he could not get it cheaper. It costs him 20 cents a bushel, which, as one bushel in slaking makes about two bushels, is equal to 10 cents a bushel of slaked lime, or \$6 per acre. "Try it," he adds, "it will pay you better than anything you have ever used." I have never used lime on clover, and the plan strikes me very favorably. Here, plaster (sulphate of lime) is quite cheap, and is our main dependence for increasing the growth of clover, and thus ultimately enriching the land for wheat.

J. A. Clark, Jefferson Co., Wis., writes: "We have always grown spring-wheat here, and are this year harvesting about *five bushels* per acre. Don't let the Reports from the Agricultural Department fool you. There never has been so poor a year for spring grain in Wisconsin as the present." I am very sorry to hear it. I know the winter-wheat is very generally a failure. In this section the wheat on thrashing turns out far worse than we expected—and we did not expect more than half a crop. I was in hopes that the spring-wheat would turn out well. If it does not, we shall see high prices for wheat before next harvest.

I do not believe the climate is changing, or that the seasons are any more unfavorable than formerly. I question if Western New York ever produced a better crop of peaches than this year. And I can imagine horticultural writers thirty years hence in the twentieth century telling what magnificent crops of peaches we used to grow here when they were young men. They will forget or say nothing about the many years when we have scarcely a peach.

A young friend of mine went to Illinois some years ago. He bought a farm for a few dollars per acre; put in forty or fifty acres of wheat the first year, and got 30 bushels per acre, and sold it for \$1.50 per bushel. "And that crop ruined me," he said. "How so?" I asked. "I have been trying to do the same thing again ever since, and this year scarcely got my seed back."

The truth is, there have always been good seasons and bad seasons, and will be until the end of time. He is the wise man who understands this, and acts accordingly. I should not like to go to sea with a captain who expected nothing but fair weather. I have little respect for any man who hopes to get good crops without labor. I do not think such a man

would succeed any better in a shop, or store, or factory. But be this as it may, he certainly can not make a good farmer until this kind of nonsense is driven out of him. Wet springs and dry summers, rust and insects, weedy land and poor wheat, floods and hail, milk-fever and floating cards, footrot in sheep and sickly lambs, colic in horses and hog-cholera—one or all will pay him a visit, and urge him to think, and work, and plan. If anything can make a man of him, it is farming. It can not be said, however, that farmers do not work hard enough. The great trouble is that we undertake to do too much. But I think this fact is now fully admitted by all intelligent farmers, and I feel confident that a great improvement in our agriculture will soon be apparent. The weeds, if nothing else, will compel us to cultivate the ground more thoroughly.

Peart, the butcher, was telling me to-day that this spring he bought two lots of grade lambs from two farmers, with the privilege of taking them "when fit." Both lots when he bought them were equally good, and both had good pasture; but one lot had constant access to water, and the other had not. The former grew finely and got fat, and by the middle of August weighed from 60 to 70 lbs. each. The latter only weighed from 40 to 45 lbs., and were so thin that he could not kill them. It seems passing strange that any one should expect cows to furnish milk for their lambs during our hot summer weather without water.

The people in England are holding meetings to see if nothing can be done to lower the price of meat. All we can do to help them is to send them plenty of cheese and pork. Our exports of bacon, hams, lard, and pork to Europe for the past few months have been and still are enormous, and must soon it would seem put up the price here to something near the cost of production. A year from this time the indications are that there will be a great falling off in the number of pigs.

I think the farmer who has fall pigs will do well to keep them and take good care of them. A year from now they will be wanted. I believe in the West it is thought that fall pigs are not as profitable as spring pigs. But with me I can make cheaper pork from *early* fall pigs than from spring pigs. The great point is to keep them well through the winter. If well wintered, they will keep fat on clover during the summer, and a very little corn in the fall will make them ready for market.

My plan is to give my young pigs all the cooked corn-meal, with a little bran, that they will eat and digest until they are four months old. After that I aim to keep them on cheaper and less concentrated food. There is nothing better than clover. In this way pork can be produced at a comparatively cheap rate.

The Hatching of Eggs.

There seems to have been something abnormal in the condition of the atmosphere or of the hens last spring that prevented successful incubation. The complaint of bad luck is very general, or the unlucky ones have reported more generally than usual. It comes not only from novices, but from poultrymen of orthodox standing, who could count their chickens, as they thought, before they were hatched. "Connecticut" thinks *the* trouble lies in the prevalent

custom of crowding hens into small yards, reserving nineteen reasons until this shall have been proved insufficient. "Ohio" thinks this can not be the cause, inasmuch as many hens in small yards hatch triumphantly, while some hens running at large make an entire failure. Another very plausible theory attributes the cause to the uncommon dryness of the month of May and the early spring. Some breeders who practice sprinkling the eggs every other day when the hen comes off to feed, succeeded as well this season as in any former year. It may be doubted whether this theory has any sound basis. The hen left to herself does not wet her feathers, and her eggs do not get wet during incubation. Her first impulse on leaving the nest is to roll in dry dust, and the drier the better. The thunder theory is no more reasonable. Hardly a season passes without thunder in the spring, and yet the eggs hatch. There was no unusual display of electricity this season. With all the shortcomings of the hens from whom we have heard, we suspect that the great majority of quiet non-cackling birds have had about the usual success in hatching, and that the price of poultry, except among the amateur breeders, will not be affected the value of one mill in the dollar by any peculiarity of the hatching season. As to the fancy breeds, we suspect there has always been a slight discrepancy between the chickens counted before and after hatching, and that narrow quarters is likely to increase this difficulty. *

Road Fences.

One of the admirable features of the landscape in the new States and Territories is the freedom from fences. In some of the prairie States they have begun right by compelling every man to take care of his cattle, and holding him responsible for all damage to his neighbor's crops. The fences mainly are on the boundary lines of farms, and these are often omitted. This gives full sweep to all the modern implements of husbandry—the cultivator, the horse mower and reaper, the tedder—and prepares the way for the steam-plow, which can not be far in the future. There is a great saving of time in the cultivation of large fields free from all obstructions. One great want of Eastern farms now is to get rid of the heavy walls that our fathers have built at so much expense. The two, three, and four-acre fields want to be thrown together, and the fields arranged with reference to the system of rotation to be pursued upon the farm. If it is a four-years course, quarter that part of the farm that is to be devoted to tillage, simply marking the corner bounds with permanent stakes or stones. What, then, is to be done with our cattle? On the frontier the neighborhood make one herd of their cattle, and a boy or herder takes care of them at so much per head. They are fed upon the public lands. In the older States pastures are already inclosed, and these need not be disturbed until the tillage land is arranged. In cases of radical reform the remedy is found in soiling. Arrange the barn with reference to keeping all the cattle in stalls the year round, and to making the largest amount of fertilizers possible. This is what we are coming to in the Eastern States. If we compete with the West successfully, we must put our fences out of the way, use more machinery, make more manure, and cultivate the products consumed in our own markets. A farmer should be able to tell what crops are grown at a profit, and what bring him in debt. C.

A Muzzle for Crib-biting Horses.

Crib-biting and wind-sucking are vices to which a great many horses are addicted, and

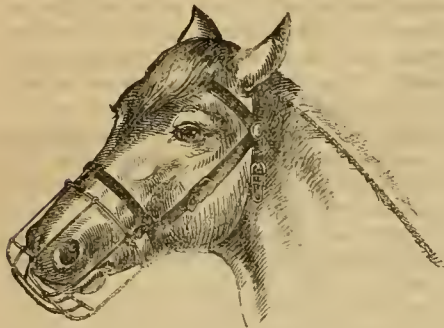


Fig. 1.—CRIB-BITER MUZZLED.

which are incurable by any means except mechanical ones. There must be either something to prevent the horse seizing the crib or post with his teeth, or everything must be removed from his reach by means of which he can exercise his vice. All the methods which have been tried heretofore, by rubbing acrid or distasteful matters on the crib, have not been successful, as they are rubbed off and are not permanent. But a muzzle such as we figure on this page is effectual if properly made and rightly fitted on to the head-stall. It is made

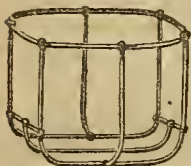


Fig. 2.—MUZZLE.

of quarter-inch galvanized iron wire, with interstices sufficiently large to allow the horse to reach his feed without difficulty, so that it may remain permanently attached to the head-stall and will be always in use. This is the greatest requisite to success in the way of cure. When the horse attempts to seize hold of anything with his teeth he is prevented from so doing by this muzzle, and after some few attempts he will abandon the labor as an unprofitable one.

How to Empty a Cesspool.

The cesspool is the great domestic difficulty; and to judge by the numerous inquiries which come to us as to how to manage them, the difficulty would seem to be a very general one.

It is one to be met and overcome, for by lapse of time the trouble increases. Probably the most serious part of the difficulty is that which is least observed, and consists in the danger to health and life in infecting the air we breathe and the water we drink with poisonous germs, which are imperceptible to any of our senses, and therefore the more seriously dangerous. Deodorizing is not always disinfecting, and the presence of the most destructive poison may be quite unsuspected in the atmosphere or in fair-looking and sweetly-tasting water, but yet it may be there. This matter is gradually becoming better understood, so that the peculiar class of diseases arising from the presence of contamination of this character is looked upon as avoidable and disgraceful, as much so as the cutaneous diseases caused by personal uncleanness which years ago carried no such significance with them. No cesspool can remain within a distance from a house or well that is convenient for its use without the greatest danger, or the certainty of disastrous effects sooner or later. It is time now that this old-fashioned and barbarous plan was abolished. No deep cesspools

should now be made, for we know better, and know, too, how to do without them. The closet and the receptacle should be altogether above ground, and should be arranged in such a manner that the deposits can be removed easily every few days. Such a closet may be built in the form illustrated on this page (fig. 1). The size or material of the closet may be whatever is convenient. The needed things are those appertaining to the system itself. These are the receptacle, which may be a box on wheels (as shown at *a*), the door (*b*), which closes in the space beneath the seat (*c*), and opens upwards to permit the removal of the box for the purpose of being emptied. The earth-chest (*d*), provided with a scoop, and which contains a supply of pulverized dry earth, to be filled in through the door (*e*), which opens on the outside. These parts are all that is necessary to the successful application of the new system, and in the majority of cases existing buildings could be modified to suit it.

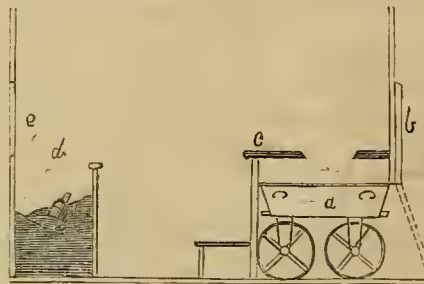


Fig. 1.—EARTH-CLOSET.

But how to get rid of our present accumulations is the more serious question. Utilize them. And do so in the following way: Remove the building. Draw to the spot several loads of earth from a plowed and harrowed field. Throw into the vault a sufficient amount of this earth to solidify the upper part of the contents. Then with the scoop shown in fig. 2 take up the mixed soil and earth and deposit it in a heap or into the box of a sled, by which it may be immediately removed to a convenient spot for use as manure. Then throw in more earth, and repeat until the bottom is reached, when the old vault may be filled up with stone or gravel. The scoop is made of sheet-iron, bent into the shape of a double shovel, so that it may be operated at either end; it is suspended on to a common bail of stout iron rod, which

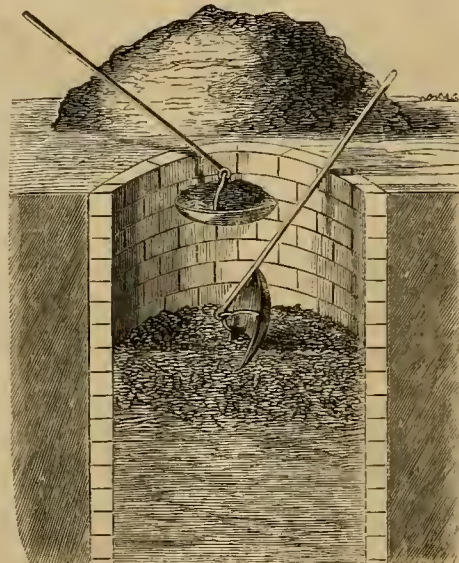


Fig. 2.—CLEANING OUT A CESSPOOL.

is affixed to the end of a pole or staff by a ring on which it oscillates. When it is thrust into

the earth and soil one edge engages with the handle (as is seen in fig. 2), and it works similarly to a shovel. As soon as it is drawn up, it swings suspended, and balances itself without spilling its contents. By this process this objectionable job may be performed without any unpleasant effects, and should the earth not sufficiently deodorize the soil of the cesspool, a few pailfuls of water in which 1 lb. of copperas to the pailful is dissolved, will effectually accomplish it.

To Make Cider-Vinegar Rapidly.

"J. B. W." writes that he has several casks of cider which he can not make into vinegar fast enough, and he asks how he can hasten the process. As there are probably many others just now in his predicament, we describe and illustrate a plan which has been found to decidedly hasten the production of vinegar from cider. It is to elevate the barrels upon a frame sufficiently high above ground to admit of a keg being placed under the faucet, with a frame of laths made in the shape of a funnel placed in it. The frame is loosely filled with beech or birch shavings, and a stream of cider is allowed to run out of the faucet into it and amongst the shavings. Here it is separated into a great many small streams and very thin sheets, and a large surface is thereby exposed to the air, and the process of souring is very much hastened. A further hastening is caused by putting into the barrels a piece of brown paper covered with brewer's yeast, and by proceeding in this manner vinegar can be made in warm weather



QUICK VINEGAR-MAKING.

in a few days. A faucet should be put into the keg about the middle, and as the keg becomes filled the cider should be drawn off and returned into the barrel. As a matter of course this requires attention, but a child is able to manage it, and if the keg is replaced by a tub or half-barrel, attention is only required twice a day. The bung-holes of the casks should be open, and should be covered with a piece of gauze or mosquito-net to keep out flies and moths. The whole arrangement is shown by the cut above.

Lap-Streak Boats.

To judge by the number of inquiries as to how to construct boats of various kinds, we should suspect that many farmers or farmers' boys do manage, in the midst of their hurried work of plowing, sowing, or harvesting, or so soon as it is over, to get some share of recreation. Those who have lately desired directions for building skiffs or boats for hunting in shallow water, will find them in full in the *American Agriculturist* for August, 1871, page 297. We now, in compliance with numerous requests, give directions for building lap-streak keel-boats, suitable

for rowing or sailing in deeper water, and which may be made of any suitable size. The proportions to be observed in building these boats is a length equal to four or five times the width; the greater width being adapted for boats to be used with a mast and sail. The first requisite is to lay the blocks, on which the boat has to be built, at a sufficient height to enable the work at the bottom to be done conveniently; the next to procure and lay the keel. This should be a piece of sound white oak, six

inches wide and two inches thick, perfectly true, and free from any twist or spring, and should be dressed down to an inch thick at the bottom, and be grooved at the top to receive the edge of the first streak or board. It should be clamped on to the blocks or trestles by side-clamps or

the boat in those parts. They will be somewhat of the shape shown in fig. 2, but will vary as the shape of the boat may vary. Possibly the first boat built may not have the most desirable lines or shape, but the next one can be brought

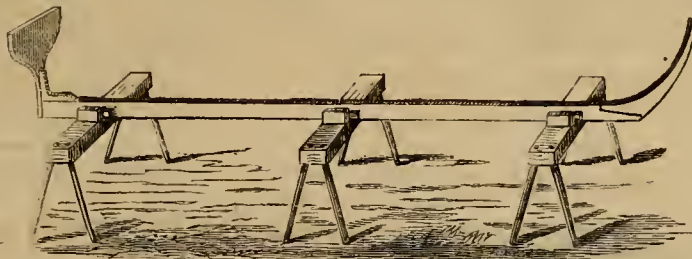


Fig. 1.—LAYING THE KEEL AND ATTACHING STEM AND STERN.

into more perfect form by making changes which will occur during the first experiment. It is not to be supposed that directions can be given here, sufficiently minute to enable any one to construct a perfectly handsome model of a boat at the first attempt, but if these directions are

followed out as nearly as may be, the probability is that the second attempt will be pretty satisfactory to any but a very fastidious boatman. With practice comes perfection. Then we proceed to the laying on of the streaks or boards. These should be of very good, clear stuff, free from shakes,

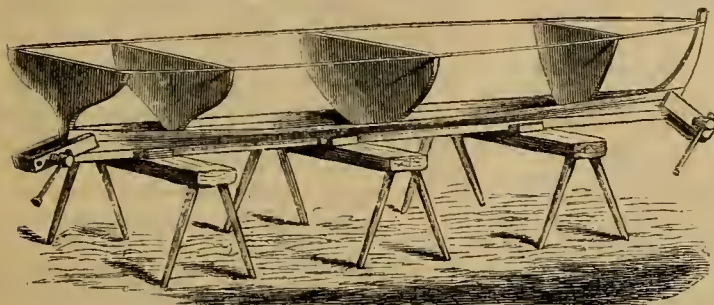


Fig. 2.—MOLD FOR BOAT.

pieces spiked to the blocks, and the keel-piece is firmly held by means of wedges which can be knocked out when the boat is finished, and the keel released. The stem of the boat may be of ash or elm, naturally crooked, or sawn out to a proper curve, and should be mortised into one end of the keel and fastened with two copper bolts, which will not rust. The stern should then be cut out of a piece of ash or yellow pine to a proper shape, and be firmly fixed on to the keel by means of a knee, as shown in figure 1. This engraving shows the blocks or trestles, the keel, and the method of mortising the stem and stern to it. In addition to the knee a metal strap may be used, to firmly unite the keel and stern together. All these joints should be made water-tight, by means of a piece of brown paper soaked in pine tar placed between them, and should be firmly secured by screws or screw-bolts and nuts. Then the mold should be made and fixed lightly to the keel, as it must afterwards be removed. This consists of three or four boards, as shown in fig. 2, cut to fit the shape and size of the boat, the center one being of the width the boat is desired to be. The width across the

and of the very best of soft white pine, or spruce, or cedar, for here is where strength and lightness are wanted. They should be sawn half an inch thick, and should be dressed down to three eighths. They need to be cut of a peculiar shape, to fit the curve of the boat, and this shape may be got by first clamping the streak into its place with the clamps shown in fig. 2, and marking with a pencil where the edge of the streak should come, and cutting sufficiently far away from the mark to allow for the lap, which should be at least half an inch, but not much over. The first streak should be made to fit closely in the groove in the keel, and be firmly nailed all along. There should be no nails driven into the mold, as they would leave holes to be afterwards filled up, and damage the boat. The boat is built up regularly on each side, and care must be taken that the mold is exactly the same on each side and the streaks are laid on of exactly the same width and thickness. The boards should be fastened with boat-nails, which are made so that they can be driven without splitting the boards,

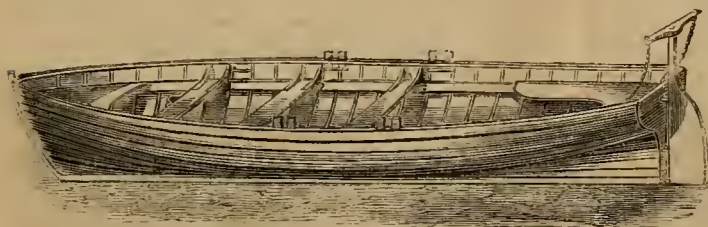


Fig. 3.—BOAT COMPLETED.

center of the boat is called the beam, and the amount of beam desired regulates the size of the mold. The mold gradually tapers towards the stem and stern, to suit the shape of

and are of very soft metal, so that they may be clinched on the inside. The clinching should be done on the inside with a light hammer, a heavy one being held on to the head of the nail

outside, and if burrs are not used, the point of the nail should be turned and bent sideways, and made to enter the wood on the lap. If the boards are found difficult to bend into the abrupt curves at the head and stern, they may be greatly softened by steeping in boiling water, when they should be clamped in their place until dry, and when cold can be easily nailed and secured. When the sides are completed, the ribs may be put in. They should be made of tough white oak, and should be steeped in water until quite pliable, when they may be bent into their places and nails driven through the boards into them; here and there some longer nails should be passed right through and clinched. The ribs should be an inch square, or if the boat is heavy may be an inch and a half wide. There should be several short ribs, coming half-way up the sides of the boat, fastened between the other ribs, to strengthen the bottom and to furnish a place on which to rest the foot-boards. All these ribs should be firmly nailed or screwed to the keel. The thwarts or seats should rest on a narrow streak fastened inside the boat to the ribs, but if permanently fixed, might rest on small knees, made of the roots of small tamaracks or cedars, which are attached by small bolts to the ribs at a convenient height for the seats, or not less than ten inches. The gunwale is made by laying a streak two inches wide all around the inside of the boat at the upper edge, and it should rest on the ribs and be of the same thickness as they are. Another streak is laid around the outside, which may be ornamented with a molding. Any other fittings, as lockers, or boxes, or ring-bolts, may be put wherever they are desired, and the rowlocks are the same as in any other boat. The rudder for steering is hung on the center of the stern, and is worked either by means of cords, which is the most convenient, or by means of a tiller. The cords may be affixed to arms fastened to the rudder-head. If

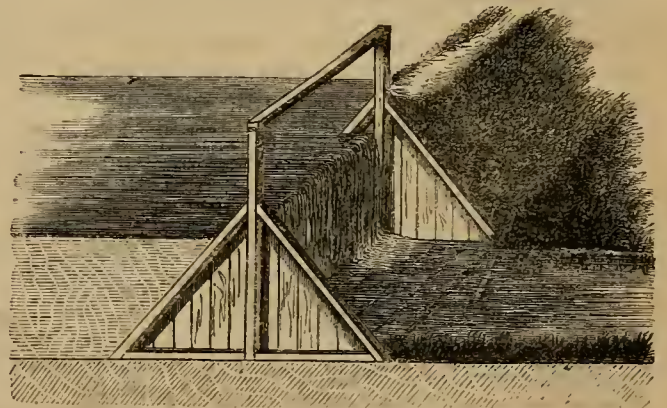


Fig. 1.—DAM AND WASTE GATE.—(See next page.)

a mast is desired, it may be stepped into a piece of two-inch plank, fastened in the forward part of the boat to the keel, and in which is a hole to receive the foot of the mast; an iron strap which receives and embraces the mast, is affixed to the front of the forward thwart or seat. The cut of the complete boat (fig. 3) shows all these little details. It is advisable to brush over the inside of all the joints of the streaks with the stem and stern, before nailing them, with white lead, that they may be made water-tight.

Dams and Ponds.

The building of dams is a work that needs care and skill, or the labor is very often thrown away. The difficulty of making a simple and tight dam, often prevents the use of the water

of a stream for irrigation, or for ponds which might supply a stock of ice for a house or dairy, or for several of them. We are only now commencing to learn the value of the streams which traverse our farms, and which might be made to do duty as water-powers for churning or thrashing, for fertilizing meadows, for supplying ponds, for ornament, or for furnishing ice.

But before the streams can be thus used, it is necessary to build the dam. It is a rule in all sorts of engineering work, from the making of a simple pond-dam or a hill-side road, up to the building of railroad or other large embankments, that an old surface and fresh earth do not bind or adhere together well. A want of knowledge of this fact frequently leads to dams being leaky at the bottom and their early destruction. It becomes necessary, then, first to make the foundation by removing the surface, and more particularly so if the surface is sod, or rough swampy ground covered with tussocks or coarse grass. It is best therefore to excavate a narrow ditch where the center of the dam is to be, and throw the earth outside of it. If there are sods, they should be reserved to finish off the slope by planting fragments of it here and there, which by and by will spread until they meet and completely cover the surface. If musk-rats are to be feared, it will be necessary to drive stakes down in the center of the trench, and fasten to them hemlock boards or planks, which will prevent the animals from burrowing through the dam, and also will have the effect of greatly strengthening it. Then the trench should be filled with clay or stiff loam well tramped down, and packed by having water thrown on to it, until a ridge the height of the finished dam is made. Then on the inside (but not on the outside) fine brush may be laid and covered with earth well worked down, and two or three layers may thus be made. In case of a freshet or of water washing against the dam, this brush will tend very much to bind and strengthen it. The back of the dam may be built up of stone or coarse gravel, but nothing but the most closely-binding and compact materials should be used for the front and the center. Figure 2 shows a section of a dam thus built, the trench

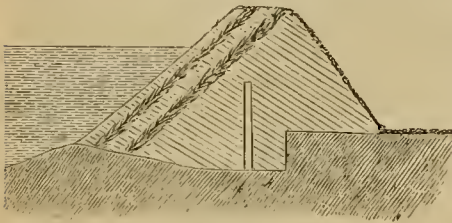


Fig. 2.—SECTION OF DAM.

with the plank in the center, and the layers of brush worked into the front.

The weakest part of a dam is very apt to be where the waste-gate is built in, but if this is properly done there will be no trouble. There should be a framework made, consisting of two parts, one for each side of the gate. Each part consists of a post mortised into the mud-sill, and two braces mortised into the sill and the post, as in fig. 1 (page 377). The ends of this frame are boarded up on the inside. The boards rest against cleats, which are spiked to the sill and braces to prevent them from being forced inwards by the pressure of the earth. The sides of the gate are kept apart by means of the plate at the top of the posts and the planks at the bottom, on which the falling water is received to prevent washing out of the bed. The gate itself consists of planks cut to a length to fit the frame and to lie loosely against the up-

right posts, where they are held by the pressure of the water. They can be easily removed or lifted by means of a bar whenever the water is to be lowered or run off, and the water may be kept at any desired height by the arrangement of these boards. In setting the gate-frame, care must be taken to fill in around the bottom and the sills with clay, so that no water can escape.

The Lactometer.

The lactometer, or instrument by which the quality and value of milk may be measured,

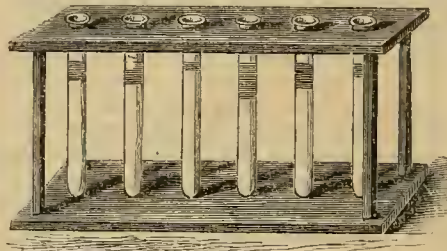


Fig. 1.—RACK WITH TUBES.

should be used by every farmer who owns more than one cow. Where there are but two, it becomes a matter of interest and curiosity to know which one is the better, and where there are a dozen the probability is that there will be found one amongst the lot which is not worth keeping, and she can not easily be detected without experimenting on her milk with the lactometer. One of the first requisites to an improvement in our dairy stock is a simple means of detecting those which are unprofitable to keep, and by getting rid of them as soon as possible preventing the perpetuation of poor stock. It is only by breeding from our best cows by means of bulls descended from dams which excel in the quality of their milk that we can hope to improve our dairy stock; and that our stock needs and is susceptible of vast improvement is plain to those who know how poor is the average product of our cows. We very rarely think of the fact that the average yield of butter in the United States is only a quarter of a pound per cow per day, or of milk only four quarts. The discovery of these poor cows, by which the average is so much reduced, and their separation from our herds, depend on the use of some such instrument as is here proposed. It is simply and easily made. A frame consisting of a lower and an upper platform with supporting columns at the corners is made; holes to receive the glass tubes are bored through the upper platform, and the tubes are common glass test-tubes, which may be procured from or by any druggist. The tubes should be divided by marks made with a common file into ten spaces of equal size. The spaces or degrees may be one inch in length, in which case the tubes should be eleven inches long; or the divisions may be half an inch apart, in which case

the tube should be six inches in length. Fig. 2 shows the tube graduated into spaces.

When filled to the uppermost mark with milk free from air-bubbles or foam, the tubes are suspended in the frame, and are to be kept undisturbed for a determined length of time, and the amount of cream which has risen is then noted, when it may remain longer to note any further rise of cream, or the separation of the whey from the curd if it is desired to test the amount of whey or water or solid matter or curd in the milk. Those lactometers which test the quality of milk by its specific gravity are often incorrect and fallacious, as the richest milk is of the lightest specific gravity, and is not to be distinguished by such a test from watered milks.

The exact percentage of cream may be ascertained by dividing the upper spaces into tenths. Each tenth would represent one hundredth part or one per cent of the whole milk. Thus, if the cream occupies five of the small spaces, there is five per cent; if one large space, there is ten per cent; and if one large space and two small ones there would be twelve per cent; two large spaces would give twenty per cent of cream.

As one quart of pure cream will make a pound of butter, the value of each cow as a butter-producer is readily ascertained, for if she should yield 10 qts. of milk of which ten per cent or one tenth is cream, she may be expected to produce one pound of butter per day, and so on.

Editorial Correspondence.

[This letter from our associate should have appeared earlier, but its facts are as interesting at one time as another.—Ed.]

DENVER, COL., July 10th, 1872.

SLAUGHTERED BUFFALO.—Is it not about time that the indiscriminate slaughter of the buffalo was stopped? We counted in plain sight from the cars at Buffalo depot 125 carcasses and skeletons of buffaloes in various stages of decomposition. This station is about the center of the buffalo range, and for a long distance east and west on the railroad the work of destruction goes steadily on the year round. Here our royal guest Alexis came last winter, and is said to have slain forty of these animals. Sports from the Eastern cities, rich men's sons in search of new sensations, merchants and bankers on vacation trips, European travelers doing the Western Continent, stay over a few days on the plains to chase buffalo. Men who make a business of hunting live at the stations, and kill all of this game they can. They thoroughly understand the habits of the animal, know how to approach him, and just where to send the deadly bullet. They are by far the most destructive of any class that hunt buffalo. A large portion of the fresh meat consumed at these stations is furnished by them, and in the winter buffalo hind-quarters, with the skin on, are shipped in immense numbers to New York and other Eastern cities. The meat in its season is about as cheap as beef in these city markets. It is estimated that a hundred thousand buffalo are slain annually in this region. Since we were here last year a new traffic has sprung up of considerable importance. We saw at Bunker Hill, Fossil, and other stations, immense quantities of bones brought in from the adjacent prairies to be shipped East for the manufacture of bone-dust and phosphates. As they are found everywhere in abundance, and bring about twenty dollars a ton in market, it pays very well to gather them. Besides the meat sent off in

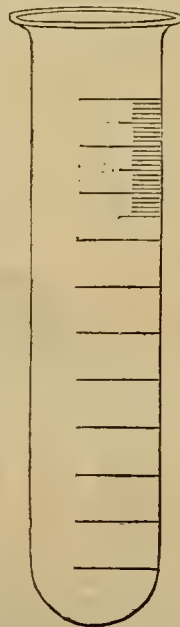


Fig. 2.—GRADUATED TUBE.

the fresh state, large quantities are dried and sent to market. The hams properly cured can hardly be distinguished from beef hams. At Grinnell there are two large turf houses built for drying buffalo meat. There is so little moisture in the atmosphere, that the meat keeps for several days, even in summer, and much less salt is needed than would be necessary at the East. We saw and tasted the sun-dried article at Buffalo. It was cut in thin slices, strung on small wands, and hung upon poles to cure. It is no doubt a wholesome and nutritious diet for hunters and Indians, but the civilized world, we apprehend, loses little in the entire absence of these flitches from its larder. The buffalo does good service upon the frontier in furnishing the settler with meat until he can raise domestic animals for himself. And it is for this reason mainly that we put in a plea for his prolonged existence. We have no sentimental admiration for the beast, no faith in his adaptation to civilized wants, or in the superiority of his robes to good woolen blankets, no craving for his flesh in comparison with good Shorthorn steaks. We have no confidence in the efforts made to cross him with our domestic animals, and believe the hybrids will be decidedly inferior to the breeds we already have, whether we breed for milk, butter, cheese, beef, or working cattle. We have no doubt that the buffalo, and the nomadic tribes that chase him over the plains, are doomed, but we need take no special pains to hasten the decree of Providence.

Our pioneers want meat in the first few years of their settlement, and there is no good reason why the idlers and the rich men from our Eastern cities should take it from their mouths. There should be a close time for the buffalo as there is for the deer and other large game—six months at least, including the breeding time—in which it shall not be lawful to kill them in any part of our territory. Our sporting clubs in the East could not do a better thing than to memorialize Congress upon this subject the coming session and secure the necessary legislation. As the general government has military stations as well as civil officers all through the buffalo country, it would be easy to enforce such game laws as are needed.

WINTER GRAZING.—We took a good deal of pains to ascertain the facts about the destruction of cattle in this region the past winter. It is admitted by all the drovers to have been a winter of unusual severity, and the losses have been above the average. The best evidence that these losses were greatly exaggerated in the reports made to the papers is the fact that the popular faith in the profit of keeping herds is not at all shaken. The fact is that the business of grazing was never more prosperous. The old herdsmen are steadily enlarging their herds, and new men are investing their money in Texas and other stock as if nothing had happened. Over 45,000 head of cattle, in herds of from 2,000 to 6,000, had arrived at Ellsworth as early as the first week in June. The herds are numerous near the railroad, and are said to be still more abundant in the river valleys a few miles back, where the grazing is better. In conversation with a gentleman yesterday, who had wintered his herd near the foot of Long's Peak, he admitted a loss of only three per cent. In Southern Colorado, where little snow fell, the cattle grew fat and the loss was insignificant. In Northern Colorado, where the snow fell in November, the loss was large, in some cases reaching three fourths of the herd. The loss also among sheep was very great. But the great fact remains, notwith-

standing these reverses, that the graziers are fully persuaded that they have the best sheep and cattle country in the world. The grass, though short, is exceedingly nutritious. The rains fall in the spring, the grass grows rapidly, and in the summer is cured upon the stalk. There are no rains to dissipate its juices. People were so accustomed to see their cattle go through the winter without fodder, that no provision was made for them last winter, and thousands perished. The calamity will lead the thrifty cattle-men to select good shelter for their stock, and to lay in hay for the future. That the lesson has been heeded, is evident from the mowing machines we saw at work on the journey hither. There is an unusual demand for hay in the territory. If the climate is undergoing a change, and more rain is to fall in the summer, it is not improbable that more snow will fall in winter, and the difficulty of winter grazing be increased. The cattle-men that we saw are not at all despondent. A very large capital is invested in the business, and it pays as well as any other pursuit in a territory where the average price of money is two per cent a month. W. C.

How Milk Gets Spoiled.

Mr. Willard, in his Ohio address, gives much weight to certain causes which effect a deterioration in the quality of milk—especially the presence of dirt and dust in the pail; the inhaling of foul odors by the cows, at pasture and elsewhere; and the drinking of putrid water.

Instances are cited, in which putrifying flesh (as of dead animals) has communicated a taint to the milk in the bag, by simply tainting the air breathed by the cow. Milk in the vat of a cheese factory during the heating of the curds gave off a smell like that of stagnant water. It was found that one of the patrons had allowed his cows to pass through a narrow slough, the mud of which adhered to their udders. Particles of dust thus got into the pail at milking, and thus introduced fungi from the slough, which multiplied in the milk, and spoiled the whole of it—giving it the odor of the foul water.

Prof. Law, of Cornell University, finding the cream on his milk to be rosy, examined it with a microscope, and found it infested with living organisms. On investigation he found that the herd from which his supply came, drank the water of "a stagnant pool, located in a muddy swale." The microscope developed organisms in this water of the same sort with those found in the milk. The same were also detected on a microscopic examination of the blood of the cows. That the cows were in a diseased condition was shown by the thermometer test—they being hot and feverish. A little of the same filthy water was introduced into milk which proper tests had shown to be pure, and in due time "the same filthy organisms multiplied and took possession of it in vast numbers, producing the same character of milk as that first noticed."

This investigation, made by a careful observer, proves conclusively that the germs of disease and of a milk-spoiling ferment can be introduced into the blood and into the udder, by simply allowing the cow to drink unsuitable water. It holds out the plainest possible practical lesson to the dairyman, and if he disregards it, and so misses his opportunity for making good cheese and butter, he has only himself to thank. It shows that the cleanliness of a dairy farm must be radical, thorough, and all-pervading. No filthy mud should be allowed to dry into a

dust that may foul the pail; no foul odors should taint the undrawn milk; and the drinking water should be free of the "little leaven that leaveneth the whole lump"—cow, milk, and all.

Churning Whole Milk.

Mr. Peter Mulks, of Slaterville, N. Y., in a communication to the Buffalo Live-Stock Journal, states that for twenty years or more he has churned all his milk. He thinks that, while it is possible to make fair butter by churning the cream alone, it is impossible to make strictly fine butter in this way. What he understands by "strictly fine" butter, we do not know—perhaps something better than we have any knowledge of, but it is certain that the Ogden Farm butter, which sells for 90c. per pound, Darlington's (Philadelphia), which sells for \$1.00, and Mr. Sargent's, which sells for \$1.15 (wholesale), are all very good, indeed. In fact, they are much better than most of the world knows anything about, and they are all made by churning the cream alone.

Mr. Mulks's argument is as follows: 1. The impurities of the air in the milk-room are absorbed entirely by the cream (this being on the surface), and if only this is put in the churn, these impurities are much more concentrated and affect the butter much more than if the whole of the milk is present to extract its proportion of them. 2. When only the cream is churned, the amount of buttermilk is so small, that the butter is more constantly acted upon by the dashers, and is made salvey and has its grain broken, while in churning the whole of the milk the butter is less in proportion, and it retreats out of the way, and does not get mashed fine, salved, and made greasy, as in churning the cream alone.

The following answers to these arguments naturally suggest themselves: 1. No well-regulated milk-room has any impure odors in it; and if it had it is not likely that they will confine themselves to the cream. They will probably permeate the entire contents of the vessel, cream and milk alike. 2. Practically, if the temperature of the churn is not higher than 62°, the butter will be hard enough for its "grain" to withstand not only the beating of the dasher, but also the subsequent much more trying manipulation of the working-table, while the latter would be equally necessary after the gathering of the whole milk-churning.

However, we are not inclined to gainsay the statements of one who has (after a trial of both systems) decided that whole-milk churning is the best, and has practiced it successfully for twenty years.

The general opinion, unfavorable to the whole-milk process, has, we fancy, been based on trials with new milk. Mr. Mulks allows his milk to stand, not only until the cream rises and becomes concentrated, but until it has turned loppered. It is a very good evidence of his success that he gets from 15 to 20 cents above the regular market price. Let us try it.

The Fall Treatment of Grass Lands.

"Old fog," as farmers call the fall growth of grass left to stand on the land during the winter, is wrongly charged with an injury to the land; and the mistaken notion that it does harm is made an argument in favor of the feeding off of the after-growth. Nothing could be more injurious to the condition of mowing lands than this custom.



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THE MODERN TANTALUS.—*Drawn and Engraved for the American Agriculturist.*

Experience with forest trees, and every fact of vegetable physiology, point to the correctness of the opinion that the ability of roots to produce a good growth in the ensuing season depends on the extent to which they have been reinforced, after the ripening of the seed, by their autumn vegetation. If the fall growth is allowed to remain, to supply strength to the underground organs, the natural conditions for future growth are complied with, and, so long as the fertility of the soil is preserved, full crops may be expected. It will, of course, be necessary to apply manure, and the best time to do this is soon after harvest. The only real objection to the "old fog" is, that it may make the use of the mowing machine difficult. This is easily overcome by rolling early in the spring.

We are satisfied that any observing farmer will on trial find it an excellent rule to adopt (and to stick to), *never to let a hoof go on to the mowing fields, except for necessary work.*

Pasturing (as the animals take the materials of their growth and of their milk from the land) is an impoverishing process. The grass allowed to fall and decay on the ground, is worth much more than the manure of pasturing animals.

Neglect of Animals in Autumn.

If animals were endowed with speech they would often remonstrate with their owners about the neglect and carelessness with which they are occasionally treated. And though they can not speak, yet they have a certain mute eloquence in their look, and tell their tale with a force and point that are often more effectual than words. Very often the rough, sluggy, staring coat, the prominent ribs, drooping head, woe-begone countenance, and appealing eye tell a tale as plainly as if it were in print. It tells of hard work, poor feed, exposure to storm and tempest and keenly-biting winds. And yet there may be a tight, snug barn, and stacks of fodder still remaining in the field, while from very thoughtlessness the poor old faithful servant, who has plowed his master's fields year by year, is permitted to remain in an airy yard or in a barren pasture, with half-filled belly, and sniff with impatient appetite at the fodder just beyond his reach across the fence. The picture drawn by our artist may be taken as an example of what may be seen any time during the autumn months without traveling far. It is to

be hoped that it may attract the attention of those farmers who seem to think that the fresh air of our October nights and an occasional wetting with the cold fall rains are good for the health of their horses, colts, cows, or calves, and makes them hardy and vigorous. But this is all wrong. It is unprofitable as well as cruel. Animals exposed to the cold until they are chilled are stunted in their growth, and gather the seeds of future disease. Warmth saves feed. Cold wastes feed. Stock well housed keep in better condition on less food than those left outdoors in rail pens, damp yards, or exposed pastures. At this season no stock should be kept out at nights nor on stormy days, for the abrupt change from warm sunny days to cold storms of rain and sleet is too great a shock. Pine boards are in a sense excellent fodder, and a dry bed of straw the best of nutriment. Farmers who consult the comfort of their stock and their own profit will see to it that their stables and sheds are put in good order, loose boards nailed on, doors and roofs made tight, good dry straw furnished for bedding, and that their cattle are comfortably sheltered before the cold winds begin to blow and the first snow of the season flies.

Bee-Balm, or Oswego Tea.

The plant which we figure, and which is known as Bee-Balm, Oswego Tea, Crimson Balm, Horse-Mint, Bergamot, etc., is a very old inhabitant of our gardens. It is a native of the

of the careless cultivator is the Soapwort, which is found about door-yards, in neglected fence-corners, and by the road-side. A single specimen of the Soapwort is not inelegant. In its form and general habit it reminds one of its relative the Sweet-William; in color it is of a

Window-Gardening in London—Cottage Gardens.

BY PETER HENDERSON.

One of the most refreshing sights to an American arriving in London during the sum-



BEE-BALM, OR OSWEGO TEA.



SOAPWORT, OR BOUNCING BET.

wooded banks of streams in the Northern States, and is one of the most showy of our wild flowers. Its botanical name is *Monarda didyma*. The *Monardas* or Horse-Mints generally abound in an aromatic oil, which is in some species more pungent than the one under consideration, and leads to all the species being more or less used in domestic medicine. It is, however, as an ornamental plant the Bee-Balm is chiefly valued. It produces compact heads of large scarlet flowers. These heads are closely surrounded by flower-leaves or bracts, which are also colored. We very frequently find, as shown in the figure, one flower-cluster growing from the center of another. The Bee-Balm is a plant of the easiest culture, requiring only division of the clumps where they have become too large, and though rather too weedy in its appearance to be called a first-class flower, it is useful to make a show in places where its brilliant color can be seen from a little distance.

The Soapwort (*Saponaria officinalis*).

Some plants have the singular peculiarity of hanging about dwellings, and are seldom found in any other position. Notably among these plants is the common Plantain, which seems to thrive all the better in a situation where it can be trodden upon. Another constant companion

slight blush or rose, and its fragrance is rather pleasant than otherwise. Still, notwithstanding these merits, it is in the mass nothing but a slovenly weed, and indicative of careless cultivation. The stems generally grow from one to two feet high, and bear clusters of flowers which are single or double. We are inclined to think that in this country the variety with double flowers is more common than the single. The plant is a native of Europe, and is said to have early been used as a substitute for soap, whence its generic name *Saponaria*. When the leaves are crushed and rubbed with water, a principle called saponine is liberated, which possesses the property of forming a lather with water and of cleansing fabrics. There are several vegetables used in various parts of the world as a substitute for soap. One which grows upon the Pacific coast is considerably used by both Spanish and American residents, under the name of Soap-plant. It, however, belongs to a very different family from the plant under consideration. An old English name for the Soapwort is Fuller's-herb, which has also reference to its detersive properties. One of the common names by which the plant is known in this country is Bouncing Bet. Some species of *Saponaria* are cultivated for ornament, and we have even seen the common Soapwort in old-fashioned gardens. It can, however, only be regarded as a weed, and one not very difficult to eradicate.

mer months is the wonderful diversity and beauty of the flowers cultivated in the windows and balconies of the houses. In some of the best streets hardly a house can be seen that is not so adorned, and even the most squalid abodes of vice and poverty are often relieved by a miniature flower-garden on the window-sill. The most common style is the window-box, made to fit the window, usually from four to five feet long and about six to eight inches wide and deep. It is made of every conceivable pattern, of terra-cotta, cork, and rustic design in endless variety. The plants used are not very numerous in variety, being selected of kinds suited to keep in bloom or to sustain their brightness of foliage. Now and then the ribbon-line system is adopted on the balconies; one very handsome in this style was composed first of Moneywort (*Lysimachia nummularia*), which formed a drooping curtain of four feet in length; half-way down on it drooped blue Lobelia; then upon the Lobelia fell a bright yellow Sedum (Stone-crop); then against the Sedum, for the top-line or background, a dwarf Zonale Geranium, a perfect blaze of scarlet. Hardly two of these window decorations were alike in the best streets, and varied from a simple box of Mignonette or Sweet Alyssum to cases filled with the rarest ferns or orchids. The effect as a whole is most pleasing, and one that can not fail to strike the most indifferent ob-

server as an agreeable change from the seemingly never-ending brick and stone of the city. The window-gardening is not confined to private dwellings, but all the leading hotels are so decorated. In the dining-room of the Langham Hotel (said to be the largest in England), some hundreds of well-grown specimens of plants are placed in the windows, and kept in perfect order during the entire summer. The selection of plants is made regardless of expense, and in looking around the dining-hall it is with some difficulty that you decide if you are not dining in the midst of a vast conservatory, so redolent is the air with the perfume of flowers. The same taste for window-gardening is displayed, more or less, in all the English towns and villages, and even the humblest thatched cottage of the peasant by the wayside is given a look of quiet happiness by the bower of flowers in the window. How different the look of these humble homes, where the occupant is receiving barely \$4 per week, to the squalid shanties in the suburbs of our great cities in America, where the "naturalized" American citizen is earning three times that amount!

Here let me deviate from my text, but to a kindred subject, and tell how the English cottager works his garden in some of the old towns, such as Colchester. To each cottage, renting for about \$50 per year, is attached a garden of something more than an eighth part of an acre in extent. In this little spot the tenant contrives to grow four to six kinds of vegetables, such as potatoes, cabbage, peas, turnips, etc., and of fruits, gooseberries, currants, raspberries, and strawberries. Every foot is made to produce something, and rarely a weed was seen in some scores that we saw ranged side by side. The heavy work is done by the man of the house, "before or after hours," on his own time. In the weeding and hoeing he is assisted by wife or children. There is great rivalry among the different owners of these cottage gardens, and in many places liberal prizes are given by the horticultural societies to those that are best cultivated.

Prizes are also offered for the best window-grown plants, and in Hull and some other towns plants are distributed and printed instructions given for culture to encourage the taste.—LONDON, August 10th.

Garden Experience.

BY C. M. A. BESS, JOHNSON CO., IND.

Can you find space in your columns for a little experience and a grumble from this hitherto unheard-of section?

I am fond of trying new sorts of vegetables and comparing them with established varieties. Here are some results.

Sowed peas, "Carter's First Crop," "McLean's Little Gem," and "Laxton's Alpha," on March 23d. They came into bearing, Carter's, May 22d; Little Gem, May 28th; and Alpha, June 2d. So much for earliness. The Alpha bears tremendously, but all at once, while Carter's gives two and sometimes three pickings; for delicate flavor the Little Gem is best of all, so my wife says, and on that account I shall sow a few each season, even though I don't think they pay in product for the ground occupied.

I economized space and swindled the bugs by sowing Little Gem peas with early potatoes. I used the King of the Earlies, and can speak well of them. They are earlier than the Early Rose—heretofore a standard in this section—and drier or mealier when gathered young; planted

March 23d, five inches deep, in gravelly soil, covered about three inches, then sowed the peas and covered level; had potatoes to eat (size of unhulled walnuts) on June 4th. The peas had quite a start before the potatoes came up, but there seemed room enough for all. Pulled the pea-vines out when done bearing, and left the potatoes, from which I gathered every day until July 4th. I was not troubled with bugs at all, although my neighbors had plenty.

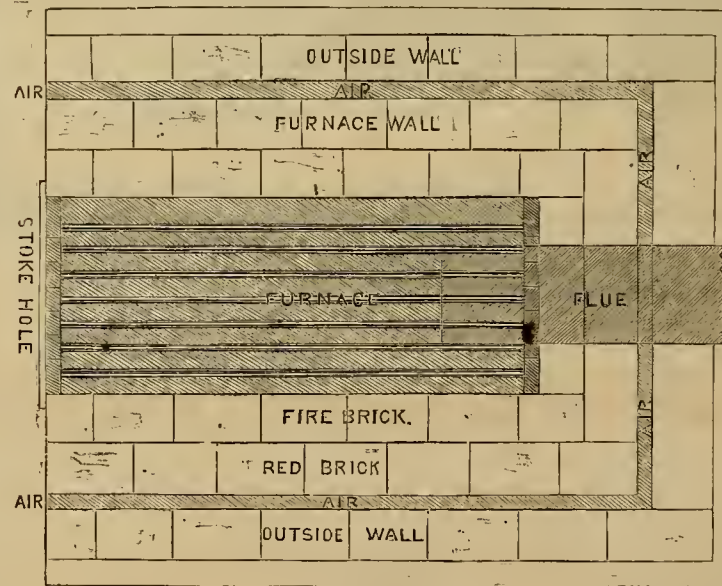
Now for the growl. Why are we bound to receive, in ordering seeds, a certain percentage that is useless? I can count nine distinct total failures in one lot of twenty-four packets—is this not too large a percentage?—all from one house. Don't they sometimes give us seed a little too old to be good? Of course, there are allowances to be made. Aren't we advised in the catalogues that failures may occur? But so many in one firm's lot make me suspicious, and I shall not order from them again.

It is too provoking to sow a lot of seed, say parsnip for instance, and have none of them come up, besides losing the time. I had even worse luck, for I sowed cabbage seed enough to produce a thousand plants, and did not get fifty, and even they were stunted and deficient in vitality, while other varieties of cabbage seed, from another house, grew beautifully, in the same bed. Being intended for early cabbage plants, it was of course too late to sow again.

A Greenhouse Furnace and Flue.

BY EDWARD TATNALL.

[In September of last year (1871) we published an article, by Mr. James Hogg, giving full details for the construction of a furnace and flue for heating a greenhouse. At this season, when inquiries in regard to heating apparatus are



PLAN OF GREENHOUSE FURNACE.

numerous, we refer such correspondents as wish to use flues—the cheapest mode of heating—to the article referred to. Those who propose to heat by means of hot water will find useful suggestions in "Henderson's Practical Floriculture." As an improvement upon the ordinary furnace, Mr. Tatnall, of the Wawaset Nurseries, Wilmington, Del., gives a diagram and description of his manner of inclosing the furnace in an air-case, and thus economizing heat.—Ed.]

MESSRS. EDITORS: Allow me to make a few suggestions in addition to Mr. Hogg's directions for greenhouse furnaces in September number,

1871. Instead of using tile, form an arch of fire-brick made for the purpose, and set on edge. Leave a space of two inches next the furnace, and open to the inside of the house, on both sides of the furnace, above the level of the grate-bars, and a two-inch opening in the front wall on the same level to admit cold air. For the first eight or ten feet next the furnace lay the bricks on their sides, instead of on their edges, to prevent cracking of flues when great heat is required. Use terra-cotta pipe instead of sheet-iron for the rest of the flue—eight inches in diameter, and supported on single brick piers, with an occasional pipe having a side-opening for the purpose of cleaning when foul. The side-opening to be closed with sheet-iron mortared in. By all means have the throat or opening at the furnace one fourth less than the pipe or flue in area. With this provision, a gradual rise of flue from near the furnace to the upright flue or chimney, and a rise of 35° to 45° at the furnace, there need be little fear of poor draught. Thirty inches is a better depth than two feet, as the additional six inches does not necessitate a greater consumption, and the larger the body of coal the more easily is the fire kept alive when the draughts are off.

Horticultural Journals.

Journals calling themselves horticultural, give themselves such airs, that we are tempted to look back upon the field of journalism and refresh the memory of these novices. Among the first, if not the first of these journals was Hovey's Magazine. Excessively Bostonian it is true, but in its pages are embodied a vast amount of our horticultural literature, and whoever has a full set of that journal from the beginning has a most valuable mine of horticultural lore.

Then came the Horticulturist. When A. J. Downing edited it, it was truly the Horticulturist. It has had its ups and downs since then, now rising to importance under Barry, and then being just such as those who have had it in hand could make it. Then came the Gardener's Monthly, a journal with the peculiar crotchets of which we can not always agree, but which is edited with such a sincere purpose and such competent knowledge as to make it the only horticultural journal worthy of the name that we have in

the country. A few years ago a new light dawned upon us—The American Journal of Horticulture. It came ignoring the things that were behind, and promised a new era in horticultural journalism. All that fine paper, excellent engraving, and perfect press-work could do were done for this journal; but, in the language of Sir Charles Coldstream, "There was nothing in it." It absorbed Hovey's Magazine, but did not absorb Hovey, and got no better. Then the publisher, thinking perhaps the title not comprehensive enough, enlarged it to Tilton's

Journal of Horticulture; but even this did not save it, and it quietly retired, leaving no vacancy in the journalistic world. Not long ago we had the Western Gardener, published in Kansas, and the Western Pomologist made its appearance in Iowa. After a while these two periodicals coalesced, and formed the Western Pomologist and Gardener, which after a brief career has united with the Horticulturist. We leave out of our account the local Californian Horticulturist and a Southern journal or two. So far as these various publications have deserved well of the public, we have spoken well of them, and we should not now allude to the many disasters attendant upon the publication of horticultural journals did not some of these put on airs which demand a little plain speaking. When "Tilton's Journal" succumbed, the "Horticulturist," with a wisdom wonderful to behold, gave its views as to the reasons for the want of success of horticultural journals. It said:

"The agricultural journals of the present day have stepped over into the field of horticulture, and by engaging horticultural editors, writers, etc., draw away a great many from the patronage of the horticultural magazines."

Hear further the words of wisdom:

"In the older days of the Horticulturist this was not so. No agricultural papers were then treating specially on horticultural subjects, and every one looked to the Horticulturist, and nowhere else, for its appropriate information."

The "Western Pomologist," taking up the same theme in its dying issue, said:

"Public journals, assuming the title of agricultural or horticultural, should confine their teachings in accordance with the title by which they represent themselves to the world. * * * Agricultural papers, therefore, should never admit to their columns articles purely horticultural. * * * While agricultural journals may, with strict propriety, urge upon farmers to plant orchards, and even flowering bushes and plants, as home adornments, yet it is not expected, nor would it be within their legitimate province, to descant upon the particular varieties of the apple, the pear, the peach, or any other kind of fruit; to speak of their size, shape, color; their various times of ripening, their keeping qualities, the growth of the tree, whether it was hardy or tender. Or, in raising flowers, to point out the almost countless varieties and colors of the rose; whether they should be annuals or monthlies, with innumerable other matters belonging to the floral kingdom. These all properly belong to the horticulturists."

Now that the Western Pomologist and Horticulturist are united, we may look for a combined wall against those horrible agricultural journals. These good people do not consider that the attention given by agricultural journals to horticulture—a subdivision only of agriculture—have made purely horticultural journals possible. The Horticulturist was established in 1846. The oldest agricultural paper we have at hand as we write is a volume of the *Agriculturist* for 1842, in which we find that the "horticultural" articles bear about the same proportion to the other matter that they do in the issues of the present year. The whine of the Horticulturist and the expiring groan of the Western Pomologist will not deter the agricultural journals from supplying their readers with such material as they require. If the engagement of "horticultural editors" by the agricultural papers has drawn "away a great many from the patronage of the horticultural magazines," as the Horticulturist asserts, why on earth does not it engage a horticultural editor, and not be excelled in what it claims as its own specialty by the Country Gentleman, Rural New Yorker, Prairie Farmer, *American Agriculturist*, and several other agricultural journals? The whole history of journalism shows that the public will buy an article that they want, and no amount of scolding will

bring success to a periodical that people do not want, however it may be labeled. We are glad that the Western Pomologist and the Horticulturist are united, as it will give the Horticulturist an editor, which it has long needed. So long as it rests its claims upon its own merits we shall give it a good word, but when it tries to explain away its own want of success by the superior enterprise of the agricultural journals, we shall show up its folly by quoting its own words. We may just here remark that no one ever saw in the Gardener's Monthly any jealousy of other journals. It welcomes, and quotes, and criticises every earnest worker in the cause—a course which we commend to the Horticulturist in starting out under its new régime. When our neighbor gets out a patent on horticulture as an invention of his own, then he may prevent others from writing about it. Only we can't help thinking what funny horticulture it would be if it were only dispensed by a certain journal which we need not name.

Amaranths as Ornamental Plants.

Perhaps the most notable among the new plants of last spring was the Willow-leaved Amaranth, *Amarantus salicifolius*. It was extensively advertised and indorsed by English cultivators, and hundreds of our people who are on the lookout for novelties have made a trial of it. It has in some cases proved a complete failure, and in others a most gratifying success. The reason for this difference we will presently explain. Not quite so new, but still strongly commended, were *Amarantus tricolor giganteus*—an improved form of the old "Joseph's Coat"—and *Amarantus atropurpureus*, a variety of the old "Love-lies-bleeding." This last we may dispose of by saying that it is a miserable, coarse, weedy thing, that in the garden bears no more resemblance to the colored plates sent out from Germany than does the sleepy, half-dead boa-constrictor of Barnum's menagerie bear to the raving, ramping, and violently-twisting "serpent" upon the show-bills. The first two species, *salicifolius* and *tricolor giganteus*, are good or not, according to circumstances. Thorburn & Co., who kindly send us spring novelties, sent us seeds of all three kinds. These seeds were sown in boxes in a gentle hot-bed, and came up well, but the young plants seemed to make very little progress. Being very desirous of making a show of these new Amaranths, we assigned to them a large circle in the most conspicuous place in the lawn. Happening to call upon a florist-friend, we found that he had *salicifolius* and *tricolor giganteus* in pots, and several times larger than our own seedlings, and we arranged for a number of each. In planting the bed, we found we had not enough of the potted plants from the florist, and filled out of each sort from our own seed-boxes. Now for the result. The plants of *salicifolius* from the florist reached the height of eighteen inches and died, those of the *tricolor giganteus* grew about eight inches high and fell over dead, while those from our own sowing grew some four feet in height, and were still advancing, but the defection of the others left the bed so one-sided and ragged that the whole was cut away to make room for other plants. The plants which we procured from the florist had become pot-bound, and immediately stopped growing and began to produce seed, and in the act of providing for their perpetuation they exhausted themselves, and having fulfilled their career died. The plants from seed sown in

boxes had plenty of root-room, and after being transplanted went on growing, as they should do, and began to make a fine show, when, for appearance's sake, they occupying only a small part of a large circle, they had to be removed. Now, this experience teaches two things. First: Never allow ornamental annuals to become checked in their growth, but keep them pushing from the very start. Second: Do not decide upon the value of a plant from one trial. If we had only planted out the potted plants from the florist's we might have justly recorded our experience with these Amaranths as adverse. As it is, we think with proper management both the *salicifolius* and *tricolor giganteus* will prove valuable garden ornaments.

The Arnold Arboretum.

Mr. Arnold, who died a few years ago, at New Bedford, left a large bequest to Harvard University for the establishment of an Arboretum. It has finally been decided to locate this Arboretum on the Bussy farm, about ten miles south of Boston, where the School of Agriculture is already under way. The details of the work are to be under the immediate control of Professor Sargent, who is eminently well qualified for it. He proposes to lay out the ground (137 acres of well-diversified land) as a natural park, with drives and walks tastefully arranged, and leading from one family to another, in scientific order, of all the trees and shrubs hardy in this climate. It will be the work of more than a single lifetime to complete the arrangements contemplated, but it will not be long before the Arboretum will assume a useful form.

The ultimate result will be so important, whether we have regard to the pleasure or to the instruction of those who may be able to visit it, that we trust all who are interested in the advancement of scientific horticulture will give this beneficent enterprise the encouragement and assistance of their best efforts and sympathy.

Something about Corn.

This season we have had numerous samples sent us of corn in which the ordinary manner of growth is departed from. People in different parts of the country seem to have been more observant than usual, for we have rarely gone through a field of corn without finding some of these abnormal forms, and they are common enough to those who are on the lookout for such things. Some of the specimens come asking us to give an explanation and cause of the occurrence. It is very difficult to assign causes for the abnormal things we meet with, but perhaps we can throw a little light upon it. In the first place, we must premise that the structure of the flowers of Indian-corn is difficult to describe to those who are not quite familiar with the structure of grasses in general, for the Corn is only one of the large family of Grasses, and one too of a sub-family which is one of the most difficult to study. It will serve our purpose to say that the corn-plant has flowers of two kinds. Those in the tassel are staminate, or male, and their business is to produce the fertilizing powder or pollen. These flowers are produced in a loose terminal spike, along the branches of which they are arranged. The pistillate or female flowers are inclosed by leaves or husk, and the only visible part of these is the long styles, which protruding from the husk are popularly known as "silk." Each

thread of silk is connected with the pistil of a concealed flower, just as much a flower as the

of corn that have come into our possession. In figure 1 we have a tassel, but the central spike is developed as an ear;

produce flowers and perfect seed. This is the way all well-regulated beets do. It seems that



Fig. 1.—EAR-BEARING TASSEL.

we have the miniature kernels, the silk, and all that belongs to an ear of corn except the leafy envelope or husk. In this case we suppose that for some cause the abortive or suppressed pistils of the usually staminate flower were stimulated into developing, and instead of a spike of staminate flowers there is produced one of pistillate ones. It is not at all rare to find here and there a kernel of corn—sometimes many kernels—growing upon a tassel, in which case the development of suppressed pistils is less general than in the instance just referred to. In figure 2 we have just the opposite of what has happened in figure 1, and staminate flowers precisely like those of the tassel are produced within the husk. It would seem that in this case flowers that should have been pistillate only have changed their character entirely; the pistil has been suppressed, and the stamens have developed. This in a popular way is the best account we can give of these curious phenomena, and we trust that these illustrations and remarks may lead our corn-growing friends to notice their crops more closely. They will find almost every season some curious departures from the regular growth, and we have no doubt they will find



Fig. 2.—TASSEL-BEARING EAR.

more conspicuous ones of the tassel. The ends of the silk receive the pollen from the tassel flowers, the embryo is fertilized, and the grain enlarges very rapidly and soon outgrows the rest of the flower, the remains of which we only

the study of them a matter of some interest.

now and then one prefers a different course, as happened to Mr. J. H. Brightly, who sent the specimen from which we have had an engraving made to Mr. Jas. Fleming, the seedsman, with a letter from which we extract the following:

A Freak of a Beet.

Every one knows that when a beet has been

“Early this spring I brought up, from my cellar, about a bushel of Egyptian Beets. They had kept remarkably well, notwithstanding the croaking of some people, so I had no difficulty in selecting half a dozen for seed. I selected six of the most perfect out of the lot, and planted them as usual, covering the crowns about an inch deep. In a few days five of them started off in fine style, throwing up their seed-stems with great uniformity. But, to my surprise and disappointment, the sixth one ‘made no sign.’ After a time it produced a great bunch of foliage but no seed-stem. I was tempted many times to pitch it into the road, but as I hate a gap, I left it, with its bunch of leaves and the stake I had put there to support the stems that came not. A short time since I took the trouble to look at the monster and ascertain what was the matter. I was again in for a sensation on finding that, instead of producing seed, like a well-ordered and respectable root, it had employed its time and energies in forming three good-sized beets, as you will see.”

adheres there after the corn is shelled. We may regard an ear of corn as composed of branches united in pairs, the number of which differ with the variety. These branches are as if they were soldered together, and the flowers which grow along them are very much crowded, especially when the grain is mature, for then all semblance to flowers is lost. We then have in the tassel, flowers containing stamens but no pistil, and in the ear, flowers containing a pistil but no stamens. In most of the plants with which we are familiar the stamens and pistil or pistils are both in the same flower, but here we have them separated, one portion of the flowers performing one function and the others another. In these separated flowers, as they are called, we find that they are uni-sexual by the suppression of parts. In the staminate flowers we frequently find an abortive or suppressed pistil, very rudimentary it is true, but still something standing in the place the pistil would occupy. On the other hand, in pistillate flowers we often find abortive stamens, frequently reduced to mere little points, or “glands” as they are sometimes called, but still sufficient to show the places where the stamens would have been had the flower been a perfect one. We have figured two of the most striking of the abnormal specimens



A MULTIPLYING BEET.

carefully kept during the winter and is planted out in the spring, it is its business to go on and

in the usual way, it put out a lot of young offsets, after the manner of a multiplier onion.

THE HOUSEHOLD.

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

Green-Corn—A Corn-Cutter.

Properly eaten, there is no more enjoyable or nutritious table vegetable than green-corn. It is our peculiar American vegetable, whether in the form of the sweet-corn of the best gardens, or the simple "roasting ears" taken from the field by those who know not the superiority of sweet-corn. The majority of persons eat the corn directly from the cob, an operation that can not be regarded as elegant, but custom sanctions it, and many think that the goodness of the corn can only be reached in this way. Children and those who have imper-

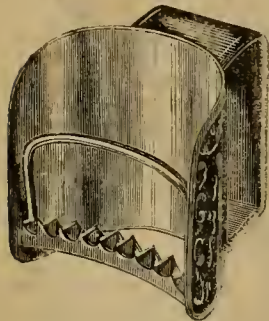


Fig. 1.—CORN-CUTTER.

fect teeth are apt, in eating the corn directly from the cob, to tear off whole kernels, which escape mastication, and pass into the stomach in an unbroken condition. Now, while a broken or masticated kernel of green-corn is nutritious, one that is completely inclosed in its natural hull or envelope is completely indigestible, and passes out of the system in just the same condition as it entered. It is in fact just as much a foreign body as a gravel-stone, and is likely to produce the bowel derangements that may be caused by any foreign indigestible substance. Knowing this, careful parents and those not blessed with teeth that can crush and grind every grain, slit the kernels by drawing a sharp knife along each row of the cob. When the corn is thus prepared, the digestible and nutritious contents of the kernels slip out, leaving the parchment-like hulls attached to the cob. In this way only can corn on the ear be safely intrusted



Fig. 2.—MANNER OF USING CORN-CUTTER.

to children. Some 'cute Yankee, having these things in mind, has invented what he calls a "Yankee Corn-cutter." We do not know who he is, and do not care how much good he may get from this "first-rate notice," for he has done a capital thing by inventing the simple implement with the above name. We procured ours of our neighbor Baldwin in Murray street, and we do not know of any investment of twenty-five cents that we ever made that has paid better. The apparatus, instrument, implement, contrivance, or whatever we may call it, is a half-cylinder of tin, with a handle by which to hold it. Across the half-cylinder there is a strip of tin with projecting teeth, and above this is soldered a wire, as seen in figure 1. The manner of using is shown in figure 2. The cutter is carried down the cob, being held in such a manner that the teeth will cut the kernels and the wire will press out their contents. Half a minute's practice will enable one to completely shell out the contents of

an ear, leaving nothing but the empty hulls upon the cob. For preparing corn for the table there is nothing equal to it, and then for corn-fritters! Oh! Perhaps our readers do not know the virtue of

CORN-FITTERS, and the season is not too late for those yet in ignorance to experience a new sensation. We boil more corn than is needed for dinner, scrape what is left with the corn-cutter, put it in the refrigerator until morning. Then for two coffee-cups full of the corn, a pint more or less, take three eggs well beaten, a small cupful of flour, salt, and enough milk or cream to make the batter drop readily from the spoon. Drop in spoonfuls into hot fat, and fry as other fritters. When these are on hand, we care for little else for breakfast. Some call these "corn-oysters," but they are not oysters, or anything else other than their own excellent selves.

Home Topics.

BY FAITH ROCHESTER.

VISITORS.—House and home keepers who expect visitors "at any time," and dare not get out of "company cake" for fear of getting caught in such a predicament, can not possibly realize the novelty of the sensation with which I welcomed my unexpected visitors a few weeks ago.

We heard them afar off, and knew perfectly well that the wagon coming would stop at our house, for it was on our own private road through the woods. An emigrant wagon! Who under the sun! We all went out to see—a fine team, a beautiful colt, a big watch-dog, and—who?

"Three cheers for Faith Rochester!" and the lady of the coming party swung her hat, and we all laughed, and were so astonished and rejoiced at our meeting that we none of us remembered to shake hands or do any formal greeting that night, but went right to talking as though only days had separated us instead of years.

When I spoke of going into the house, I was told that the wagon in which they came was their house in which they intended to sleep as long as they remained with us. After weeks of open-air life, they couldn't think of sleeping in shut-up rooms. As I was able to offer a "spare bed," with a netting canopy, in an unfinished chamber, where breezes from all quarters of the heavens had free access, my guests consented to lodge in our house, but they had served themselves with their last meal for the day at their last camping-place, so we had little to do but to talk together until bed-time.

Their style of traveling for health and pleasure delighted me. I thought "H. H." was having a pretty good time in her palace-car journey to the Pacific coast, but now I should sooner take the emigrant wagon of my friends, if pleasant and healthful traveling were my object in the journey—as it is theirs. Ruskin himself could find no reasonable objection to this method, I am sure. The wagon-box is large and deep, the seat is on springs, with an easy back, and the cloth roof is painted a light buff, and so is quite water-proof. A straw bed with bedding, a little table that folds up when not in use, two camp-stools, and a sheet-iron cook-stove that I can lift with one hand, and a small Kedzie's water-filter are the furniture of the establishment. The stove has two pot-holes, a good tin baker, a tin wash-boiler, and two or three kettles, stew-pans, etc. They had bags of meal and flour of various kinds stored away in the wagon, and dried fruit, Lima-beans, etc. Fresh fruit and vegetables they purchased as they needed and had opportunity.

Living on a new place, in a house not yet half-finished, with three babies and a half-sick husband, and with no hired girl, I had not meant to be "at home" to any visitors this summer. I told my guests this on the night of their arrival, while assuring them that I was truly very glad indeed to see them. (And so I was. No one but myself can understand how very "providential" their coming seemed!) They said they knew it very well, and so they had not given us a chance to forbid their

visit, but had arranged it all their own way, and were going to camp beside us awhile. They really meant to go to housekeeping for themselves after a day or two in their emigrant fashion. When their emigrant wagon "hove in sight" (about half-past six P.M.), paterfamilias was shelling a large pail of green peas for breakfast (of course I know that it is better to pick and shell peas just before cooking; I also know that if you need help you must take it when you can get it), while I, who, according to all the ancient notions of woman's sphere and duty, should have been shelling those peas, so that the "master of the house" might be reading his newspaper if no "manly occupation" employed his noble powers—I was only holding the baby with one hand as she dandled up and down trying to get the use of her fat legs and feet, while with the other hand I turned the pages of a Botany trying to satisfy my boy and myself as to the name of a plant which we have since proved to be Horse-Mint or Wild Bergamot.

As soon as our visitors came into the house they went to shelling peas, and next morning they took hold, naturally enough, of whatever work seemed necessary to be done, and before many days it actually seemed to be the opinion of all the mature members of the concern that the occupation of child's nurse was all I ought to attempt to fill! Only twice since that second day have I been allowed to wash the dishes.

Perhaps you remember what I said on that subject in the July *Agriculturist*. I remembered it, I assure you, and "kind o'" wished I had not given advice to visitors! My guests take the *Agriculturist*, but had not seen the July number. Our copy was mislaid, and I couldn't feel sorry that it kept out of sight several days. My lady guest was wiping the dishes one morning, when her husband came in and read aloud the advice given by F. R. to visitors about washing dishes! I blushed, but the dish-wiper said "amen" to the remarks read in our hearing.

The gentleman of the party, being an expert fisherman and a "good shot," supplies the family with fish and with wild game. Presently I will tell how the fish-are cooked. The gentlemen, including our little boy, go berrying sometimes, and keep us pretty well supplied with "small fruits."

These are our great occasions for talking—and what is the use of writing about visitors if you say nothing about the visiting? I can not report it, of course, but I can say that visiting of this kind—real soul-communion—is the greatest refreshment human life affords. Which of us felt the most need of it, and which of us two women gets the greatest enlargement from such communion, I can not say, and it is of no consequence so long as both are helped. I wish everybody knew how well it pays to brush away the surface jokes and commonplaces that conceal our real selves from each other, and compare our honest beliefs and true feelings with an earnest desire to get at the truth and the right. We can not do it everywhere—at least not yet. It hurts so cruelly when our precious pearls fall before swine and they turn and rend us! So the masks seem necessary to us in our weak estate—but don't you get dreadfully tired of them sometimes?

DIETETIC HABITS.—The gentleman of our visiting party is an invalid, and a carefully-prepared diet of the most wholesome materials, at regular hours, is one of the means of restoration to health most relied upon by his wifely nurse or nursing wife. They prefer only two meals a day, the last one not later than two o'clock. They supposed this would not chime in with our habits, and for that reason, among others, they proposed to camp beside us as neighbors. But we were eager to try their way of living. It was no difficult change for me, for I learned long ago that my head is clearer and the taste in my mouth more agreeable on waking after going to bed supperless, and more than half of the time (when I am not nursing a baby) I find the little ones their suppers without tasting a morsel myself. Paterfamilias has not had faith in this method. It has seemed to him a dreadful thing to have an

"empty stomach," and he would eat late at night sooner than go to bed without supper; and this he sometimes did in busy times, when neither of us had sufficient help about our work. Of course the weary system had a hard time digesting its late suppers, and the stomach had no chance to rest while he slept. He arose from a night's sleep unrefreshed, and could not wait for breakfast half so comfortably as I could. So his digestion was in a wretched state when Providence turned over this last new leaf in our family history. But he asked questions, and listened and thought for himself, and tried the two-meal system. So far the result is very satisfactory, and a courage and hope unknown for some months past come with a better digestion. We never thought of requiring the little chicks to conform to the new method, but after the first few days the baby and the three-year-old girl ceased to hint the least hunger between breakfast and dinner—a period of six and a half hours—and after a week more they cared so little for supper that on a few occasions it has been omitted without any protest from them; only I gave them all the warm milk they cared to drink, which was not much. The child of six, a boy who inherits a feeble digestive apparatus, was not so easily brought into the new order, but in each case the change of dietetic habits causes an improvement in the disposition. They eat heartily at the table now, and we have them take enough bread or other food slow (but not difficult) of digestion to "stand by" them a good while. I am not prepared to insist upon two meals a day even for our own family, much less for any other; but I see more clearly than ever that it is mainly a matter of habit whether one eats two or three meals a day, and that it is decidedly a *bad* habit to "lunch" between the regular meals.

Another thing which our visitors have led me to realize is this: the danger of giving children too much "sloppy" food. Toothless babies require liquid or semi-liquid food, of course, but children who have teeth should learn to chew their food thoroughly, mixing it well with saliva, before it enters the stomach. If the bread or potato is made soft with milk or gravy the child will be too apt to bolt it in a half-masticated condition or without any real chewing. That is the mischief played by the drinks used at table. They are used to moisten the food and wash it down, and the saliva which nature furnishes for an important part of the digestive process is hardly called into natural action. The children now come to their meals with so good an appetite that a Graham gem without butter or other "spread" seems as delicious to them as it does to me when I am hungry, and they chew it with considerable enjoyment. Much of their food is soft, or semi-fluid, but there was something morbid in the boy's desire to have nearly all his food swimming in milk.

As far as we can *reasonably*, I think we should consult our children's natural preferences in diet. Food that is eaten with a relish for it is more wholesome to the stomach usually than food (even more wholesome "in the abstract") which is distasteful to the palate. But we should discriminate between a natural relish and a morbid craving, and use our best judgment in respect to the child's permanent welfare in preparing its food. Here is something to be taken into the account too: no food will digest *well* that is taken by a person in an *unhappy frame of mind*. So this matter of feeding our families is quite a complicated one. As far as possible, we should "let them have their 'd ruther,'" as Cousin Kate pithily remarks. It is a poor plan to *ask* each child its preference. That is the way to introduce disorder at table. But we can easily learn their tastes, and show that we regard them in filling the little plates at each meal. Careful and sympathetic parents can often guess the real choice of their children better than the children can tell it. It is not well for young children to hear much discussion about the food set before them. The talk should be upon other subjects, and the wholesome fare should be eaten as unconsciously as is consistent with healthful propriety.

MODES OF COOKING FISH.—Most cooks are aware that mackerel and other kinds of salted fish are good freshened thoroughly and then baked and dressed with cream. But frying is the usual method of cooking the common kinds of fresh fish caught in our lakes and rivers. When our gentleman guest brought in his first mess of sunfish I wondered what our *guestess* would say about it. I was sure she must have a horror of scorched butter, and must abominate melted grease in any form as an article of diet. I know the French cooks are said to boil things in such a quantity of "oil," at just the right degree of heat, that no grease penetrates the food, but few of us can afford sufficient good butter to cover a half-dozen fishes while frying, and all the fried fish I have ever seen certainly were more or less "greasy" outside.

But our wise woman had a better way for cooking fish, as she has a "better way" for doing almost everything. This is the way she

BAKES FRESH FISH.—First the mode of dressing the fish preparatory to cooking. Our fisherman cuts the throat of each finny victim with his jack-knife as soon as he gets hold of it. He does not believe that any meat is as good when the victim is strangled or killed by any slow tormenting process as when quickly killed by letting the blood. As soon as possible the "inwards" are removed that they may not affect the flavor of the meat. Then the heads and fins are taken off (cutting around the fins and so taking them *out*) and buried in the earth somewhere, so that the air may not be tainted by them as they decay.

Our wise cook skins all kinds of fish. She says that the skin is good for nothing as meat, and as it is just an *excreting surface* for the animal she can't bear to eat it. It is easier and more agreeable to skin the fish than to scrape off the scales. Usually you pour boiling water over them, and the skin strips off quite easily. The sunfish have such thick skins that the hot water has little or no effect in loosening the skin unless first scaled, and it is as easy to skin them without scaling or scalding.

The best way to salt the fish is before cooking, if you have time, by letting them lie, already dressed, in a pan of salted water over night, or for an hour before dinner. Drain them from the salted water, or sprinkle salt over them if they have not been in salted water, and lay them in your clean dripping-pan, and put them in the oven. They need about half-an-hour's good baking, and then you may pour over them a cup of creamy milk and set them back in the oven for a few minutes. It is best to bake them in some baking-dish that will do to set upon the table just as it comes from the oven.

TO BOIL FISH.—Dress them as for baking. Wrap them altogether in a cloth, or, better still, put them in a clean bag (a salt bag if there are not too many), and put the bag into boiling water enough to cover it. Let them boil half an hour. Pour over them, when dished, cream-gravy or drawn butter.

I don't know which is best, baked or boiled fish, but no one but a dyspeptic whose tastes are all morbid, will be likely to prefer fish fried to either.

Bustles, Hoops, etc.

BY BELL.

The other day a young girl came into my room and said: "I wish you would write an article about bustles. I really think it might do good by setting some people to thinking. Folks praise the bustles because they keep the clothing away from the spine and hips, which are usually too much heated by a woman's style of dress, you know. But see this girl now," she said, lifting the overskirt of her sister who had just come into the room. "She puts her bustle on over all her clothes except the overskirt, which is never more than two thicknesses of cloth, and cloth too that never ought to be there in the first place, making so much unnecessary warmth. So her bustle makes her dress all the more unhealthy by pressing her petticoats and dress-skirt all the closer to her back. There is Hetty Atkinson, now, wears a bustle because her back is

weak, and she puts it under all her skirts, so that it does keep her spine cooler than it would be without one. But most girls only put the bustle under the overskirt and basque, unless they have made their dress skirts to accommodate bustles, or long enough behind to be elevated by the bustles without spoiling the 'hang' of the skirts. And poor girls can't afford to buy good, cool, wire bustles like this, so they make thick, warm ones of newspaper wadded together over a string, and those are a great nuisance. I do think it is wicked!"

Thus said the pretty maiden; and I replied: "The article about bustles shall be written."

I have given her earnest little lecture on the subject as nearly *verbatim* as possible, for I think many persons are not aware that there are girls just coming into the prime of their youth who have conscientious thoughts about the hygiene of dress.

The other day I read that a professor in a New York medical college deliberately stated that it is impossible at the present day to find a woman whose internal organs are in a healthy condition, and this because of the unhealthiness of woman's dress. I suppose no intelligent physician will deny—what most of them positively assert—that almost all of the "female weaknesses" are caused mainly by woman's unhealthy mode of dress. The weight of her clothing upon the hips, and its undue thickness and heat about the abdomen, are especially complained of. The weight presses the internal organs out of their proper place, and the heat (an excess of which is always enervating to any living thing or to any part so heated) weakens the action of the abdominal organs, and also destroys the natural power of the muscles and ligaments which hold them in place. The *unconscious suicide* going on among women is fearful to think of. And what chance is there for healthy sons and daughters to be born of these victims of Fashion?

If long, heavy skirts must be worn, the skeleton-skirt lessens their unhealthiness and discomfort, provided it is large enough (especially at the top) to afford some ventilation about the hips, and to allow of easy locomotion, and provided it does not hang upon the hips and bowels—for whatever hangs upon the hips also presses down upon the bowels.

Do you think it is any better to hang the skeleton skirt upon a stiff corset? It *feels* better, because the pressure is so much equalized, but it is in reality worse and worse. The most reasonable bustle and support for the skirts is a loose waist cut high enough upon the shoulders so as not to press upon the arms, and so as not to be dragged down by the skirt's weight. A gored or circling piece sewed around the bottom of this waist, with a long whalebone or large rattan run in the hem of it, forms the bustle and skirt-supporter. The size of the bustle is determined by the length of the whalebone and the width of the gored piece sewed on. It should not be gored or cut circling in front.

I recommend this simple bustle only as a mitigation of a nuisance—not at all from the artistic point of view. If the idea of woman's dress is not chiefly, as it ought to be, a comfortable and convenient covering for the body, but if it is chiefly *drapery* and barbaric ornamentation, then we must mitigate its inevitable evils as far as possible—so give us hoops and bustles.

Yesterday was the Sabbath. I took up the Christian Union, and read one of Mr. Beecher's "Lectures on Preaching," delivered to the theologues of Yale. Having determined to write this article, this sentence struck me as applying to the subject of woman's dress: "You can not long go right when it is the sense of beauty alone that you are appealing to."

A good deal of a sermon grew out of that sentence in my own mind. My sister, see if you can not preach one to yourself from the same text. "The sense of beauty" is what woman's dress professes to appeal to chiefly, and it is so long since woman's dress has gone right that the memory of man runneth not back to that time. And it never will go right until women are made intelligent about anatomy, physiology, and hygiene, and not until the conscience of woman is freed from its slavery to the "traditions of men," and taught to concern itself with the practical duties of daily life.

BOYS & GIRLS' COLUMNS.

One Less—One More.

Little did I think, when I began to talk to the children in my old-fashioned way, that I should get so attached to them. The nice letters that I get show that the children think quite as much of the "Doctor" as he does of them. It may be a fortunate thing that he has no children of his own, as he can now open his heart to those of other people, and right happy does it make him that not only the children but their parents come into his circle. I have written at the head, "One Less"—"One More." Before the prizes for the flower-lists were announced, one little girl, who was among the successful ones, was taken away. Our family of children has now "one less,"—"One more" has been added to that band of children who are spared the troubles and temptations of life, and whom the good God has taken to himself. I trust it is not wrong to give some extracts of a letter I received from the mother of the little girl:

"The copying of that list was the last work our darling did. You will remember, I told you in a note, that she was taken ill, and I had completed the copying for her. One week from that day she died. She seems fully to have expected the prize, and hequeathed the book when it should come, if it did, to her father. We wish to preserve the book as a memorial of L...L. had so many hours of enjoyment in searching for her flowers and preparing her list, that we are desirous of preserving the list in her own handwriting. The last work she ever did, the last word she ever wrote, the last time she signed her name, was on that paper...L. was a very lovely child, and an earnest, happy Christian, and met death without fear or dread, rejoicing in the knowledge that the dear Jesus she had so long loved, would take her to himself. We rejoice for her, while we mourn for ourselves."

Is not that lovely? And do you wonder that I rejoice over my relations with the children all over the broad land?

THE DOCTOR.

The Isle of Man.

It is a long while since we have had a bit of geographical talk. So let us have a few words about a curious place, the Isle of Man. It may be that you will be obliged to go to the atlas or geography to refresh your memory. When you do find it, it will be seen that it is in the Irish Sea, about midway between England and Ireland, and some thirty miles from either coast. The old Scandinavian name was *Man*, which means alone or isolated, and it is spoken of in poetry as *Mona*, but commonly called Man, and the people who live upon it are called *Manx*. The island is only about 30 miles long, and from 6 to 12

respect, save that they have no tails. Think how odd a rooster must look, strutting about without the fine tail-feathers which give our birds their principal beauty. Then a pussy without a tail! How can a cat be a cat, when she can not wave her graceful tail? To show you how queer they look, we give you an engraving of one of these Manx cats, which as well as the fowls are called *Rumpies*, and sometimes *Stubbins*. At the great cat-show held not long ago at the Crystal Palace, near London, the Manx cats attracted a great deal of attention, and the picture here given is from one of the animals exhibited there. There is a tradition that these tailless cats came from a ship that was wrecked upon the island years ago. That will do for our geography class at this time.

The Autumn Leaves.

Who does not admire the forests in autumn! What a glory of gold, and crimson, and richest brown the leaves present! The cool autumn mornings seem warm as we look upon their brilliant color. Many persons think that all this brilliancy is the work of the frost, while the fact is we have the finest coloring in those seasons in which the frost holds off the longest. The appearance of the color shows that the leaves are ripe. They have finished their work, and are just ready to pass into decay, just as the ripeness of fruit is the first step toward decay. The dying leaves are so beautiful that many gather them in the hope that they will retain their brilliant colors, and are disappointed in finding them turn in a few days to a dull brown. The colors can be preserved, but to do this you must arrest the process of decay, and this can only be done by drying as rapidly as possible. As soon as the leaves are gathered, place them between perfectly dry papers, old newspapers will do, and change the papers every day until the leaves are quite dry, which will be known by their becoming brittle. When the leaves are dry keep them between papers until you wish to use them for making wreaths and other decorations. To make the colors come out more brilliantly, the upper surface of the leaf should be lightly brushed over with boiled linseed-oil. The leaves may then be pasted or glued upon card-board to make wreaths or lamp-shades, or used in any other way that fancy may suggest.

Aunt Sue's Puzzle-Box.

NUMERICAL ENIGMA.

(What we had and did and saw on a certain occasion at supper.)

We 4, 2, 3, and did 3, 4, 2; and we had 5, 3, 4, 2, and 2, 3, 4, served in the china 2, 3, 4—1, 3, 2; we saw a 5, 4, 2, a 1, 3, 4, 2, and some 1, 2, 3, 4, 5; the latter is a power of dangerous utility.

B. W. PURCELL.

ANAGRAMS.

1. Men earn it, Lib.
2. Cruel pride, Nap.
3. O drover! weep.
4. Go, Lion, run at cats.
5. Carpet paid it.
6. A girl is apt.
7. Drape a peer.
8. Soul edict, I.
9. Scovill's noon.
10. I gave porter.

ALPHABETICAL ARITHMETIC.

C L M) T N H E I (N S E
 S T L
 N N S E
 N H I N
 U I C I
 U M C E
 U H C

CROSS-WORD.

My first is in orange but not in plum.
 My next is in finger but not in thumb.
 My third is in catch but not in throb.
 My fourth is in hunger but not in woe.
 My fifth is in middle but not in end.
 My sixth is in borrow but not in lend.
 My seventh is in green but not in white.
 My eighth is in dawn but not in light.
 My whole, I'm sure, I scarce need name;
 'Tis a capital city of well-known fame.

MARY JACOBS.

SQUARE WORDS.

1. ¹ Agony. ² A foreign word for what we use every day. ³ A cipher. ⁴ To fret. ANNIE.
2. ¹ An animal. ² A plant. ³ Something that grows in the woods. ⁴ The most desirable.

E. M. BROWN.

3. ¹ A prison. ² A disease. ³ A bird. ⁴ Fishes. DOT.

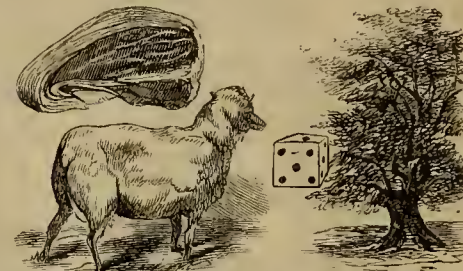
TRANSPPOSITIONS.

(Fill the blanks with the italicized words, transposed.)

1. Yes, *Ma did* say so, and I was _____.
2. *Edward's pie* was served _____.
3. That *demon bit me*; he was the _____ of evil.
4. *Ah teachers!* be careful how you give your pupils _____.
5. I endeavored to turn my thoughts _____ when *A. raved* at me.
6. Get an *air-gun*, *Lea*, amuse yourself, and forget your _____.



431. *Illustrated Rebus.*—Which, when read, will be a kind of employment or business.



432. *Illustrated Rebus.*—Good advice, which may be heeded by almost every one but poor editors.

PI.
 Teepanic si a turvie,
 Ospsess ti fi ouy nac.
 T'si molsed ensc ni mowna,
 Sels fonct necs ni nam. C. H. M.

ANSWERS TO PUZZLES IN THE AUGUST NUMBER.

NUMERICAL ENIGMAS.—1. American Agriculturist. 2. Wiggeon.

COMPOUND ARITHMETICS.—1. Lamp. 2. Cape. 3. Table. 4. Steam. 5. Tall. 6. Dime.

DIAMOND PUZZLE.

F
 F A T
 G A B L E
 H E A R S A Y
 F A B R I C I U S
 O B S C U R E
 P H I A L
 A U K
 S = FABRICIUS.
 PI.

A fretful temper will divide
 The closest knot that may be tied,
 By ceaseless, sharp corrosions.

ANAGRAMS.—1. Apposite. 2. Platinous. 3. Dispassionate. 4. Stupendous. 5. Material. 6. Essential. 7. Briefest. 8. Destitute. 9. Undervalued. 10. Ordinances.

CROSS-WORD ENIGMA.—Chicago.

SQUARE WORDS.

1. F A T E
2. P L A N
- A B E T
- L A C E
- T E N T
- A C M E
- E T A
- N E E D

BLANKS.—1. Choose, Chews. 2. Corps, core. 3. Scene, secu. 4. Steak, stake. 5. Urns, earns.

AUNT SUE'S NOTICES TO CORRESPONDENTS.

I received very few "Oven" squares. "Jes" and "Owego" send the most. "JES" sends ten squares, but I must deduct the "obsolete words," "proper nouns," incorrect words, and abbreviations ("nesh," "erke," "Etna," "noil," and "necr"), which leaves six correct squares. "Owego" sends nine; from them I must expunge "ernc," "vire," and "necr." As both lists give evidence of diligence and perseverance, I shall be glad to send to the authors "rewards of merit" as tokens of my approbation, if they will send me their addresses. SOMEBODY who is "no longer juvenile" but "still



TAILLESS MANX CAT.

in width. It usually happens that people who live upon islands that do not have very frequent intercourse with the rest of the world, have many ways and customs peculiar to themselves. The Isle of Man is said to have a very mild and delightful climate, and the Manx men to be very kind and hospitable. Many old customs which have died out in England, are still preserved upon the island. No iron must be put into the fire on Friday. Mugwort is gathered on St. John's day, as a preventive against witchcraft; rushes are strewn upon the floors upon St. Bridget's day; on May-day, primroses, buttercups, and other flowers are placed before the house-doors to keep out the fairies, and a great many other strange and curious things are done by these singular Manx people. But even here these old notions are dying out, because a plenty of schools are coming in, and education drives away all such odd beliefs. One of the things that strike a visitor to this interesting place as strange, is the fact that most of the fowls and cats have no tails. The fowls are called *Rumpies*, and are very handsome in every



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BRINGING THE OSTRICH INTO THE MENAGERIE.—Drawn and Engraved for the American Agriculturist.

takes an interest in the puzzle department," wants to know if our puzzlers can make a column of words, using every letter of the alphabet once only. He (or she) sends six words which use up all the letters but three. In a few minutes' trial I have made six words, using all the letters of the alphabet but two. Who will do better?

Puzzlers will please refrain from sending enigmas upon their own names, or upon the names of our papers or editors, for reasons of taste.

I often receive letters from little invalids, telling me how much pleasure the PUZZLE-BOX has given them. To all such I return my heartfelt thanks for the assurance that, though distant from them, I have been able to cheer and comfort them.

Thanks for letters, puzzles, etc., to O. A. G., C. H. M., Frank B., G. W. S.

Trouble with a Big Bird.

The excellent collection of wild animals at Central Park in New York City has been mentioned several times. There one can see without charge one of the finest menageries in the country. Constant additions are being made to this collection, and beasts and birds from all parts of the world find their way here. One of our artists happened to be at the Park at a time when a new-comer was being introduced to the collection, and though the new scholar was nothing but a bird, it required a great deal of strength and no little tact to get him into the school-house. It is not at all unlikely that he did not fancy the looks of the other scholars already in their places, and that the long neck of Master Camel, the shaggy mane of

Master Leo, the Lion, and the antics of Master Ussus, known to his mates as the Bear, were sufficient to inspire the new-comer with dread. At all events, there was what a New York "Arab" would call a regular "muss," and the whole scene was so ludicrous that the artist thought he would sketch it, so that our Boys and Girls could see it as he saw it. Now, if asked what bird this is, you all will answer, without hesitation, "An ostrich," and if asked where it comes from, the answer will be "Africa." To the question, What does it live upon? it is very likely we shall get the reply, "Glass-bottles and tenpenny nails," and if we go still farther and ask, What does the Ostrich produce? you will say, "Big eggs and feathers." All of this is in the main true, for the geographies and other school-books have about as much of the history of the Ostrich as is given in the above answers. Now let us see what we can add to it to make the story complete. In the first place, the Ostrich is the largest and the strongest of all living birds. Bones of a larger bird, no longer living, are found in Australia, but as far as size goes we must regard the Ostrich as the very "cock of the walk." Well we may, for it is often seven or eight feet high and weighs something like eighty pounds. The first thing that would strike your attention should you see one of these birds, is the enormous length and strength of its legs, and, for the size of the bird, the smallness of its wings. Nature always makes up in one thing what is lacking in another. Those plants that rarely produce seed, multiply in some other way, and persons born blind have wonderfully acute hearing and touch. The Ostrich is poorly off for wings, and can not fly at all, but as for running—just look at its legs! Unlike most birds, the

Ostrich has only two toes, the inner one of which has a powerful claw. The way these legs can get over the ground is something astonishing, and it is said that it can even keep pace with the fleet Zebra, and that their strength is such that a large bird that has been properly trained can carry a couple of negroes on its back. That story we give to you on first-rate authority, but we don't believe it. There is evidently one negro too many. The food of the Ostrich is vegetable, but it seems to have a habit of "gobbling" almost anything that comes in its way, hence we have the story of its feeding on tenpenny nails and finishing off with broken glass by way of dessert. It no doubt takes indigestible things to help grind its food in its gizzard, just as our fowls take gravel, but it is doubtful if it has any preference for such food. But the feathers! How beautiful they are! Such softness and graceful curves are not to be found in the feathers of any other bird. The feathers are highly valued as ornaments, and bring a very high price. They come from the wings of the Ostrich, and those from the male birds are much the finest. Of late years the value of these feathers has induced people who live in Africa to make what are called "Ostrich farms," where the birds are kept in captivity for the sake of their feathers. The eggs of the Ostrich are very large—as large as a child's head. The bird sits upon them at night, but during the day leaves them to the heat of an African sun. The eggs are said to be very good eating, and so are the young birds also. We should prefer a well-fed turkey. In very old times, when emperors and other high dignitaries fed their guests on peacocks' tongues and all such extravagant luxuries, ostriches' brains used to be served as a rare dish.

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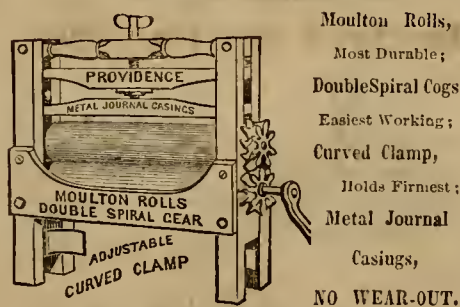
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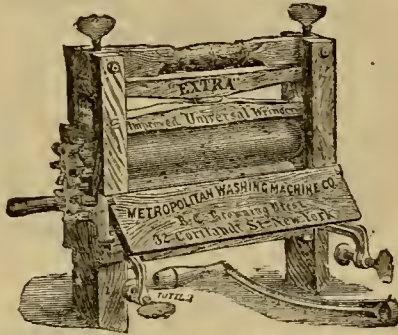
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4	French Cook's Knife, Fork, and Steel	\$4 25	10	34	6	17	7	9
5	Pocket Knife (Meriden Cutlery Co.)	\$1 50	4	14	3	11	4	5
6	Pocket Knife (do. do.)	\$2 00	6	22	4	11	5	7
7	Pocket Knife (do. do.)	\$2 75	7	27	5	14	6	8
8	Ladies' Pocket Knife (do. do.)	\$3 50	6	22	4	11	5	7
9	Mutton in Parvo Knife (Miller Bros.)	\$3 50	6	22	4	11	5	7
10	Cake Basket (Lucius Hart Man'g Co.)	\$12 00	13	43	10	33	11	14
11	Revolving Butter Cooler (do. do.)	\$8 00	16	52	8	28	9	12
12	Cup and Saucer (do. do.)	\$7 00	16	49	8	28	9	12
13	Nutcrackers and Crackers (do. do.)	\$12 00	19	65	10	33	11	14
14	Half-Dozen Napkin Rings (do. do.)	\$6 00	16	52	8	28	9	12
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16	One Dozen Tablespoons (do. do.)	\$12 00	19	65	10	33	11	14
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20	Gold Pen and Silver Case (do. do.)	\$5 00	12	37	7	19	8	11
21	Gold Pen, Handle gold-tipped (do. do.)	\$4 00	15	45	8	28	9	12
22	Ladies' Gold Pen and Rubber Case (do. do.)	\$6 00	15	45	8	28	9	12
23	Paragon Pat. Revolving Pencil (do. do.)	\$1 50	4	14	3	11	4	5
24	Paragon Pat. Revolving Pencil (do. do.)	\$3 00	4	14	3	11	4	5
25	Paragon's Indelible Ink	75 cts	3	10	2	7	3	4
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38	Reckwith Sewing Machine	\$10 00	19	65	10	33	11	14
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42	Reckwith Sewing Machine	\$6 00	15	57	8	29	10	13
43	Reckwith Sewing Machine	\$5 00	14	55	7	28	10	13
44	Reckwith Sewing Machine	\$4 00	13	53	7	27	10	13
45	Reckwith Sewing Machine	\$3 00	12	51	6	26	10	13
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49	Reckwith Sewing Machine	\$75 00	10	33	7	24	10	13
50	Reckwith Sewing Machine	\$50 00	10	33	7	24	10	13
51	Reckwith Sewing Machine	\$30 00	10	33	7	24	10	13
52	Reckwith Sewing Machine	\$25 00	10	33	7	24	10	13
53	Reckwith Sewing Machine	\$20 00	10	33	7	24	10	13
54	Reckwith Sewing Machine	\$15 00	10	33	7	24	10	13
55	Reckwith Sewing Machine	\$10 00	10	33	7	24	10	13
56	Reckwith Sewing Machine	\$7 00	10	33	7	24	10	13
57	Reckwith Sewing Machine	\$5 00	10	33	7	24	10	13
58	Reckwith Sewing Machine	\$3 00	10	33	7	24	10	13
59	Reckwith Sewing Machine	\$2 00	10	33	7	24	10	13
60	Reckwith Sewing Machine	\$1 50	10	33	7	24	10	13
61	Reckwith Sewing Machine	\$1 00	10	33	7	24	10	13
62	Reckwith Sewing Machine	\$75 00	10	33	7	24	10	13
63	Reckwith Sewing Machine	\$50 00	10	33	7	24	10	13
64	Reckwith Sewing Machine	\$30 00	10	33	7	24	10	13
65	Reckwith Sewing Machine	\$25 00	10	33	7	24	10	13
66	Reckwith Sewing Machine	\$20 00	10	33	7	24	10	13
67	Reckwith Sewing Machine	\$15 00	10	33	7	24	10	13
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71	Reckwith Sewing Machine	\$3 00	10	33	7	24	10	13
72	Reckwith Sewing Machine	\$2 00	10	33	7	24	10	13
73	Reckwith Sewing Machine	\$1 50	10	33	7	24	10	13
74	Reckwith Sewing Machine	\$1 00	10	33	7	24	10	13
75	Reckwith Sewing Machine	\$75 00	10	33	7	24	10	13
76	Reckwith Sewing Machine	\$50 00	10	33	7	24	10	13
77	Reckwith Sewing Machine	\$30 00	10	33	7	24	10	13
78	Reckwith Sewing Machine	\$25 00	10	33	7	24	10	13
79	Reckwith Sewing Machine	\$20 00	10	33	7	24	10	13
80	Reckwith Sewing Machine	\$15 00	10	33	7	24	10	13
81	Reckwith Sewing Machine	\$10 00	10	33	7	24	10	13
82	Reckwith Sewing Machine	\$7 00	10	33	7	24	10	13
83	Reckwith Sewing Machine	\$5 00	10	33	7	24	10	13
84	Reckwith Sewing Machine	\$3 00	10	33	7	24	10	13
85	Reckwith Sewing Machine	\$2 00	10	33	7	24	10	13
86	Reckwith Sewing Machine	\$1 50	10	33	7	24	10	13
87	Reckwith Sewing Machine	\$1 00	10	33	7	24	10	13
88	Reckwith Sewing Machine	\$75 00	10	33	7	24	10	13
89	Reckwith Sewing Machine	\$50 00	10	33	7	24	10	13
90	Reckwith Sewing Machine	\$30 00	10	33	7	24	10	13
91	Reckwith Sewing Machine	\$25 00	10	33	7	24	10	13
92	Reckwith Sewing Machine	\$20 00	10	33	7	24	10	13
93	Reckwith Sewing Machine	\$15 00	10	33	7	24	10	13
94	Reckwith Sewing Machine	\$10 00	10	33	7	24	10	13
95	Reckwith Sewing Machine	\$7 00	10	33	7	24	10	13
96	Reckwith Sewing Machine	\$5 00	10	33	7	24	10	13
97	Reckwith Sewing Machine	\$3 00	10	33	7	24	10	13
98	Reckwith Sewing Machine	\$2 00	10	33	7	24	10	13
99	Reckwith Sewing Machine	\$1 50	10	33	7	24	10	13
100	Reckwith Sewing Machine	\$1 00	10	33	7	24	10	13

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. 5 to 9, 19 to 25, 28, 50 to 73, and 76 to 88 inclusive, will each be delivered FREE of all charges, by mail or express (at the Post-office or express office nearest the recipient), to any place in the United States or Territories.—(No. 27 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 Description of Premiums on Next Page.

Descriptions of Premiums.

(For number of Subscribers required, see Table, page 393.)

Nos. 1, 2, 3.—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 make. **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 two 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 \$15. For 24 subscribers at \$1.50, or 80 at \$1, we will give either the medium size or the table size, sold at \$16.00. No. 2 have Ivory Handles, are selected with great care, have Steel Blades, and are beautiful goods. Dessert size, with Forks, sold at \$20.00. For 33 subscribers, at \$1.50, or 110 at \$1, we will send the medium size, sold at \$22.00. For 25 at \$1.50, or 116 at \$1, we will send the Table size, sold at \$23.00. The Forks, which accompany these Premiums, Nos. 1 and 2, are made of genuine Albata, and warranted *double-plated with coin-silver.* These Forks are furnished to us by Messrs. Patterson Bros. The Carving-Knife and Fork are made by **The Meriden Cutlery Co.,** with the best Ivory, balanced Handles.

No. 4.—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. 5, 6, 7, 8.—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 furnished by the **Meriden Cutlery Co., 49 Chambers St., New York,** whose work is equal to any done in this country or Europe. No. 5 is a neat, substantial Knife, with three blades and back-horn handle. No. 6 is a still finer article, with four blades and pearl handle. No. 7 is an elegant Knife, with five blades and shell handle. No. 8 is a Lady's Pocket Knife, a beautiful article, with four blades and shell handle.

No. 9.—Multum in Parvo Pocket Knife.—This is a most attractive as well as useful Premium, from the well-known manufacturers, **Miller Bro's Cutlery Co., West Meriden, Conn.** 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, tweezers, 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. It is a pocket-full of tools weighing but two ounces. The knives will be sent anywhere in our country, post-paid.

No. 10.—Cake Basket.—A new pattern, oval-shaped, or square, 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. 11.—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. 10.

No. 12.—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. 13.—Nut Picks and Crackers.—Here are twelve nut-picks, elegantly chased, of medalion pattern, with two handsome nut-crackers, in a morocco-covered case. From the same house as No. 10.

No. 14.—Half-Dozen Napkin-Rings.—These rings are beautifully chased, and in a morocco-covered case. From the same house as No. 10.

No. 15.—One Dozen Teaspoons.—**No. 16.—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. 10. They are far cheaper than anything we have found at half the price, and are well worth working for.

No. 17.—One Dozen Table-Forks.—The same description and remarks apply to these as to No. 16. 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. 18.—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. 19, 20, 21.—Gold Pens; with ever-pointed Pencils, in extension, coin-silver cases.—Premium No. 19 contains the best No. 4 Gold Pen; and No. 20 the best No. 6 Gold Pen, which is the same style, but larger. No. 21 contains No. 7 Gold Pen, in Gold-tipped Ebony Holder. Each pen will be sent in a neat leather ease by mail, post-paid. These pens are made by **Geo. F. Hawkes, No. 66 Nassau St.,** and have obtained an excellent reputation. We have known the maker and his goods for many years, and can recommend them.

No. 22.—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 maker as No. 19.

Nos. 23, 24.—Paragon Patent 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 \$3.00. Same maker as No. 19.

No. 25.—Payson's Indelible Ink, and Briggs's Marking-Pen Combination.—Payson's Indelible Ink is too well known to need further commendation. It is almost indispensable in the family. Briggs's Marking-Pen has been before the public for fifteen years, and is justly celebrated for all kinds of marking, and particularly for writing upon coarse fabrics. The Pen and Ink are put up in a neat case, being thus portable, always ready for use, and protected from loss or injury by evaporation or breakage.

No. 26.—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. 27.—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 exhibited it in motion to many of his playmates, hitched on various toy machinery, and it appeared to go just as well as when first started.

No. 28.—Very Choice Garden Seeds and Flower Bulbs.—We have taken special pains to have prepared by **Messrs. B. K. Bliss & Sons, 23 Park Place and 20 Murray Street,** whose seed establishment is well known as one of the best in the country, 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.; Diocorea Batatas, or Chinese Potato, per doz. tublets, 25c.; Moore's Early Concord Corn, ½ pint pkt., 25c.; Laxton's Alpha Peas, ½ pint 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., 20c.; ½ oz. Improved Red Dutch, do., for pickling, 25c.; ½ lb. Bliss's Improved Long Orange Carrot, 50c.; 1 pkt. Perpetual Spinach Beet, 25c.; ½ oz. 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 Crosby's Extra Early Sugar Corn, 25c.; 1 pkt. (ten seeds) General Grant Cucumber, 25c.; 1 oz. Boston Market Tomato, 50c.; 1 ounce Conover's Colossal Asparagus, 25c.; 1 pint New Dwarf Wax Beans, 50c.; 1 pkt. New Egyptian Blood Turnip Beet, 15c.; 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.; 2 oz. Genuine Hubbard Squash, 50c.; 2 oz. True Boston Marrow, do., 50c.; 2 oz. Turban, do., 50c.; 1 Liliun auratum, or New Gold-banded Lily, from Japan, 50c.; 1 Liliun lancifolium rubrum, Japan Lily, red, 40c.; 1 Liliun 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, \$1.50; 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.

Nos. 29, 30, 31.—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 **Willeox & 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. The new table and pedals are great improvements. 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 Mfg Co., 786 Broadway, N. Y. Florence Sewing M'ne Co., 39 Union Square. Willeox & Gibbs Mfg Co., 658 Broadway, N. Y.**

No. 32.—Beckwith \$10 Sewing-Machine.—While we advise buying a \$55 to \$65 Sewing-Machine, we have long been looking for one which, while brought by its low price within the reach of multitudes who can not afford the valuable higher cost machines, should be at the same time worthy of commendation. This we have found at last. The Beckwith Machine is well and strongly made, is simple, its use being quickly learned, is applicable to almost all kinds of family sewing, and has already been tested so thoroughly that hundreds of testimonials, from all quarters, have been given by those who are delighted with its work. Each machine is put in a neat, compact

box, with hemmer and guide, oil-can with oil, thread, different-sized needles, etc., with full printed directions for using. We offer these Machines on our Premium List. We will sell them to any who may wish to buy, for \$10 each, delivering to any express office in this city.

No. 33.—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. 34.—Doty's Improved Clothes Washer, with the Metropolitan Balance Weight. Over seventy-five thousand families in the United States are 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 Corlandt St., New York,** or to **Metropolitan Washing Machine Co., Middlefield, Ct.** It goes cheaply by freight or Ex.

No. 35.—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. R. C. Browning, 32 Corlandt St., N. Y.**

Nos. 36, 37.—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 there *thirteen* 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. 38.—Steinway Piano.—SEVEN OCTAVE ROSEWOOD CASE, SOLID ROSEWOOD DESK, LARGE FRONT, ROUND CORNERS; OVERSTRUNG BASE, FULL IRON FRAME, PATENT AGRAPPE TREBLE, CARVED LEGS, AND CARVED LYRE.—This is one of the most elegant Premiums ever offered; regular and only price \$650. 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 625 subscribers are required to do it. Several have obtained this premium. 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, New York City,** for a free circular describing it.

No. 39.—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. 40.—Ladies' Fine Gold Watch.—This elegant Premium will delight our friends who may receive it. Our arrangement with the **American Watch Co.** (see No. 39 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. 41.—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. 42.—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. 43.—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 in-

fringement 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, 103 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.

No. 44.—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. 45.—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 29 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 at **55 Chambers St., New York.**

No. 46.—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. 47.—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 unequalled. 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. 48.—B. O. B.—The "Boy's Own Boat"—a Real Toy Steamboat, that will propel itself on the water for over half an hour. This beautiful toy is durably made, elegantly finished, and is just the thing for bath-tubs in winter and ponds and streams in summer. The boat is 18 inches long, and fitted with Ryder's Dollar Steam-Engine and Dodge's

Propeller. The engine has a perfect-working safety-valve, whereby any excess of steam passes off. It is one of the most pleasing and instructive toys ever produced. Printed directions for management accompany each boat.

No. 49.—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 a 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. 50 to 58.—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 fifteen volumes can select any volumes desired, from XVI to XXXI inclusive. For ordinary use, the sets of numbers unbound will answer.

Nos. 59 to 68.—Bound Volumes of the Agriculturist.—These are the same as Nos. 50 to 58 above, but are neatly bound in uniform style, and cost us more for binding and postage. Sent post-paid.

No. 69.—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. 70.—Farmer's Boy's Library.—Both the books in No. 69, and also Herbert's Hints to Horsekeepers, and Henderson's Gardening for Profit.

No. 71.—Farmer's Boy's Library.—The four books in No. 70, with the addition of Fuller's Strawberry Culture, Gregory on Squashes, Brill's Farm Gardening, and Harris on the Pig.

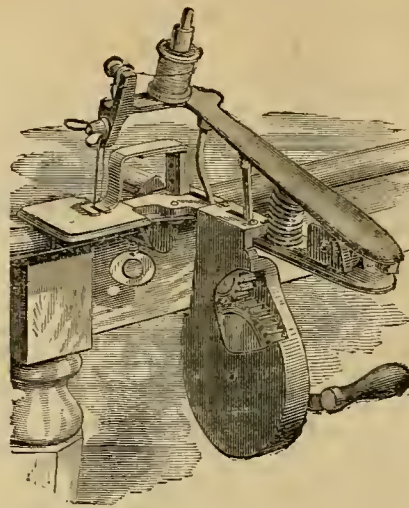
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Respectfully, DECHERD BROS.

CONCORD, OHIO, April, 1872.

GENTLEMEN: I purchased one of your machines of Orange Judd & Co. My wife is learning to use it. We are much pleased with it this far.

Yours truly, R. DURR.

No. 3. A. & G. R.R., GEORGIA, April, 1872.

GENTLEMEN: Seeing your improved machine advertised in the *American Agriculturist*, and relying on Orange Judd & Co.'s statements, we sent to them and got one of your machines, with which we are much pleased. Have shown it to several friends, and I presume several orders will soon be sent to Orange Judd & Co. or to you.

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LEANDER FOX, 35 Varick St., N. Y.

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GENTLEMEN: Received the machine and letter sent by you on the 8th inst. After an examination and trial of the former, sewing with it nearly the whole of several garments, including one of cloth, I can say that it gives entire satisfaction. Very respectfully yours, etc.,

H. L. CLARK.

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GENTLEMEN: On the 30th day of March last, my wife, Mrs. E. A. Floyd, inclosed \$10 to the Beckwith Sewing Machine Co., and waiting several weeks she became very impatient,

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Respectfully yours, etc., GEO. W. FLOYD.

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GENTLEMEN: The machine has been received, and works like a charm. Yours respectfully, R. H. BROWN.

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GENTLEMEN: Your machine was received in good order, and I think very highly of it, and they will find a ready sale. Should be very happy to take the agency or buy machines of you to sell again. Yours truly,

B. L. DENNISON.

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Very respectfully, WM. H. BALL.

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GENTLEMEN: Yours of late date to hand, and contents noted. Am glad to learn your demand is more than you can supply, and hope you every success possible. My machine came all right, and such a novelty you can imagine, and so surprising to do such work, is really astonishing! Have experimented considerably, and am well pleased, and think I will soon be an expert at the business.

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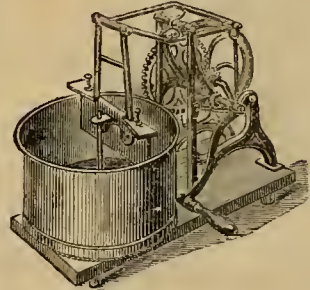
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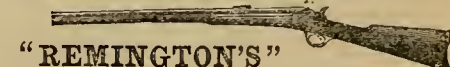
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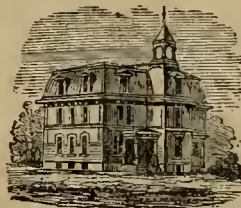
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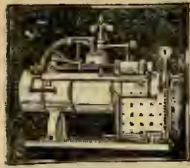
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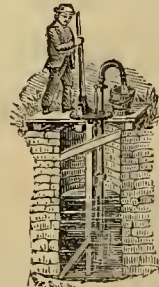
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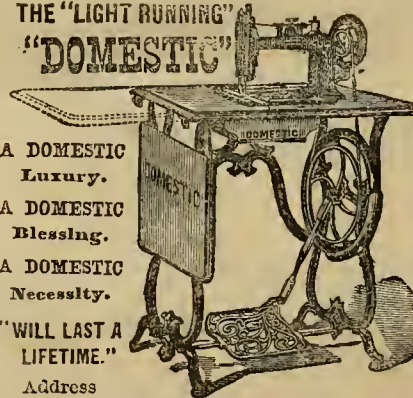
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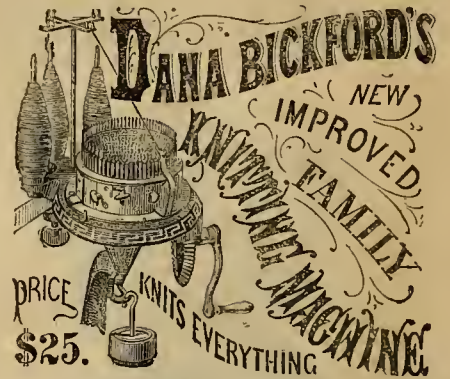
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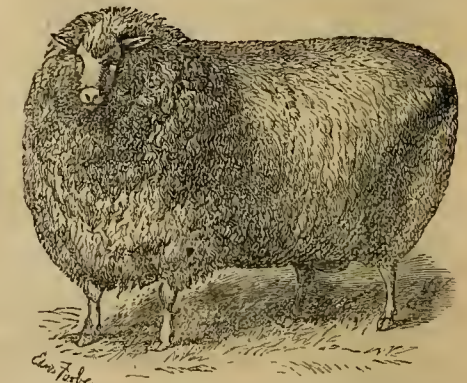
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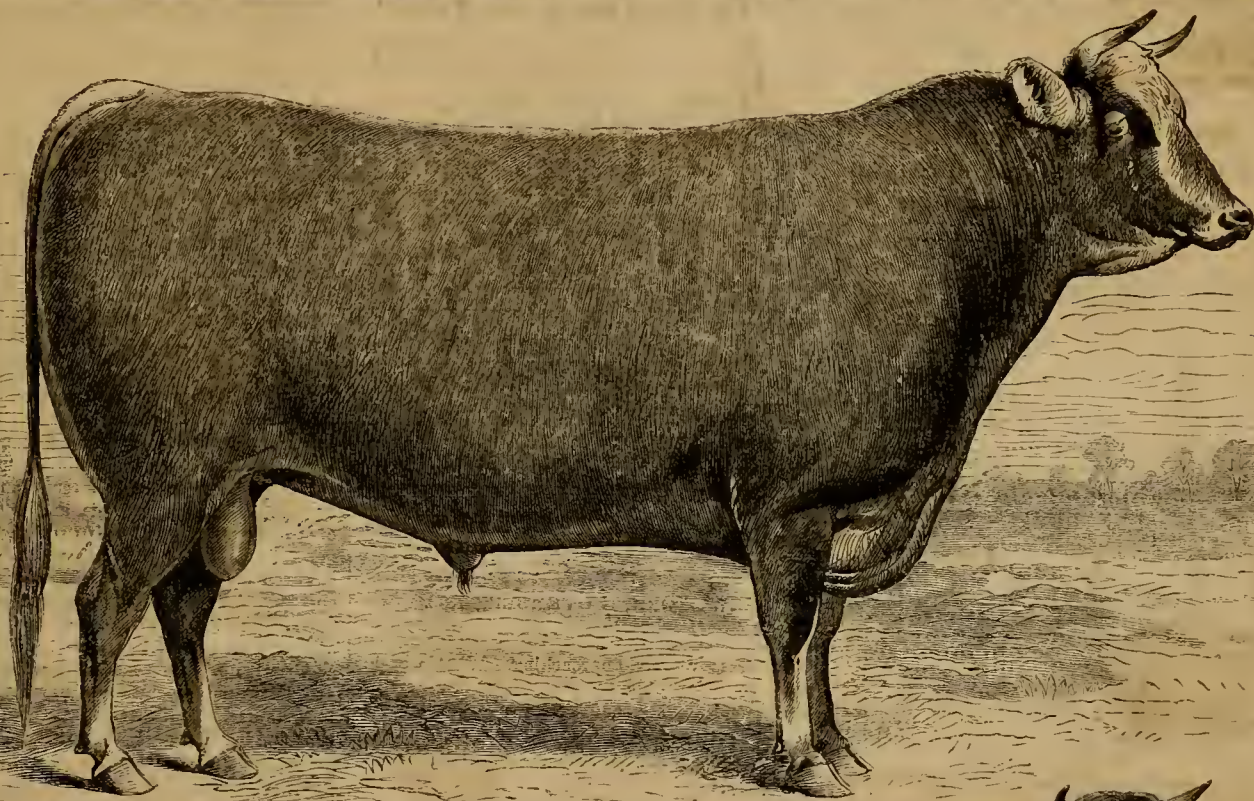
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VOLUME XXXI.—No. 11.

NEW YORK, NOVEMBER, 1872.

NEW SERIES—No. 310.



O. BAUERLE SC.

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JERSEY BULLS—BEACON COMET AND WACHUSETT.—*Drawn from life by E. Forbes for the American Agriculturist.*—(See page 411.)

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Table with columns for MOON, BOSTON, N. YORK, WASH'N, CHA'STON, CHICAGO.

AMERICAN AGRICULTURIST.

NEW YORK, NOVEMBER, 1872.

Winter is rapidly approaching. What we do must be done quickly. The days are getting shorter and shorter, and the weather colder and more uncertain. November on the farm seems to an outsider a dreary month. A city visitor wonders what pleasure we can find in such a life. He is glad to get back to the gas-lit streets and the warm and cosy rooms of his city home. Sitting in his comfortable chair, by a bright open fire, in a well-furnished library, reading the evening paper or talking with his friends, he may well be excused for congratulating himself that he is not a farmer. From his stand-point, farm-life seems dull, and dreary, and dirty! He forgets that the faithful performance of duty gives happiness. The farmer has plenty of work to do. And he finds pleasure in doing it. Digging potatoes and putting them in the cellar is dirty work. A farmer, with his pantaloons stuck in his boots, walking through a muddy bare-yard, or milking in the rain, is not an attractive picture. Carrying will to the pigs is not an ennobling occupation. It is no use to deny it. But we have known politicians to do dirtier work with less benefit to themselves and the country. Farmers should guard against plodding. Let us work when we work. Let us put spirit and force and energy and thought into all that we do. Let us study to economize labor—to apply it to the best advantage. Let us discipline ourselves. There is much in a farmer's life to call out all the best, highest, and noblest faculties of our nature. It has been truly said that no one can succeed as a breeder unless he is a gentleman. And it is no less true that to attain the highest success a farmer must be a man. The field that demands the most attention is himself. He should aim to root out every bad habit, and to develop every manly quality. He must be prompt, regular, systematic, thoughtful, energetic, industrious, orderly, kind, not easily provoked, temperate in all things, economical, hopeful, and patient. We are very sure that there is no occupation more useful and honorable than agriculture, and

none in which there are more frequent opportuni- ties for the cultivation of every noble faculty.

Hints about Work.

It is a good plan to write down a list of every- thing that has to be done before winter sets in on the farm, in the garden, in the orchard, in the wood lot, in the barns, sheds, horse and cow sta- bles, corn-house, piggery, hen-house, cellars, etc., etc. Consult with the members of your family and the hired help on the subject. Encourage them to give an opinion as to the best way of doing the work and how long it will take. Go as much as possible into details—especially in regard to the implements, tools, etc., that will be needed.

What to do first is an important question, and should have careful consideration. You must take the uncertainty of the weather into account, and aim to plan so that whether it is wet or dry, cold or warm, there shall be no loss of time and no loss of or injury to crops. It shows bad planning to husk corn in the barn during warm, dry weather, and afterwards to dig potatoes in a snow-storm.

The Most Important Work for the month is the care and management of animals. In our anxiety to push forward the labor of gathering and scen- ring the crops we too often neglect to give that daily attention to our live-stock, on which so much of the loss or profit of farming depends.

Horses.—Avoid as far as possible exposing horses to storms. When on a journey aim to feed at the regular hour. If nothing more can be done, take along some corn-meal and put a quart in a pail of water, and stir it up while the horse is drinking. It will greatly refresh and strengthen him. Many horses suffer from dyspepsia, and one great cause of it is irregularity in feeding and giving too much grain when the horse is fatigued. When a horse has been exposed to a storm, and comes home in an exhausted condition, give him a warm bran- mash. Put two or three quarts of bran in a pail, and pour on two or three quarts of boiling water and stir it up. Then add cold water sufficient to cool it to the temperature of new milk, and give it to the horse. Blanket the horse and rub his head, ears, and legs dry, and afterwards rub him dry all over. Many an attack of colic would be avoided by these means. We think many farmers err in not feeding their horses more grain. It would be better to work harder, or at least more constantly, and feed higher. Of one thing we are very sure: not one farmer in ten grooms his horses sufficiently. It is a shame to a man to leave a horse at night, after a hard day's work, until he has been rubbed clean, dry-bedded, and all his wants attended to.

Cows.—During storms cows are far better in a dry stable or shed than in the field. A little extra feed in the shape of corn-fodder, hay, bran, or corn- meal will prove very profitable. It is a good plan to flesh up a cow at this season. You will get it back again in milk next spring and summer.

Young Cattle should be liberally fed and pro- vided with comfortable quarters. It pays to give a growing animal all the food it can eat and digest.

Sheep.—There is nothing so essential to the health of sheep as dry land, shelter from storms, and fresh air. Low, wet land, dirty yards, and close, damp quarters are fatal to their health and vigor. In dry weather, no matter how cold it may be, sheep are better in the field, but during storms they should be brought into the yards, and kept dry. If they do not go under cover of their own accord, they should be driven in and shut up until the storm is over. Animals do not always know what is best for them. "Nature" is all very well, but reason, observation, and experience are far better. But we repeat that the shed or barn must be dry, clean, and well ventilated. At this season of the year grass is often too succulent and deficient in nutri- ment, and it is very desirable to give sheep access to good hay, and half a pint of grain each per day, or a pint of bran, can often be fed to great profit.

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rapidly and mature early, require liberal feeding while young, and will pay well for it.

Breeding Ewes should be selected with care. Draft out all that have lost their teeth, have bad udders, or are in any way defective. Select the ram with even still greater care. He ought to be pure-bred, and as near perfect as you can get him. A defect in a thorough-bred will be impressed more strongly on his offspring than the same defect in a ram of mixed blood, and so will his good qualities. Put but one ram in the flock at a time. It is well to remove him every evening and shut him up for the night, and give him a pint of oats and a pint of bran. It is also very desirable that the ewes have liberal feed for some time before and at the time the ram is with them. Salt regularly, and see that they do not want for water.

Lambs should be kept in a flock by themselves, and have the best of food and care. If any are affected with scours, give half a pint of milk porridge, made with wheat flour.

Ticks are often very troublesome in winter or early spring, especially on long-wool lambs. If not already done, dip all the lambs and sheep in a solution of carbolic soap. Use warm, soft water, and dip the sheep in all over, except the head. Select a dry, sunny day for the operation. Squeeze the wool as dry as possible with the hands, and the sheep will not be likely to take cold.

Swine.—Push forward the fattening pigs as rapidly as possible, and dispose of them as soon as ready. We shall be obliged to accept what we can get. Next year prices will probably be higher, and as corn is cheap, it may be well to keep over our spring pigs rather than fatten them now. Young pigs of this fall's litters should have good care and abundance of nutritious food. Keep them growing rapidly through the winter, and next summer they will thrive on clover, and a little corn will make them ready for the butcher early in the fall. Select good-sized sows for breeding, and secure a well-bred boar. Those who improve their stock of swine are sure of their reward.

Poultry.—Select out the best for breeding, and fatten and dispose of the rest.

Fall Plowing.—As long as the ground is dry enough to work we would keep the plows and cultivators going. Except on the lightest sands, which are liable to leach, there can be no doubt of the advantages of stirring and exposing the soil; and our springs are so short that we should aim to do as much work as possible in the autumn. Plow or cultivate corn stubble and potato ground.

Digging Potatoes.—Use every dry day in finishing this work. There is nothing to be gained by delay, and much to lose. See Hints for last month.

Harvesting Root Crops.—Mangel and other beets should be gathered at once, as they are liable to be injured by frosts. Swedes and other turnips are less liable to injury, but it is better to secure early all that are to be put in pits or in the cellar. It is hardly worth while trying to preserve the tops. Feed them out now, giving plenty of dry food, such as hay and bran, in connection with them. If mangels are kept in pits, be very careful to provide plenty of "chimneys" for ventilation. Our own plan is to put a board lengthwise of the pit on top of the straw, putting only dirt enough on it to prevent the wind from blowing it off. This will keep out the rain, and it can at any time be lifted with a crowbar and the heap examined. If the straw is wet and the roots warm, the heap needs ventilating. We kept 3,000 bushels of mangels in pits, last year, in this way, without loss. We need hardly say that a perfectly dry location is essential.

Carrots not needed until spring, are best kept in pits. Those put in the cellar should be "corded," and not thrown in a heap. The more soil there is mixed with them the better they will keep.

Parsnips are not injured by being left in the ground all winter, and if fed out early in the spring, before they commence to grow, this is much the better way to keep them.

Cabbages are best preserved by plowing a deep

"dead-furrow" in a dry soil, and then lay the cabbages with the roots up in the furrow, and cover the heads with soil. Be careful that no water gets to the heads. Do this in dry, cold weather.

Get Ready for Winter.—If stones are placed in large heaps, they can be drawn where they are wanted for fences or other purposes in winter while the snow is on the ground. Large stones should be lifted with a crowbar, and a small stone or piece of wood put under them, to keep them off the ground; otherwise they will freeze to the earth, and can not be removed without great labor.

Underdrains can be dug in winter, even in the Northern States, provided you make deep dead-furrows where the drains are to be cut before winter sets in. The snow blows into the dead-furrows and keeps out the frost.

Gravel for roads should be screened so as to remove the sand. It can then be drawn on sleighs in winter, and much labor will be saved. One load of screened gravel is worth three loads mixed with earth. There is dirt enough already on our roads.

Work in the Horticultural Departments.

The pleasant weather of October has given the gardener time to make everything in and around the garden snug and ready for winter. The harvests of vegetables and small fruits have been unusually large the past season, but unless continued exertions are made bountiful harvests will not be had. It is only by long and arduous labor that a gardener becomes successful, and through the use of improved methods and labor-saving implements. In the more southern latitudes, out-door work can be continued during the month, and it must be remembered that a man can do more labor in a day at this season than during the hot and sultry days of August and September, even though the number of working hours is less now than then. Everything in the way of rubbish should be cleared up, so that the grounds may look neat during the winter, and also to save much valuable time in the spring when work is pressing.

Orchard and Nursery.

Many of the operations mentioned in this department last month will hold good for the present, and a little careful thought will suggest others which we may fail to mention on account of space.

Planting done now will save a great deal of time in the spring, and trees are pretty sure to live in moderate climates if properly planted, and protected around the roots with a good mulch.

Seeds of trees for nursery stock may be planted now and subjected to the action of frost. Chestnuts, walnuts, acorns, peach-stones, etc., are much more likely to germinate than if allowed to dry until spring. Seedlings raised last spring will need mulching, and to be protected from cold winds by means of evergreen boughs or board fences.

Heeling-in.—When trees are not planted at once in the orchard, it is customary to lift them from the nursery rows and heel them in. When treated in this way they do not start until until two or three weeks after those left in the nursery. There is danger, however, that the work will not be done properly, and many do not advise it, but if the trees are carefully lifted, and no air-holes left around the roots when set in the trenches, the process is perfectly safe and reliable.

Ripening is the first step towards decay, and the more this process is retarded the longer the fruit remains in a sound condition. The fruit-room should be opened whenever the temperature will permit, or when it is not warmer outside than in.

Stocks for Root-grafting.—Take up, assort, and tie in convenient sized bundles, pack in boxes of sawdust or sand, and place in a cool cellar.

Fruit Garden.

Pears that have been carefully preserved will bring good prices now if put up neatly. The best method of marketing choice specimens is to pack

in shallow boxes containing a single layer of fruit each, wrapping each pear in soft white paper.

Covering plants, whether with earth or straw, should not be done too soon, nor left until too late. The best time is just as the ground is about to freeze; if covered before this, there is danger of the plants heating, and consequent decay.

Root-Cuttings of blackberries, raspberries, etc., are very easily made, and where a stock of any new or valuable variety is needed this is the readiest method of propagating. The roots are cut into pieces of two or three inches in length, and packed in a box containing earth; the box should be provided with holes to allow water to run off, and then buried in a dry place deep enough to be safe from frost; if the ground is naturally moist, provide a drain.

Cuttings of gooseberries, currants, and quinces may be planted now, taking care to press the soil firmly against the lower ends of the cuttings.

Grape-vines.—This is the best season in which to trim grape-vines, unless they can be pruned very early in the spring before the sap has commenced to flow. There have been so many methods given in previous numbers of the *Agriculturist*, that it will not be necessary to repeat them here; but whatever method is employed it is best to leave upon each cane one or two buds more than are necessary, in order to guard against winter-killing; the extra buds may be cut off early in the spring. Do not cut the cane off close to a bud, but leave about an inch of wood above each bud.

Grape Cuttings.—The wood cut off in pruning may be used for propagation. Cut into pieces of six or eight inches in length, and tie in convenient bundles and bury in sand, and place in a cool cellar.

Kitchen Garden.

Look over the directions given for last month concerning the preparations for the soil, etc. See that as much of the soil is spaded or plowed up as possible. Grass land intended for use next summer should be heavily manured and plowed. Put in drains where they are needed.

Asparagus.—After the frost has stopped the growth of the tops, cut them off and burn, and apply a heavy coating of manure.

Roots.—After digging what parsnips, salsify, and horseradish are needed for winter use, the remainder may be left in the ground over winter. If the other root crops have been harvested and stored, as recommended for last month, they may be covered with earth as soon as settled cold weather renders it necessary.

Manure.—Every means should be used to increase the stock of manure, and everything that can be converted into a fertilizer should be carefully saved. Plenty of dry earth should have been secured to use in the earth-closets. Save all house slops, provide a heap of soil through which are placed layers of leaves to receive them; it will become a valuable fertilizer next spring.

Rhubarb.—Better transplant for new beds now. Cover the old beds with plenty of manure.

Cold-Frames.—Cabbage and cauliflower plants wintered in a cold-frame often suffer from too much heat; they will bear considerable freezing without injury. Place the sashes on the frames at night only, unless the weather is unusually cold.

Celery may be stored in trenches now, or left until later in the ground banked up with earth. The trenches for storing it during the winter are to be made a foot wide, and as deep as necessary to admit the plants. The roots are to be set close together without any earth between, and when cold weather comes on covered with straw and boards to keep out the rain.

Cabbages.—Store as recommended for last month, but wait until the ground is about to freeze up before giving the final covering.

Spinach.—Apply a slight covering of hay or straw to protect it through the winter. In the warmer latitudes it may be thinned and sent to market.

Soil.—Prepare soil for use in hot-beds next spring.

If left until then, it is likely to be frozen so hard that it will be difficult to procure it. Store in some place convenient to the hot-bed, and cover with boards or sods.

Sweet-Potatoes.—Dig as soon as the frost has touched the vines, selecting a warm day. Put them in barrels after they have dried an hour or two in the sun; pack in dry, chopped straw, and place them where the temperature will not fall below 60°.

Flower-Garden and Lawn.

Comparatively little can be added to the notes given last month, most of which will answer for now. Always bear in mind that a day's work done in the fall will be so much saved in the spring.

Planting can still be done in some places this month, but all trees and shrubs planted now should be mulched thoroughly to prevent the roots being dried by cold winds.

Bulbs should have been planted last month, but if the ground is still open they may be put in now with good results. Cover all bulb-beds with a coating of leaves or straw.

Chrysanthemums.—Stake those which are now in flower. They are generally hardy, but keep better if the roots are taken up after they are done blooming and kept in a cool cellar.

Dahlia.—Take up those still in the ground, and after drying the tubers thoroughly, store in a cool cellar, or under the stage of a cool greenhouse.

Protection.—Those things which are to be covered should be attended to as soon as the weather gets very cold. Straw, evergreen boughs, and hay are all good substances to cover with.

Lawn.—If the lawn needs mauling, use fine, well-rotted stable-manure spread over the surface evenly, taking care to break all large lumps. In the spring this may be raked off, leaving the lawn in a good condition.

Greenhouse and Window Plants.

Look out for sudden changes in the weather. A sudden cold snap may do a large amount of damage to valuable plants if provision is not made for heating the greenhouse on short notice. The heating apparatus should be in good order, so that no delay need occur when it is wanted for use.

Insects.—If the plants were returned to the greenhouse properly cleansed, the few insects that make their appearance during the winter may be easily held in subjection.

Bulbs.—Some of those potted last month may now be brought into the greenhouse. In order to get flowers for the holidays, six weeks in the greenhouse will be sufficient.

Camellias.—Keep the plants in a cool place, so as to retard the flowering. A few for early blooming may be brought into heat now.

Propagation.—A stock of cuttings may be put in now for early spring flowering.

Climbers.—A greenhouse should be provided with plenty of climbers, in order to cover the posts and rafters as much as possible. Passion-flowers, Hoyas, etc., produce a good effect. If quick-growing plants are wanted, Tropæolums are valuable.

Window-Boxes will need refilling and arranging, so as to make a good show during the winter.

Hanging Baskets make very pleasing ornaments for a room, and if carefully arranged and tended they are a source of pleasure during the winter.

Commercial Matters—Market Prices.

Gold advanced to 115½ and declined to 112½, closing October 12th at 113 against 113 on the 13th of September. The movements in Breadstuffs, since our last, have been on a liberal scale, both in the way of receipts, sales, and shipments of the leading descriptions, with, however, a variable market as to prices, influenced to a considerable extent by the fluctuations in gold, the stringency in the money market, and the comparative scarcity of ocean freight room. Flour, Wheat, and Barley closed in

favor of buyers, while Corn, Rye, and Oats left off with more firmness. The Provision trade has been less satisfactory. Pork and Bacon have been irregular in values; Lard, much depressed; Beef, about steady; and the finer grades of Butter and Cheese held with more confidence. Wool has been quoted lower, and unusually dull, manufacturers purchasing very reservedly, and only to supply urgent wants. Cotton has been quite active, but cheaper, closing, however, rather buoyantly, as the offerings of stock fell off considerably. Hops receded rapidly under large receipts of new, but closed steady, on a moderate business, at the reduced figures. Hay, Hemp, and Seeds quiet. Tobacco in moderate demand, and quoted stronger in price.

The following condensed, comprehensive tables, carefully prepared specially for the American Agriculturist, show at a glance the transactions for the month ending October 14, 1872, and for the corresponding month last year.

Table with 5 main sections: 1. TRANSACTIONS AT THE NEW YORK MARKETS. 2. Comparison with same period at this time last year. 3. Exports from New York, Jan. 1 to Oct. 10. 4. Stock of grain in store at New York. 5. Receipts at head of tide-water at Albany each season to Oct. 7th.

CURRENT WHOLESALE PRICES.

Table listing prices for various commodities including Flour, Wheat, Corn, Rye, Barley, Oats, Beans, Peas, Eggs, etc., with columns for Sept. 13 and Oct. 11.

New York Live-Stock Markets.

Table showing live stock market data: WEEK ENDING, Receipts, Cows, Calves, Sheep, Swine, etc., for Sept. 16th, 23rd, 30th, and Oct. 7th.

Beef Cattle.—The features of the market for the last four weeks have been much the same as for the month ending September 9th. Good cattle have been comparatively scarce, and with slight fluctuations, prime native steers have ruled steady and firm at full prices; but the market has been over-supplied, sometimes absolutely glutted with Texans, Cherokees, and immature rough native, and for all grades below fair prices have ruled low, and the trade has been dull and unsatisfactory. Common to fair Texas cattle have been generally sold at 7½¢. @ 8½¢ per pound, to dress 55 lbs. to the gross cwt.; fair to fat Cherokees at 8½¢ @ 10½¢; and common to strictly prime native steers at 9½¢ @ 13½¢ per pound to dress 56 lbs. and 60 lbs. to the gross cwt., some very common mixed lots of State steers and heifers falling to 8¢ @ 9¢, and a few extra and premium bullocks rising to 14¢ @ 15¢. To September 30th last 342,505 Texans passed eastward through Kansas, by the Chisholm Trail, against 411,341 to the same date last year, a falling off of 98,839; but the number received at this point has been larger than for any previous season.

Table showing prices of the past 4 weeks for various live stock categories like Range, Large Sales, and Averages.

Milk Cows.—The receipts for the month exceeded the arrivals during the previous month by an average of 15 per week, and the demand has been barely equal to the supply. Good cows have been quickly sold at satisfactory figures, ranging from \$55 to \$75; and extra large, fleshy cows, with evident fine milking qualities, were taken by private parties at \$85 to \$95, and one at \$105, but poor trash, culled from dairy herds, had to be sold at bayers' own figures—\$25 to \$35. Calves.—With no important change in the numbers received weekly, the market has been unusually steady; and for fat, milk-fed veals, prices have ruled high and firm. Common to good milk-fed could be sold on almost any day at 7¢ @ 10¢ per pound, and grassers at \$5.50 @ \$12 per head, chiefly at \$6 @ \$8. Sheep and Lambs.—The market has been fair, with no very large or sudden fluctuations in prices, but shippers have complained of the slim margin for profit, and often of considerable losses. Towards the close of the month the receipts were heavier than the immediate demand called for, and most of the advance which had been gradually made during the previous three weeks, was lost, the latest transactions being at 6½¢ @ 6¾¢ per pound for common to prime sheep, in lots; and 6½¢ @ 8½¢ for lambs—a few of the best sheep going at 6¾¢ @ 7¢, and choicest State lambs at 9¢. Swine.—The total for the month shows a large increase, and the demand has more than kept even pace with the increased supply, so that a slight advance has been made in prices, with a decidedly active trade at the close. Dressed hogs readily sell at 6¾¢ @ 7½¢ per pound; pigs at 7½¢ @ 7¾¢, and live hogs at 5½¢ @ 5¾¢. Jersey pigs, dressed, are selling at 8½¢ @ 9½¢ per pound.



containing a great variety of items, including many good Bibles 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 Volume Thirty are now ready. 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.

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.

Other Items for which there was not room in the "Basket" will be found on page 437.

Steel Engravings and Lithographs of a single color are very common and very cheap now, as it costs but a penny or two to strike off copies, after a single plate or stone is prepared, even though of very large size. Good steel engravings will always hold a high place, as they are valued by many, but the demand runs largely to oil-paintings in lively colors, and the perfect copies of them now made by the chromo-lithograph process, which are by far the most popular as well as the most pleasing.

No more Stamps.—Since the first of October last, no stamps are required on receipts or legal documents, as deeds, mortgages, or bonds; only bank-checks now require stamps.

Gather Leaves.—There is no more valuable waste product of those farms which possess wood lots than forest leaves. They make excellent bedding for all stock, are one of the best absorbents, decay very rapidly, possess valuable fertilizing properties, and cost nothing but labor to gather them. They should be raked up before snow falls, gathered into heaps, loaded by means of large barn-baskets into hay-racks with the open sides closed up by light boards, and stored in a shed for use during winter.

Blunt's Mushroom Strainer.—We have examined this very ingenious device for straining the water entering the suction-pipe of any kind of pump. We take pleasure in recommending it as an improvement on all the strainers we have hitherto seen. While it will work perfectly in only three inches of water, it is better than the usual form for deep water, as when the water is let out of the suction-pipe it can not rattle the well by its action on the bottom. Any one having a strainer that is not entirely satisfactory would find this one to be all they could desire.

Taylor's Horse and Cattle Food.—"G. E. W.," Millin Co., Pa., asks whether Taylor's Horse and Cattle Food, advertised in *American Agriculturist*, would be any help to him in keeping his stock in good health.—We believe it would. We have investigated this article, and one of our associates has tried it with good results. We find that it is favorably thought of by the superintendents of several horse-car companies, and used regularly by them. It is quite certain that cattle and horses need some condiment given with their feed, regularly, to keep them in good health, and we believe this "vegetable food" is as good as any in the market.

Conventions of Stock Breeders.—The National Convention of Short-horn Breeders is appointed to meet at Indianapolis on the 27th November. Delegates have been appointed from many of the States, of which we have been advised, and it is to be hoped that no State will fail to be represented at this Convention. The Swine Breeders' Convention is appointed to meet at the same place, immediately on the close of the Short-horn Breeders' meeting, and as important matters are to be then and there considered, those interested would do well to make a point of attending. Delegates from each State and Canada will be in attendance.

A German Almanac.—The *Illustrirter Farmerfreund*, 1873, an agricultural almanac edited by H. Nicholas Jarchow, is just published by Orange Judd & Co. It contains besides a calendar hints about work, followed by several valuable agricultural articles. This Almanac is beautifully illustrated. 12mo, 144 pages. Price 35 cents.

Records of the Weather.—The Annual Report of the Meteorological Observatory of Central Park, New York, is received. This is a valuable contribution to the general mass of information by which the apparently unstable operations of the weather are reduced to tables of averages, from which laws may be deduced. Dr. Draper shows conclusively in his report that the climate has undergone no change, so far as can be ascer-

tained by the records available, which date from so far back as 1750. On the contrary, certain periods, into which the whole time may be divided, show that the average temperature of each agrees very nearly with that of the others, showing that the changes in the physical condition of the surface of the country—the removal of the forests and the breaking up of the surface for cultivation—has had no disturbing effect, on the whole, either on the temperature or the amount of rainfall. But our own observation in the course of years goes to show that while the rainfall and temperature may remain the same, yet the evaporation from the soil and the rapid disappearance of the rainfall from the surface and the instability of streams are much augmented by the rapid clearing of formerly wooded countries; and as these effects are very noticeable to ordinary observers, it is easy to see how the popular idea is created that our climate is seriously affected, while to a scientific observer no such results are apparent. And yet, practically, to the farmer there is a marked difference, which interferes to some extent with his operations.

A Novel Directory.—We have before us a neat volume of 500 pages, entitled the "Tobacco Trade Directory," giving some 60,000 names and locations of tobacco manufacturers and dealers in various parts of the world, comprised in five parts: 1st. Tobacco manufacturers in the United States; 2d. Cigar manufacturers in the United States; 3d. Dealers in tobacco and cigars in the United States; 4th. Manufacturers and dealers in foreign countries; 5th. General index for every town in the United States. Such a work must have cost a great amount of labor, and will be useful to all interested in this branch of business. The work is issued by the "Tobacco Leaf Publishing Company" of this city, and supplied at \$5 per copy.

Many Matters.—"A Subscriber," Baltimore Co., Md., sends the following inquiries: 1. Will apples eaten by a cow injure the milk, in taste, or any other way? 2. Will Lima beans succeed in the same ground, year after year, if it is well manured? 3. Is it well to manure and plow the ground in the fall for a corn crop next spring? 4. Will plaster have as good effect on grass when spread in the fall as when spread in the spring?—Replies. 1. No.... 2. Yes.... 3. No. Corn loves fresh manure and is a rank feeder.... 4. No.

An Old Discovery.—"J. C. G.," East Tenn., has discovered a plan by which 1½ gallon of syrup can be extracted from a bushel of corn-meal, and asks if it would do to take out a patent.—By no means. There are doubtless several patents referring to these processes now in existence, and several more expired, for the discovery is very old. It would be more profitable to make good sweet pork or beef out of this meal than to make a poor substitute for cane-syrup.

Mushroom Culture.—"A. J. R.," Saratoga Co., N. Y. Henderson's Gardening for Profit gives a chapter on mushroom culture. The most thorough work upon the subject is by W. Robinson, Esq. Price, \$3.

Live-for-Ever.—"S. S. D.," Sullivan Co., N. Y., has some of his land "literally thatched" with "Live-for-ever," and wants to know how he shall get rid of it.—This plant, *Sedum Telephium*, is a nuisance, and needs close attention and constant work to get rid of it. The best method would be to mow it as closely as possible, carefully raking up and burning the stems, and by plowing the ground and harrowing turn out the roots, which should be gathered up and destroyed. The ground may be cropped with potatoes and corn, and hoed carefully, until free from the weed. Clear the headlands.

Aylesbury Ducks.—"J. G. McR.," Adairsville, Ga., has purchased some Aylesbury ducks, the majority of the progeny of which have black spots on their heads; he fears he has been imposed upon.—This is questionable. Very often it is found that pure-bred poultry do not breed true to feather, and it is very rare, if ever, that a brood of young are all perfectly marked. It is necessary to mate only perfect birds, and keep weeding out the imperfect ones.

New Jersey State Fair.—The annual fair of the New Jersey State Agricultural Society for 1872, held at Waverley, was well attended, more especially that portion of the grounds which commanded a view of the race-course. The show of implements was very meager, the fruits and vegetables, at least those grown in the State, were not such as should satisfy the requirements from such a State as New Jersey, while the stock—with the exception of the horses, which were kept carefully preserved from view in close stalls, and of which nothing can therefore be said—was very deficient

in quantity and of a very low standard. Is it that the interest in these things is falling away in New Jersey, or what is the matter?

The North Pacific R.R.—The collection of agricultural productions from the Territories opened up by the North Pacific Railroad, now exhibited at the American Institute Fair, is very remarkable as showing the immense fertility of the soil and the favorable climate of those regions. Wheat and oats are shown, both in the straw and grain, which are simply magnificent. The wheat is readily seen by the samples in the straw to yield the amounts stated—viz., 40 bushels per acre of grain weighing 60 to 66 pounds per bushel. Oats yielding 60 bushels, weighing 45 pounds per bushel; timothy sufficiently heavy to ent three tons of hay per acre; several varieties of corn, roots of monstrous size and perfect shape, fruit of fine appearance, specimens of timber, coal, and other minerals—all these go to show that there is no production of the soil wanting to make these North-western regions the homes of millions of successful and wealthy farmers and equally successful and independent artisans. The exhibition is one of the most striking and interesting features of the Fair.

Diseased Potatoes.—"C. G.," Cornwallis, Nova Scotia, asks if it will injure cows to feed diseased potatoes to them. If fed raw they will cause dangerous diarrhoea, but if cooked no harm will occur.

See Page 437 for various items that were crowded out of these pages.

SUNDRY HUMBUGS.—A Tennessee subscriber, referring to our September showing up of the so-called "Rev. Edward Wilson," says his advertisement is in nearly every one of the Southern newspapers, and nearly every place in all that section has one or more of his patients (dupes we should say). One of our correspondent's neighbors took the precaution to write to a Williamsburgh friend about the "Rev.," and received the following terse reply: "First, there is no such a man at the number indicated. Secondly, He is a woman. Thirdly, it is a vile humbug."... An Egyptian corn and "Chion" swindler calls himself G. W. Cornwellie. His name is not in the New York Directory, nor is the name of any one of the bankers, etc., whom he gives as references—one of whom he locates at 449 Wall street, while there are only 120 numbers in that street! His whole story is a humbug, yet so plausibly told that probably he will catch a good many farmers, and get the \$3 out of them which they could not afford to pay for this paper for a couple of years. When they get nothing for their money, they may become wiser and join those who enjoy the benefit of these columns. ... And now comes another "Old Mother Noble"—viz., old Mrs. Abbie M. Cole, a soldier's widow of course, and she wants people to dose themselves with "Old Jonas Appleby's" Sore Medicines, which, according to his daughter (Mrs. A. M. Cole), is a cure-all for nearly all the ills that flesh is heir to. Well, "it takes all kinds of people to make up an assortment," and we suppose there are many of the species that swallow what Mrs. (Mr.?) Cole tells them and sells them—especially the *self*. ... Hoorah! The temperance lecturers can hang up their violins and retire. Druggists had better lay in a very small allowance of opium, for the price will soon fall tricenarily. "Cause why?" Why, one Dr. Beers (not birer, nor beer, nor bear) has discovered a cure for drunkenness—says he has permanently cured over 10,000 inebriates already, and he also advertises a cure for opium-eating. He says there are 100,000 opium-eaters in the U. S. and as all these want to be cured, and he can do it, won't the opium trade have a wonderful decline! Nonsense. See report of our Libel Suit—Dr. Byn's—who advertised a cure also, (in *Heath and Home*, Vol. IV, No. 16.) We charge nothing for the following "prescriptions," which are similar to several we have known of being sold at high prices, and ours is just as effective, and we will merely add that our prescriptions are infallible if "taken according to directions," and here they are: First, To cure your drunkenness, stop drinking liquor. Second, To cure opium-eating, stop eating opium.—N. S. "Marriage Guides," etc. We have a dozen, more or less, of books on matrimony, marriage, and the like, probably all that have been advertised by circulars and otherwise, and we pronounce every book of this kind a humbug. They are got up to advertise the maker or sellers, and draw customers for medicines. Don't read or touch one of them, if you would be safe. The latest one, pretending to tell you a great many things you ought to know, is made to appear to be written by a distinguished physician, and he is said to be connected with a college which does not exist. The pretended "medical institutes," colleges, etc., in Boston, New York, Philadelphia, and elsewhere, including the "Howard Associations," etc., which advertise medicines, and to send prescriptions, are not

to be trusted. These names (medical colleges, etc.) are fictitious assumptions put forth by quack-doctors, who combine in their own person the whole "faculty." There is not a single medical institution that advertises medicines and practice which is trustworthy. . . . The circular of the Albany "Dr. Pardee" contains within itself enough to tell all sensible readers of it whether to send money to him or not, and as others are not likely to read the *American Agriculturist*, we save the room and disgust of treating of him here. This applies to sundry other "medical" pamphlets, "marriage guides," etc., now before us. . . . Every perambulating doctor going through the country with marvelous pretensions, and pretending to be connected with some New York, or London, or Glasgow, or Dublin, or Philadelphia hospital or college, is a thorough quack and humbug. Pray don't put your lives, health, and money at the mercy of these swindlers. This is to answer many special inquiries from Connecticut, Maine, Ohio, Georgia, Minnesota, Tennessee, etc. . . . Newspaper subscription agencies, with great promises, are now located in various parts of the country. Some of these are good and trustworthy, and some are not. We can not yet answer about those that are particularly inquired about. . . . The "Queer" or pretended counterfeit money operator at 609 Broadway, New York, pockets all money sent him, and sends to those ordering, by express, boxes of "sawdust" and old papers with large hills, "C. O. D."—that is, pay the bill before you take your box from the express company, and in a secret place find out what it contains. To blind the letter-carriers, he adopts a great variety of names. We have a large number of his confidential circulars sent to us from all over the country. On these we find the following names sent to different parties with practically the same circular: Stewart R. Parks; Melrose L. Weston; Dr. Chas. F. Tucker; Morton T. Philips; C. W. Clute; Chas. Ring; Geo. W. Ball; Col. Henry Frost; Wm. H. Becket; L. S. McIntyre; L. M. Henderson; Wm. Barteman; Wm. H. Anderson; Geo. W. Bal; W. L. Wholley; B. F. Haller, etc. Others (or the same man) operate at 34 Amity street and 193 Broadway, under the names of Dr. James Meares, G. H. Geery, Anthony Debenham, etc., and as Amos Wainwright, at 170 Broadway, Trenton, N. J. . . . The "Spanish Polley" swindle is carried on ostensibly at 105 Bleeker street, under the name of M. O. Godwin, etc. . . . Circulars and tickets for a Sham Lottery in aid of Cuba have been scattered with a fine show of printer's ink. . . . A swindling chap in Newark, N. J., offers, among a lot of other trash, oroid watches, and unblinking prints letters from agents who relate how they pass those off as gold watches all over the South and elsewhere, selling them for \$50 to \$30 each, though they cost the seller \$9, and are not worth \$1. The same chap sells transparent cards with pictures so lowly that they must not be shown to respectable people. . . . Wells's Lottery (*alias* "Grand Distribution"), at Bridgeport, Ct., is being pushed vigorously. We thought lotteries were prohibited in the "Land of Steady Habits." It is, how! this one tolerated, for no casuistry can make this anything else than a lottery. . . . Our note in reference to B. Fox & Co., in June last year, has been construed by some as a *quasi* indorsement of them. If so understood, we take it back. The catalogue recently sent out by B. Fox & Co. contain advertisements of pictures, etc., etc., that should not be furnished by any respectable party. One parcel of our money sent to their address from a country post-office (through a friend) received no answer, and on his calling about it nearly three weeks afterwards, he was told it had not arrived. Our representative called *incoq.*, and examined some of the pictures, etc., set forth in their circular catalogue in such a way as to catch the lascivious imaginations of young men, and found them of quite a different character from the impression given of them in the circulars—they were of a character so modest as to be safe to sell. Of their value we let the purchasers judge. Of the fairness of advertising them in the colors set forth we have a decided opinion. We regret having been led—by the persuasion and special pleading of one of the firm, and by a desire to avoid even the slightest injustice—to give even the *quasi* indorsement in June last, which has made necessary further investigation and this explanatory note

Ozone and Plants.—Only a little while ago we were gratified to learn that flowers of strong perfume gave off the useful ozone. Now one M. Cloiz has clearly proved that they do nothing of the kind, and the beautiful talk that has been had about health-dispensing flowers was written all for naught.

A String of Questions.—"M. N.," Annapolis, Ill., propounds the following: 1. Are horses subject to distemper more than once? 2. Will the seed of grafted or budded peaches or cherries grow and bring the same kind of fruit they come out of? 3. How to prevent the bitter rot in apples? 4. Will wheat turn to chess or cheat? 5. Will the seed of weeds lie in the

ground longer than one season, and grow?—Answer 1. Yes. . . . 2. No. . . . 3. We do not know, and would like to learn. . . . 4. This question is altogether too old. There is no proof that it will. . . . 5. Yes, some seeds will remain for centuries, if buried deep enough.

Destroying the Turnip-Fly.—The Journal of Horticulture states that the market-gardeners around London have used with great success spent hops strewn between the rows of turnips. This either kills or drives off the flies. This is well worth trying; spent hops as a fertilizer are equal to stable manure.

A Fine White Rose.—"Madame Planter" is probably the best of the white roses. Not only is it a profuse bloomer, but it has fine foliage, and the plant is as hardy as a common brier.

Persian Walnuts.—"A. T.," Tipton, Iowa. We do not know where seeds can be had.

Again.—If persons choose to write to us upon matters of importance only to themselves, and withhold their names, their letters will find the most direct way to the waste-basket.

White Blackberries.—"R. H. C.," Lenke Co., Miss. These turn up every year in different parts of the country. Some have been named, and are cultivated by the curious, but none have become popular.

Mahaleb Cherry.—"G. R." This cherry will bear when the seedlings get old enough.

A Variegated Ice-Plant.—Mr. Peter Henderson informs us that one of the finest "foliage plants" for bedding purposes that he saw abroad, was *Mesembryanthemum cordifolium variegatum*, which name we might as well shorten at once to Variegated Ice-plant.

An Agreeable Fly-Antidote.—A writer in the Bulletin d'Agriciculture says that flies are so disgusted with the perfume of the Golden-banded Lily (*Lilium auratum*) that they will at once disappear from a room in which a flower of it is placed. We wish this were true—but we can all try it.

The Death of J. C. Thompson, of Staten Island, occurred early last month. Mr. T. was not only a public-spirited and highly-esteemed citizen, but a most successful horticultural and poultry amateur. Our back volumes contain several articles from his pen. He brought to his favorite pursuits not only enthusiasm, but a great deal of ingenuity and common-sense. Such men are too rare to allow their departure to go unmarked by a brief token of respect.

Wants a Mulberry-tree.—"S. K.," Woodbury, Pa.—For shade, either the white or black mulberry would answer; for fruit, Downing's Everbearing is best.

Double Fruits.—It seems to us that double fruits have been more than abundant this year. United cucumbers are of very common occurrence. We saw at Newburgh a plateful of double plums. Several apples, apparently two fused into one, have been brought to us. We have not heard of a doubled pear—save Père Hyacinth.

Potato Disease.—The English papers are amusing just now. The potato disease has appeared again, and almost every gardener who ever grew a potato feels called upon to "say his say." As a consequence a vast amount of nonsense finds its way into print. We have looked over much of this rubbish, and find but one practical suggestion, viz.: Plant early varieties, and plant early, as the disease only appears late in the season.

Road and Farm Engines.—Chas. Frankish, Abilene, Kan., wants a steam-engine for plowing, that does not use tackle, and is a perfectly practical machine.—Whether there is such a machine in existence or not is doubtful. There are engines perfectly capable of moving and drawing loads or plows over dry or solid ground, but it is a matter for experiment as yet whether they can be made to succeed under all the varied circumstances incident to plowing or cultivating the soil.

A Practical Concrete Builder.—A "Subscriber" who wished to correspond with a concrete builder, and whose address we have mislaid, by sending his address will be referred to the party desired.

Grass for Wet Meadow.—S. W. Jacobson, Otter Tail County, Minn., wants to know what grass-seed to sow on "a drained wet piece of land" the soil of which is soft and black. This land has probably

been only partly drained by open ditches, and in that case we would recommend Red-top (*Agrostis vulgaris*), to be sown at the rate of two bushels per acre.

Blackberries as a Substitute.—The Gardeners' Chronicle suggests, that when ordinary fruit is scarce we begin to look about for "available substitutes," and recommends the Blackberry. We infer from this that the Blackberry is not an "ordinary fruit" in England. Then the Chronicle recommends the poorest of all Blackberries, the Parsley-leaved, better known among us as the Cat-leaved. If they could have a fair chance at our Kittatinnies or Wilsons, they would throw away the miserable Parsley-leaved, and at once establish the Blackberry as an "ordinary fruit."

Plants Named.—"H. C. B.," Ellenville, N. Y., sends specimens of *Spiranthes cernua*, or Ladies' Tresses; a very pretty plant, bearing white fragrant flowers; described in the *Agriculturist* for Nov. 1871. *Caladiums*: see item on page 423. . . . "I. V.," Fairport, Mich. Your plant with fragrant white flowers is *Valeriana sylvatica*, commonly known as Valerian. . . . Susan King, no State. *Tilia Europæa*, or European Linden. . . . E. B. Coles, Opelousas, La. The specimen sent is *Physostegia Virginiana*; its common name at the North is False Dragon-head. E. B. C. writes that in Louisiana it is known as "Lady of the Lake," on account of its growing near the water. . . . "J. P. A.," Pine Bluff, Ark., sends *Vaccinium arboreum*, or Farkleberry. We never heard of cattle being poisoned by eating the leaves; it belongs to the genus containing the cranberries, blueberries, etc. . . . "Glades," Virginia, sends the same plant as the above in fruit; the berries are mealy and insipid, and ripen late in the fall. . . . R. Sharpe, Eckley, Pa. The climbing plant with pea-shaped pods is *Amphicarpæa monoica*, or Hog Peanut; a very pretty vine, with small clusters of purplish flowers, and has pods underground.

The Vienna Exposition.—Our associate editor, Col. Waring, has been appointed a member of the Advisory Committee to aid the U. S. Commissioner and Chairman of the sub-committee having charge of the items of Agriculture, Horticulture, and Forestry of the American contribution to the great exhibition at Vienna. All who are interested in this department of the exhibition may obtain fuller information by addressing Col. George E. Waring at Newport, R. I.

English Persistence.—Because some one named the California big trees Wellingtonias, most English writers as a matter of national pride stick to the name, although it has long been known that the tree belongs to the old genus Sequoia, and that there was no need of a new name for it. The admirable address of Prof. Asa Gray as President of T. A. A. F. T. A. of Science was upon "Sequoia, and its History," and under this title was published by its author. A recent Gardeners' Chronicle reprints this address, but entitles it "Genealogy of the Wellingtonias, etc." We regard this as a violation both of science and courtesy. While the Chronicle is about it, we wish it would tell us how many "Wellingtonias" there are.

Now for Congress.—Formerly, packages of seeds, plants, etc., could go at a low rate of postage in quantities not over four pounds. In enlarging the parcel-post facilities so as to admit samples of merchandise the limit was fixed at twelve ounces. The post-office authorities construe the law to limit the seed and plant parcels to this amount. We received a few days ago a parcel of strawberry plants on which double letter-postage was charged on all over twelve ounces. The postage amounted to \$3.20. This change has made great trouble to the seedsmen and florists, but this is a small matter compared with the annoyance to the people at large. The former liberal postal arrangements were of the greatest benefit, especially to those who live aside from the ordinary lines of transportation, and the farthest backwoods dweller was made practically near the nurseries and florists' establishments. There is no remedy but in Congress. Let the people insist that the former law shall be restored, and if the mails need relief stop the sending of the useless Pa. Docs.

Cow Leaking Milk.—"H. L. W.," asks what is the reason for cows leaking their milk.—As nearly as we can get at it, it seems to be caused by a laxity of the muscles which surround the glands of the udder, and which so soon as the weight of the milk causes a strain on them give way and open the passage for its escape. Nothing but some mechanical means of supporting the muscles or closing the orifice will avail. Last month we recommended the application of collodion. Possibly an India-rubber ring fitting only close enough to exert a slight pressure might be of use, or at least be worth trying.

The New Rules of the Jersey Cattle Club.—It has been decided that applications for the entry in the Herd-Register of animals whose pedigrees need investigation, shall not be received after December 31, 1872. After that no applications will be considered, except of animals whose ancestors are already recorded, or which have been imported from the Island of Jersey, with the record of their Island pedigrees duly certified. Over three years have now been spent in tracing the history of the animals already in the country, and it is believed that most of the authentic pedigrees are recorded. All having stock whose pedigrees they think may be traced, must, if they wish to have them entered, submit them before the end of this year. Those not applied for before that time will, with their progeny, be permanently excluded from the Register. The total number of entries thus far made is about 3,400—constituting a very full record of all the principal herds in the United States and Canada. A circular, containing full instructions for submitting pedigrees, may be had by applying to the Secretary of the Club at Newport, R. I.

Horse Education.—“A Young Subscriber” asks if the works on the education of horses are of any use to a young man.—Some of them contain useful hints as to the management of a horse, but it would not do to expect to become a horse-tamer by reading one of them. That depends very much on the disposition or character of the man as well as that of the horse.

Potato-Bug Destroyer.—A correspondent from Oregon writes us that he has found out a process to destroy the potato-bug, and asks, do we think it advisable to sell the receipt for 25 cents; if so, he will advertise it in the *Agriculturist*.—If he has got a really effective method of destroying this pest, he could not do better than to make it known freely through the *Agriculturist*. For he should remember that all through his life he has been receiving benefits from others, directly and indirectly, and it is a small business to ask 25 cents for information by which he may benefit others in return.

Willow Poles for Rafters.—“Rustic,” Dubois Co., Mich., asks if willow and poplar poles from four to six inches in diameter will answer for barn rafters.—No, they will be too weak and brittle to safely bear up a roof that may be occasionally loaded with an extra weight of snow. Sawed in four pieces, lengthwise, they would make very good hurdles for fencing sheep-pastures, or sawed in halves would do for a light fence, in place of boards, or to make panels of a portable fence.

Bone-Dust for Meadow.—“W. C. W.,” Hanover C. H., Va., desires to enrich a timothy meadow, and in the absence of stable manure asks if bone-dust would make a substitute, and how it should be applied.—Meadows need potash, which bone-dust does not furnish, but if 200 pounds of bone-dust and 10 bushels of wood-ashes could be applied per acre, early in spring, the meadow would be greatly benefited. 100 pounds of ground gypsum per acre would be also a help to the bone and ash.

Regarding Butter.—Mrs. “F. H. R.,” Iowa, sends us her experience in butter-making, more especially as regards the difficulty of getting the butter to “come” in warm weather. She has avoided this by taking pains to separate the cream from the milk, and by preventing the milk from becoming lopped by frequent stirring. Before churning she has permitted the cream to stand a day or a night after the last stirring, pouring off the watery matter which collects at the bottom of the pan in which the cream has been “set,” and generally has then had no trouble in getting butter.

Light Brahmas and Heavy Eggs.—“T. S.,” Juno, Ripley Co., Ind., reports the feats of his light Brahmas in the way of laying large eggs. Seven eggs weighed 2¼ ounces; the heaviest one weighed 4 ounces, and measured 7¾ inches one way and 6¾ inches the other.

Poultry-Houses.—“E. V.,” wants plans of a first-class hen-house and the best book on poultry.—There are many plans of houses for fowls, and much excellent information and advice on poultry matters generally, in the volumes of the *American Agriculturist* for 1870 and 1871, as well as the present volume.

Cracked Hoof.—“A. T. D.,” Kendallville, Ind., has a horse whose hoof is cracked from toe to coronet, so that it bleeds. What shall he do for it?—The horse must be laid up from work, if possible. The shoe must be removed. The edges of the crack must be pared away at the upper part, so that a distinct separation is made between the crack and the coronet, or between the old horn of the hoof and the substance from which the new

horn grows. No union can ever be formed of the parts separated by the old crack, so that a new start must be had. Blistering ointment may be applied to the coronet, to encourage the new growth, and the hoof should be smeared with tar and bound up, to prevent injury by blows or accidents.

Comfrey.—“E. M. G.,” Oneida Co., N. Y., has half an acre of ground covered with Comfrey, which has become worse by having been plowed. He asks, What shall he do?—There is no remedy but perseverance in cultivating the weed to death, picking up every root after the plow and harrow, and giving it no rest. The roots, being perennial, will submit to no other treatment.

To Dry a Cow.—“D. M.,” Tioga Co., N. Y., has a cow which has been farrow for two years, but which he can not dry up, as she leaks her milk.—The only plan which occurs to us is to feed her on dry feed altogether, such as hay and corn-meal, and fatten her as rapidly as possible. She should have only a small allowance of water, say four quarts three times a day, until dry.

To Prepare for Soiling.—“D.,” Kendallville, Ind., wants full directions for soiling. As in other things, full directions for managing this business can never be full enough; something must be expected from the common-sense or smartness of the farmer himself. When we say that just now a piece of grass and clover should be abundantly top-dressed for use in spring to follow a piece of rye to be sown now for the first feeding, and that a piece of ground should be generously prepared for oats and peas, to be sown as early as possible in the spring, and that one and a quarter or more acres per head should be appropriated for each cow, and a constant succession of crops be made on that ground, the whole tale is told, to be applied as well as may be.

Hops in England and the United States.—There are about sixty-five thousand acres of land in hop-gardens in England, which are estimated to produce about a thousand pounds of hops per acre, or a total of sixty-five millions of pounds. In 1870 the United States produced twenty-five million pounds, of which New York produced seventeen millions and Wisconsin nearly five millions. At the same estimated amount of crop there would be only twenty-five thousand acres in hop-gardens, which would not seem to be overdoing the thing in this country.

Bronchitis, or Inflammation of the Air-Passages.—“E. M. A.,” has a favorite horse which pants and breathes with difficulty, does not sweat, and will not eat freely. A neighbor says it is because he was foaled in August. Is it so, or what is it?—It certainly is not caused by his being foaled in August. The symptoms are those of bronchitis, or inflammation of the air-passages, and may have been caused by overheating and sudden cooling. He must be tempted to eat by scalding his feed, and giving bran and crushed oats with cut hay. A blanket may be strapped around his chest and shoulders, and he should be kept in a stable where no currents of air can blow upon him. Care and good nursing is about all that can be done without the advice of a proper veterinary surgeon. No bleeding or physic is needed.

How to Use Lime.—“E. M. A.,” Forsyth Co., N. C., has 300 bushels of lime, and wants to know how to use it.—If it is air-slaked, as is probably the case, spread it evenly upon the plowed ground or grass, at the rate of 30 bushels per acre. If fresh, slake it, so that it is fine and dry, and spread it.

Farmers' Clubs.—G. A. Boyce, Prospect Depot, Prince Edwards Co., Va., wishes to form a Farmers' Club, and requests secretaries of similar institutions to send him copies of constitutions and rules that may aid in forming such a useful association.

A Despondent Farmer.—“G. W. K.,” Quincy, Minn., is despondent, and quack-grass is the cause of his despair. His farm is covered with it, and he is tempted to sell it and “go West.”—Let him not do anything of the kind, for where can he go to avoid weeds? He must fight them. Plow and harrow, and cultivate the ground, and as the roots are plowed up, gather and burn them, and cultivate the young plants out of existence while they are weak. Quack of course propagates by seed as well as by the root, and the prevention of seeding and careful and clean cultivation will keep it down, and nothing else will. A summer fallow, properly managed, may help him, if other means are not strong enough, but it must be thorough, or it will be useless.

Rotation of Crops.—“Fauquier,” Fauquier Co., Va., is dissatisfied with the present usual rotation of crops, viz., clover, corn, oats, and wheat, for the

reason that there is not sufficient time to properly prepare the oat stubble for the following wheat crop. He suggests wheat on clover sod, corn, wheat, as a better rotation. Very many good farmers besides “Fauquier” entertain the same ideas, and are trying to overcome the difficulty, but the proposed remedy will have the same difficulty in following corn with wheat, when large fields have to be prepared; in fact, the difficulty will be increased, as the time for plowing is shortened by a month at least, by the lateness of the corn crop. We once tried the following rotation with benefit, and see no reason why it should not be successfully brought in, at least in part, viz., clover, corn, oats, clover, wheat. This lengthened the rotation one year, the clover did very well with the oats, and after an early mowing could be very well prepared for wheat. There was the advantage of only two grain crops coming together in place of three, and the exhaustion following the oat crop was recovered. Suppose “Fauquier” should try this. Our experience has been that corn should by all means, if possible, follow a sod.

Orchard Grass and Clover.—“S. D. M.,” Warren Co., N. J., says he read lately in a newspaper that orchard grass and clover seeds should be mixed in equal parts for sowing, and as he wishes to sow some orchard grass and clover, and doubts the correctness of the above directions, he wants further light on the subject.—This fact illustrates the danger of taking directions from newspapers or other journals not devoted to agriculture as a specialty, as to the methods of conducting farm work. Orchard grass seed is always procured in the chaff, and is very light, weighing but fourteen pounds to the bushel, therefore two bushels of it is considered moderate seeding for an acre. Generally such a seeding will give a crop of coarse hay, and if fine hay is desired, three bushels will not be found too heavy seeding when sown alone. When sown with clover, one bushel and a half is a proper quantity, with six quarts of clover seed. If possible, orchard grass should be sown on ground not occupied by any other crop, early in spring, on rich, well-mellowed soil. It is of rapid growth, and makes an excellent pasture grass, especially for orchards or shaded pastures.

Power for Irrigating.—“F. A. O.,” Marion Co., Ill. There is nothing to prevent the use of as common railway horse-power to pump water from a creek or stream to irrigate a field. This question is of sufficient importance to occupy more attention than we can give it this moment, and we shall endeavor to return to it before long in another article, with illustrations and estimates as desired.

Summer Fallows.—“Young Farmer,” Chambersburgh, Pa., asks if we recommend summer fallows as a regular part of the farm work.—Not by any means. He will see by reference to the *Agriculturist* that we have favored summer fallows, all along, only as a means of ridding very foul land of persistent and destructive weeds. Otherwise all the benefits to be derived from fallowing may be secured by a well-cultivated hoed crop, and in the mean time the land is producing a crop.

Disease of a Horse's Foot.—“From the West,” Alleghany Co., Pa., has a mare, lame in the foot; there is no swelling, but tenderness when the frog is pressed or when she steps on a stone, and when in the stable she “points” with the fore-foot.—In such countries as Alleghany Co., Pa., where the roads are hilly and rough, this is a common trouble, and is doubtless caused by disease of that part of the foot which centers around the navicular bone (a small bone in the center of the foot), and is caused by constant and irritating jars upon this highly sensitive part. To the cutting of the frog and the removal of that elastic cushion, provided by nature for the protection of these delicate parts, is due the prevalence of this disease, which unfortunately is rarely curable. An unerring symptom is the throwing forward of the foot by the horse when in the stable, or pointing, as it is called, mentioned as belonging to this case. Absolute rest, with good feed, cooling bandages to the leg, stuffing the hoof with cow dung, making a soft bed of wet clay for the fore-foot to rest in, and rubbing the hoof with glycerine to soften and cool the crust, are the best remedial measures. It is a mistake to suppose the horse's foot is a solid mass of horn; if one is dissected, it will be found a very different thing, indeed, and it should be treated accordingly.

Bridgeman's Gardener's Assistant.—The Virginia Ruralist devotes several columns to a review of this book and criticises it with much severity. The work was in its time an excellent one, by a most competent and respected gardener, but on an unlucky day it was revised and edited by a man conspicuously incompetent to the task. Instead of being brought up to the present time, as it might have been, it is now a singular combination of very good old and very poor new matter.

A \$5 PRESENT

(WORTH \$10)

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TO THE

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A Splendid Ornament for every Home.

The Publishers have received from the celebrated American Painter, Mr. B. F. REINHART, a fine Oil Painting, executed expressly for the *American Agriculturist* during the past summer, entitled "**Mischief Brewing**"—a beautiful Rural Scene, for which they paid **\$400.**

This Painting has for some time past been in the hands of the noted firm of Bencke & Scott, who are executing it in Chromo, on 16 stones (not on metal plates, or by any new uncertain process). From these stones each picture will receive at least **16 impressions in colors**, thus producing a *perfect copy of the original \$400.00 painting, and scarcely to be distinguished from it by one person in a thousand.*

At the usual charge for Chromos, the pictures will be worth fully **\$5 each**, and they will be sold at that price; while, taking into account the design, the character, and *quality* of the pictures, if valued at \$10 each, they would still be cheaper than most Chromos sold or given.

By arranging for **200,000 copies**, so great economy is gained in the multiplication of these Pictures, that the Publishers will be able to **present a perfect copy to each and every subscriber to the American Agriculturist for 1873** hereafter received. (It costs no more to put the picture on 16 stones for 200,000, than it would for 1,000 copies.) **The Picture will give great pleasure to every one receiving it, and be a fine Ornament in every Household. It would be worth purchasing at \$5, or more, if it could not be obtained otherwise.** It is a perfect Gem, 11x13 inches inside the frame.

The Picture will be given to every subscriber for 1873 (new or old), whether coming singly at \$1.50 each, or in Clubs of Four for \$5, or Clubs of Ten at \$1.20 each, or in Clubs of Twenty or more at \$1 each. Subscribers in

Premium Clubs will also be entitled to it. It will be delivered at the Office, unmounted, free of charge, or if mounted, for 15 cents extra. If to go by mail, unmounted, 10 cents must be sent to cover cost of packing and postage.

It will be mounted on heavy binder's board, and Varnished, ready for use, even without any frame, or for putting into a frame, for 15 cents extra—that is, for 25 cents it will be Mounted, Varnished, Packed, and sent Post-paid to subscribers (to this Journal for 1873 only), who come in now, or hereafter.

N. B.—The Chromo will be delivered: At the Office, **Unmounted, Free.**
" " " **Mounted, 15 cents extra.**
Sent by Mail, **Unmounted, 10 cents extra.**
" " " **Mounted, 25 cents extra.**

We advise all to have them mounted before leaving the office, as in the large quantities we put up, we are able to mount them for a quarter of the cost of doing it singly, and better than it can usually be done elsewhere.

We shall begin delivering the Pictures in November, in the order in which the names of subscribers are received, beginning with Oct. 1st. All new subscribers for 1873 whose names were received during September will also be presented with a copy if they forward 25 cents for mounting, packing, and mailing.

MANY DOLLARS For ONE.

The *American Agriculturist* has long excelled in circulation any and every other similar journal, or any half-dozen others. This has resulted from the fact that, taking into account its size, *careful preparation*, its very numerous fine Engravings, etc., it has been furnished **far cheaper than any other journal in the world.** [NOTE.—The printed surface of the *American Agriculturist* is nearly equal to most of the \$4 Magazines—the pages being 2½ to 3 times the size of ordinary magazine pages, while not more than one other magazine in the country gives as many costly engravings.]

The former and present character, quality, and value of every number will be maintained, and material improvements be introduced during 1873.

A Splendid \$5 PICTURE will be presented to Every subscriber.

Every new subscription now received will be entered at once in the mail-books, and will be furnished with the paper from the time the name comes in until the end of 1873, at a single subscription price. (This applies to all new subscribers now received, whether singly at \$1.50 each, or in clubs of four at \$1.25

each, or in clubs of ten at \$1.20 each, or in clubs of twenty or more at \$1 each.

Very Valuable Premiums are offered (see page 433) to those who take the trouble to gather up and forward clubs of subscribers. These Premiums are to pay for the time and trouble taken in gathering and forwarding the subscriptions (and good pay they are). The subscribers themselves will each get the \$5 picture, and new ones coming in now will get the extra numbers free.

A Good Paying Business—

for Women as well as Men—

Honorable and Useful.

Several persons of both sexes, in different parts of the country, devote their chief time to gathering subscribers to the *American Agriculturist* and to *Hearth and Home*, and to selling books on Agriculture, Horticulture, Gardening, Architecture, etc. (see list on third cover page, and notices of some of them in the advertising pages). For the subscribers obtained they take the Premium Articles offered on page 433, and sell them as they are all very good, wanted generally, and are readily salable. These Premiums, obtained by the Publishers on special terms, are just as good as money, and give much better pay than could possibly be given in cash commissions. These canvassers, who work during the most favorable seasons, realize from \$300 to \$3,500 a year, according to their tact, experience, etc. Experience goes a great way. Some, who succeeded poorly at first, hardly paying their board, have by persevering practice come to be very successful. The success to be obtained is worthy of long practice. It is certainly quite as honorable and useful to engage in urging people to supply themselves with good reading and useful information, as it is to stand behind a counter and show up, and persuade people to buy, silks, laces, or other goods, or to engage in any other work or business.

\$66.67 to \$100.00 worth of Engravings for ONE CENT.

At least \$10,000 will be expended in procuring pleasing and instructive *Engravings*, of fine quality, for the *American Agriculturist* during 1873. Every subscriber will have a neatly-printed copy of each of these in the pages of the paper, in addition to all the carefully prepared information given in the reading columns. This will give \$66.66½ worth of engravings for every cent of cost at \$1.50 a year; or \$80 worth to those in clubs of four to nine at \$1.25 each; or \$83.33¼ to those in clubs of ten to nineteen at \$1.20 each; or \$100 worth for each Cent, to those in clubs of twenty or more at \$1 each. In addition, every subscriber will be presented with a perfect copy of Reinhart's beautiful \$400 painting, "*Mischief Brewing*," which will be a charming ornament in any home—a picture so much like the original oil painting that none but experienced artists will be able to detect the difference.

Crude Carbolic Acid to Kill Sheep Ticks.—"C. A. L.," Shelburne, Vt., asks where he can get the crude carbolic acid, recommended by "Walks and Talks," to kill sheep ticks.—If your druggist does not keep it and will not order it, your cheapest and best plan is to use carbolic soap. In careless hands the crude acid is dangerous, but carbolic soap is perfectly safe, and if the solution is strong enough, equally effective.

Fall or Spring Planting of Grapes.—"A. L. & Co.," New Hampshire, ask if it is best to transplant grapes in September or April.—Under most circumstances we prefer to plant in spring rather than fall, but in sheltered positions, with dry and warm soils, early fall planting may have advantages over spring. What is meant by early fall planting, is planting done at least a month before frost becomes severe enough to reach to the roots of the newly-set vine or tree. If planting has been done so late in fall that freezing can not be avoided, success would be more likely to follow if the surface is covered with 4 or 5 inches of leaves or straw, to prevent early frosts reaching the roots.

The Jersey Herd-Book, Vol. II.—The second volume of the Herd Register of the Jersey Cattle Club is now in press, and will be ready for delivery in November. It will contain nearly 1,500 new entries. The edition will consist of but 500 copies, and it will be sold, for the same price, with the first volume (\$5), postage additional. Orders may be sent to Col. Geo. E. Waring, Jr., Secretary, Newport, R. I.

Hand-Glasses.—"R. D.," Lloyd, Wis. In this wooden country the bars of hand-glasses are usually made of wood. They are extensively used by many of our market gardeners, made of glass set in light wooden bars, and have a conical top. Many, however, use a frame of wood, about 13 inches in width and breadth—a miniature hot-bed frame, with a miniature sash for covering. This is the cheapest kind of protection for early spring vegetables, such as cauliflower, cucumbers, melons, etc. We know of no one who makes the metallic bar to which you refer as having seen in England.

Will Guano Injure Seed or Young Plants?—Phosphatic guanos will not; Peruvian guano, if of good quality, will. The former may be drilled in with the seed, the latter should be sown broadcast, and harrowed in, or mixed with the soil before sowing.

How to Remove Nuts from Rusty Bolts.—"G. R.," complains of the difficulty he often has in starting a nut on old bolts. Every farmer has experienced the same trouble. We can do little to help him. He must exercise patience and ingenuity. If the bolt turns in the wood, and has a round head, we should nick it with a sharp cold-chisel, and drive a nail by the side of it in such a way as to hold the bolt, or cut the head square with the chisel, and then hold it with pliers. Pour a little kerosene or other oil on to the nut and let it have time to penetrate. Try the nut both ways. If it can be moved at all, the battle is half-won. Keep moving it as far as possible; put on oil, and then turn it back again, and repeat again and again. If a hot iron can be placed on the nut, so as to expand it without expanding the bolt, the nut can often be started. Hammering the nut will sometimes heat it sufficiently to have the same effect.

Cattle Disease in England.—In one single county in England, that of Norfolk, there were in August last at one time, according to a statement in the Farmers Chronicle, ten thousand cases of disease in cattle and fifty thousand cases of similar disease in sheep, and the sheep are found to be equally subject to this complaint (*epizootic aphtha*) as horned stock.

The Flower-Garden.—This is a combined catalogue and journal published by C. L. Allen & Co., Brooklyn, N. Y. These gentlemen are the largest bulb-growers in the country, and the catalogue is mainly devoted to bulbs. Original and judiciously selected articles furnish a good quantity of reading-matter. We are surprised that a person of such good sense as Mr. Allen should devote several pages of his otherwise creditable magazine to such an unprofitable balderdash as that called the "Language of Flowers." If there is a demand for such nonsense it is another proof that the fools are not all dead yet. The subscription price, \$1 a year, is refunded to the subscriber in bulbs or seeds.

Slobbering in Horses.—"H. A. B.," Iowa City, writes that while the *Agriculturist* is good authority, yet he thinks we are mistaken in saying that it is Lobelia and St. John's-wort that causes slobbering in horses, and not the clover, for no horses can be induced to eat these herbs. But "H. A. B." states his case too broadly, and therein falls into an error, for we made the

statement on absolute personal knowledge that it was these herbs caused the slobbering in the case we referred to, and not the clover, for we detected the weeds in the clover which was fed to the horses, and the slobbering ceased when clover from another field in which there were no weeds was fed. There is a diversity of opinion on this matter, but we know that horses will eat both these weeds, both in pasture and in the stable, when they are mingled with the clover; and we know they are sufficient to cause severe slobbering. "H. A. B." rightly says that bran or other dry feed given will cure the slobbering very quickly.

Apiculturist and Floral Guide is the title of a new monthly published at Mexico, Mo., by W. G. Church. The only number that has come to our notice seems to be quite up to the times.

Plowing Twice for Wheat.—"An Ohio Farmer" writes us that last season, having tried twice plowing part of his oat stubble, he found that the yield of the part twice plowed was more than double that of the other, the difference being at the rate of nearly twelve bushels per acre. This year he has hired the plowing of what land he could not plow twice himself, being assured of the profit of the practice.

Lemon and Orange Trees.—"M. W. H.," New York. These trees may be kept through the winter in a room where the temperature does not go below 35°, and it need not be at any time higher than 55° or 60°. They will winter very well in a light cellar or basement. Water only when needed, as they are more likely to suffer from too much than too little. It is impossible to tell when a seedling tree will bear fruit, and on account of this uncertainty, as well as to get a valuable kind, the trees are budded or grafted.

A Green Zinnia.—Anna M. Brown, Carroll Co., Md., sends us a specimen of a double Zinnia in which the rays are mostly green. We have not seen a green Zinnia before, though most of the white ones have a greenish tinge. It is not remarkable that the petals should be green, as they are but modified leaves, and sometimes return to the condition of a leaf.

Extra Value of Choice Cattle.—E. Burr, of New Hampshire, has sold a pair of steers which weighed, dressed, 1,380 pounds each, at 11½ cents per pound. At the same market there were some poorer stock, weighing 900 pounds each, sold for nine cents, and some poorer still which brought six cents only; and yet some farmers think there is no profit in good stock.

A Giant Puff-Ball.—A fine specimen of this fungus was brought us last month from the farm of C. Van Horn, Lafayette, N. J. It weighed 3 lbs. 4 oz., and measured 33 inches in its largest circumference.

Steam Farming and Crops.—In England is a farm of 375 acres, on which for several years the crops have been sold standing, to be removed by the purchaser. This year the crops—a 1/2 grain of various kinds—realized from \$40 to \$75 per acre as they stood. There is no stock fed upon this farm, no manure made, and the plowing and cultivation have been done by steam for many years. Another farm of 600 acres, cultivated on the same plan, had grain, grass, and root crops sold, all of which were removed by the purchasers bodily. What would be said of such farming here?

How to Preserve his Sheep.—"J. C.," Atlanta, Ga., asks if he should pen some cows with his sheep whether they would prevent the dogs attacking his flock or not.—Such a course is not advisable, as cows seem to have a great antipathy to sheep, and very often kill or seriously injure them by hooking. The best plan would be to pen the sheep by themselves, and destroy all marauding dogs in some way.

Keeping Cider Sweet.—"J. M. S.," It is very difficult to keep early-made cider sweet in barrels for a long time. Sulphite of lime (not sulphate) will do it, but this is to many objectionable. Sweet cider may be kept by bringing it to a boil, bottling while hot, and corking and sealing securely. The vinegar question has been answered.

What is a Horse-Power?—"S.," Sidney, Ohio, asks, What constitutes a horse-power? A nominal horse-power is equal to the raising of 33,000 pounds one foot high per minute, and theoretically the force of a falling body of that weight through that space in that time would yield one horse-power. Thus, if 31,000 pounds of water fall one foot in one minute, or 1000 pounds fall 33 feet, or any multiple of feet or pounds that

will amount to the given sum of 33,000 (which is called "foot-pounds"), there will be one horse-power, theoretically, or about three quarters practically. If the number of feet passed over by a stream in a minute be multiplied by the number of square feet in its cross section, and by 62½ (equal to the weight of a foot of water), the result will be the weight passing over a dam in that stream per minute; and this divided by 33,000, of course gives the horse-power. It depends on the kind of water-wheel used, what proportion of this power (from 50 to 80 per cent.) may be utilized.

Hickory-Nuts and Chestnuts.—"A Subscriber" in Connecticut planted a few quarts of nuts by "striking the corner of his hoe a few inches into the sod, dropping in a nut, and then covering"—covered with the sod we suppose, and we are not surprised at the result—"one of the seed came up." Very few seedlings have the strength to force their way through a pasture sod. While the hickory and chestnut are robust as trees, they are while seedlings as delicate as any other plants. Our friend would not expect to get a crop of Lima beans by putting the seed under the sod. If he would succeed with tree seedlings, he must give them a good seed-bed.

Upright Strawberries.—"W. H. K.," Franklin Co., Iowa. The Bush Alpines make few or no runners, and a large plant may, as the nurseryman said, produce a quart of fruit in a season. The fruit is liked by some people, but is to our taste much inferior to other kinds. . . . In your cold climate we would advise planting fruit trees in spring.

Date Seed.—Some one whose signature we can not make out, asks where he can get date seed "in the green state, before it is preserved and sugared."—We were not aware that dates were sugared or preserved in any other way than by drying. If he wishes the seeds for planting, those taken from the dates of the shops will grow readily.

Horse and Cattle Powder.—"Young Farmer" asks if Taylor's Horse and Cattle Powder, advertised in August *Agriculturist*, is a humbug or is it reliable.—No humbugs can be advertised in the *Agriculturist*, as pains are taken to avoid such things. We believe it to be as represented.

White Browallia.—"O. S. D.," Westmoreland Co., Pa., sends us the white variety of Browallia.

Apple Seed.—"Mrs. J. G.," Nobles Co., Miss. Sow in spring as early as the soil can be prepared. If the seed has been well kept it needs no preparation. If very dry and dull-looking, mix it with twice its bulk of damp—not wet—sand for a week or two before sowing. Stir this occasionally, to prevent heating. This will cause the seeds, if good, to become plump, and even sprout if kept long enough. The sand may be sifted out or sown with the seeds.

Kerosene Oil and Lamps.—"R. H. G.," Miss. If the best quality of oil is used—and none other should be—it makes but little difference which of the ordinary lamps are used. We burn the German Students' and House & Perkins' lamps, and like both. As to safety, we look out for that in the oil.

"Death in the Pot"—especially if the pot contains cabbage, according to the Ithaca Daily Leader. Some one sends a quotation from a sheet of that name, but does not say what State. We hope it is not the Ithaca where Mr. Cornell has his University. The worms have been at the cabbage, and it is rank "pizen." Read: "A woman in Newfield died last week from eating cabbage. The report is that a part of the same cabbage that is said to have killed the woman was given to a cow, and, after eating it, the animal died also. Another report is to the effect that a woman in Lansing either died or came near dying from the same poisonous food. Do not put down any 'sauerkraut' this year, and let corn-beef and cabbage cease to be an article of food upon your tables. There is death in cabbage."—This very worm has been at work upon the cabbages of Europe for years, if not for centuries—but it took this Ithaca man to find out the deadly qualities of the cabbages upon which it had fed. It is now about time to trot out the old scares; and some one ought to die from the sting of a locust—and also for that lady to be bitten on the finger by a tomato-worm, and all the rest of it. In the mean time, let those who will, eat cabbage—with or without the worms, as they may prefer.

A Pink Katydid.—"J. P. T.," New Haven, Ct. Thanks for the Katydid of a lively pink color. We have seen the same thing once or twice before.

What is a Chromo?

The liberal offer by the publishers of a fine Chromo to each subscriber for 1873 has led some of our friends who have not kept pace with art matters to ask, "What is a chromo?" Chromo is a convenient abbreviation of chromo-lithograph, or a lithograph in colors. To explain what it is, we must first briefly describe the plain lithograph. Of the various prints or engravings, there are those printed from steel and copper plates and from wood-cuts, but the great majority, both fine and coarse, are lithographs, printed from stone. The stone used is a peculiar limestone, capable of receiving a polish, and yet absorbent of water. To print a lithograph, the stone is first polished, and then whatever design is required is drawn upon it with a pencil made for the purpose, and which contains some greasy matter. Let us suppose that the artist draws a picture, or, what is simpler, prints out the words "American Agriculturist." The stone is then wetted, and the water sinks into the pores everywhere except the place where the greasy ink formed the words. Ink, or paint, is then applied to the whole stone with a roller just as it is to types. This ink does not adhere to the stone where it is wet, but to the words drawn with the greasy pencil the ink will stick. Then a sheet of paper is laid over the stone, and the whole passed under a press; when the paper is lifted off, it will be found to have taken up the ink left adhering to the words upon the stone. This process can be repeated over and over indefinitely by inking the stone and keeping it properly wet. Now, let us suppose that we wish the word "American" printed in black and the word "Agriculturist" in red ink. The lithographer would take two stones, one for each word, and print the black ink with one stone and the red ink with another. He will take care to have the word on each stone in such a position, and to put his paper upon the second stone in such a manner, that the words will be in their proper places. Now, let us suppose that we wish the word "American" in black and yellow instead of all black, and "Agriculturist" red, as before. This will require three stones. The artist will draw with his greasy pencil, *A-a-a* upon the stone for the black, and *n-r-c-n* upon the stone for the yellow, taking care to leave such spaces between the letters, that when the black is printed, and the paper placed on the stone for the yellow, the letters will be in their proper places. This is a very simple case, but it will enable us to understand how the chromos are made. An artist paints a picture, using the colors, and blending them in such a way as will produce the effect he desires. It is the business of the chromo-lithographer to take this picture and reproduce a copy by means of printing in the manner we have described. There must be as many stones as there are colors and tints in the picture. One stone must have all the red parts drawn on it, another all the blue, another all the brown parts of the picture, and so on. Sometimes one color is printed over another in order to get the proper shade, so that, to reproduce the picture, the chromo has to be printed a color and a bit at a time, on from ten to twenty or more stones, every touch of the painter being faithfully copied. When the chromo picture has received 16 or 18 printings, on so many different stones, so that it is shaded every way like the original, it is finally pressed upon a clean stone, which has been cut in grooves like the threads of canvas, and it now has all the appearance of being a real painting on canvas. The reader will see that it is an immense work to prepare the different stones at first, so that each shall have some part of the picture in just the right place and color. It takes three to six months to prepare a set of stones for one picture, even if but one copy was to be printed. But after the stones are once prepared, copies can be transferred to other stones in a few minutes, and after that they can go on and print as many thousands, or tens of thousands, as are desired. Good artists at chromo-printing—such as make our pictures—do their work with such faithful minuteness that not only persons in general, but even the artist himself, would be puzzled to distinguish the copy from the original painting without the closest examination. So the beautiful chromo of "Mischief Brewing," which is being prepared for our subscribers, is, for all purposes of household adornment, fully equal to the picture for which we paid \$400. Truly this is a beautiful process which enables those who have a love for art to enjoy pictures which have heretofore been beyond the reach of all but the wealthy.

MOUNTING CHROMOS.

The chromos are necessarily printed on thick but pliable plate-paper. They can be framed under glass in this form; but it is far better to turn them over to another class of artists, who dampen and paste them on the back, and then spread them very carefully upon thick, strong binder's-board (a kind of paper), and put them in a powerful press to dry. After this, they cover the whole face of the picture with a pure, transparent varnish,

which does not injure the colors, but rather makes them stand out more beautifully, and they can then be cleaned, at any time, of dust or fly-specks, with a damp cloth, and will be very durable. When thus "mounted," they can be set upon a mantel or shelf, or hung up without a frame, or be set into a frame without needing a glass over them. This process requires skill and care, and increases the weight and postage; but in mounting a great number the publishers are able to get it done, and pay the extra postage of picture and packing, for 25 cents each, and they know the pictures will give much greater satisfaction than if sent unmounted.

Who We Are and what We Do.

We are so accustomed to have our statements accepted as the result of actual experience that the subjoined came with a refreshing coolness. It was dated at Syracuse, N. Y., and we give it as written, withholding the name only:

"As a practical farmer I am interested in the contents of your journal, but would it not be much more highly prized by its thousands of country readers, if the articles contained in it were the result of actual experiment, and not the theories of a doctor, colonel, and other professional men? Of course the hints given are often valuable, yet I should feel safer in following its advice if I knew that 'Ogden Farm' and 'Hookertown' had a locality. Even with this uncertainty I prefer the *Agriculturist* to any other farm paper."

We seldom say much about the individuals who make up our editorial staff, but as it may gratify our doubting correspondent, as well as the many new subscribers that come to us at this season, to know that our teachings are those of experience, we give the names of our associates, and what they are doing.

HENRY STEWART is the Office Agricultural Editor. He has long been a successful farmer in Pennsylvania, though for domestic reasons he has been for a year away from his farm. His familiarity with agriculture at home and abroad, and his experience in mining and engineering, and his thorough acquaintance with mechanical matters, make his services most valuable to our readers.

JOSEPH HARRIS is well known as the author of "Walks and Talks," but these are by no means his only contributions. His residence, Moreton Farm, is near Rochester, N. Y., and contains about 300 acres. There is no one in the country better qualified, by preparatory education and subsequent practice as an agricultural teacher, than Mr. Harris.

COL. GEO. E. WARING, JR., lives at Newport, R. I. His Ogden Farm Papers give an account of matters at a farm which he superintends. He is largely engaged in market-gardening, and writes upon many subjects other than those to which his name is affixed. Upon draining and farm engineering, Col. W. is considered the standard authority in the country.

WM. CLIFF has a large farm as well as a successful fish-breeding establishment near Mystic, Ct. It is now no secret that this gentleman is the author of the popular Tim Bunker Papers. Hookertown may not be found upon the map, but Hookertowns exist all over the country. At all events, Squire Bunker is a reality, and as has a specimen of a farmer as we know of.

PETER HENDERSON is known all over the Union as a successful market-gardener, who has by his writings added largely to the wealth of the country. He is now one of the largest, if not the largest, commercial florist in the country.

Besides these, one of our publishers, Mr. L. A. Chase, has a farm of 350 acres, upon which are to be found some of the finest thoroughbred cattle and sheep in the country. His experience and results are always at the service of the editors.

We may add that the Managing Editor, who supervises and harmonizes all the rest, takes the special charge of the Horticultural Department. His large garden, or small farm of ten acres, allows him to test all horticultural novelties for the benefit of our readers. He is assisted by George C. Woolson, who would have been a graduate of the Massachusetts Agricultural College but for the eminent bad faith of that very promising institution.

We submit that the *Agriculturist* is through its editorial corps thoroughly and intimately attached to the soil, and that its teachings are far from being the "theories of a Doctor, Colonel," or any one else. Unless the authority of some other person is given, every statement rests upon the actual experience of some member of our editorial corps, although, instead of giving the name of the particular individual furnishing it, we use the convenient editorial "we."

That our efforts to present a live, practical agricultural paper are appreciated, every mail brings abundant proof, not only in new subscribers, but in letters of commendation from those who have been upon our books for years.

We might fill a whole paper with these, coming from every part of this country, from Australia, Japan, and even from Africa. One at hand from Kentucky says:

"I find your paper very valuable, so much so that I could not afford to do without it. Every number brings me hints which are worth more than the cost for a year."

The following comes from Jonesburg, Mo.:

"GENTLEMEN: I hand you \$1.75 for *Agriculturist* and chromo mounted. Although I am in the lumber business only, I can not do without the *Agriculturist*. This is the sixteenth year I have taken it, and I have made money enough from hints taken from it to pay for one copy five hundred years in advance. You sent it to me twelve years at Salem, Marion County, Ill., one year St. Louis, Mo., two years Jonesburg, Mo., and this will make the sixteenth year. I shall try and make up a list."

From Franklin Co., O., comes the following:

"I have done my best to extend the circulation of the *Agriculturist*, not that I expected to ask a favor, but because I always feel grateful for the information I have received from it. I was born and raised in Philadelphia, and knew nothing about gardening when I moved here (1856), but, thanks to the *Agriculturist*, have one of the best gardens around."

Then from Bowdoinham, Maine, comes this:

"A hint in the *Agriculturist* about using air-slaked lime to prevent the ravages of the cabbage-worm, has been of more benefit to me than the price of the paper for ten years, as it has saved our crop. Don't think I shall be able to do without it now."

A short time ago a merchant called upon us and informed us that he had recently visited the famous Yosemite Valley in California. In the valley he became acquainted with Mr. Lemon, who had been there for thirteen years. For the first two winters he was the only man in the valley, and had no neighbors nearer than ten miles. His house is surrounded with the greatest abundance of fruit-trees of all kinds, with strawberries and other small fruits in profusion. The merchant, in congratulating Mr. L. upon his success, remarked that it must have resulted from great experience. Mr. L. stated that all that he knew about fruit-growing he had learned from the *American Agriculturist*, and that his first budding and grafting were done by following its instructions. Learning that his visitor was from New York, Mr. Lemon requested him to call in at our office and thank us in his name for the great service the paper has been to him in his garden and orchard.

Two Jersey Bulls.—(See First Page.)

The engraving on the first page of this paper represents two Jersey bulls, and probably two as fine of their kind as there are in the United States. Each is a representative animal, and may be taken as a type of the excellence of its special class of Jersey stock.

"Beacon Comet," the upper animal, belongs to that style of Jerseys known as fawn and white with light points. His color is a bright fawn, gradually shaded into lighter tints, which can hardly be called white and yet is not fawn—possibly cream-color would better describe the tint. He is eight years old, and the progenitor of eight later Comets, one of which, "Beacon Comet 8th," took two first premiums, one for the best two-year bull, and another with three cows in the first Jersey herd premium at the last New York State Fair at Elmira. This prize was taken in competition with a herd imported directly from the farm of Queen Victoria.

"Beacon Comet" has been the recipient of first premiums also wherever he has been a competitor. It is unnecessary to describe him more particularly. The engraving is an excellent portrait, and exhibits his points very accurately. He is the property of William Crozier, Esq., of Beacon Stock Farm, near Northport, L. I.

The bull "Wachusett" is a magnificent animal of that class distinguished by black points; the points of the horns, tongue, muzzle, and switch being black, and he has the light ring around the muzzle strongly marked. His figure is extremely fine; the horns are small and fine; the neck is tapering; and the head, handsomely put on, is very delicate, and in fine proportion with the neck and body. He has but very little dewlap, and the tail is extremely slender, with a switch that sweeps the ground. He was awarded the first prize at the New England Fair in 1871, and would be difficult to beat anywhere. His age is five years, his weight about 1,600 pounds, and he is the property of L. A. Chase, Esq., of Herdsdale, Florence, Mass.

Both these bulls are represented in their ordinary condition, and not as gotten up for show. Their owners are breeders who believe in thus keeping up their stock, both bulls and cows, and not in the idea, unfortunately too prevalent, that Jerseys make a better appearance, and are better performers at the pail and the churn, by being kept in poor condition and made to show too much bone and too much belly.

Two Cents a Quart for Milk.

Mr. George Geddes, in a communication to the Tribune, says that farmers generally would do better to sell their milk, as they first strain it, for two cents per quart than to make it into butter and cheese; that when they do so convert it they get only that price, losing their labor in the dairy. It is bad enough to say this, but Mr. Geddes clinches the nail by proving it—which is worse. These are his figures: It takes 14 quarts of milk to make a pound of butter, and a pound of butter is worth, in New York, only an average price of less than 22 cents per pound; 14 quarts of milk make three pounds of cheese, worth at the present an average price of 93 cents per pound. This is not a cheerful computation, but it is one which the "average farmer" must needs accept, and it indicates very clearly that if he hopes for any brilliant success he must in some way get above the average, and a good deal above it.

It is estimated by Mr. Willard that the average annual produce of the dairy cows of America

is either 100 lbs. of butter or 360 lbs. of cheese, representing an average annual produce of say about 1,500 quarts of milk, bringing, at 2c. per quart, \$30. So low an average as this must cover an enormous number of very poor cows, kept by farmers who are, in intelligence and enterprise, very far below those who support agricultural papers, and it would be unfair to address any argument to the readers of the *Agriculturist* based on the practice of this class.

So far as we can judge, those who are known by their neighbors as good farmers—who are very much above the average of their locality—usually get a yearly yield, taking one cow with another, of about 2,250 quarts of milk. This, if made into butter, brings in \$45, and the skimmed milk and buttermilk are worth enough to pay a fair compensation for the labor of the dairy. As they are kept, probably 1½ acre of meadow and two acres of pasture will support the cow throughout the year. The return, then, is equal to \$12.85 per acre. It enables a thrifty man (with a 100-acre farm), who raises his own supply of meat and vegetables, to maintain a family decently, to lay by a trifle each year, and to die with the soothing consciousness that he has done his duty. He has worked hard, has kept the wolf from the door, has educated his family better than he was educated himself, has sent two strapping boys into the world to be something else than farmers, and has settled the duller one on the farm, where he, in his turn, will pass an industrious and faithful life in making both ends meet—or lap by just a little.

If any one thinks that agriculture is to be made an attractive occupation by reason of the examples that such men set, he is vastly mistaken. So long as fidelity, industry, and thrift can secure only this meager share of the rewards of faithful labor, so long will the more intelligent sons carry their labor to fields which promise the bare possibility of something better—where, if failure is probable, success is at least possible. Every well-organized American boy is ambitious, and no youthful ambition is going to be satisfied with \$12.85 per acre. Unless we can make a much better showing than that, we may as well give it up at once.

But we can. Dairying is as good a branch of farming as we can adopt. Let us stick to it. Brilliant success in its prosecution demands three conditions: 1st, a high price for butter (or cheese); 2d, a fair yield of milk from each and every cow; 3d, a large percentage of butter from a given quantity of milk. Never mind "average" men now—we are talking about *brilliant* men, men whose success will be worth more in helping others to improve than would all the preaching we could do in a lifetime. We base our proposition on the fact that *really* fine butter will never lack a market at an extra price. Not fine this week and week after next, and pretty good at some other time, but sure to be A 1 fifty-two weeks of the year. No influence that can be brought to bear will secure an increase of this sort of butter so rapid as the increase of the demand for it. Any dairy with a fixed reputation for such butter is *sure* of at least 44c. per pound over all expenses of sale. This raises the price of the milk to four cents per quart instead of two, and the yield to \$25.70 per acre. How much better than this may be done depends on the man. Ogdén Farm gets 90c., Darlington gets \$1, Sargent gets \$1.15—and every one of these earns it by the quality and the *uniformity* of his product. A hundred women who read this will say their butter is as good as either of the above can produce. To ninety-nine of them we say: "You are entirely

mistaken; you have no idea what really good butter is, and until you find out you must not wonder at your poor returns."

The yield of milk per cow is no less important than the method of manufacture. It takes so many pounds of food to maintain the life of so many pounds of cow—whether she gives five quarts or twenty-five. The profit comes from her ability to use still more pounds of food and convert it into milk. Any man who has a *genius* for dairying will go through his herd and draft out all the second-class cows he has, and sell them for the best price he can get—and then buy as many *first-class* cows as he can afford. If any one of our readers fails to see the point of this without argument, he is not the stuff from which the brilliant dairyman is to be made; he will have to wait until some brighter neighbor sets him an example—by establishing a herd that will produce 3,000 quarts per head, and raise the average returns to \$33.93 per acre. Then will follow the attention to quality as well as to quantity. Instead of 14 quarts of milk to the pound of butter, a careful selection of cows for butter production will secure a pound of butter from 10 quarts of milk—averaging from his whole herd 300 lbs. of butter, bringing a return (at 44c.) of \$132 per cow, or \$37.71 per acre.

In support of the above, we would state that we know now a herd of under-sized cows which produce, in butter alone, an annual average of over \$150, and what has been done once can be done again.

Ogdén Farm Papers.—No. 34.

Mr. W. H. Scarboro, of Payson, Ill., writes to ask several questions of general interest.

Referring to my statement that if it will not pay to buy hay to feed, it will not pay to feed what we raise, he wants a clearer explanation, saying: "If you raise hay and it costs you \$8 per ton, and you feed it out and make \$16 per ton out of it, you have a clear profit of \$8, while it might not be worth \$16 in the market. But if you have to buy hay at \$16, you get no profit from its consumption."—The answer to this is that profit from hay and profit from feeding are not the same thing. If you raise hay at \$8 and sell it at \$16, you make just as much profit as though you fed it to cows and got your \$16 in that way. If it is only worth \$10 in the market, and is worth \$16 to feed, then you can afford to buy it. The principle is simply this: The hay in the barn is worth the market price—what it will fetch, or what it could be replaced for—without reference to where it came from. If you have animals you must feed, or if you have no other way to make needed manure, then you must feed out your own hay, though you might sell it for more than your cows will return, or, if your supply is short, you must buy at whatever is the market price. It seems clear to me that my original statement is quite right, that, if I can't afford to feed out hay that I buy, I can't afford to feed out hay that I raise. In feeding my own hay I have the advantage of having a good customer, and I escape the annoyance of having to buy and pay ready money, but if it is not worth so much to feed as it is to sell (not worth the market price of hay) I shall really lose as much money as though I had bought it—instead of only refraining from selling it. Of course it is understood that a part of the profit in feeding is returned in the form of manure, and manure from purchased hay is worth as much (if from as good hay) as from that raised on the farm.

The next question is: "Can I as well afford to buy all the corn I feed to my hogs as to raise it?"—Probably not, because you can not spare the ready money to buy it with, because you have land that you can most profitably use for corn-growing, and because if you are well situated for the business you have implements and teams that you can most profitably apply to its cultivation. At the same time, if you can make pork at a profit by feeding them with corn you could sell for 50c. per bushel, you can make the same profit by feeding them with corn you buy for 50c. per bushel.

He also asks: "If shoats are to be fattened at 18 months old, will it pay to feed them during the first winter all the corn they will eat, or would you give just enough to keep them growing?"—Feed them not only all they will eat if they have a liberal supply, but all you can induce them to eat, by stimulating their appetite with a variety of other food. The more grain any store animal eats in the winter, the more profit will it make from the green fodder of the following summer. Feed your young shoats all the corn you can, and then look to see them thrive like weeds on their cheaper summer feed. Of course, to get the full benefit you should properly house the pigs, and the corn should be ground, if practicable, and in any case it should be soaked or cooked.

On reading over the above, I am reminded that it is odd business, this answering of questions by unknown correspondents. I do not know Mr. Scarboro, nor his farm, nor his market, nor his qualifications for feeding hay or corn, nor any of the circumstances on which a reliable answer must be based, and there are always ten chances to one that if I did know them, the answers would be very much modified. On the other hand, to withhold an answer would seem ill-natured, and the best any of us can do is to reply to all inquiries according to such light as the letters containing them may give, and to hope that if the answer is not useful to the questioner it may be so to other readers.

The question of abortion in cows has interested me very much, since I have lost half a dozen thorough-bred calves (and to a greater or less extent the use of their dams as milkers), but all my investigation has failed to throw much light on the subject. The first case was that of a cow I had bought over a month before in Massachusetts, and was keeping on a farm a mile away. After she had been there more than a month she aborted with a seven-months heifer-calf. This was the first case in the neighborhood. Soon after this I traded for a common cow, which I found had calved too early, and she came direct to Ogden Farm. Then the ball opened, and within the next two months we had lost eight more calves, some from common cows.

There would be two or three abortions within as many days, and then not another case for a fortnight; then it would break out again, and two or three more would go. Sometimes it would be animals standing side by side, and then in remote corners of the stable (100 ft. x 40 ft.). It took all ages alike, from 2 years old to 12 years old. Some families, of which I had three or four, would lose one, and in another family all three aborted. The Massachusetts cow was with very few other animals, and was fed exclusively on dry hay and a little corn meal and bran. The others were (most of them) kept on steamed food.

Some with whom I have discussed the matter say that abortion is caused by "slinkweed" in the hay, but they have failed to convince me that we have any weed in our meadows which has this effect. I have lately seen it stated that the difficulty is the effect of an insect which penetrates to the womb, creating an irritation that leads to the expulsion of the fetus; the cleanings of the cow contain these insects, whose germs float in the air, find entrance to the parts of other cows, and there develop into perfect insects, and cause them to abort. Concerning this theory we can only say, "Not proven," and even if it were well established, it would suggest nothing in the way of prevention that we do not already follow—the isolation of the cow, and the immediate removal and burial of the fetus and after-birth. Yet, in spite of these precautions, the disease seems to follow its own fitful course.

It is a well-known medical fact, that *ergot of rye* (spurred rye) stimulates the action of the womb and hastens birth. Many cases are cited where cows have aborted very soon after having eaten the heads of rye straw, and it surely would be unwise under any circumstances to allow an in-calf cow to have access to any form of ripe rye. Yet this theory does not satisfy all the conditions of my case, for the Massachusetts cow did not see a spear of rye for over a month before she lost her calf. The animals at Ogden Farm were fed more or less on early cut rye, and it was steamed before it was given to them. However, I shall not take even this chance again. Possibly some of the usual meadow grasses may be subject to the same disease with rye, and ergot is formed upon them.

The foregoing is a statement of my not very lucid opinions and conjectures, and of the meager help I have thus far been able to get from books, all of which is very far from teaching us how to prevent abortion. My friend, Mr. Samuel J. Sharpless—one of our oldest breeders of Jerseys—sends me the following "prescription which is highly recommended as a tonic to prevent abortion. I always keep it on hand, and when a cow or calf seems out of condition, I give it for a week or more, and always with good results":

- 2 oz. Sulphate of Iron, powdered,
- 8 " ground Ginger.
- 8 " ground Fenugreek.
- 8 " ground Caraway.
- 4 " ground Gentian.

Dose.—Half a table-spoonful of the mixture daily, with bran or other feed. It is best to commence with a teaspoonful, until the animals become accustomed to the taste and smell.

I have no doubt this tonic is a capital thing to keep on hand to give in all cases of low condition, and it is quite likely that a low condition always precedes abortion, whether we recognize it or not.

Mr. Charles Sharpless, who has had some experience with aborting cows, gives a sensible-looking hint concerning their after-treatment. In the case of common cows there is no question that the correct thing will be to fatten the animal for the butcher, and to have no more of her. But C. S.'s advice should be followed with valuable thorough-breds. It is, not to let the cow take the bull until at least five or six months after her abortion, and in no case, even if you lose a year, before the month of November. He thinks that in six months' time the cow will be fully "healed," and that if she does not take the bull until November, she will be safely out at grass before the dangerous period arrives. This is usually at about seven months, but I

have had two cases much younger than this. I fancy December would be even safer than November.

If a cow commences to spring bag before her full time, or if she gives any other indication of premature calving, she should be at once removed as far as possible from all other pregnant animals, and kept away from them fully a month after the dropping.

As the season progresses I am more and more satisfied with the condition of the only field that was finally laid down to grass a year ago last spring. We had two good crops of hay and one of soiling grass over very nearly the whole field, and much of it is now (Sept. 27th) ready to be cut again, if it were necessary. Those parts which are the least good, are now dressed with the scrapings of the barn-yard, and the whole tract will have a coating of one ton of fish-guano and one cord of coarse stable manure per acre. By the time the growth ceases, there will be a thick mat of grass for winter protection, and if we don't get 30 tons of good hay (in two cuttings) as the crop of 1873, from 9½ acres, I will agree to be honest about it and own up. I don't want to be too hopeful and claim more for the farm than it can fulfill, but from present indications it will cut enough hay in 1874 to satisfy any hopes I have ever entertained for it.

I do not care to extend a general invitation to visitors to come to Ogden Farm, for the double reason that I am so constantly occupied with various duties, and so much away from home, that I am unable to give them much personal attention, and that it really offers little entertainment to repay the cost and trouble of a visit. 50 acres of grass—most of it newly seeded—and ten acres of corn-fodder and roots are all that are to be seen in the fields. The barn is large and good, and it contains a fine herd of Jerseys, and some useful machinery and fixtures. The dairy is original, and may be interesting to butter-makers. At the same time, I think that most of those who come here are disappointed to find it a very plain, every-day, working farm, with nothing about it in any way ornamental or elaborate. At the same time it may not be amiss to say to all who do come, that I shall be absent, in Europe, until the middle of January, and that when I am here they had better call first at my office, in the city, instead of driving directly to the farm.

One word, too, to correspondents. I suppose I ought to be glad to write long letters to all inquirers, and I should be if I had the time for it, but what with my writing for the *Agriculturist*, my paid services as an agricultural engineer, and the management of my business as a farmer and gardener, I find it simply impossible to do much gratuitous work; and when an enthusiastic and ambitious young farmer asks me, as one does to-day, to "answer my request in full," which is, "I have a farm of 70 acres, and I will ask you how I shall farm it to keep the most stock and make the most money, and at the same time keep improving my farm in value and richness," I can only advise him to take as many back numbers of the *Agriculturist* as he can find time properly to read during the coming winter, to gain such wisdom as he may find from their perusal, and then to add to it the vast fund of information that can be obtained only from well-considered experience; and I hope he will be in no wise offended by my inability to aid him further.

Chinese Pigs.

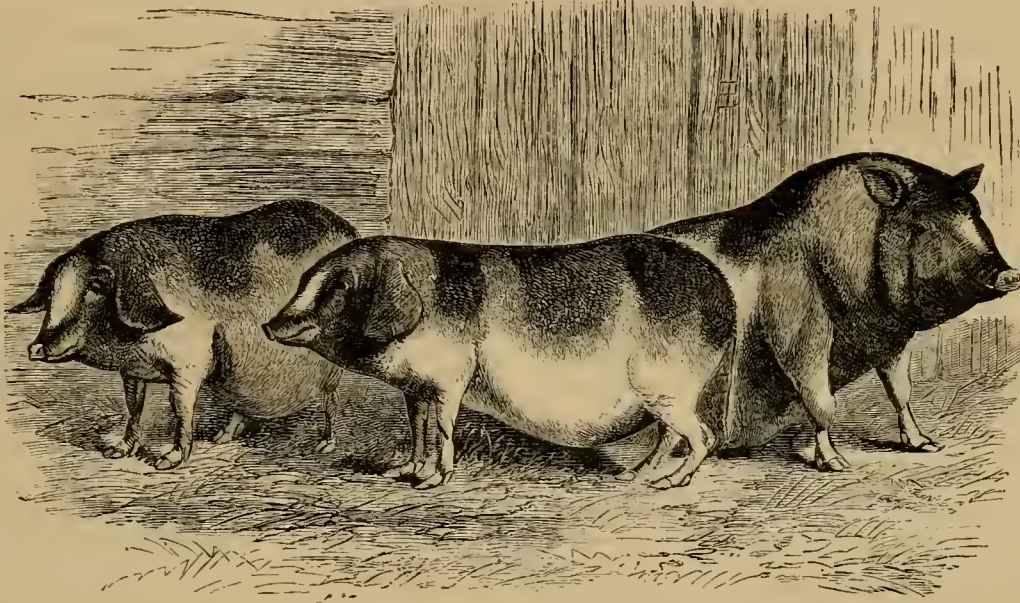
The steamer *Glengartney* lately arrived at New York direct from China, by way of the Suez Canal, having on board several China pigs. As China pigs directly imported are somewhat rare, and as it is interesting to compare these latest arrivals with those pigs we know as the Chinese breed in the United States, our artist has taken the portraits of a pair which fairly represent the whole shipment. It will be seen that our so-called China pigs possess very many of the characteristics of the parent breed, while they have certainly gained in size. In color, marking, fineness of bone, precocity in fattening, and depth of carcass, our China pigs have lost nothing by their emigration or by their acclimation, as compared with the specimens here illustrated. It will

be observed that there is a marked difference between the two pigs, especially in the form of the ear, one having erect and the other lopped ears. We could not learn whether these pigs had been selected especially for breeding purposes or not, but if they were, we should judge that they were not carefully selected, although something must be allowed for the ill effects of a long sea-voyage, which always unfavorably affects live-stock. It is

not generally known that we, as well as the English breeders, owe to the Chinese pig a considerable share of the improvement which has taken place in the Berkshire breed. The improved Berkshire owes some of its best points to the infusion of Chinese blood into that of the old Berkshire. In addition, the so-called Poland-China or Magie breed, the common hog of the Western States, owes a great portion of its excellence to the China blood contained in it. And

while it is doubtful if the Chinese pig in its pure state would be a valuable addition to our present varieties of swine, or if we have not by its admixture with native blood surpassed the pure animal in the most essential

points, yet we owe a debt to it much greater than is generally recognized. Comparing the portraits of the pure Chinese pigs here given with specimens of those breeds which contain more or less of Chinese blood, it is seen how much the descendants surpass in all important and valuable points the original progenitors, and how much the course of judicious selection



IMPORTED CHINESE PIGS.

and careful culture undertaken by our breeders results in a general improvement of the stock which comes into their hands. This is shown not only in the case of this breed, but in all those which have come under treatment not only of swine but of other species of stock. While we have abundant room for congratulation in this respect, it is still to be regretted that farmers generally can not see it to be to their best interests to avail themselves of the success-



EAST INDIAN AND GIBRALTAR SHEEP.

East Indian and Gibraltar Sheep.

We give above engravings of some foreign sheep brought to New York by the steamer *Glengartney*, mentioned in another article. One of these sheep, that with black wool, is from Calcutta, in the East Indies, and shows what can be done in the way of wool and mut-

ton-growing in that hot climate. It will be seen that the East Indian sheep are not calculated for mutton-producers, nor are they very good wool-bearers, the wool being short and coarse, as might be expected. The white-wooled sheep are from Gibraltar, a district in the south-western part of Spain, which is in the possession of Great Britain, and consists mainly of barren rocks, held only for military purposes. These sheep have a good frame, with long, coarse, straight wool almost like hair, and

have the reputation of being very hardy, and subsisting on the poorest fodder. They are not much superior to our poorest native sheep, and are interesting only as a variety which we very seldom have an opportunity of examining.

Keeping Pigs on Hotel Refuse.

A correspondent in Jersey City writes that he has read "Harris on the Pig" with much interest, but can find nothing said in regard to whether pigs can be successfully and profitably raised upon the refuse of hotels, restaurants, and private residences. "Such refuse," he says, "contains very rich food, such as pieces of cooked meat, soups, stale bread, potato parings, and vegetable refuse of all sorts. The breeding and raising of pork for packing in the above manner has been a hobby with me for several years, but whether I can ever make it practically successful or not remains to be seen. I am strongly inclined to make the experiment. I consulted with an Irishman who has already demonstrated the thing in a small way, and he was very enthusiastic on the subject, saying that he

ful labors of the professional breeders, and by incorporating the improved stock with their own native and comparatively unprofitable animals, add much to their own personal wealth, as well as to that of the country at large.

put four or five hundred dollars in his pocket every year with little or no expense other than the labor of collecting the refuse. He gets feed enough and to spare to feed 25 pigs by going three times a week after his work is done to one hotel and three or four private houses. He says if he only had money enough to buy the stock he would do nothing else. His pigs are in excellent condition, and one sow with fourteen pigs six weeks old was actually fat. May I ask your opinion on the subject, and as to whether pork so raised is healthy? The Irishman referred to says there is no objection made by the packers here to taking his pork."

The most profitable way of using this refuse would be to keep breeding sows and young pigs. If the pigs are fed for the last six or eight weeks on corn-meal, we do not see why the pork would not be healthy. We feed our own pigs all the refuse of the house and dairy, and never thought there was anything deleterious in such food. A well-known and extensive pig breeder in Canada has two large railroad eating-houses. He keeps and breeds large numbers of thorough-bred pigs, and ships them at high prices to all parts of the United States. His pigs are fed almost exclusively on the refuse of the restaurants.

We would advise our correspondent to go into the matter on a small scale at first, and enlarge as he gains experience. Or he might go into partnership with the Irishman, and do business on a large scale. There are many little details to be attended to that can only be learned by actual trial. But we see no reason why the plan might not be very profitably carried out. Pigs may be made very useful scavengers, but unless they are kept in dry, well-ventilated, and properly constructed pens, with due regard to cleanliness, they ought not to be tolerated in a city. A dirty pig-pen is a sore nuisance.

Walks and Talks on the Farm.—No. 107.

The Deacon and I have been to see Mr. Dewey's drilled corn. I have for some years been in favor of drilling in corn, *provided* the land was rich and clean. The Deacon has been steadfastly opposed to the plan. He plants his corn in hills 3½ feet apart, four seeds in a hill. I drill in my corn with a bean-planter. The rows are 3½ feet apart, and the corn is dropped, from two to three kernels at a time, every 18 inches apart. Mr. Dewey drills in his corn with an ordinary grain-drill. The rows are 35 inches apart, and the plants stand from 8 to 15 inches apart in the rows. Mr. Dewey's son drilled in 17 acres in one day. The field was not marked, but the rows are tolerably straight and equi-distant. Three rows are sown at a time. These are at equal distances apart, but the next row varies somewhat, and it is necessary in cultivating to go twice in a row.

It is rarely that one sees such a magnificent field of corn. There is a dense growth of stalks, and many of the stalks have two perfectly matured ears of corn on them, and nearly all of them have one large ear. I should estimate the yield at 140 bushels of sound ears of corn per acre.

"How long have you drilled in your corn?" asked the Deacon. "Well," said Mr. Dewey, "during the war we did not know what was going to become of us. We could not get men to plant the corn, and I had the rheumatiz. I had read about drilling in corn, and so I thought I would try it. It was the only thing I could

do. It was rather rough work, but I had a good crop, and have drilled in my corn ever since."

The truth is, however, that it is not the drilling that gives Mr. Dewey such good corn. He is a *good farmer*. He does not practice "high farming" in the sense in which I use that term. His is a good example of what I call "slow farming." He raises large crops, but comparatively few of them. His first purchase, where he now lives, was 92 acres at \$50 per acre. "And," said he, "I thought I should never be able to pay for it." He has, however, found means somehow to buy land adjoining, until he has now a splendid farm of some 300 acres, that would sell probably for \$125 or \$150 per acre. On this farm he raised this season 40 acres of wheat, 17 acres of corn, and 15 acres of barley and oats. The corn, oats, straw, hay, and stalks are all fed out on the farm, and converted into manure. He has no fixed rotation. He breaks up and sows and plants about as much land as he thinks he can attend to. The land he intends to plant to corn next year has been in grass for seven years. He will put pretty much all his manure on this land. After corn, it will be sown to oats or barley; then sown to wheat, and seeded down again. It will then lie in grass three, four, five, six, or seven years, until he needs it again for corn, etc. This is "slow farming," but it is also good farming—that is to say, it gives large yields per acre, and a good return for the labor expended.

The soil of this farm is richer to-day in *available* plant-food than when first cleared. It produces larger crops per acre. Mr. D. called our attention to a fact that establishes this point. An old fence that had occupied the ground for many years was removed some years since, and the two fields thrown into one. Every time this field is in crops it is easy to see where the old fence was by the short straw and poor growth on this strip as compared with the land on each side which had been cultivated for years.

This is precisely the result that I should have expected. If Mr. D. was a poor farmer—if he cropped his land frequently, did not more than half-cultivate it, sold everything he raised, and drew back no manure—I think the old fence-strip would have given the best crops.

I have great faith in the benefits of thorough tillage—or, in other words, of breaking up, pulverizing, and exposing the soil to the decomposing action of the atmosphere. I look upon a good, strong soil as a kind of storehouse of plant-food. But it is not an easy matter to render this plant-food soluble. If it were any less soluble than it is it would have all leached out of the land centuries ago. Turning over and fining a manure-heap, if other conditions are favorable, cause rapid fermentation with the formation of carbonate of ammonia and other soluble salts. Many of our soils, to the depth of eight or ten inches, contain enough nitrogenous matter in an acre to produce two or three thousand pounds of ammonia. By stirring the soil and exposing it to the atmosphere, a small portion of this nitrogen becomes annually available, and is taken up by the growing crops. And it is so with the other elements of plant-food. Stirring the soil, then, is the basis of agriculture. It has been said that we must return to the soil as much plant-food as we take from it. If this were true, nothing could be sold from the farm. What we should aim to do is to develop as much as possible of the plant-food that lies latent in the soil, and not to sell in the form of crops, cheese, wool, or ani-

mals, any more of this plant-food than we annually develop from the soil. In this way the "condition" of the soil would remain the same. If we sell *less* than we develop, the condition of the soil will improve.

By "condition," I mean the amount of *available* plant-food in the soil. The strip of land on which the old fence stood in Mr. Dewey's field contained *more* plant-food than the soil on either side of it. But it was not available. It was not developed. It was latent, inert, insoluble, crude, and undecomposed. It was so much dead capital. The land on either side which had been cultivated for years produced better crops. Why? Simply because the stirring of the soil had developed *more* plant-food than had been removed by the crops. If the stirring of the soil developed 100 lbs. of plant-food a year, and only 75 lbs. were carried off in the crops—25 lbs. being left on the land in the form of roots, stubble, etc.—the land at the expiration of 40 years would contain, provided none of it was lost, 1,000 lbs. more *available* plant-food than the uncultivated strip. On the other hand, the latter would contain 3,000 lbs. more actual plant-food per acre than the land which had been cultivated—but it is in an unavailable condition. It is dead capital.

I do not know that I make myself understood, though I would like to do so, because I am sure there is no point in scientific farming of greater importance. Mr. Geddes calls grass the "pivot crop" of American agriculture. He deserves our thanks for the word and the idea connected with it. But I am inclined to think the *pivot* on which our agriculture stands and rotates lies deeper than this. The grass crop creates nothing—develops nothing. The untilled and unmanured grass lands of Herkimer County are no richer to-day than they were 50 years ago. The pastures of Cheshire, except those that have been top-dressed with bones or other manures, are no more productive than they were centuries back. Grass alone will not make rich land. It is a good "savings-bank." It gathers up and saves plant-food from running to waste. It pays a good interest, and is a capital institution. But the real source of fertility must be looked for in the stores of plant-food lying dormant in the soil. Tillage, underdraining, and thorough cultivation are the means by which we develop and render this plant-food available. Grass, clover, peas, or any other crop which is consumed on the farm merely affords us the means of saving this plant-food and making it pay a good interest.

Mr. Dewey adopts the so-called summer-fallow of this section. Looking at a fine field of 30 acres of wheat, I asked if it was after barley or oats. "No," he replied, "it is a summer-fallow."

"How many times do you plow in summer-fallowing?" I asked. He and the Deacon exchanged looks. They both take the *Agriculturist*, and know my views on the subject. "Sometimes I plow once," he replied, "sometimes three times, and I have plowed *four* times. Here is a field that was overrun with thistles. I broke it up and planted corn. After the corn was off we plowed it in the fall, and the next year I summer-fallowed it, plowing three times, and cultivating and harrowing when necessary. Then sowed it to wheat and seeded down."

Now, *that* is what I call summer-fallowing. It killed every thistle, and the land will not forget such thorough tillage for years.

"But this thirty-acre field that you summer-fallowed this year, how many times was it plowed?"—"Only once. I broke it up in June with a jointer-plow. I have an Englishman who is a capital plowman. He plowed the field in fourteen days, and made a complete job of it. Afterwards it was harrowed and cultivated, and drilled in with Diehl wheat the first week in September."

This is certainly a cheap and to a certain extent a very effective way of summer-fallowing. The land was plowed full seven inches deep, and the "jointer" or skim-plow threw the sod to the bottom of the furrow, where it was completely covered with four or five inches of loose, mellow earth. There can be no doubt that this plan is becoming more and more popular. Said one of the best and most successful farmers in this section: "I would not let you plow my summer-fallow twice, if you would plow it for nothing."

It may well be that turning up this partly-rotted sod, full of weed-seeds, would do more harm than good. So far as the wheat crop is concerned, it would be better to let these foul seeds lie dormant until the next plowing, three or four years hence. But I still contend that, if we summer-fallow at all, it is better to break up early in the spring (or, better still, if the land is a tenacious clay, the fall previous), and then cross-plow as soon as the sod is sufficiently rotted. Then harrow, cultivate, and roll, and make the soil as fine and mellow as possible in order to induce the weeds to grow. Then plow again, and thus destroy the weeds. After the wheat is up, harrow again, to kill the small weeds while in the seed-leaf.

I am expecting to hear that the readers of the *Agriculturist* are getting tired with my repeated talk about weeds. I have more than once made up my mind not to say another word on the subject. But the truth is I can not help it. It seems to me that there can be neither pleasure nor profit in farming until we get the upper hand of the weeds. I have had a hard fight with them on my own farm, but have succeeded far better than I expected.

The Deacon says he never saw the weeds so numerous as they are this season. He thinks it must be owing to the unusually dry weather that we have had for two or three years. There may be something in this, so far as low, wet land is concerned, but I tell him that it is more likely to be owing to our better plows and better cultivators, harrows, and other implements for breaking up and pulverizing the soil. We use them enough to cause a greater number of weed-seeds to germinate, and to distribute the roots of thistles, quack, wire-grass, etc., but not enough to kill them.

For the first time during the last eight or ten years the midge, or so-called "weevil," injured our wheat the past season. Wherever the crop was late the straw rusted and the grain shriveled up, and there was also more or less midge. But, in the same field, where the wheat grew strong and ripened at the proper season, there was no rust and, so far as I could see, no midge. The past year was the worst season for wheat we have had for a quarter of a century or more, and I see no reason why we should feel alarmed at the appearance of the midge. But I am told that many of our farmers were afraid to sow white wheat, and have sown Mediterranean. Others have sown a mixture of red and white wheat together, thinking that if the midge de-

stroys the white wheat the Mediterranean will escape. The trouble is that the millers will pay little if any more for the mixed white and red wheat than they will for the red alone.

Mr. Peart, the butcher, who went to England last year on a visit, brought me some red wheat that he says yielded 92 bushels per acre. I have sown it, but do not suppose it will be of any value here. Our own varieties are better than our culture. No matter what variety we sow, we can not expect a large crop unless the land is rich, dry, and in good condition.

It would be a great blessing to the country if we should have a good wheat crop next year. The wheat crop of Great Britain this year is unquestionably far below the average, and much of it has been more or less injured by the wet harvest weather. Good, sound American wheat will be wanted, but I fear we shall find that we have not much to spare. Wheat is likely to bring a high price next summer, and there will be an active demand for our next crop, and we could sell immediately after harvest to good advantage. Let us hope for a good crop.

Mr. S. C. Gordon, of Ohio, writes: "What you say in regard to weeds—'cause as many of the seeds to germinate as possible, and then kill them'—is the correct doctrine. But being single-handed, and having rather an old farm pretty well stocked with weed-seed, it is an uphill business."—No doubt about that. But stick to it. Every year the land will become cleaner, and the thorough working of the soil will make it richer.

In regard to the latter point I have no sort of doubt, except in the case of a very light sand. On clays and clay loam, the more you stir the soil the more plant-food will you develop. But it takes time. The Deacon and I used to have a good deal of discussion on this point. He thought it a very bad thing to "sun-burn" the land. But I believe I have convinced him, not so much by argument as by actual experiment, that there is no danger in exposing land to the hottest sun, provided it is frequently stirred. A wet clay soil will bake and perhaps "burn" in the sun; but drain it and reduce it to a fine tilth by repeated plowings and harrowings, and it certainly will not sun-burn. We all know that a good summer-fallow retains far more moisture than land that has been "shaded" with a crop of oats, barley, or peas.

Mr. Smith, of Virginia, writes that he tried to grow some mustard, but that "it was a complete failure, probably on account of the dry season." I did my best to discourage every one from sowing either mustard, rape, or turnips unless the land was in the very best condition. It should be made as fine and mellow as a garden.

Mr. S. adds: "Suffering and loss from drouth seem to be the rule here—or, at any rate, more the rule than the exception. I think this section, however, is on the whole good for sheep husbandry, and with good management I think it would be a good wheat section. I have this year over 20 bushels to the acre on a field of summer-fallow, and I have heard of one man in the neighborhood of Alexandria who had 30 bushels per acre."

"This," he adds, "is certainly not very discreditable to old Virginia, more especially as it has been stated at the New York Farmers' Club that five bushels was considered a good crop in

Virginia. I think those men whose remarks are so widely circulated ought to be more careful in their statements."—I think so too.

"What we want here," continues Mr. S., "is a little more ammonia, and then, so far as I see, there will be no great difficulty in growing wheat. I intend to make that and mutton and wool the chief products of my farm."—Mr. S. has hit the nail right on the head. When I first read his letter, I thought he meant to say: "What we need is a little more money." But he means precisely what he says—"a little more ammonia." He goes to the root of the matter. If you can get ammonia you can get large crops of wheat, and if you can get large wheat crops you can make money. How to get ammonia at the cheapest rate is the great question of scientific agriculture. Keeping sheep, and raising clover, rape, mustard, peas, turnips, and other highly nitrogenous crops to feed them on, and buying some bran, oilcake, etc., in addition, is as good a plan in Mr. Smith's case as I can suggest.

The great trouble is that we do not get money enough for our meat. The consumers in our cities have to pay enough for it, but the money does not seem to find its way into the farmers' pockets. If I want a beefsteak, the butcher will charge me eighteen cents a pound for it, and it is not unfrequently very poor stuff at that. If I want to sell a carcass of beef, I should probably get not to exceed seven cents a pound.

I do not say that the butchers make exorbitant profits. One would think there is competition enough to prevent this. I suppose one trouble is that our beef is not as good as it should be. There is too much bone, tallow, and inferior parts of the carcass in proportion to the choice cuts. We want better bred animals.

One of my neighbors has some thrifty two-year-old steers. "I am overstocked," said he, "and want to sell them, and all that those rascally butchers will offer me is \$35 per head." I presume they offer him about what they are worth to kill. But why kill them? To make them into really good beef they want twelve months of good feeding. Many farmers in this section seem to have come to the conclusion that it does not pay to feed cattle, and are selling off everything that the butchers will take. The consequence is that the meat-market is flooded with inferior beef that must be sold at a low price—and is dear at that. It seems to me that those who have good young animals should hold on to them, and give them good feed. But ill-bred, inferior animals may as well be sold as not. It is impossible to fatten them in winter or keep them over to good advantage.

Turnip Flavor in Milk and Butter.

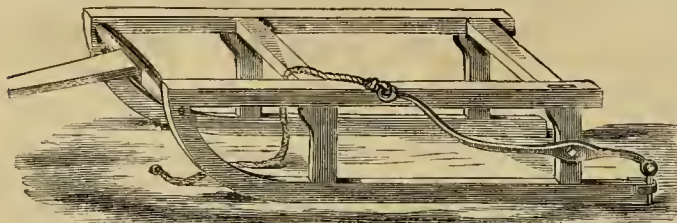
Col. Thos. S. Strobecor, of Venango Co., Pa., says he has been repaid "many times over" for his subscription to the *Agriculturist* by the simple benefit derived from Ogden Farm's information that if turnips are fed only immediately after milking their taste will not be communicated to the contents of the udder. He states that last winter he fed turnips to five cows until the milk and butter became so strong that it could not be used. He then tried Col. Waring's plan, and found that "there was not a particle of turnip flavor in the milk or butter." After a time the taste returned. On investigation, he found that one of the cows was nearly dry, and was milked only once a day, while she was fed with turnips twice a day. She gave but a pint of milk per day, so that when fed in the morn-

ing she could have had but about half a pint of milk in her bag; yet this received so much taste from the turnips that it spoiled the milk of four other cows in full flow. To make the test complete, he had her milked twice a day, when the difficulty at once ceased, and did not recur.

Evidently a very small amount of milk in the udder will suffice to do the mischief, and if drying-off cows are milked only once a day while on turnip feed their milk should not be mixed with that from the rest of the herd.

A Lock for Sleds.

The engraving below shows a simple and effectual lock, or drag, or hold-back for a sled. There are many cases in which such an attachment to the sled would be a saving of labor to both teams and driver, who in descending hills

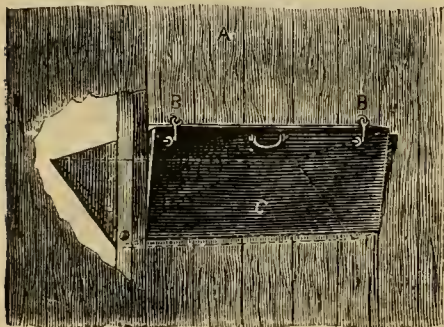


LOCK FOR SLEDS.

are worried and tired by efforts to hold back the sled and load. Many serious accidents might be averted by the use of them. They should be made of good iron, and consist of a lever pivoted to the hinder post of the sled-frame, which when raised by means of the handle at the forward extremity, or a cord attached thereto to be used when a tall load is being drawn, depresses the tooth or catch, which is pivoted to the hinder arm of the lever, below the level of the runner, and causes the sled to drag in the snow, and so enables a team to make the descent of a steep hill quite safely.

Movable Manger for Stalls or Stables.

When it is desirable that the inside of a stall or stable should present no projecting points or furniture—a very necessary thing where valuable stock is kept, and a very neat and useful arrange-



A ROCKING MANGER.

ment at all times—the manger and hay-rack may be made movable on the principle shown in the annexed engraving. It represents a manger for a horse-stable, so arranged that it may be swung into the feed passage and fastened there when not in use, leaving the front of the stall inside with a smooth flush surface, and when needed for use may be filled and swung into the stall. The partition between the stall and the passage is represented at *a*, the hooks (*b*, *b*) hold the manger in place, and *c* shows the position of the manger when in use inside of the stall. A

break in the partition shows the position inside. On the same principle the mangers for cows or other stock might be constructed; also hay-racks where long hay is fed, as well as troughs for pig-pens. The manger vibrates on pins, either of wood or iron, let into the ends at the lower part and into the frame of the stall.

Winter-Feeding of Sheep.

We are requested by many of our readers to give them information respecting the fall and winter out-door feeding of sheep. Most of these inquiries come from Virginia, where the climate—as in many other of the Southern States—is well adapted to this method of sheep culture. It is a favorable sign of an improving condition of agriculture when the desire is becoming prevalent to raise crops to be eaten off the ground by sheep folded thereon. It is one of the more advanced arts of agriculture, which so far has been considered—but erroneously so—as not adapted to our climate. It is, wherever practicable, a great economy of

labor, both in harvesting and storing the crops eaten, and in caring for and hauling and spreading the manure made. Sheep are better spreaders of manure than most farmers or farm hands, and very easily accommodate themselves to and readily understand the system of folding.

The crops which may be eaten off the ground by lambs or sheep are of considerable variety. Clover, blue-grass which has been kept for winter pasture, rape, mustard, turnips, or any other roots may be used. The roots may be gathered and sliced and fed in troughs or scattered on the ground, or if shallow-rooted, as the white or yellow turnips or the ruta-baga, may be fed as they grow in the drills. The means of inclosing the sheep are the main difficulty, but it is easily met. Where small timber abounds, light hurdles may be made as described and figured in the *Agriculturist* of November, 1871, page 418. Where this is not readily available, nearly as cheap a material may be procured in the tarred twine or cocoanut-fiber netting, which may be purchased ready-made by machinery, or the twine may be purchased and made up into the netting at home during the long winter evenings or stormy winter days. The nets should be three feet in width, and may be made or procured in rolls of any length desired. Two rolls of a hundred and ten yards each would stretch across a square field of ten acres, and such a field might be fed off in strips by using two such rolls. Or the same lengths of netting would inclose a space of seventy yards by forty, which would be more than half an acre, and sufficient for a small flock of sheep. The nets should be hung on stakes driven into the ground, hooks being driven into the stakes, the lower edge of the net being six inches above the ground, and if the sheep are wild, and need more restraint, a No. 9 wire may be stretched a foot above the net, and will effectually inclose any flock, however inclined to rove. In a few days, sheep thus inclosed in a net hurdle become habituated to it, and of themselves come into the inclosure as soon as it is made ready for them.

We give the following directions for making the net. If the peculiar stitch by which fish-nets are

made is known, there is nothing easier than to weave the nets in that manner, but as in inland localities this is rarely understood, and it is almost impossible to describe it in print, we give a substitute, which answers the purpose in every way, and is much easier to make. It is made as follows: The material is stout hempen or cocoanut-fiber twine, about one eighth of an inch thick, which can be purchased at twenty cents per pound. A cord of thrice this thickness is used for the border of the net, and the meshes are attached to it by means of a still finer twine, which is twisted or knotted two or three times at the corner of each mesh by means of the needle shown at *a*, fig. 1. This needle

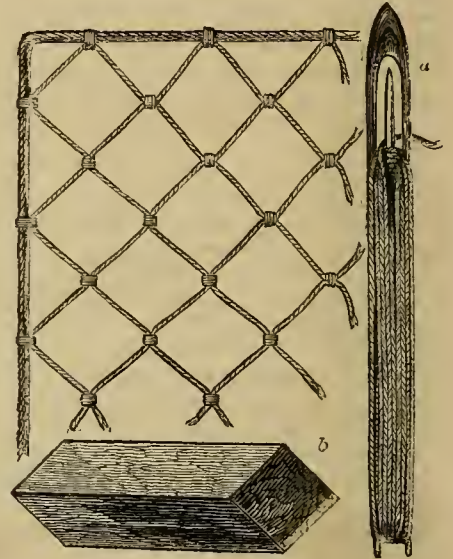


Fig. 1.—MAKING A NET.

is whittled out of a piece of maple or oak wood, one eighth of an inch thick and an inch and a quarter broad. On this needle the knotting thread is wound. The square piece of wood shown at *b* is held against the rope, the netting twine is passed around it and fastened by two or three turns of the knotting thread, and a fast knot is made. The thread is cut, the block withdrawn, and replaced in position to make another mesh, and so the work proceeds until finished. In fig. 1 is shown this method of knotting the meshes. When a sufficient length of net is made, it should, before it is used,

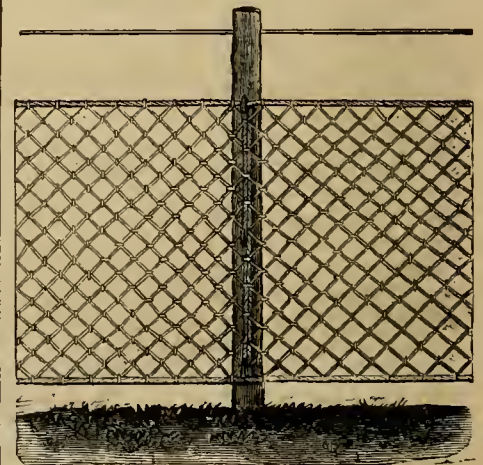


Fig. 2.—THE NET PUT UP.

receive a thorough soaking with pine-tar, which will add very much to its durability.

The stakes should be five feet long, about four inches thick, pointed at the foot, and are to be driven in the ground with a wooden mallet. Fig. 2 shows the net hooked on to the stake.

If the ground is hard, a short pointed iron bar may be used to make the holes for the stakes. The stakes should be loaded in a cart, driven along the place where the fence is to be erected, and one dropped about every eight feet. The net should be neatly rolled, and may be unrolled on the ground, and hooked on to the stakes as it is unrolled, and altogether the fence may be erected very rapidly by using method in doing it. It is very much to be hoped that this system will be undertaken as widely as may be practicable where the climate admits of it.

Cement Pipes and Tiles.

We have received several communications on the subject of cement pipes for conveying water, and cement tiles for draining land. The difficulties which seem to have occurred with our correspondents in the use of cement pipes are supposed excessive cost, leakage where they should be tight, and imperviousness to water where they are desired to be porous; besides a general want of information as to the use of the cement and how to construct the tile. Cement pipe, when it is properly constructed, has some advantages for conveying water over any other kind of pipe. In cost it should be cheaper than any other pipe. If one barrel of cement is sufficient for 600 feet of 1 1/2-inch pipe strong enough to resist a pressure of 20 lbs. to the square

to allow for a thickness of material sufficient to resist the pressure of the water; where there is but a few feet head one inch of well-spread and properly mixed material will be sufficient; where the head of water is greater, the thickness may be increased at about the rate of a quarter of an inch for every twenty feet of increase in the head. When the ditch has been dug free from sudden curves, and of an even grade, or so slightly or suddenly uneven as not to present any difficulties in laying the pipe, the trough or bed in the bottom of the ditch should be covered with the cement, by means of a trowel, to a thickness as near as may be to that required. A core (shown in fig. 1), which is a smooth rod of wood 6 or 8 feet in length, and of the exact thickness to

match the desired caliber of the pipe, and made with a very small taper from front to rear, is laid and bedded down in the cement; the core is then covered with it, commencing at the rear end, and compactly plastering it over to the proper thickness until the core is covered except a few inches at the front. The cement should have been properly prepared by mixture of one barrel of Rosendale cement, or any other of equal quality, with three barrels of fine, clean, sharp sand. The strength and tightness of the pipe depend in a great measure on the quality of the sand, and also on the use of a proper quantity of water. Only sufficient water should be used to render the cement plastic; if it is flooded with water the pipe will be porous. The cement and sand should be carefully and evenly mixed together in a barn

or out-house, and taken in a dry state to the place where it is to be used, and mixed with water only in small quantities as it is required; as it rapidly "sets" or becomes stiff. Two persons are required to do the work expeditiously, one to mix the cement for the pipe-layer, and to hand it to him as he needs it, and to cover the pipe carefully when the core is ready to be drawn ahead, with soil free from stones to a depth of a few inches. This soil is to be tamped down carefully, evenly, and solidly. When a foot or two of that first laid is thus covered and tamped, the core is drawn ahead to a corresponding distance, but no more, and the cement laid around it, thus adding a foot or two to the length of the pipe. Care must be taken to make a compact and tight joint, or the pipe will leak. It is well to add a little thickness to the pipe at the joints to secure

perfection in them. While the pipe-layer is doing this, the assistant is busy covering up an equal length with earth in the manner before described, and thus proceeding foot by foot two ordinarily smart hands will lay one foot per

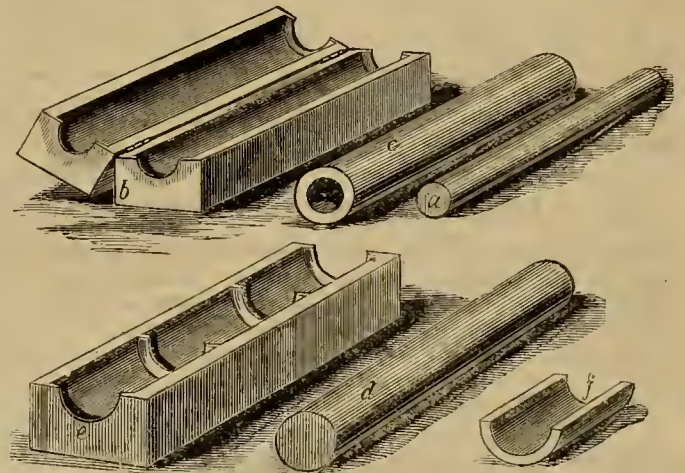


Fig. 2.—MOLDS FOR PIPES AND COLLARS.

minute with ease—or at least two such have done so. A pipe thus laid is practically everlasting; it is stone, it can not decay, in course of time it becomes harder and stronger, it adds no impurity to the water, and neither worms nor rust corrupt it, as in wood or iron pipes. Its advantages when thus laid, over earthen pipes or tiles laid in short lengths cemented together, is that the pipe is one homogeneous whole, as though it were a leaden one; while these jointed pipes can not be made tight at the joints, and in course of time leak, and in addition are perishable and fail.

Figure 1 shows the process described above, the form of the ditch, the shape of the completed pipe, and the form of the core. The bed for the reception of the pipe at the bottom of the ditch should be round and not square, as it is accidentally made in the engraving, and only large enough to receive the pipe without any waste of cement.

Cement drain-tiles may be made in the above manner by laying the cement in shorter or longer sections, with joints between, or they may be made in molds, which would be preferable, although more labor is required.

Figure 2 shows the process of making the tiles and collars; *a* is the core which molds the interior of the tile, *b* is the mold itself, *c* the finished tile, *d* the core for molding the inside of the caps or collars, *e* the mold in which they are shaped, and *f* the finished cap. The preparation of the cement is similar to that pre-

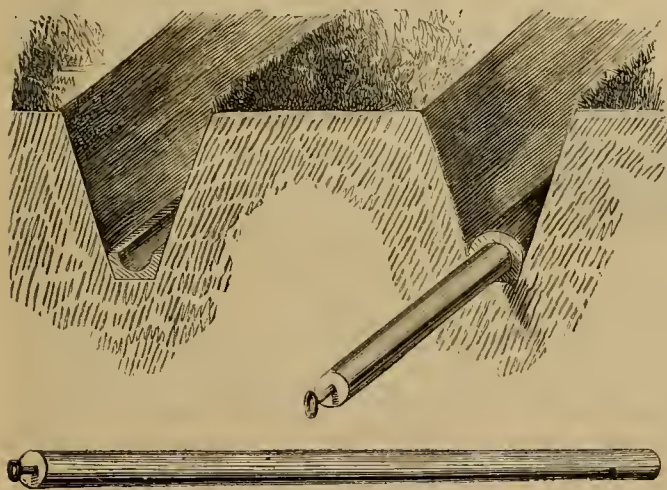


Fig. 1.—MAKING CONCRETE PIPE.

inch, equal to a column of water of more than 100 feet head, and the cost of making the pipe comparatively inconsiderable, it must be by far the cheapest pipe that can be used. If it is properly constructed, with a view to the special purpose required, it may be made either watertight or porous, this depending on the proportion of sand used in the mixture. In laying pipe for conveying water on the plan here described, the excavation should be made deep enough to preserve the pipes from frost, as indeed should be done for any pipe. Three or four feet would be sufficient, except under exceptional circumstances when frost would penetrate deeper than any practicable depth at which pipe might be laid. The constant passage of a current of spring-water through the pipes would almost always prevent freezing, even when the surrounding ground might be frozen.

The ditch should be scooped out at the bottom with a drain-scoop, so as to make a semi-circular bed for the pipe, in which it may be laid evenly and without waste of material. On this greatly depends the economy of the plan. The bed or trough should be made large enough

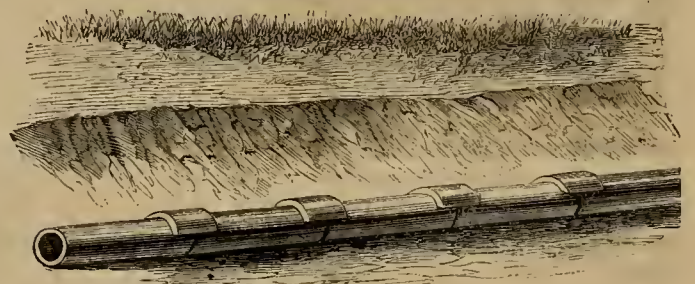


Fig. 3.—PIPES AND COLLARS LAID IN DRAIN.

viously described, excepting that a much larger proportion of sand may be used, and much coarser sand, or, indeed, coarse sifted coal-ashes, will answer in the place of sand. As there is no pressure of water to provide against, and as the more porous they are the better, the

proportion of ingredients is varied, so as to give them just sufficient tenacity and strength to hold together and resist collapse by pressure of the earth above them. When the material is mixed, the mold (b) is filled with it, the core (a) is forced down upon the cement, which is mixed with sufficient water to render it quite soft, until it touches the flanges seen at each end of the mold, and thus the tile receives an even, square shape at the ends. The core is then covered with cement, and the top part of the mold is turned down over it, and the excess of material squeezed out. The mold with the contained tile is pushed on one side, and another filled in the same manner, sufficient molds being needed to work with until the cement has set enough to be turned out. The number required of course depends on the rapidity of the workman. The caps or collars are made in exactly the same manner; the mold, however, is provided with flanges placed so far apart as to cut the collars into the sizes required, three inches in length being about a proper size. The mold (c) is single, no upper portion being required, as the collars are much better in the shape of half-circles than whole ones. They are placed with greater facility when in this shape, and where the ground is solid, as in clay soil, and the bottom of the drain properly shaped to receive the tiles, no collars are needed under them, only caps over the joints being required.

Figure 3 shows the position of the tiles and caps in the drain as they are to be laid. Farmers intending to drain their fields who are situated at a distance from tile manufactories or from railroad stations, can very conveniently and profitably make use of the method above described. The great loss incident to the carriage of fragile articles such as drain-tiles is avoided and much expense of freight saved, the carriage of the cement alone having to be met, which is only a small portion of the material used, the greater bulk being sand, sifted coal-ashes, or finely-broken brick, etc., where coarse sand can not easily be procured.

Why Thorough-bred Bulls are Vicious.

We rarely hear of a common or scrub bull being vicious, and almost as rarely do we hear of a thorough-bred bull that is not so. In our judgment, this is due not at all to the difference of blood, but to the difference of treatment.

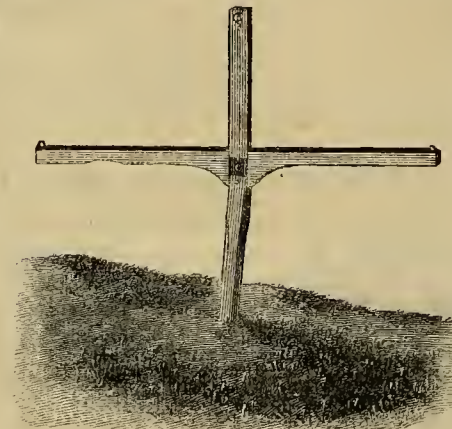
The common bull is generally kept in the same field and in the same stable with the cows, and is in all respects treated in the same way. He is accustomed to the presence of man, and to all the sights and sounds of the farm and the road. The thorough-bred, on the other hand, is usually expected to be vicious, and everything is done to make him so. He is confined in a box-stall (usually a dark one), and takes his exercise in a yard that is surrounded by a high fence, with no opportunity to become familiar with anything but his single keeper. Too often he is chained by his neck and by his nose-ring, and sees only his attendant—who usually goes to him armed with a club or a whip, and who makes it evident that he is afraid for his life while in his presence. This is enough to make a bull, or a horse, or a man cross and cantankerous, and we have no right to expect a different result from such management.

We have had practical experience of the opposite mode of treatment in the cases of a number of Jersey bulls, and always with good effect. We are now using one nearly six years old. When we first got him, four years ago, he

was showing the effect of previous mismanagement, and was ready to bellow and paw the ground in preparation for a fight at the sight of every man who went into the stable or field. Since he has been in our possession, he has been treated exactly as he would have been if he had been the tamest of scrubs. Tied by his nose-ring in the same line of stalls with the cows, fed in the same way, patted and spoken to by all who passed, he has become as docile and quiet as an ox, and strangers go into the open barn-yard with him without even attracting his notice. If this were a single case, the result might be ascribed to the temper of this particular animal, but we have had the same experience with a dozen others, and we have never seen a bull so treated that was vicious—nor one kept in solitary confinement that was not so.

A Farm Level.

T. S. Strobecer, Venango Co., Pa., sends us a model of a farmer's level, from which we



A SIMPLE FARM LEVEL.

make an engraving. He thus describes it: It consists of a board about eight feet long, both edges being straight and parallel, with sights attached to the upper edge. An upright piece about three feet long is dovetailed into the board, or otherwise firmly affixed, at right-angles to it. A cord and plummet is attached to the upright piece, and in its center a crease is made, also at right angles to the upper edge of the board carrying the sights. It can be rested on blocks on a staff, which may be pivoted so that the level may be used on ground that is rough or uneven. The upright piece is handy to plumb walls; attached to the board it is useful to level foundations or cellars. When mounted on a staff, it may be used for many purposes as a substitute for a surveyor's level, and it costs only a little ingenuity to make it.

SMALL ARTIFICIAL PONDS FOR FISH.—"S. L." Fairfield, Iowa, asks if a small half-acre pond can be utilized for raising fish, and what kinds of fish can be raised in it. The pond is six feet deep. If the pond is fed by springs, and the water does not get above 70° in the summer, trout can be raised in it. If there is a good stream running through, or if it is kept uniformly six feet deep, the smaller kinds of fresh-water fish will live in it, even if it is much warmer. If it is wanted merely for ornament, gold-fish may be put in, and it may be planted with water-lilies, to make shelter for them. If fish for food and sport are wanted, black bass would live in such a pond, but they would need to be fed occasionally in summer

to make them grow rapidly. The best feed is small live fish and insects. Beef-lights run through a sausage-meat cutter make good food. A few loads of coarse gravel should be put into the pond in water three or four feet deep for spawning-beds, unless the bottom is gravel. Of course, in so small a pond, not a great many fish can be raised. The growth will depend upon the liberality with which they are fed.

Old Pastures, or New?

There are two opinions about pastures. One is that it is more profitable to feed only newly-seeded land, using it not more than two years before plowing it up for a reseeded; and the other to let it remain for many years, allowing the surface to become fully occupied by the native grasses, these being supposed to be best adapted to develop its power of production.

If we consider this question according to the general practice of farming communities in this country, we can not hesitate to decide that the greatest profit will follow the first-named method, for there is no disputing the proposition that timothy, red-top, orchard grass, and red clover, newly sown on a well-prepared and well-manned soil, will produce much more forage (and of a highly nutritious kind) than will a close turf of blue-grass, white clover, etc., which has for many years had full possession of the ground, and has had no artificial stimulation. The difference in amount will be much more than enough to repay the cost of breaking up, manuring, and seeding.

It is not now a question whether the cows will do better on one kind of pasture than on the other, only which will produce the largest money profit. If a single cow were allowed to roam over ten acres of short old pasture, picking up her whole living in white clover and the tender sprouts of blue-grass, there is no denying that she would give more milk, more butter, and more cheese than she would if feeding, however abundantly, on the coarser grasses of an artificial pasture. But our purpose in farming is not to get the largest possible yield from our cows, but to get the largest possible yield from our land. The cows are only implements for converting the products of the field into the salable products of the dairy.

An average first-class cow coming in in May will make 200 lbs. of butter in the season on good natural pasture, but she will require at least three acres of land for her exclusive use. At 30c. per lb., the season's produce will be \$60—or \$20 per acre. On a good artificial pasture she may give only 180 lbs., worth \$54, but she will be fully supported by the produce of a single acre. Supposing that one third of the produce is consumed by the interest on the extra number of cows, and by the cost of keeping up the pastures—which is surely a very liberal allowance—we shall have \$36 instead of \$20 as the return per acre. In addition to this, we shall make ourselves much more independent of variations of the seasons, for a well-worked rich meadow is far less injured by excessive drouth than any natural pasture on the same soil could be. This, of itself, will often equal the drawback we have allowed for extra cost.

To put the proposition in another form, we may expect, from the foregoing calculation, as large a cash profit from ten acres of artificial as from eighteen acres of natural pasture, and there would be far less risk of loss from unusual drouth. It is not proposed, of course, that rough or waste lands should be used for arti-

cial pastures (they would not repay the cost), only that such fields as are susceptible of profitable sucthion should not be left wild.

How nearly natural pastures may be made equal to artificial ones by the use of the harrow and liberal top-dressings is a proposition not considered above. The cost would generally be less than that of reseeded, and the result equally good. In any case, no pasture—old or new—should ever be over-stocked.

Our Forests.

What we are to do for wood and timber in the next generation is becoming a very serious question. It is estimated that eight millions of acres are stripped of their forests every year to supply the wants of our present population. If these eight millions were left to grow up to wood again, or if as large a territory were planted every year, the fall of the forests would excite no alarm. But this is not the case. There is absolutely no system in our preservation of forests, and almost every land-owner follows the impulse of immediate profit. A very large proportion of our farming population use wood for fuel, and the destruction of forests from this source is immense. On almost every cultivated farm the breadth of forest is steadily waning. If there be any exception to this rule it is in the older States, where the agricultural population does not increase. Our railroads consume large quantities for fuel, and the draft for ties is very large. Every mile of railroad calls for two thousand ties, and these do not last more than seven or eight years. One only needs to visit the lumber regions in any of the States to comprehend the rapid disappearance of forests from those large tracts put down in the census returns as uncultivated lands. The steady advance in the price of lumber in all the older States is probably the best measure we have of the extent of the evil. Concerning the influence of this destruction of the forests upon the rainfall and the climate there is much discussion and some difference of opinion. There can be no doubt that climate is softened by the shelter which woodlands afford. A belt of evergreens inclosing a garden in any of our Northern States will virtually remove it three hundred miles south. The ground is not frozen so deep in winter, the snow disappears earlier, and fruits and flowers can be grown with certainty that can not be raised outside. The advantages of shelter are conceded by our best cultivators. The rainfall may or may not be increased by the forests. It is conceded by all that the rain which does come is more evenly distributed, and that there is much less liability of damage from floods or drouth. It is pretty well settled in European countries that the welfare of the farming interest demands that at least one fifth of the whole surface of a country should be kept in forest. More crops, and of better quality, can be drawn from four fifths of the land with this protection than from the whole without it.

In the prairie States something has been done from necessity to meet the want of fuel and of shelter. Wood grows with great rapidity, and plantations only six or eight years old yield steady supplies of fencing and fuel. Illinois has much more wood than when the State was first settled, and belts of timber are rapidly increasing. This is true of the States further west. Kansas, with a wise forecast, has begun to legislate for this interest, and offers special privileges to all those who will plant trees for ten years to

come. California has just appointed a State Arboriculturist at a salary of \$15,000 per annum. The Kansas Pacific Railroad employs an industrial agent, who devotes special attention to the planting of various kinds of trees on that part of the road which has been known as the Great American Desert, and where it was formerly supposed neither farm crops nor trees would grow. The experiments of R. S. Elliott are so encouraging, that there is little doubt of the capacity of the soil and climate to grow timber in all this region. The care of our forests demands immediate attention in all the States. Eventually we shall have to come to the European system, and have commissioners appointed by the legislatures who shall have power to regulate the cutting of forests, and to encourage plantations in districts where there is not sufficient shelter. It would be better indeed if the end could be accomplished by private enterprise, but thus far nothing has been done to correct the evil. There are large tracts in almost every township in the older States turned out to pasture that do not pay the taxes laid upon them. The public good, as well as the interest of the owners, requires that these tracts should be planted with forest trees.

Fish-Scrap or Guano.

We have received from a correspondent the following questions touching fish-scrap:

1. What is the quantity of fish-scrap obtainable?
2. What is the cost of the article?
3. What is the loss of weight in drying?
4. Cost of manipulation?
5. Cost of freight?
6. What is the market price of the manufactured article?

As these questions interest all farmers who buy fertilizers, we answer them.

1. The quantity of fish-scrap turned out from the fish-oil factories is not far from 30,000 tons, annually. The business is prosecuted from the capes of Virginia to the coast of Maine. A great improvement has taken place in the process of manufacture within the last twenty years. The principal fish captured are the *Alosa menhaden*, known among the fishermen as the Bony Fish, White Fish, and Menhaden. They swarm all along our coast from April until October, and are taken in greatest numbers in the bays and estuaries of our large rivers. They are mostly taken at a distance from the shore, in large purse-nets. They are loaded into boats, and carried immediately to the factories, cooked by steam in large vessels, put into hydraulic presses, which squeeze out the oil and water, and leave the scrap-cake quite dry, though it still contains a large percentage of water. It is used by farmers in the immediate vicinity of the oil works in this crude state, either taken in bulk or bagged and barreled. The great objection to its use at distant points is the cost of transportation, and its offensive smell. Various devices are resorted to, to meet these objections. The scrap is sometimes treated with sulphuric acid, or mixed with dried peat or with plaster. But this makes a manure of uncertain value, and the farmer does not know just what he is buying. The great desideratum is some economical process of drying and pulverizing, by which we can have a concentrated fertilizer of uniform value, that can be used in drills, or sown broadcast, evenly, over the land. Several claim to have found this process, and are about to put

the article upon the market. We presume it will soon be advertised. We have no doubt a fine dust can be made from fish-scrap, worth at least two thirds as much as Peruvian guano, by analysis, and which can very likely be sold for forty to forty-five dollars per ton.

2. The cost of the raw material varies with the abundance of fish, and the demand for concentrated fertilizers. Three years ago fish-scrap was selling at \$25 per ton, because there was a great demand for it by the manufacturers of superphosphate of lime. There was so much adulteration and cheating in this article, that fish-scrap has been declining for the last two years, and can now be bought at the factories for about \$10 per ton. 3. The loss in drying should be about 40 per cent, if the fish have been subjected to powerful pressure. It will lose nearly this, dried upon a platform in the summer sun. 4. The cost of manipulation will depend upon the process used. The cheapest we know of, costs about five dollars a ton for the dry article. Of course every inventor thinks his own machine the most economical. 5. The freight on the raw material is of the lowest class, as the factories are all upon tide-water, and sail-vessels can be used. The manufactured article is inodorous, or nearly so, and can be put up in bags or barrels, and shipped at the same cost as other articles. 6. The market price of the fish-dust must depend mainly upon the amount of ammonia, phosphoric acid, and potash it contains. Farmers want a good article, and are willing to pay a fair price for it.

JERUSALEM ARTICHOKE.—Mr. W. L. Heuser, of New York, noticing the statement in a recent Ogdens Farm Paper concerning the difficulty of eradicating the roots of this plant from a soil on which it has been grown as a crop, states that the following plan is adopted in Germany, where the plant is cultivated over considerable tracts; it has its place in rotation before winter grain. After the crop has been removed, sheep are tethered on the land with long ropes (or turned loose if there are fences). They eat off the young sprouts as fast as they appear, and the plant dies for want of the support which it can only receive from leaves. By the time the summer-fallow is to be broken up for the grain the artichokes will have disappeared.

The Thanksgiving Turkey.

Some one has said that our national bird is not the Eagle, but the Turkey. This present month of November brings Thanksgiving-day, and the most interesting period of the turkey's life—its death. Thanksgiving has become a national holiday, and what is Thanksgiving without turkey? It must be a poor family, indeed, that does not find a turkey on its dinner-table. The general demand for turkeys on this holiday is anticipated by the breeders, who late in October begin to fatten for the market. The best turkeys that come to the markets of New York and other Eastern cities are raised along the shores of Connecticut and Rhode Island, where the returns from the turkey flock form no small part of a farmer's income. The great bulk of the fowls sold in New York comes from the West, where not so much pains is taken in fattening as in the localities referred to, and on account of the long travel the birds do not come to market in such good order (especially if the weather is mild) as do those raised near at hand.



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THE THANKSGIVING TURKEY.—Drawn and Engraved for the American Agriculturist.

One of our artists, who lives in the turkey-raising portion of Connecticut, has sent us a Thanksgiving picture which shows various scenes in this branch of farming. Turkeys are usually regarded as difficult to raise, and the scene entitled "Young Turkeys" shows one of the methods adopted to secure success. The broods of young are placed in simple board-pens a foot or more high, and kept there until they become large and strong enough to get over the barrier. This prevents the mortality that attends young birds that are allowed to wander with the old ones in wet grass.

The scene of roosting shows the primitive and general way in which turkeys dispose of themselves for the night. If left to their own instincts, they will select as a roosting-place the limbs of a tree, the peak of a building, or other lofty spot. If taught when they first begin to roost, they may soon be made to go regularly to roosts prepared for them under the shelter of a shed. This is a matter of no little importance when fattening time comes, as they take on fat more rapidly when under cover than when exposed to chilly and stormy nights, as they are if they roost upon trees, etc. Fattening com-

mences about six weeks before killing-time. During the summer the birds have picked up a good share of their own living as they roamed far and wide. At this time they need an abundance of fattening food, and to be kept as quiet as possible. In order that the change of diet may not be too sudden, it is the custom of the most successful raisers to begin with a mixture of oats and buckwheat. At the end of a week corn is substituted for the oats, and after another week the buckwheat is stopped, and the birds are fed upon corn altogether. They are fed as much as they will eat, the corn being supplied always at one place, and scattered upon the ground or grass that they may feed slowly.

Most of those who raise turkeys kill for the Thanksgiving sales. The birds will grow larger and weigh more if kept until Christmas, but the profit is not found to be so great. The birds are fed nothing upon the morning of killing. The flock is driven into a dark barn, and the birds brought out one by one with as little disturbance as possible. The most common way of killing is to sever the head by a blow with a sharp hatchet, and hold the bird until its struggles cease. Sometimes the bird is thrust into a

barrel, as shown in the engraving, until it is through bleeding. The picking should be done at once before the body is cold. The tail-feathers and wing-feathers, except those of the extreme joint, are first pulled out, and then the feathers of the body are removed, beginning at the breast. Great care is taken in picking not to tear the skin, as any blemish of this kind diminishes the market price. After the principal feathers are off, the removal of pin-feathers is usually done by women. Western poultry, which has to go a long distance to market, is always sent without being drawn, as it is found to keep better if no air is admitted to the cavity of the body. The turkeys raised in New England are generally drawn. A circular cut is made around the vent by means of a sharp pen-knife, and the entrails carefully pulled out through the opening. The turkeys are laid upon their backs and allowed to cool; the skin is pulled over the neck and tied securely. When thoroughly cooled the birds are ready for packing, which should be done in clean boxes. Many tons are shipped each November from the agricultural towns along the coasts of Long Island Sound and Narragansett Bay.

Lyon's Turtle-head (*Chelone Lyoni*).

The common Turtle-head, Snake-head, or Balmomy (*Chelone glabra*) is very frequent in wet and swampy places, where its clusters of white or rose-colored flowers are quite conspi-

splendens compacta alba. That is a good deal of a name, and none but a very fine plant could carry it. We have seen only a small pot-plant, but have no doubt that it will be found very effective when used in contrast with the well-known brilliant scarlet one. Mr. Chitty exhib-

Backwheat Family, one which contains the Persicaries, Knot-weeds, Smart-weeds, and other well-known aggressive plants. This species, as its name indicates, came from the East; and is said to have been introduced into Europe by Tournefort, who found it at the base of



LYON'S TURTLE-HEAD.—(*Chelone Lyoni*.)



ORIENTAL POLYGONUM.—(*Polygonum orientale*.)

uous during the late summer and the autumn months. Last spring we received from Hoopes, Bro. & Thomas, of West Chester, Pa., a specimen of another species, which is much showier than the one just referred to, and which possesses sufficient beauty to entitle it to a place in our herbaceous borders. This species, *Chelone Lyoni*, which we may call Lyon's Turtle-head, is found in the mountains of North Carolina. The stem, which in favorable soil grows three feet or more in height, is more or less branched, and produces its flowers in dense spikes at the ends of the branches. The flowers, which are rather smaller and more erect than in our Northern species, are of a bright purple color, and these, together with the ample foliage and a pleasing habit, make the plant a very desirable one in a collection of herbaceous perennials.

A WHITE "SCARLET" SAGE.—While our garden was all aglow with the brilliant flowers of the Scarlet or Mexican Sage, *Salvia splendens*, in one of its several garden forms, we were much pleased to receive from Mr. H. E. Chitty, of the Bellevue Gardens, Paterson, N. J., a flowering plant of a variety of the same Sage with pure white flowers. To call it a white "scarlet" sage is rather a contradictory nomenclature, but we prefer it to that given it by the European florist who originated it—*Salvia*

bited the plant at the recent annual exhibition of the Massachusetts Horticultural Society, where it attracted much attention, and received from the society a first-class certificate.

The Oriental Polygonum, or Prince's Feather.

Some of the old-fashioned plants that were formerly very common are now becoming quite rare. Some of these old plants we would not willingly spare, while we are glad to see the places of others occupied by more pleasing ones. Sun-flowers, Love-lies-bleeding, the large yellow Marigold, and the Prince's Feather are in our minds associated with tumbled-down fences and neglected front-yards, and where these are the extent of the attempt at flower culture we expect to see the missing window-panes supplied by an old hat or a bunch of rags. Those who do not thus associate the Prince's Feather with poverty-stricken dwellings may find in it something of a certain coarse kind of beauty. A good specimen has a strong stem six feet or more high, large leaves, each of which has at its base a sheath surrounding the stem, and long spikes of bright rose-colored flowers. The botanical name for the plant is *Polygonum orientale*, and it belongs to the

Mount Ararat. Besides the name Prince's Feather, it is also called "Ragged Sailor" and "Kiss-me-over-the-garden-gate." The plant comes readily from self-sown seeds, but does not show much tendency to spread and become a troublesome weed, though it is sometimes found naturalized in waste places near towns.

The Willow-leaved Amaranth.

In an article upon Amaranths, we gave last month an account of our experience with three species or varieties, and the reasons for our lack of satisfactory results. Since then, we have seen in the grounds of others specimens so fine as to make us feel that for once a plant has fully warranted the extravagant descriptions given it abroad. Indeed, as our climate is much more favorable for such plants than that of England, we have no doubt that the Willow-leaved Amaranth (*Amarantus salicifolius*) attains greater perfection here than there. The finest specimen we have seen was at Woodnethe, the country-seat of H. W. Sargent, Esq., at Fishkill Landing, N. Y. He has several specimens, but one in particular is full ten feet high, with branches of proportionate length. The leaves at the top of the main stem and the branches are of a most brilliant carmine color. This plant was indeed a fine sight, whether seen

at a distance or from a near point of view, and its size much exceeds that of any we have seen recorded. Mr. Peter Henderson has been very successful with this plant at Jersey City, as has Mr. Chitty at Paterson. Both these gentlemen made the mistake of following the recommendation of the English growers, and planting it in masses, while Mr. Sargent's is a single plant, standing against a background of green.

The Willow-leaved Amaranth is destined to become very popular now that this year's experience has shown the conditions of success and failure. It should be always grown in single specimens, and, as suggested in a former article, never be checked in any manner in its growth.

Notes from the Pines.

MELONS.—The past season has been an unfavorable one for melons. There was not so much trouble from insects as usual, but the frequent rains about the time of ripening prevented them from acquiring proper sweetness. Of a dozen or more varieties that were tried, Ward's Nectar was by far the best. I thought this could not be excelled, but

JAMES VICK sent me a basket of fruit from Rochester that quite took the conceit out of me. It is a variety which he has cultivated for twenty years without a name. We might express its excellence, and in a manner associate the grower's name with it, by calling it *Vic(t)tor*.

STRAWBERRIES have during the past summer been sadly injured by the white grub. The vines were mulched, and the Ogden Farmer, who was here one day, thought that the mulch attracted the grub. I can't see why, as they often attack vines that never were mulched.

CENTAUREA CLEMENTII, of which I received a specimen from Mr. H. E. Chitty, of Bellevue Nursery, Paterson, N. J., promises to be very effective in garden decoration. It has not such finely-cut leaves as *C. gymnocarpa*, but it is whiter, and of a remarkably graceful habit. It is fine for baskets and vases.

BRACKETS are useful things where one wishes to train vines of any kind against the house. It is bad for both vines and house to nail directly to the siding. I use iron brackets which project about four inches. One being placed above and the other below, a wire is stretched between them, and the climber tied to the wire. In this way the plant is kept from contact with the building, and has a free circulation all around it. The brackets may be had at the hardware stores, at wholesale, for five or six cents each. They are also very convenient for stretching wires horizontally.

ARUNDO DONAX, the variegated form, has grown taller with me this season than I have before seen it. Quite ten feet high, and flowering. A large clump of it, surrounded by a row of *Caladium esculentum*, made an odd combination, but an exceedingly effective bed.

SOWING SEEDS of herbaceous perennials is done at last. It was near the end of September before I could find time, and would have been rather late had I not sown in boxes which are put into a cold-frame. Those who have tried sowing flower-seeds in shallow boxes will not sow many in the open ground. A shallow box two or three inches deep is used. A grocer's soap-box will make two or three. The box can be placed on the work-bench, and the sowing done much more carefully and neatly than when one is obliged to stoop—to say nothing of

avoiding the backache. In weeding and removing the plants for pricking out, the box can be taken to any convenient place, and the work done more expeditiously and more at ease than when the young plants are in the open border.

A **SOWING BOARD** is very convenient with scarce and valuable seeds. I do not know who first proposed it, but I am much obliged to him for the hint. It is a strip of any thin smooth board that will just go across the box. With seeds so rare that one wishes to make every one tell, they are laid upon the board and moved one by one towards the edge at regular distances apart. When the seeds are placed just as it is desired to have them in the soil, they are carefully pushed off one by one into a little drill previously made for them. It does not take half so long to do it as it does to describe it.

MAKING DRILLS for small seeds is best done by pressing the edge of a lath or thin board into the previously-smoothed soil. This makes a drill that is perfectly smooth at the bottom—where the seeds can be distinctly seen, and if the sowing is not properly even it can be made so, which can not well be done in a rough drill made by scratching the soil.

THAT CHOYOTE.—Last spring there was introduced at the Farmers' Club, under the absurd name of "Mexican Bread-fruit," and as a new discovery, a member of the Squash family, the Chocho or Choyote, *Sechium edule*. It is a very common plant in the West Indies and other tropical countries, and has been known and grown for ages. It has succeeded in some of the Gulf States, but is entirely useless with us. I obtained a plant through the kindness of the gentleman who brought it before the Club, and planted it out. It was carefully protected by glass until hot weather came, and barely remained alive for several weeks. When it started to run, how it did go! It was said to require an area of 18 feet—better say 180. Wishing to give it every opportunity to do its best, I checked it but very little. If frost does not come pretty soon I shall have to give up the whole place to it. It runs worse than a member of Congress. It is on the tomato trellises, it is in the pear-trees, it covers the pig-pen, it drapes a high rail-fence, and is invading my neighbor's premises. One branch is headed straight for New York, where it may arrive if the season is long enough. It is now the first week in October, and as no flower has yet shown itself, the prospect of fruit can not be regarded as encouraging.

GRAPES have on the whole done well with me this year, and I will give my experience with some of the important varieties, but as this article is rather long the grape talk had better go in a separate one.

Grapes at the Pines.

Geography.—About ten miles north-west of New York. **Topography.**—The banks of a fresh-water river, and about 25 feet above it. **Soil.**—A very light sandy loam. **Climate.**—Much mixed, especially last winter. This is the third year of most of the vines of my little vineyard, though I have a few old vines.

Concord has been better than usual, which I attribute to the fact that there have been so few insects to injure the foliage.

Martha.—"You want Martha." Perhaps "you" do, but I do not. Its only claim to popularity is its being white; for the rest, it is a

very sweet, pasty, bad-flavored fruit. It bore well, and half the crop was left on the vines as not worth the trouble of picking, when there were so many better grapes.

Black Hawk.—I have had this vine for five years, and have at last succeeded in seeing the fruit. Why was this variety ever sent out? It is a fox, of the poorest kind, without a single good quality, except very robust foliage.

Wilder.—This is one of the Rogers hybrids (No. 4), and like all of that set is a most rampant grower. The fruit with me has been very fine, both bunch and berry of good size, and the quality satisfactory. I think that this variety will contest with the Concord for popularity. It seems to have all the good qualities of that variety while it is of finer appearance.

Barry (which is Rogers's No. 43) set a good crop of fruit, but it began to drop before it was fairly ripe.

Essex.—A great bearer of large brownish berries, with no especial quality to commend them.

Salem does not seem disposed to fruit with me. I have vines three and six years old, and not a good bunch upon either.

Ives set a full crop, but not a berry ripened; they all cracked and rotted just when they should begin to color. I was surprised at this, as it has been considered the surest of grapes. Mr. S. B. Parsons raises it in great perfection at Flushing. It is popular at the West as a wine grape, and some value it for the table, but in my estimation it is inferior to the Concord.

Creveling has the disadvantage of not making a good bunch, but aside from this it has hardly a fault. The fruit ripens early, is of excellent quality, and keeps well upon the vine. Its straggling bunch unfits it for a market grape, but for home use it has few superiors.

Eumelan mildews worse than any variety I have. There are some twenty vines, three years old, which lost their leaves before the small crop was ripe. A vine, six years old, gave a fair crop. It often makes a poor bunch, but those on my old vine were sufficiently full. Quality fine.

Senasqua and Croton were both badly cut back by the winter, but the first-named bore a small crop. It is earlier than I supposed, and as to quality I consider it the best black grape in the market.

Walter set a few bunches, but the leaves mildewed.

Delaware.—This needs a rich soil, but it will do well on a poor one after the vine gets large. It is so good that it is worth waiting for.

The Potato-Rot.

The disastrous effects of the potato-rot this year in England—three fourths of the crop being destroyed—will awaken an interest in the matter in this country. Probably few of the active cultivators of the present day recollect the former visitation of this scourge and the descriptions then given of it. In view of the possible appearance of this destructive disease among us—for the last time its advent here followed close upon that in Europe—we will endeavor to briefly state what it is.

The potato-rot is caused by a minute fungus—*Peronospora infestans*—a statement which conveys but little information, and we are at once met by the difficulty of explaining it to the average reader who has not studied the form of vegetation to which the fungus belongs. The fungus affects the potato leaf, stem, and tuber. Let us assume that these, as are all other vegetables, are made up of cells, small closed

cavities of microscopic size, roundish or long, according to the part of the plant in which they may be. A cross-cut of either the leaf, stem, or tuber would appear under the microscope much like a honeycomb, it being, like that, made up of cells. This being in brief the structure of the plant infested, let us consider the fungus. The potato-rot fungus is a minute, microscopic plant, but a plant for all that as much as the potato itself is. We are familiar enough with the larger fungi, the mushrooms and toadstools, which show on a large scale much the same manner of growth as the small fungi. When a gardener wishes to raise mushrooms he puts some spawn in a bed of manure. Soon the spawn begins "to run," and the manure is filled with whitish cobwebby threads, visible to the naked eye. After some weeks, mushrooms appear above the surface of the bed. To compare the vegetation of the mushroom with our common plants, the white threads of the spawn (*mycelium* of the botanists) may be compared to, as they serve the purpose of, the roots, stem,

and needs no leaves, while the smallest portion of it will go on and grow and rapidly multiply, and the fungus is propagated in this way just as we multiply a plant of a higher order by cutting of the root or stem. The rust, blight, or rot, as it appears above the surface of the stem or leaf, is, when examined by the microscope, a collection of club-shaped threads (fig. 1), which ultimately produce an exceedingly minute dust or spores (fig. 2), which in the fungus answer the purpose of seeds. These spores are so small that they can be carried about in the air, or be transported unobserved while lodged on other bodies. From what has been said, it will be seen that in the potato-rot fungus we have to deal with an exceedingly subtle enemy. It can, in the first place, work great damage inside of the tissues of the plant before its ravages are apparent, and it is propagated by spores or dust so minute as to escape detection. This being a brief history of the fungus, which science has made out in much greater detail, it will be asked, What remedy has science to offer? We are sorry to

This season we devoted a bed that was last year occupied by Cannas to other plants, and were much annoyed by the appearance of an abundance of seedling Cannas. Job's Tears (*Cola Lachryma*), a very tender tropical grass, has become almost a weed with us. So with the ornamental *Amaranthus*; they make themselves at home, and we should not be surprised to find that in a few years the now rare *Amaranthus salicifolius* had become a common weed.

Preserving Roots.

Market-gardeners and those who have a considerable quantity of vegetable roots to keep for winter use will of course pack them in trenches, but the family supply is usually kept in the cellar. When put loosely into bins and barrels, the roots, if the cellar be a dry one, become shriveled and injured before spring. This difficulty is avoided by packing in dry sandy earth—the sandier the better. We scrape off a cart-load of soil from a piece that has been recently harrowed, and use this for the roots. Beets, carrots, salsify, parsnips, horseradish, etc., are laid in boxes or barrels, as may be most convenient, with plenty of earth distributed among them. In this manner the roots are preserved perfectly fresh, and should any chance to decay, which is rarely the case, all odors are prevented from escaping by the earth.

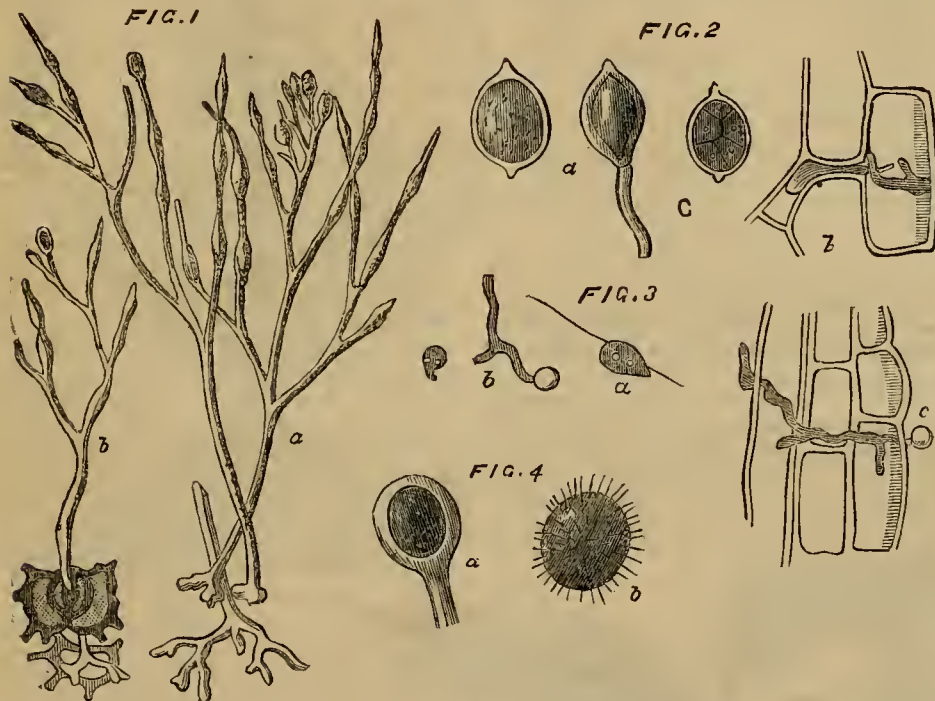
Flower-roots, such as dahlias, caladiums, and cannas, may be successfully preserved by the use of earth, which for them may be quite dry. These tropical roots not only need to be kept dry, but warm, and if the cellar is a damp one they can hardly be preserved. A spare closet in a part of the house where there is no danger of freezing is preferable to a cellar for these.

Thawing and Freezing of Cold-Frames.

BY PETER HENDERSON.

A. Leavens & Co. ask the question, "How much freezing and thawing plants of lettuce, cabbages, etc., will stand without being destroyed?" In former articles I have taken the ground that the thawing, instead of being injurious, is a necessity for their safety. In doing so I know I run in direct opposition to a large majority of my brethren, but the experience of nearly a quarter of a century, yearly increasing in extent, confirms me that I am correct, and I am further assured in my opinion by knowing that there is not a market-gardener in this vicinity but whose practice in the management of cold-frames is the same as my own, though if the question was asked some of them if thawing and freezing did not injure plants, the answer might be in the affirmative, so universally has the dogma been accepted.

The gentlemen also ask: "How long can frozen plants be kept from the light under shutters?"—Much would depend on atmospheric conditions. If the temperature ranged at night from 25° to 32°—merely sufficient to mildly freeze the plants—they might remain in good condition for four or five weeks, but if subjected to a zero atmosphere, without change, as many days might prove injurious. A very common practice with cold-frames in this vicinity is, if the plants are frozen in the frames previous to a snow-storm, we allow them to be covered up by the snow often for two or three weeks, provided that it is deep enough to protect the plants from severe frosts, as in that condition the plants, though excluded from light, are subjected only to a temperature of from probably



THE FUNGUS OF THE POTATO-ROT.—*Peronospora infestans*.)

Fig. 1. The fungus as it appears on stems (a) and leaves (b). Fig. 2. Spores in different states. Fig. 3. Zoospores. The two figures at the right, marked b and c, show the mycelium penetrating the cells of the plant.

and leaves of ordinary plants, and the mushrooms, which alone appear above the surface of the bed, represent flowers and fruit. The mushrooms only appear when the mycelium or spawn which is running and branching in the manure attains sufficient strength to reproduce itself by means of the above-ground portion. Now, the potato fungus has a similar manner of growth, but its mycelium or spawn, instead of reveling in a bed of manure, finds its home in the substance of the plant. It lives in the cells already mentioned, and runs from one to the other, being nourished by their contents and substance. After a while, the mycelium having become sufficiently strong, it throws up reproductive organs, corresponding to, though unlike in appearance to, mushrooms, and this is the visible mold or rot that is seen in the stem and leaf of the potato. The fungus has two ways of propagating. First, by the mycelium or spawn, which branches and spreads in the tissues of the potato, just as the root of quack-grass or Canada thistle will spread through the soil. It lives on the already prepared food in the plant,

be obliged to reply, None. Some varieties are less liable to attack than others, and it is gratifying to know that our American varieties, notably those raised by Mr. Goodrich and their descendants, are especially exempt. It would be well that the importation of foreign seed-potatoes were stopped. At all events, we advise no one to plant an English potato as long as the present trouble continues. Secondly, should the disease break out on any farm, no potatoes should be sent out from it under any circumstances. This will not absolutely prevent the disease from spreading, but will do much to prevent it.

THE HARDINESS OF TROPICAL SEEDS.—Some of the tropical plants of our gardens are killed by the slightest frost, and one would suppose that their seeds would have their vitality destroyed by the cold of our winters. That such is not the case is shown by the Tomato, as it is a matter of common observation that this comes readily from self-sown seeds.

25° to 32°, which simply keeps them dormant. But if, on the other hand, the plants are not frozen when snow covers the glass, it becomes necessary to remove the snow in three or four days after falling, else the plants will become

they are smooth on the upper surface and somewhat downy below; they are much finer on the plants that grow upon the beach than upon those found inland. The fruit is from half an inch to an inch in diameter, globular, and varying in color from crimson to dark purple, and having a fine bloom. The shrub flowers in May and June, and ripens its fruit in September. The fruit varies in different plants, not only in color and size, but in quality—some specimens being quite pleasant to the taste, and others very harsh and acerb. It is highly prized by those who live near the shore for making preserves, and it is often seen offered for sale in the markets of seaport towns. As this fruit presents so great a tendency to vary in its wild state, we are surprised that no attempts have been made to improve it by cultivation. If a good variety could be produced it would be valuable. The wild plant is very ornamental when in fruit; the specimen from which the fragment was taken for the engraving was loaded with fruit, which in different stages of ripeness, and with its fine bloom, was an attractive shrub. Our principal object in calling attention to this plum is the promise it holds out of being useful as a stock on which to bud or graft the cultivated varieties. It would flourish upon the poorest soils, and it is very likely that it would prove a dwarfing stock.

tender, melting, juicy, of a sweet, high, aromatic flavor. August 15th to September 10th. Native of Ohio. We find it perfectly hardy here, and a great grower. And it is probably well adapted to a much more northern locality."



Fig. 1.—MUSKINGUM PEAR.

blanched, and made so tender that they will be unable to resist severe weather that may follow.

The Beach or Sand Plum.

There grows along our coast, from Maine to the Gulf, a species of plum which does not seem to have received much attention from cultivators. It is the Beach Plum, *Prunus maritima*, and is called in some localities the Sand Plum. It is found growing close to the sea among the blowing sands of the beach, and often at a distance of twenty miles inland. When found at a distance from the sea it is so much changed in appearance by the difference of soil and situation that it has been taken for distinct species, and the plant has been described by botanists under half a dozen or more different names. The tree, or rather shrub, is seldom more than five feet high, oftener only two or three, and has numerous stout branches, which are usually prostrate, and more or less covered by the shifting sand. The color of the stem is a very dark purple, almost black, and the young shoots are brown, dotted with orange. The shape of the leaves is shown in the engraving;



THE BEACH PLUM.

specimen of medium size, entire and in section. Cole describes the fruit thus: "Rather large; roundish to obovate; greenish yellow, with many dark specks, and much russet, seldom a brownish blush; stem long, medial, in a narrow cavity; calyx slight, open, in a slight or with no depression; flesh yellowish white, very fine,

market cultivation. It is very fair, remarkably solid, and cooks well.

CONNECTICUT.

[We seldom publish an article like the above without receiving many letters of inquiry, and we would say that the Muskingum Pear is to be found in the catalogues of all large nurseries, and that we have no trees for sale.—Ed.]

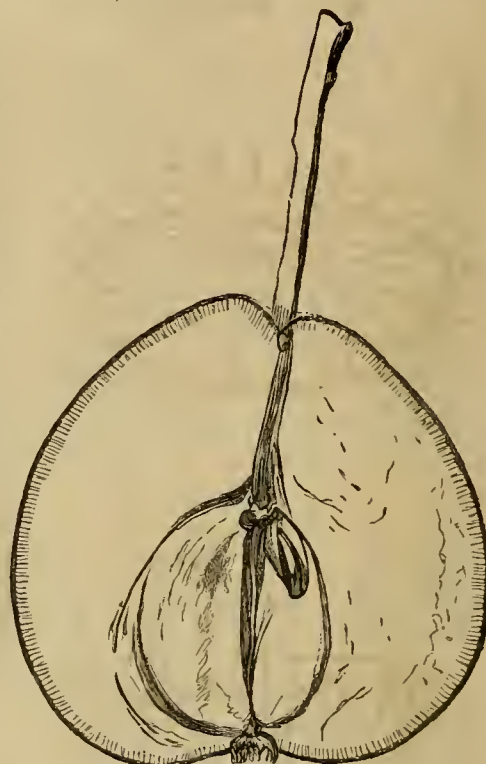


Fig. 2.—SECTION OF MUSKINGUM PEAR.

The Muskingum Pear.
We have in our garden six trees of this admirable variety of pears, and have watched their bearing for four years. It has more good qualities to recommend it for general cultivation, as an early fruit, than any pear of its season with which we are acquainted. The tree is a vigorous grower, makes a handsome head, and in good soil bears uniformly large crops every year. The illustrations (figures 1 and 2) give a very good idea of the appearance of a

In Southern Connecticut the fruit begins to ripen early in August, and lasts through the month. It holds on to the tree with great tenacity, and will rot upon the stem if it is not picked in season. If the fruit is picked just before it begins to turn yellow, there is no tendency to rot at the core. It ripens throughout at the same time, and is as nice eating as an epicure could

desire. It is in season for four weeks, coming in just after the Madeleine and lapping on to the Bartlett's. It might well be substituted for the Bloodgood, which is a much smaller fruit, with a shorter season, and, in our yard, of inferior quality. The wood also is diseased, and this we believe is a common fault of this much lauded variety. It also might take the place of the Dearborn's Seedling, which, though an excellent fruit, is of small size. The Muskingum bears so abundantly every year, that we think it would make an excellent variety for

THE HOUSEHOLD.

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

White Wire-Ware.

Every one can not have table articles in silver of beautiful form and workmanship. We see no reason why beauty of form should belong only to costly materials. The French are much in advance

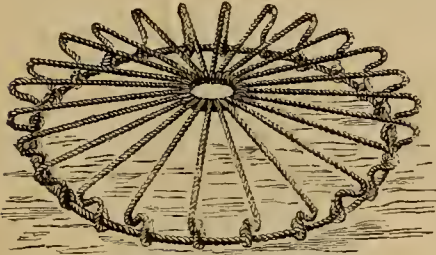


Fig. 1.—TEAPOT STAND.

of us in this respect, as with them nearly as much taste is displayed in the fashioning of articles of tin, iron, and copper as in the more costly metals. Persons of moderate means have as lively a love of the beautiful as those who are wealthy, and we welcome every attempt that brings pleasing and artistic things within their means. Recently there have appeared in our furnishing stores articles made

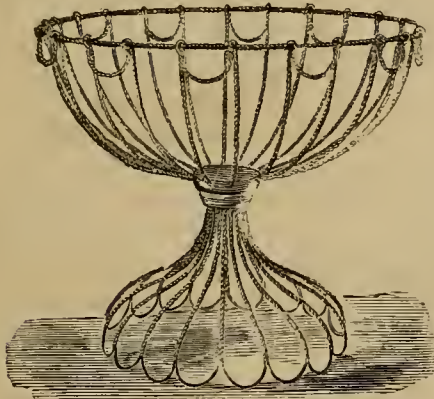


Fig. 2.—FRUIT-BASKET.

of tinned twisted wire, of which many are not only graceful in form, but useful articles of table furniture. To be sure, they are only of tinned wire, but if kept properly rubbed up they may well pass for silver, and the cost is very moderate.

We can not enumerate the various articles made in this ware, but give a few selected from the large stock kept by our friend Baldwin, 38 Murray street.



Fig. 3.—PICKLE-CASTER.

Fig. 1 shows a stand for a coffee or tea pot. In fig. 2 we have a fruit-basket, which is really handsome, and when filled with fruit would grace any table. Figure 3 shows a stand for a pickle-jar; these are made double, to hold two jars, and casters are made of the same material. A bouquet or flower-holder is shown in figure 4. It is a gracefully-shaped tapering glass, supported in a frame

of the twisted wire. Toast-racks, comb and brush-holders, paper-receivers, and a great variety of other conveniences are made in the same material.

Home Topics.

BY FAITH ROCHESTER.

A LITTLE REST.—Miss Peabody, in speaking of establishing kindergartens, says: "No one person could possibly endure such absorption of life in labor unrelieved, and consequently two or three should unite in the undertaking, in order to be able to relieve each other from the enormous strain on life."

Then think of the mothers. I know very well that there are mothers of large families (even in our day when children are born with natures that demand greater care and finer culture than their ancestors did) who feel very little concern for their children except to feed and clothe them and send them to the schools provided for their religious and secular education. But some of us realize that the demand made upon mothers by the enlightened spirit of our day is greater than mothers with our present poor preparation of health and culture can endure.

It is not so much what we do as what we see ourselves unable to do that is driving us mothers distracted nowadays. The kindergarten solves the difficulty, only some of us must do the best we can without its aid, it is so slow in coming.

Of course the minister must have his annual vacation, and teachers must have their holidays, but where and when shall a mother find rest?

This question, to which I could find no possible answer, was summarily settled for me by "our visitors," of whom mention has heretofore been made. I was told to pack up my things and go home to "mother's" for a visit of four weeks. I suggested two weeks, and we compromised on three. All the lions I saw in the way were removed, and I went—much more for the children's sakes than for my own. The eldest and the second child remained at home in the care of my lady visitor—a most motherly woman and an educated physician. I feared she was undertaking too great a task—to keep house for her husband and mine and our two children, with no assistance. But it was her own plan, and was cordially advised; and when I came home she was not sorry that she had undertaken the task. Neither was I. More good results came of it than were dreamed of in our planning.

Children need some variety in their care and education. A wise friend told me two years ago that what seemed to him at the time a great and irreparable calamity to his children had really seemed to prove the best thing for their development. They were early left motherless, and since then there have been several changes in their home and management—always pretty good care, but not invariable. The other day he wrote me: "I am glad you do not worry yourself to death about the disagreeable peculiarities of your children. I did that almost literally, and it incapacitated her for doing her best by them. And now they are almost model children, and it has not been accomplished by repression either, or only in a slight degree." Then he gave us two pages of happy father-talk about his children, now nine and seven years old.

The more thoroughly a woman is a mother, in heart and soul as well as in name, the more does she need opportunities of rest and assistance in her labors. No individual assistance can do for mothers and for children what the kindergarten is destined yet to do.

Madam Kriege says: "It is the mother's mission

to enter into the child's nature, to live its life, to understand its impulses, to feel its needs; to bring her love, her sympathy, her wisdom, to this work of leading the child along the dark path of early life, and to make it acquainted with its relations to nature, to its fellows, and through these to bring it into a conscious relationship to its Heavenly Father."

I think there is not a nobler mission on earth than that. But if this mother who ought to do all that for her babe, and who longs to do it, is the mother also of two or three more young children scarcely yet amenable to reason, with all the mischiefs and necessities of childhood; if she has to be not only their wise guide and tender friend, but also their seamstress, cook, and washerwoman; and if she must also have the ordering of an establishment, and is expected to follow the fashions in dress even afar off—then, I say, it is no wonder that insane asylums are so well filled, and that so many men are looking for their second and third and fourth wives; and it is no wonder that children have so poor home training. Let us accept all lawful means of refreshment, and all possible aids in our work.



Fig. 4.—FLOWER-HOLDER.

GOOD BOOKS FOR MOTHERS.—First let me mention Madam Matilda H. Kriege's new book, from which I have just quoted. I found this awaiting me on my return from my visit, and it was the book of books I most desired to see just then, having read Heath and Home's commendatory notice or welcome. The Christian Union seems to think that the "average parent" will not be able to get much from the book, while it commends it to the careful reading of the "professional educator and the profounder student." But it seems to be written for parents, especially for mothers. It is a philosophical book, but exceedingly interesting. It gives the philosophy underlying the Kindergarten. Madam Kriege and her daughter are the leading kindergarten educators in this country. This book, "The Child; its Nature and Relations," treats particularly of very young children, and is altogether the best book I know of about the education of babies from the first dawn of intelligence. If women's minds were not kept feeble by the poor, trashy literature too many of them feed upon, and belittled by such constant consideration of dress-trimming and other trivialities, this book would find many more readers among mothers than it can hope to find at present.

But here is Miss Alcott, who gives a deal of wisdom in a very fascinating form. I have only lately read her "Little Women," "Little Men," and "Old-fashioned Girl." All are useful books for mothers to read. We shall understand the little men and women under our care all the better if we get acquainted with the life-like ones Miss Alcott shows us, and it will help us to keep up courage and faith while we wait for the upspringing and fruitage of the good seed we are trying to sow patiently and cheerfully.

UNDER-CLOTHING FOR COLD WEATHER.—I have written on this subject before, but there seems to be need of precept upon precept. Of late I have been learning better ways than I knew before.

For children of three years and over there is nothing better, perhaps, than an under-garment clothing the body from the neck and wrists to the heels, much like the night-drawers children wear. They may be made with a plain, easy, high-necked waist, with long, straight sleeves, and with open drawers sewed to the waist. The drawers should be rather full at the top, but small enough at the lower part of the leg to go inside the stocking, reaching to the heel, or leaving no gap above the shoe. "Doctors disagree" about the material of this under-garment, some recommending woolen and some cotton. Taking into account the difficulty of washing woolen without shrinking it, and the disagreeable sensation many skins experience in wearing it, probably the best way in most cases is to have this under-garment made either of cotton-flannel or of thin cotton-cloth, with a similar garment of warm woolen material over it. Buttons at the waist support the other under-clothing.

There are many sensible ladies in these United States now wearing under-garments similar to those just described. Among them the preference is usually given to thin cotton material for the suit next the body, with a suit made of woolen (white flannel, gray ladies'-cloth, or red firemen's-flannel) in the same fashion worn over the cotton suit in winter weather. With two such woolen suits for frequent changes, to give opportunity for thorough airing and sunning of the woolens, they require very little washing. The cotton next the body takes up the perspiration, etc., and this gets the good weekly washing. The woolen suit when taken off weekly for a change need only be exposed to pure air and sunlight for a day or two to purify it properly, washing it only when it visibly requires it.

If men wear cotton under their woolen shirts, the woolen may be treated in the same way, and men who are not engaged in dirty work can wear their woolen shirts all winter with very little washing, purifying them by air and sunshine each week when changes are made. Ladies' cloth shirts shrink less than common flannel.

SQUIRREL STEWS.—I was told long ago that common red squirrels make very good food, but our first and second attempts at cooking them were not very successful. Perhaps a part of the fault was in the dressing, but now I know that I did not cook them long enough. In the region where we live red squirrels are so thick (or were until the late "dispensation" overtook them) that they do a deal of mischief to corn, etc. Half-a-dozen of these marauders make a nice dish to set before as many grown-up people who relish fresh meat for dinner. The squirrel lives upon the best of food, and lives a free, active life, but its very activity gives it muscles a tendency to toughness. This can be overcome by sufficient boiling. In the first place, it must be carefully skinned and dressed while yet warm. If the entrails are left in the animal until the body is cold they will injure the flavor of the meat more or less. Put them in cold water enough to cover them, and skin the pot carefully when it comes to boiling (this always in boiling or stewing meat or in making soup). Two hours' gentle boiling is not too much for young squirrels, and three hours for old ones. Never season them until they are done tender, and then you will add salt and cream, or a bit of butter, according to your judgment. A little thickening (a table-spoonful of flour stirred smooth in half a cup of milk or water) stirred in while the pot is boiling will make a nice gravy. Pour the whole over slices of bread or split gems. The strong flavor of squirrels comes from the fat. Cut this all away carefully before cooking.

I suppose everybody knows that gray squirrels are good eating. Red ones are just as good when well cooked, only they are smaller.

Chicken Stuffing.

"MOLLIE WANTS TO KNOW" how to make good chicken stuffing, does she? Well, I don't profess to know much about cooking; I'll fix your puzzles, paint your pictures, write your letters, and eat your dinners for you while you do the cooking; but if there be one article of culinary construction which I do understand it is chicken stuffing, and this is how I make it (that is, if I have to make it by reason of being without a cook. "Oh! yes, 'm, indade I'll have to lave; the docther says it's the debility I got, an' that I haven't a bit of muscle in my whole body." Of course, then I have to go into the kitchen on my muscle, and this is how I make the chicken stuffing): Three teaspoonfuls of grated bread-crumbs rubbed through a colander (don't let a drop of water come near those crumbs, and take out every bit of crust); one teaspoonful of very finely-chopped beef-suet; two thirds of a teaspoonful of chopped parsley; a good pinch of sweet marjoram and summer-savory; the grated rind of one lemon; some grated nutmeg, pepper, and salt. Now bind all these ingredients together with one or two beaten eggs, stuff your chickens,

boil or roast them, and invite me to dinner that I may see you enjoy that stuffing. AUNT SUE.

How shall we Keep Thanksgiving-Day?

The poor, poor stomach! What crimes against digestion are committed in the name of Thanksgiving! Our customs smack somewhat of heathenism, or would if the overloading of the stomach done on Thanksgiving-day were really done in the name of religion.

Don't I believe in Thanksgiving festivals? Indeed I do. But "enough is as good as a feast," and a great deal better than too much. What I wish to enter my protest against is the great variety of food offered at a single meal, and the indigestibility of most of it. The pie-crust alone which is eaten on that day adds much to the ill health of individuals, and greatly increases the sum total of our national dyspepsia. I speak feelingly, for I was wretched for two days after last Thanksgiving-day in consequence of the very small amount of pie-crust I ate that day. I was away from home, and in a part of the country where fresh apple-pie was a rarity. I left upon my plates as much of the chicken pie-crust and of the crust of fruit pie as I dared and pay any regard to good manners—but, oh! the lard! I understood then for the first time why such a cry is made about the indigestibility of pie-crust, for I was not brought up on anything like that. Now, pie-crust can be made very nice and palatable and wholesome—not "puff paste," but sensible crust for good fruit-pies. Use much less than the usual recipe of shortening, and eschew lard totally. Good sweet butter or cream are the only kinds of shortening hygiene allows. Many people who abhor pork use lard for shortening, but it is a distinction without any real difference.

But to the pie-crust. A little baking-powder (at the rate of a tea-spoonful to a quart of flour) will insure lightness. If you are afraid of the "neutral salts" left in bread or crust after the acid and alkali unite and effervesce, and dare not put your faith in Horsford's bread-preparation, use good cream, either sour or sweet, without any soda. Let your oven be waning in heat when you set the pies in, but hot at that moment, and set the pies upon the bottom. This do for the sake of baking the bottom crust before it gets soaked with the fruit juice.

How can an intelligent Christian woman set mince-pies before her family? If you make them so plain that they will not hurt anybody, who cares to eat them? They only taste good when they are so spiced that no stomach but the strongest can digest them without suffering, and such things finally break down the strongest stomach.

To make such conglomerations as mince-pie, pound-cake, old-fashioned fruit-cake, and the regulation plum-pudding, and expend the thankfulness of our hearts over food prepared in the most health-destroying manner, is—well, isn't it blasphemous? For just see! Here we have the most delicious fruits sweetened and flavored all ready for the eating, and such an abundance of beautiful and nutritious vegetables which need only the simple preparation of cleaning and softening with heat and water to be made fit to set before any creature with unvitiated tastes. And shall we ordain our Thanksgiving-day, and then set all God's bounteous autumn store in the background while we weary and heat ourselves making artificial preparations which tickle the depraved palate, but do injury to the whole body?

It is a good time to have those particular goodies which are too rare or scarce for every-day use. For most people roast turkey comes under that head. That is my idea of a feast—to choose a few delicious viands and spread a bountiful table with those. I would have plenty of these feasts, too—one for Thanksgiving, one for Christmas, one for New-Year, one for Fourth of July, one for each child's and each parent's birthday, and one for each family anniversary. A particular kind of choice fruit, or game, or good (but not dyspeptic) cake or pie, or nuts, or ice-cream, might celebrate each anniver-

sary. One special good thing is enough, with other wholesome every-day fare, but more than one "goody" is admissible, if there is harmony in the flavors, and no "death in the pot" in the way of unwholesomeness. It used to be thought that you must cook a little of everything you had in the house, but we are outgrowing that childishness I trust, as we are learning more about harmonies of flavor and more about the stomach's requirements and powers of endurance. And persons once seemed to feel obliged to eat a little of everything upon the table. Jean Macé tells of a man who died suffocated from excess of food after one of the great public dinners, and "his stomach was found so distended that it alone occupied more than one half his inside." Beware of a similar fate!

Of course eating is not the only event of Thanksgiving-day. A thankful heart is the great thing! And that we should have every day of our lives, for there is no life so bare and hard that it has no cause of thankfulness. RELI.

Chopped Pickle.

What we call Chopped Pickle goes also under the name of Chow-Chow, Picklette, Higdum, etc. It is liked by most persons, is readily made, and admits of the use of a number of articles. There is no particular rule for making it, and the basis may be of whatever pickle-making material is most abundant. We have just put up our winter stock, and this time made it as follows. Green tomatoes furnished the largest share, then there were nearly ripe cucumbers with the seeds removed, cabbage, onions, and green peppers. These were chopped in a chopping-machine and mixed, sprinkled freely with salt, and allowed to stand until the next day. The abundant juice was then thoroughly drained off, and enough spiced vinegar prepared to cover the material. No rule can be given for the spice, which may be according to taste. Whole pepper, cloves, mustard-seed, broken cinnamon, or whatever spice is fancied, may be boiled in the vinegar. We prefer it with the addition of sugar. Some mix up mustard and add to the pickle when cold, and others boil turmeric in the vinegar to give it a uniform yellow color. It is a pickle that can be made according to fancy rather than according to rule. In winter, cabbage, celery, and onions treated in the same way make a very fine pickle. As with other pickles, the vinegar should be poured off, and boiled, at intervals of a few days, two or three times before it is put away for the winter.

To Clean Smoky Paper-Hangings.

Take a piece of wood of the shape of a scrubbing-brush, nail a handle on the back, then upon the face nail a piece of dried sheepskin with the wool upon it, or flax or tow will do, or cotton-flannel of several thicknesses will answer very well. Dip this brush into dry whiting, and rub the smoke lightly with the brush, on the upper parts of the room first—protecting the carpet with matting or newspapers, as the whiting-dust is hard to sweep off a carpet. The whiting that remains on the wall is easily brushed off with a soft cloth attached to a stick. It is very effectual if the room is not damp and the whiting is dry. W.

To Wash Straw Matting.—Take a pail half-full of hot water, a perfectly clean long-handled mop, and a dish of dry, unsifted Indian-meal. Sweep all dust off the matting, then scatter the dry meal evenly over the room. Wring the mop so dry that it will not drip at all, and rub hard, one breadth at a time, always lengthwise of the straw, and use clean water for each breadth. When the matting is dry, the meal can be swept off easily; it should always be done on a dry day.—W.

Roots.—If these are stored in a cellar under the dwelling rooms, have them covered with dry earth, which will prevent disagreeable and unhealthy odors from coming into the apartments.

BOYS & GIRLS' COLUMNS.

Our Guessing School.

In September last I gave an engraving of a curious thing, and asked, "What is it?" A copy of the *Agriculturist* for next year was offered to the one who would give the "best account of it." I have received within a few of a hundred answers—more than I expected, as it is not a very well-known thing.

Of these answers thirty-one give the correct name, and several have sent well-written accounts of the thing, which is the egg of the Skate or Sting-Ray, called by the



WHAT IS IT? NO. 2.

fishermen Stinger. Indeed, two or three of the best were so near alike that I find it difficult to choose between them, but the one that is upon the whole the best, is printed below, and the writer of that takes the prize. Some of the answers were very wide of the mark, a great many were quite sure that the "What is it" was the egg of a shark, and they were very near the truth, but the shark's egg is not black, and the horns or projections at the corners are different. Several say that it is a piece of sea-weed; and others, that it is the dried and cracked open pod of a *Martynia*, to which it bears a slight resemblance. Two or three send the name of the *Nautilus* or Portuguese Man-of-war, which is far away from right; another calls it a "Sea-Bean;" another, that it is the egg of a King Crab; another, that it is a species of mussel, and still another calls it "The Ink Flying-fish," and so on.

As this has proved a useful exercise to many, I will give you another thing to work at. The "What is it?" engraved on this page is a piece of something that I picked up on the sea-shore many years ago. It is shown of the natural size, except in length, which is often two feet or more. It is of about the color of horn. Now, the conditions will be the same as before—the *Agriculturist* for 1873 for the correct name and best description, only we restrict the competition to young people of 18 and under.

What I Know about Skates.

BY SALLIE C. GERARD, POUGHKEEPSIE, N. Y.

Think of my surprise when, on opening the paper this month, I was confronted by the familiar form of an old acquaintance! I say old acquaintance, indeed I may say a tried one, for I certainly tried hard enough to find out what it was, the first time I found it at the sea-shore. Everybody has his or her "hobby," and mine happens to be Natural History, so it is no wonder that on finding, at the sea-side, my first specimen of the object your artist has so well illustrated, I did not rest until I had discovered what it was and learned all about it. You ask your young readers to give some account of this "What is it?"—this great big spider-like looking thing. And this brings me to my subject, so I will say "What I know about Skates."

One of the orders into which naturalists have divided the fishes is called by them "*Plagiotomi*" (I copied this name out of a book!), and includes such families as the *Sharks* (those terrible cannibals!), the *Skates*, the *Rays*, etc. Both the families of *Sharks* and *Skates* contain some species that give birth to living young, and others

that follow the general rule among fishes of "laying eggs." But the eggs of these are larger and fewer than those of the commoner kinds of fish, and they have this peculiarity: each egg is inclosed in a leathery, oblong, four-angled case. Each corner or angle of these egg-cases is drawn out into a long, tapering, tubular appendage. As far as I can find out, the egg-cases of the shark differ from those of the skate in these particulars: those of the former are horny, transparent, and yellowish, and the tips of the appendages are curled like tendrils—a wise provision of the Creator for the preservation of the inclosed fish, for these tendrils become entangled among seaweeds, and the cases are thus safely moored and prevented from being harmed by the rough waves of winter (the season in which the eggs are deposited). The egg-cases of the skate are of a dark-brown color, about two inches long, and one inch wide; the appendages are straight, and not curled, as in those of the sharks. What you figure, then, is the egg-case of a skate. These empty egg-cases may be frequently found on the sea-shore where they have been cast up by the tide, and are commonly known as "*Skates' Barrows*," "*Pery Purses*," "*Mermaids' Purses*," "*Fairy Purses*," and also "*Sailors' Purses*"—a joke on poor Jack, as they are most always empty! And now as to these singular spiny appendages. What are they for? Of what possible use can they be? These are questions that I many a time pondered over and long endeavored to find out. It is well known that they serve to admit and eject water for purposes of respiration to the inclosed young fish, but as water could just as well be admitted through little holes in each corner of the egg-case it seems to me that these formidable horns must serve some other purpose. The number of eggs deposited by each individual of the shark tribe is much fewer than in other fishes; may it not be that these tubes serve as a protection against the many voracious monsters of the ocean, in order that the race be not exterminated? But here, while I am speculating on this subject, the young imprisoned fish has matured and wants to get out! Let us see how he accomplishes it. While the egg-case was still in the body of the parent fish, it was open at one end like a bag, and into this the egg descended, the mouth of the bag closed, and then the egg was "hid." Now that the egg has floated about a proper length of time, the slit again opens, through the efforts of the prisoner, and the fish emerges and swims off. For a short time the yolk is attached to him for his nourishment, but when this is absorbed into his body, he is ready to take his chances with his fellows of the finny tribe in the "struggle for existence," and I will now leave him to his fate.

Are You Ready for Winter?

When this question is asked in the farmers' pages, it has reference to barns, cellars, hay, root crops, and all that sort of thing, but when we ask it of boys and girls, we have specially in mind skates and sleds. Were the skates last spring left anywhere that it was most convenient to drop them, so that you will now have to hunt them, one at a time? or were they carefully tied together, the irons first rubbed over with oil, to prevent rusting, and hung in a dry place where the leathers would not mold? The sled too, or cutter, as some call it, has it been left out where the sun has so shrunken it that its joints are shaky, and the irons so covered with rust that you can not tell whether they are iron or not? If you neglected these things last spring, you will find it so much trouble to repair damages, that next time you will take more care. It is now November, and to some boys and girls skating and sledding have already come, and to others it will soon be the season for these healthful winter amusements, so we ask if you are all ready for them. If not, get ready, for ice and snow may be at hand at any time. If the skates are rusty, oil them and let them stand for a few days; then rub the rusty spots with oil and emery. If you can not get fine emery, scouring-brick or coal ashes will do, but it will take more rubbing. Then, if the leather straps have become stiff, as they will for want of use, wash them with castile-soap and water, and while they are still damp, rub them over with neat-foot oil, such as is used on harness. So with the sled. See that the rope is strong, and if any joint is loose drive in a wedge, and if need be, get some one to give it a coat of paint, if you can not do it yourself. Then do not forget to put the things that have gone out of use where you can put your hand on them at any time. The tops, balls, hats, croquet set, and all that will be wanted in a few months, and it is much easier to find them and care for them now than it will be at the time they are wanted.

Aunt Sue's Puzzle-Box.

ANAGRAMS.

- 1. O! chip ship Lola.
- 2. Heap on men.
- 3. Verse in cubes.
- 4. Nanni Scott.
- 5. Nat Zoa's origin.
- 6. Dim sail East.
- 7. Conic gaze.
- 8. Is a true bond.
- 9. I bless ice-can.
- 10. Account nine.

COMPOUND ARITHMOREMS.

- 1. 100016080.
- 2. 1000900116010900.
- 3. 1000801604005010.
- 4. 20000500400150.
- 5. 5001000116010900.
- 6. 10050010160.
- 7. 30015025077.
- 8. 4040150.
- 9. 1010500.
- 10. 101808.

B. F. BIDWELL.

HOOR-GLASS PUZZLE.

- 1. A city in France.
- 2. A dwarf.
- 3. A fish.
- 4. A beverage.
- 5. A loud noise.
- 6. To endeavor.
- 7. To scorn.

The center letters, horizontal, form a very disagreeable attribute.

PHIZ.

SQUARE WORD OF SIX LETTERS.

- 1. A kitchen utensil.
- 2. Belonging to the ear.
- 3. Plenty of ice-creams and strawberries.
- 4. A kind of shad.
- 5. Final.
- 6. Standing out.

H. H. CLARK.

NUMERICAL ENIGMAS.

- 1. I am composed of 14 letters.
My 8, 10, 7, 14, is a hoop.
My 12, 6, 1, is a vessel.
My 3, 9, 4, is to distort.
My 11, 5, 13, 2, forms part of the human body.
My whole is a well-known newspaper.
- 2. I am composed of 8 letters.
My 5, 6, 7, 2, we should never be.
My 3, 6, 4, is a pest to teamsters.
My 4, 8, 1, is a sheep in its second year.
My whole is a girl's name.

LOTA.

N. G. D.

PUZZLE.

The fortress of love, the index of friendship,
The dear shrine of childhood, combined
Form the name of a visitor dear to our household,
Ever new, pleasant, witty, and kind.

L. A. DEE E.

TRANSPROSED PROVERB.

Ni het cabesen fo het efcilin acre het ecim veig chev-mclets pn ot airvons tassipem.

CROSS-WORD.

- My first is in orchard but not in grove.
- My next is in fireplace, not in stove.
- My third is in printing but not in type.
- My fourth is in woodcock but not in snipe.
- My fifth is in turnip but not in beet.
- My sixth is in nectar but not in sweet.
- My seventh is in needle but not in pin.
- My eighth is in brass but not in tin.
- My ninth is in mint but not in money.
- My tenth is in hive but not in honey.
- My whole is the name of a thriving city.
- If you can't find it out, it will be a pity.

HARRY H. DOAN.



433. Illustrated Rebus.—A locality important to New York commerce.

AUNT SUE'S NOTICES TO CORRESPONDENTS.

O. A. GAGE.—You were rather late with your square words, but your industry was fully appreciated.

C. J. T.—Our gratuitous contributors keep us so well supplied with puzzles, that we have no occasion to purchase any.

ALBERT F. W.—"Swallows fly low before rain" in pursuit of the insects upon which they feed; and the insects fly low, then, to escape the moisture of the upper regions of the atmosphere; so that the "idea" is reasonable rather than "superstitions."

NELLIE D.—Certainly, my child, send as many puzzles as it affords you amusement to make; I will examine them all with pleasure (that's what I'm for).

BEN.—See how many of your friends know whether, when a carriage is in motion, the tops of the wheels turn towards the horses or from them; they will be very much surprised to find that they can not, at once, answer you positively.

Thanks for letters, puzzles, etc., to Chas. W. S., R. W. M., R. M. R., Charlie E. G., Lizzie B., J. M. I., C. P. G., A. Lone, Harry H. C., C. M., Beau K., and Ella S. M.



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“SHADOWS ON THE WALL.”—*Drawn and Engraved for the American Agriculturist.*

ANSWERS TO PUZZLES IN THE SEPTEMBER NUMBER.

ANAGRAMS.—1. Dainties. 2. Protrusion. 3. Concentrated. 4. Surprising. 5. Anticipated. 6. Chocolate. 7. Likelihood. 8. Miscellaneous. 9. Ourselves. 10. Remonstrate.

CHARADE.—Rhino (rye-no).

NUMERICAL ENIGMA.—Washington.

DIAMOND PUZZLE.

M
R E I
C E D A R
S A V I O U R
A R I S T O T L E
U N O F F E N D I N G
M E D I T E R R A N E A N
C O M P A R T M E N T
C H A R A C T E R
U N K N O W N
G R E E K
R A T
N

DOUBLE ACROSTIC.

C—hure—H
I—sabbell—A
T—rai—L
Y—el—L

TRANSPOSITIONS.—1. Her ring, herring, her grin. 2. Al oft, aloft, a loft. 3. Pets, step, pest. 4. O vile, olive, I love.

ILLUSTRATED REDUS.—Manatec (Man-at-tea).

PL.—Pardon is the most glorious kind of revenge.

CROSS-WORD.—November.

Making Shadows.

These boys are having a fine time with making shadow-pictures upon the wall. A great deal of amusement can be made in this way, not only to divert young children, who are always pleased by these shadow-pictures, but older ones can get much entertainment from them. Almost every one knows how to arrange his fingers to form the shadow of a rabbit, a fighting cock, and a bleating calf, but these are not by any means all the pleasing shadows that can be made. In order to have the shadows show to the best advantage there must be a white wall, or in absence of this a white cloth pinned against the wall. Then there must be but one light in the room, and the shadow will be all the more distinct if this is a strong one. You must recollect that in shadows it is only the outline that shows, and in forming them with the hands it makes no difference how the rest of the fingers are fixed if those engaged in producing the shadow are in their proper places. Also, the nearer the hands are held to the wall

the sharper will be the shadow. A closed fist with the fingers in the proper position will give a very amusing outline of a negro's head, and by the clever arrangement of a handkerchief a characteristic turban can be made for the head. A little ingenuity and patience will enable one by the use of one hand or both to produce very amusing shadows. Still more pleasing are what are called Chinese shadows. A sheet is hung across a door between two rooms; the spectators are in one room, in which there is no light, and the shadow-makers are in the other, in which there is a very strong light. The lower half of the door has a blanket or other screen, through which the light can not pass, across it, and the performer is hidden below this. When he lifts his hands above the screen the shadow falls upon the sheet. But Chinese shadows are not usually made by the hands; figures cut from stiff paper or pasteboard are used and operated from below. As an outline only is required, the joints and all other parts may be made very rough. Any ingenious boy or girl can get up figures of men, women, and animals, to make these shadows, and cause them to have life-like movements, taking care that the hands operating them are carefully concealed below the dark screen. The exhibition of Chinese shadows can be made more amusing if a dialogue is kept up as if it came from the figures. It would not be difficult to illustrate some story or dialogue in this way, and thus furnish a pleasant entertainment.

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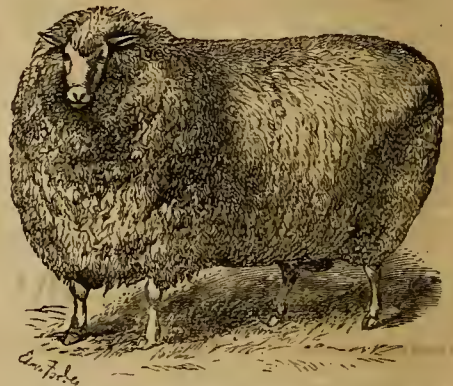
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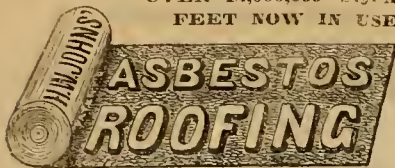
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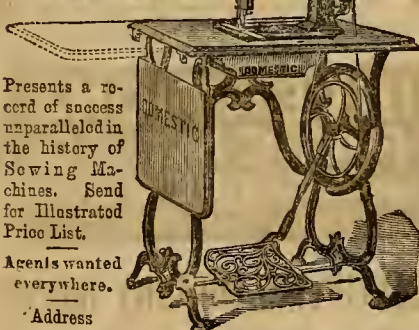
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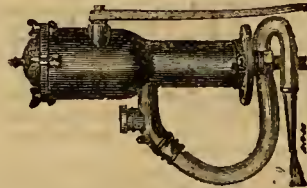
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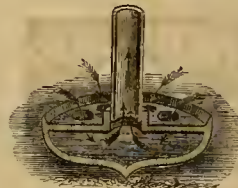
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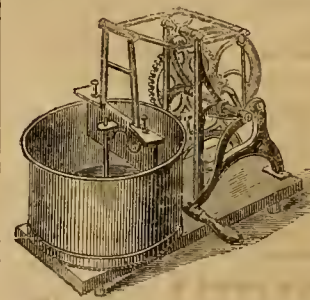
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Any person who chooses may collect a small or large list of subscribers and receive the premium. (See articles on page 408.) It is only necessary to show copies of the papers, explain

their value, promise the \$5 picture, 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, Dictionaries, etc., also Sewing Machines, etc., for poor widows and others. Many Professional men have 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.

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. N. B.

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 a year for American Agriculturist, and \$3.00 a year for Hearth and Home; also at the club rates of \$1 and \$2.50: also at the rates of \$4 a year for both papers together.] Descriptions of Premiums on next page.

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 2d 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 1873. Open to all—No Competition.

Table with columns: No., Names of Premium Articles, Price of Premiums, (1) American Agriculturist, (2) Or (3) Hearth and Home, (4) Or (5) Both Papers together, Or (6) Both Papers together. Lists items like Knives and Forks, Revolving Butter Cooler, Card Beater, etc.

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. 5 to 9, 19 to 25, 28, 50 to 73, and 76 to 88 inclusive, will each be delivered FREE of all charges, by mail or express (at the Post-office or express office nearest the recipient), to any place in the United States or Territories.—(No. 27 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 Description of Premiums on Next Page.

Descriptions of Premiums.

(For number of Subscribers required, see Table, page 433.)

Nos. 1, 2, 3.—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 make. 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 two 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 \$15. For 24 subscribers at \$1.50, or 80 at \$1, we will give either the medium size or the table size, sold at \$16.00. No. 2 have Ivory Handles, are selected with great care, have Steel Blades, and are beautiful goods. Dessert size, with Forks, sold at \$30.00. For 33 subscribers, at \$1.50, or 110 at \$1, we will send the medium size, sold at \$22.00. For 35 at \$1.50, or 116 at \$1, we will send the Table size, sold at \$23.00. The Forks, which accompany these Premiums, Nos. 1 and 2, are made of genuine Albata, and warranted double-plated with coin-silver. These Forks are furnished to us by Messrs. Patterson Bros. The Carving-Knife and Fork are made by The Meriden Cutlery Co., with the best Ivory, balanced Handles.

No. 4.—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. 5, 6, 7, 8.—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 furnished by the Meriden Cutlery Co., 49 Chambers st., New York, whose work is equal to any done in this country or Europe. No. 5 is a neat, substantial Knife, with three blades and back-horn handle. No. 6 is a still finer article, with four blades and pearl handle. No. 7 is an elegant Knife, with five blades and shell handle. No. 8 is a Lady's Pocket Knife, a beautiful article, with four blades and shell handle.

No. 9.—Multum in Parvo Pocket Knife.—This is a most attractive as well as useful Premium, from the well-known manufacturers, Miller Bro's Cutlery Co., West Meriden, Conn. 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, tweezers, 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. It is a pocketful of tools weighing but two ounces. The knives will be sent anywhere in our country, post-paid.

No. 10.—Cake Basket.—A new pattern, oval-shaped, or square, 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 to 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. 11.—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. 10.

No. 12.—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. 13.—Nut Picks and Crackers.—Here are twelve nut-picks, elegantly chased, of medalion pattern, with two handsome nut-crackers, in a morocco-covered case. From the same house as No. 10.

No. 14.—Half-Dozen Napkin-Rings.—These rings are beautifully chased, and in a morocco-covered case. From the same house as No. 10.

No. 15.—One Dozen Teaspoons.—**No. 16.—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. 10. They are far cheaper than anything we have found at half the price, and are well worth working for.

No. 17.—One Dozen Table-Forks.—The same description and remarks apply to these as to No. 16. 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. 18.—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. 19, 20, 21.—Gold Pens; with ever-pointed Pencils, in extension, coin-silver cases.—Premium No. 19 contains the best No. 4 Gold Pen; and No. 20 the best No. 6 Gold Pen, which is the same style, but larger. No. 21 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. 66 Nassau St., and have obtained an excellent reputation. We have known the maker and his goods for many years, and can recommend them.

No. 22.—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 maker as No. 19.

Nos. 23, 24.—Paragon Patent 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 finer plate, at \$3.00. Same maker as No. 19.

No. 25.—Payson's Indelible Ink, and Briggs's Marking-Pen Combination.—Payson's Indelible Ink is too well known to need further commendation. It is almost indispensable in the family. Briggs's Marking-Pen has been before the public for fifteen years, and is justly celebrated for all kinds of marking, and particularly for writing upon coarse fabrics. The Pen and Ink are put up in a neat case, being thus portable, always ready for use, and protected from loss or injury by evaporation or breakage.

No. 26.—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. 27.—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 exhibited it in motion to many of his playmates, hitched on various toy machinery, and it appeared to go just as well as when first started.

No. 28.—Very Choice Garden Seeds and Flower Bulbs.—We have taken special pains to have prepared by Messrs. B. K. Bliss & Sons, 23 Park Place and 20 Murray Street, whose seed establishment is well known as one of the best in the country, 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 Cabbages, 25c.; Dioscorea Batatas, or Chinese Potato, per doz. bnbllets, 25c.;

Moore's Early Concord Corn, ½ pint pkt., 25c.; Laxton's Alpha Peas, ½ pint pkt., 25c.; Trophy Tomato, ¼ oz. pkt., 50c.; ½ oz. Marblehead Mammoth Cabbage, 50c.; ½ oz. Improved American Savoy, do., 25c.; ¼ oz. Improved Branswick, do., 25c.; ½ oz. Premium Flat Dutch, do., 20c.; ½ oz. Improved Red Dutch, do., for pickling, 25c.; ¼ lb. Bliss's Improved Long Orange Carrot, 50c.; 1 pkt. Perpetual Spinach Beet, 25c.; ½ oz. 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 Crosby's Extra Early Sugar Corn, 25c.; 1 pkt. (ten seeds) General Grant Cucumber, 25c.; 1 oz. Boston Market Tomato, 50c.; 1 ounce Conover's Colossal Asparagus, 25c.; 1 pint New Dwarf Wax Beans, 50c.; 1 pkt. New Egyptian Blood Turnip Beet, 15c.; 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.; 2 oz. Genuine Hubbard Squash, 50c.; 2 oz. True Boston Marrow, do., 50c.; 2 oz. Turban, do., 50c.; 1 Lillium auratum, or New Gold-banded Lily, from Japan, 50c.; 1 Lillium lancifolium rubrum, Japan Lily, red, 40c.; 1 Lillium 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, \$1.50; 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.

Nos. 29, 30, 31.—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 expense 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. The new table and pedals are great improvements. 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 \$300, 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 \$73. 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 M'g Co., 736 Broadway, N. Y. Florence Sewing M'ne Co., 30 Union Square. Willcox & Gibbs M'g Co., 658 Broadway, N. Y.

No. 32.—Beckwith \$10 Sewing-Machine.—While we advise buying a \$55 to \$65 Sewing-Machine, we have long been looking for one which, while brought by its low price within the reach of multitudes who can not afford the valuable higher cost machines, should be at the same time worthy of commendation. This we have found at last. The Beckwith Machine is well and strongly made, is simple, its use being quickly learned, is applicable to almost all kinds of family sewing, and has already been tested so thoroughly that hundreds of testimonials, from all quarters, have been given by those who are delighted with its work. Each machine is put in a neat, compact box, with hemmer and guide, oil-can with oil, thread, different-sized needles, etc., with full printed directions for using. We offer these Machines on our Premium List. We will sell them to any who may wish to buy, for \$10 each, delivering to any express office in this city.

No. 33.—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. 34.—Doty's Improved Clothes Washer, with the Metropolitan Balance Weight. Over seventy-five thousand families in the United States are 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. 35.—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. R. C. Browning, 32 Cortlandt St., N. Y.**

Nos. 36, 37.—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 there *thirteen* 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. 38.—Steinway Piano.—SEVEN OCTAVE ROSEWOOD CASE, SOLID ROSEWOOD DESK, LARGE FRONT, ROUND CORNERS; OVERSTRUNG BASE, FULL IRON FRAME, PATENT AORAFFE TREBLE, CARVED LEOP, AND CARVED LYRE.—This is one of the most elegant Premiums ever offered; regular and only price \$650. 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 625 subscribers are required to do it. Several have obtained this premium. 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, New York City,** for a free circular describing it.

No. 39.—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 the 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. 40.—Ladies' Fine Gold Watch.—This elegant Premium will delight our friends who may receive it. Our arrangement with the **American Watch Co.** (see No. 39 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. 41.—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. 42.—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. 43.—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, 103 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 cans is inclosed in a strong wooden case, and may be returned for refilling. For 19 subscribers at \$1.50, or 63 at \$1.00, we will send a case containing 12 one-gallon Guaranty Cans of Oil, which may be distributed among a club.

No. 44.—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 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 63 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. 45.—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 at **55 Chambers St., New York.**

No. 46.—Family Scales.—These scales, combining the advantages of counter and platform scales, are peculiarly adapted to household purposes. They weigh from 1/2 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. 47.—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 structure remain so firm as to be carried about. For developing the ingenuity and taste of children they are unequalled. 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. 48.—B. O. B.—The "Boy's Own Boat"—a Real Toy Steamboat, that will propel itself on the water for over half an hour. This beautiful toy is durably made, elegantly finished, and is just the thing for bath-tubs in winter and ponds and streams in summer. The boat is 18 inches long, and fitted with Ryder's Dollar Steam-Engine and Dodge's Propeller. The engine has a perfect-working safety-valve, whereby any excess of steam passes off. It is one of the most pleasing and instructive toys ever produced. Printed directions for management accompany each boat.

No. 49.—The Great Dictionary.—WONCESTER'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 a 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 & Tilleston, Boston.**

Nos. 50 to 58.—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 fifteen volumes can select any volumes desired, from XVI to XXXI inclusive. For ordinary use, the sets of numbers unbound will answer.

Nos. 59 to 68.—Bound Volumes of the Agriculturist.—These are the same as Nos. 50 to 58 above, but are neatly bound in uniform style, and cost us more for binding and postage. Sent post-paid.

No. 69.—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. 70.—Farmer's Boy's Library.—Both the books in No. 69, and also Herbert's Hints to Horsekeepers, and Henderson's Gardening for Profit.

No. 71.—Farmer's Boy's Library.—The four books in No. 70, with the addition of Fuller's Strawberry Culture, Gregory on Squashes, Brill's Farm Gardening, and Harris on the Pig.

No. 72.—Farmer's Boy's Library.—The eight books in No. 71, with the addition of Thomas's Farm Implements, Tim Bunker Papers, and Waring's Draining for Profit.

No. 73.—Farmer's Boy's Library.—The eleven books in No. 72, with the addition of Fuller's Grape Culturist, Breck's New Book of Flowers, and Hunter and Trapper—in all 14 fine volumes.

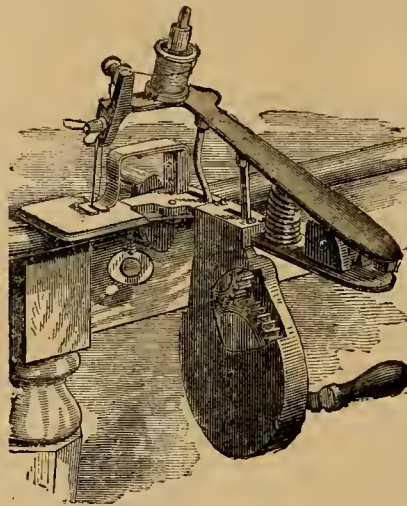
Nos. 74, 75.—Bound Volumes of Hearth and Home.—These volumes are neatly and uniformly bound in cloth, with title in gilt on back and side. With their beautiful engravings, and abundance of useful and entertaining reading for all the members of a family, they will prove valuable additions to any library.

Nos. 76 to 87.—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 76 to 87 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. See Table List of Books in advertising columns.

No. 88.—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. See List as in No. 76.

No. 89.—Remington's Breech-loading, Single-Barrel Shot-Gun.—This gun has the best quality barrel, 32-in. gauge. No. 16, weight 6½ lbs., using "Draper's" patent brass shells, which can be reloaded over and over again, and will last nearly as long as the gun. Ordinary gun-caps and wads used in loading. Breech system same as the celebrated Remington's military and sporting guns. This Premium includes gun, with varnished stock, one shell and loader. Price of cartridge shells, \$3.00 per dozen extra. These guns are manufactured by the noted firm of **E. Remington & Sons, Nos. 281 and 283 Broadway, New York**, whose reputation is world-wide, and who stand in the front rank of manufacturers of fire-arms.

No. 90.—Remington's Single-Barrel, Muzzle-loading Shot-Gun. IMPROVED.—This very serviceable, low-priced gun has gained a wide reputation, and we doubt not that many of our boy-readers, who are old enough to handle a gun, will be glad to secure one. It is of good material and fine workmanship, and by the same makers as No. 89.



A GREAT BOON. A Good Cheap Sewing-Machine at Last.

We have been offering as a Premium, for some months past, the **Beckwith new \$10 Sewing Machine**, which has been fully described in the *American Agriculturist* for March and April, 1872. We have already given and sold some hundreds of these machines, and testimonials of satisfaction are coming from every quarter.

See what the People Say.

Hundreds of letters have been received by us and by the Beckwith Sewing Machine Co., extracts from a few of which are given below.

SHERMAN, CHAUTAQUA Co., N. Y., Aug. 15th, 1872.

GENTLEMEN: Having seen a notice of your machine in the *Am. Agriculturist*, and placing great confidence in whatever that journal recommends, I was induced to send for one. We never saw the machine until it came by express, and had no instruction except what came with it, and in less than half an hour after it was received my daughter was making a dress with it, with perfect success, which she completely made with the machine. Other members of the family used it at once with equal success. I consider this, the Beckwith Sewing Machine, a most useful family machine, which I cheerfully recommend to all.

H. W. SPERRY.

WEST CHESTER, August 15th, 1872.

GENTLEMEN: In answer to inquiry about Beckwith Sewing Machine, I can say that it has proved satisfactory. Our physician having forbidden a treadle machine to come into the house, for fear of my wife, who is in delicate health, being tempted to use it, I was induced to order a Beckwith. My wife, besides making up female wear of different materials, recently finished for me, in a most workmanlike manner, on the Beckwith, a whole suit, coat, vest, and pants, of French habit-cloth, which is equal, if not superior, to any I have had made in your city or elsewhere. It, like all other machines, requires some common-sense application, and a little patience, until one fully understands it, and then there is little or no trouble. My wife, without any other guide than a careful observation of the rules contained in the lid of the box, has been able to run it successfully. We value it highly.

W. P. TOWNSEND.

WELDON, FLA., September 20th, 1872.

GENTLEMEN: The sewing-machine came safely to hand, and on trial I find it complete. My wife says it is the dearest little machine that ever was made, and she would rather sew on it than to eat—would not take \$50 for it if she could not get another.

Respectfully yours, W. CLAY MALLORY.

LUDLOW, MASS., August 26th, 1872.

GENTLEMEN: I received your machine in good order, and after using it four months, trying it on all goods, I can say that it far exceeds my expectation. To say that I am well pleased with it would be but saying little. I am satisfied, and think the \$10 well spent.

Yours truly, Mrs. A. L. BENNETT.

LOOKOUT, W. TENN., August 3d, 1872.

GENTLEMEN: We received the Beckwith Machine safely the evening of August 1st, and, as this is probably the highest testimonial you will ever receive, we have duly felt the responsibility of writing to you how the little wonder works "above the clouds." We have taken two days to test its

powers, and are most agreeably surprised. We expected nothing half so small, so pretty, or so useful.

Your friend, MARY J. CHAPMAN.

DEFIANCE, OHIO, September 7th, 1872.

SIR: We received your letter and machine in good time. We are perfectly satisfied. They will give universal satisfaction. I am a German; I landed in New York in 1832; been in Defiance County sixteen years.

Yours respectfully, JOHN HEILSHORN.

PLYMOUTH, SHEBOYGAN Co., Wis., June 10th, 1872.

MR. BARLOW: We thought this the greatest invention for its inches in the world. It has become a family necessity.

Yours truly, Mrs. C. B. WILLEY.

MANSFIELD, TIOGA Co., Pa., September 27th, 1872.

GENTLEMEN: Your machine is the most perfect piece of simplicity that I ever saw, and ours works, as those say who run it, "splendidly."

Yours truly, JOHN H. PUTNAM.

FREMONT, DONOR Co., NEB., September 21st, 1872.

GENTLEMEN: I received the \$10 Beckwith Sewing Machine August 17th, since which time I have sewed garments from a French lawn to a cloth, and it gives entire satisfaction.

Respectfully, ANNA C. WATT.

No. 3, A. & G. R.L., GEORGIA, April, 1872.

GENTLEMEN: Seeing your improved machine advertised in the *American Agriculturist*, and relying on Orange Judd & Co.'s statements, we sent to them and got one of your machines, with which we are much pleased. Have shown it to several friends, and I presume several orders will soon be sent to Orange Judd & Co. or to you.

Respectfully yours, J. A. M. KING.

NEW YORK, May, 1872.

GENTLEMEN: It is due your laudable enterprise to state that, having had in my family one of the Beckwith Sewing Machines from its first appearance, its great merits are more apparent the longer we use it. My wife makes all her dresses on it with ease and perfect satisfaction, as well as everything else she desires to sew. She has recently made a heavy silk dress with it, and is now making a light summer dress. Having formerly been accustomed to the use of first-class large machines, she greatly prefers the little Beckwith. Its ease of operation, its simplicity, and always being in perfect order, together with the great convenience of taking it with her wherever she goes, and of using it wherever she pleases, are considerations so greatly in its favor, that it must soon become the favorite of every household.

Yours respectfully, LEANDER FOX, 26 Varick St., N. Y.

KENANSVILLE, DUPLIN Co., N. C., April, 1872.

GENTLEMEN: The machine has been received, and works like a charm.

Yours respectfully, R. H. BROWN.

We have contracted with the Beckwith Sewing Machine Company for a large number of them to supply our own friends, and as Premiums. Each machine is put in a neat, compact box, with hemmer and guide, oil-can with oil, thread, different-sized needles, etc., with full Printed Directions for using, and delivered to any express office in this city, without extra charge above the \$10. As we buy the machines at wholesale price, we have decided to give our readers some advantage of this, and we therefore propose to make a present for himself or herself, or for any friend, of one copy of *Hearth and Home* for six months, or one copy of the *AMERICAN AGRICULTURIST* for one year, to those persons who send us \$10 for one of the machines while this offer is continued.

The New Sewing Machine as a PREMIUM without Money.

To enable those to get this machine who can not raise even the \$10 to buy it, we make the following offer:

We will send the Machine free to any one who will collect and forward SIX subscribers for *HEARTH AND HOME* one year at \$3 each; or TWELVE subscribers to *AMERICAN AGRICULTURIST* for one year, at \$1.50 each.

Almost any lady can readily secure this small number of subscribers and get a machine free; or some friend can thus obtain it for her, as a present.

Address

ORANGE JUDD & CO., 245 Broadway, N. Y.

The Newburgh Bay Horticultural Society

Held its annual exhibition at Newburgh, on September 25-29. A taste for horticulture is widely diffused and firmly implanted in the vicinity of Newburgh—the home of the Downings—and though we had heard much of their annual shows we have not until this season been able to visit them. We are informed that the recent exhibition was not equal to that of former years—apples and pears especially being so abundant that less interest was taken in presenting them than in years of smaller crops. Whatever may have been the previous displays, that presented this year was one of which a much larger city might have been proud. Indeed, outside of Boston and Philadelphia, we doubt if it can be equaled. Every fruit in season was represented by fine and abundant specimens, excepting grapes, which, in a neighborhood usually producing largely, were so poor as to almost amount to a failure. We can not give the names of exhibitors, save to mention that a most extensive collection of pears was from the orchard established by Charles Downing, and now in the possession of Mr. A. Bridgeman. We must not omit to mention the hybrid grapes of Mr. J. A. Ricketts, of Newburgh, whose efforts at hybridizing the foreign and native grapes have been attended with marked success. When these vines are put in the market, cultivators will experience a new revelation in the way of native grapes.

The exhibition of vegetables was very fair, and that of flowers—mainly of bouquets and designs—while not large was creditable. We were surprised at the lack of specimen pot-plants in a locality where we should look for them in perfection. The executive management at this exhibition is worthy of commendation. To judge of fruits is usually a laborious task, but so well were the specimens arranged, and so competent the attendance upon the committees, that the work was easy.

Fodder-Cutters.—Numerous inquiries come constantly for fodder-cutters, and a dozen at least are now before us, to all of which we say: That there is but little difference, if any, in the value of any of the many cutters advertised in our columns, and parties desiring them can hardly go wrong whichever one they may happen to procure. Every man who owns one horse or one cow would find the use of one a great convenience and a great economy.

Blasting Stumps.—The Greenfield farmer who endeavored to get rid of his stumps by blasting them, was so successful that he threw several summer-sets, got outside of most of his clothes, and burned his hair out by the roots. It was his first and is his last blast.

Another Patent Fence.—A correspondent from Richfield, Pa., who omitted to affix his name to his letter, asks if certain men who are trying to dispose of rights to use a "patent fence," which consists of a sill in which are fixed two upright posts, to hold the rails, and of two braces, which cross the fence and sustain a top rail or rider, are worthy of notice, or if they are frauds.—The claim to a patent on such a fence is certainly a fraud, as the arrangement is about as old as rail fences themselves, and it is in use in hundreds of places. Whether the men themselves are honest or not, we can not say; they may be.

Teeth for Shares' Harrow.—"R. F. C.," Rhea County, Tenn., can procure teeth for Shares' harrow from R. H. Allen & Co., Water st., New York, or any of their agents.

Value of Large and Small Pictures.—Persons of uncultivated eye and taste are apt to value a picture by the square feet it covers, while real artists and persons of refined taste judge of the skillful arrangement of colors, and the genius displayed in grouping, position, light and shade, etc. We have stood at a sale, and seen oil-paintings covering several square yards, allowed to go off at \$10 to \$50 each, while there would be intense excitement and spirited bidding on another picture only 7 by 10 inches, and its price run up to \$500, \$1000, or even \$1500—and it was the cheapest picture sold even at the last-named price. When salesmen in New York have a stock of these large unartistic pictures, they advertise them among the uncultivated masses, who buy by the yard, as they would purchase wall paper.

Improved Sorts of Wheat.—"C.," Sulphur Springs, East Tenn., wants light thrown on the subject of the Fultz and other improved varieties of wheat and the special manures most suitable for that crop. The Fultz wheat is said to have originated in Mifflin County, Pa., in 1862. It is a red wheat, and after several years of experiment has become somewhat popular in

its native locality. It is said to stand the winter exceedingly well, to be free from damage by the weevil, to have good straw, and to yield well. We have had no opportunity of testing its merits, and should advise caution in trying this or any other new variety. The Touzelle is a French wheat lately introduced, and also highly spoken of by some who have tried it. Guano and superphosphate of lime are the best special manures for this crop.

Concerning Milk.—"George A. K.," Leavenworth, Kansas, asks how soon after calving the cow's milk is fit for use, and if it is customary to milk the cow immediately after the birth of the calf.—After four days the milk regains its ordinary quality, and during that time it should be fed to the calf as drawn from the cow. If left to itself the calf will often suck within a few minutes after its birth, and if it is taken from the cow the milk should be drawn as soon as possible and given to it. This is generally, if not always practiced.

Starch Factories.—"Wm. D.," Morgantown, W. Va., asks if it would pay to buy potatoes at 50 cents per bushel, to manufacture them into starch, and how much it would cost to start a starch factory.—Fifty cents a bushel could not be paid for potatoes in this business. Twenty-five cents would be about the most. A starch factory costs from three thousand dollars upwards. Doubtless a saving in this cost could be made if the party is a mechanic and builds his own factory.

Agricultural Labor.—A student at the Agricultural College of Pa. states as an illustration of the amount of labor performed by the students, that they hauled one thousand cart-loads of stone this season.

Catarrh in Sheep.—F. Koch, Mississippi, wants a remedy for a running at the nose or catarrh in sheep.—Tarring the nose is often of use; the sheep lick some of the tar and swallow it, which seems to act as a cure. Close penning of sheep or keeping them in a warm place often produces catarrh, and turning them into a roomy, airy, or out-door pen, where they have plenty of fresh air, and are kept quite dry, will often cause an immediate cure.

Farming on Ten Acres.—A "Subscriber," who gives neither name nor address, proposes to farm ten acres of land, two acres of which will be in market vegetables, and a portion, after appropriating hay and pasture for two cows and two horses, in tobacco. He asks for "some idea" as to the probable result. This depends very much on the management given, and the amount of manure which can be purchased, as four or more acres in such crops as vegetables and tobacco will use up a hundred tons of manure annually, and all that can be made from the stock mentioned, with a few hogs and fowls in addition, will be absorbed by the meadow and pasture. Unless the manure can be purchased and judiciously used, we should apprehend a failure.

Clydesdale Horses.—F. P. Clark, of Minneapolis, Minn., recently purchased two thorough-bred Clydesdale mares, three and five years old, for \$1000 gold. Their weights were 1600 and 1700 pounds, respectively.

New York State Fair.—This fair, held at Elmira, October 1st to 4th, was a marked improvement on that previously held at the same place. The State Agricultural Society have secured extensive grounds, on which permanent and convenient buildings have been erected, and the course of improvement undertaken on the property, when completed, will add very much to the future convenience and pleasure of both exhibitors and visitors. The exhibition was very successful in showing that several thousand persons could be induced on one day to attend an agricultural fair for its own special attractions, without the usual additional ones of the trotting course. Consequently it was an agreeable thing to exhibitors, and to those who, like ourselves, take pleasure in observing this, to see crowds of farmers and their wives around the stockpens, closely examining and discussing the merits of the stock, questioning the owners and attendants, and criticizing the awards of the judges. This is just as it should be, and is gratifying to notice. There was a good selection of stock, although not by any means so large a one as could be gathered together in this State if all the choice flocks and herds had been represented. Comparatively the best show of cattle was of Jerseys. The Shorthorns were only fair; there are better ones in the State than were on exhibition. A few good Ayrshires were also there, and those exhibitors who brought out their stock well deserve the premiums they earned by their enterprise. The poultry was far from first-rate in appearance, and did not show well in the low coops, which had a tendency to apparently dwarf their size, although the comfort of the poultry was increased by

being on the ground. Strangely, in this great dairy State, where cheese and butter factories exist by hundreds, there was no cheese found worthy of a premium, and the butter has been often surpassed in quantity by many a county fair where dairying was not a specialty. Another very remarkable want was apparent, viz., the absence of the least thing which could specially interest the young folks, who are certainly worthy of more consideration than to be left to be amused by the miscrably poor "merry-go-rounds" and side-shows, fit only for babes or idiots. If we must "keep the boys on the farm," it seems only reasonable that they should have a department appropriated to them in the recreations as well as the labors of the farm, in which they could be exhibitors and compete for premiums in the things in which they take an interest. Why could there not be a department for colts, calves, steers, pigs, and poultry owned and cared for by the young folks, both boys and girls? It is to be regretted that the receipts of the exhibition did not pay expenses, but there are several substantial reasons for this other than any fault on the part of the managers, whose efforts deserved success.

Apple or Quince.—M. Butler. The specimen sent is undoubtedly apple.

University of Mississippi.—We have received a prospectus of this institution which has a department devoted to agriculture and the mechanic arts. Dr. E. W. Hilgard is the professor of agricultural chemistry, and Dr. M. W. Phillips of practical agriculture. The University has secured a farm for the practical instruction of the students, on which if they desire they may work for the customary compensation. It is to be hoped that the efforts promised by this institution for the spread of agricultural information in this State may be crowned with the success that all such efforts deserve. Thomas E. B. Pegues, Oxford, Miss., Secretary of the University, will furnish all desired information.

Wanted, an Agricultural Paper.—"E. M. W.," Georgetown, Va., is about to take charge of his father's farm, and writes to know what agricultural paper would be of most use to him in learning when to plant seeds, and how to prepare the ground and take care of the crops. He thinks with this help he can succeed.—To give a simple, unprejudiced reply to this question would be to say that the *American Agriculturist* exactly meets the case of "E. M. W.," or any other man, whether he knows little or much of farming, for though he may know much, there are new views of things, new methods, and new appliances continually coming up, which are discussed or made known in its columns, while if he knows little, there is no branch of his business in which he may not be instructed by it.

Salt as a Fertilizer.—"Subscriber," Putnam, Ohio, asks the best method of using salt for grass or grain.—It should be spread early in spring, either on grass or grain, at the rate of one to three bushels per acre. As it has no direct effect on vegetation, but only indirectly by its supposed action on the mineral constituents of the soil, it is not always that its application is productive of any marked results. The writer has used it regularly on grass and wheat with the effect of considerably increasing the hay crop, and of preventing the wheat crop from lodging, and these are mainly the results anywhere obtained by its use. As a destroyer of grubs and insects we have no confidence in it, unless used in such quantities as would destroy vegetation.

What is the Matter?—"A. N. G.," Greenwood Co., Kansas, has something the matter with his cow and his corn. The cow "mumbles" with her mouth and slobbers as though she were choked; and the corn, which was planted on buckwheat ground, looks badly, as though the buckwheat had injured the ground. He asks, Is this crop injurious to the soil?—The cow probably suffers from toothache, which causes exactly such symptoms as these; if so, she will gradually get over it. Buckwheat does not injure the soil, notwithstanding there is a popular opinion in some places that it does. It only affects the soil by exhaustion, which is counteracted in some degree by the mellow condition in which it leaves the ground.

Wheat or Oat Chaff.—"G. H. B.," Ashland County, Ohio, asks if wheat or oat chaff will dry up cows, and if chaff is equal to straw for fodder.—We have never fed wheat chaff, but having found accidentally that oat chaff increased the flow of milk, have always saved and fed it, and believe it to be better feed than oat straw. Chaff has no direct effect in drying up the milk, or otherwise than as not furnishing the nourishment required, and acts just as straw would do when fed. No man expects milk from straw alone, nor without a quantity of bran or other grain feed larger than when hay is fed.

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**FRANK FORESTER'S
HORSE & HORSEMANSHIP
OF AMERICA.**



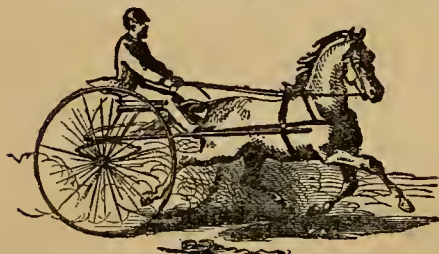
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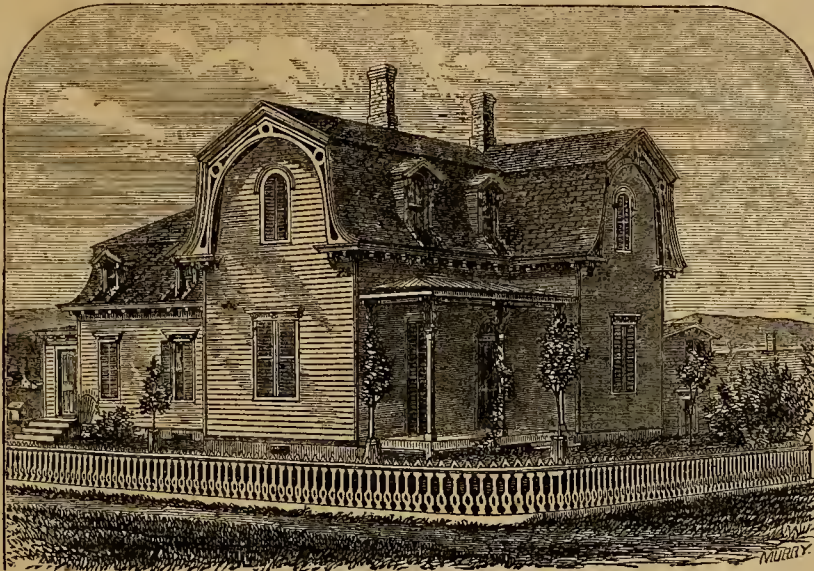
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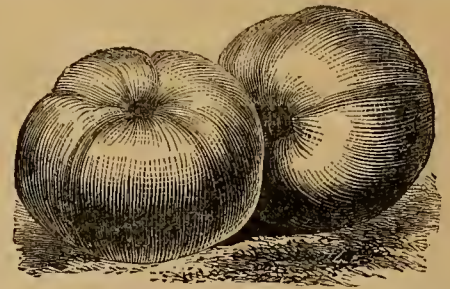
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[HONORABLE GREELEY in the *N. Y. Tribune*.

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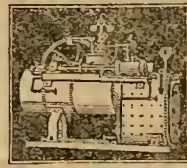
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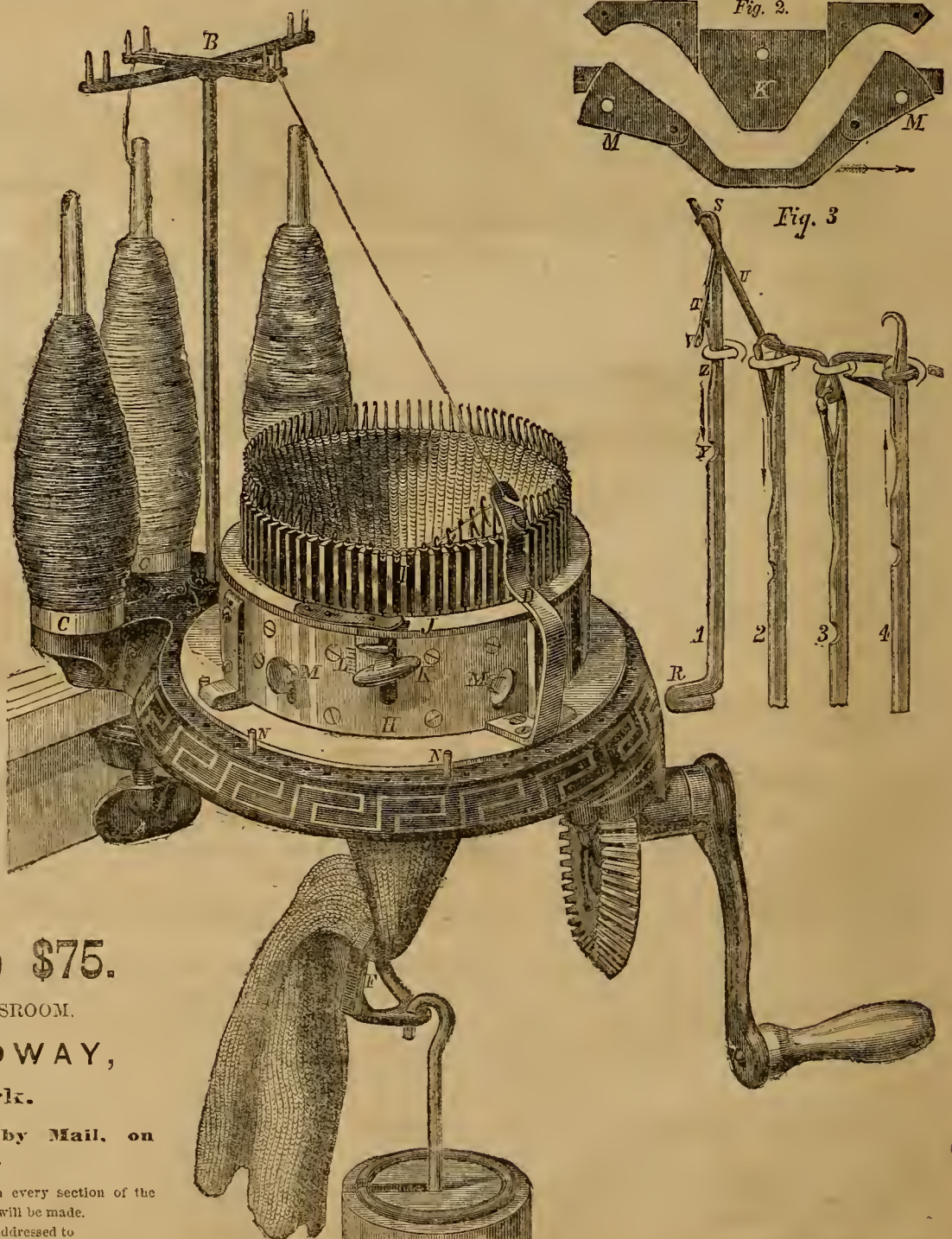
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VOLUME XXI.—No. 12.

NEW YORK, DECEMBER, 1872.

NEW SERIES—No. 311.



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AFTER THE GREAT SNOW-STORM.—*Drawn and Engraved for the American Agriculturist.*

In many parts of the Northern States the scene depicted by our artist in the above engraving happens yearly. Not uncommonly the winter opens with a heavy fall of snow, sometimes equal to two feet on a level, and this, when driven into heaps and banks by the north wind, makes it necessary for backwoods-men to turn out and "break roads." Then the neighbors come out each with a yoke of cattle—for horses would be useless for this work—and one mounted on snow-shoes leads the way, followed by the oxen, who waddle through the deep snow slowly and clumsily; but they beat down the snow with their great limbs, and when five or six or more yoke follow each other, a

broad track is soon made. So they proceed, stopping now and then that a great tree, overloaded and broken down with snow and fallen across the road, may be cut out. By and by a drift is reached, into which the leading oxen plunge until nothing but their noses, elevated as much as possible, and the tips of their horns, can be seen. But the snow settles down over their backs as they wallow through the deepest part, and then as they emerge they look as though they swam in a sea of the purest foam, which rolls down the side of the drift in little ripples, and drops off their great sides. The others follow, and the "beautiful snow" that has been woven by the fingers of the north wind into

a fringe of purest white and most delicate pattern around the edge of the woods, is all broken down and soiled, and its beauty all gone. This is the way some look at it, but those whose business it is to battle with snow, and beat it down, making roads through it, or chopping down trees and making logs in it, or wading through it to get to their barns to feed their hungry cows, and shovel it away from their stable-doors, or hunt beneath it for the ax or what-not, carelessly left out to be snowed under—why, they vote it a nuisance, without considering how they would do their work in the woods, or haul their great loads, or go sleigh-riding, if it were not for a great snow-storm.

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Calendar for December.

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PHASES OF THE MOON.

Table showing moon phases (1st Quart, Full M'n, 3d Quart, New M'n) for Boston, N. York, Wash'n., Cha'ston, and Chicago.

AMERICAN AGRICULTURIST.

NEW YORK, DECEMBER, 1872.

We are beginning to look back on the year 1872 and forward to the year 1873. December is a half-year house, a breathing spot. It is neutral ground. The labor of the past year are nearly ended; those of the new hardly commenced. The days are short, and during the long evenings we shall think over the past, and lay plans for the future.

We greatly mistake the signs of the times if we are not about to introduce a better system of agriculture, better breeds of animals, and a higher condition of farm-life. But the first improvement must be in ourselves. We must think more and work to better advantage. Never allow yourself to say "I have not time" to do anything that you ought to do.

little to sell, and that little not worth in market the cost of production. There is no remedy except to hope and to work. To a man who does not work times are never good. To one who does, there are fair prospects ahead—we think never better or brighter.

Hints about Work.

Evening Work.—We do not believe in "all work and no play." We believe in working with a will when we do work, and then resting. We work that we may rest, and rest that we may work. We can often rest ourselves more by changing the character of our employment than by absolute idleness. A farmer with the right kind of head and heart can not sit down at night with much comfort if he knows his horses are covered with mud and sweat in the barn, or if he knows there is no kindling-wood to start the fire in the morning, or that there is a pane out of one of the windows in the cellar.

Be Clean in the House.—There is much dirty work to be done on the farm, and a farmer should dress appropriately to his work. But there is no reason when his work is done for the day why he should sit down in the evening with his pantaloons stuck in his boots. We cordially dislike foppishness, but cleanliness is one of the cardinal virtues. The farmer or the farmer's son who does not make himself and his clothes clean before he sits down at night has something yet to learn in regard to the pleasures and advantages of a quiet country life.

Animals.—Next to himself and his family, a farmer's thought and attention should be turned to his animals. If we look upon them as machines for the conversion of straw, stalks, roots, hay, and grain into beef, mutton, wool, milk, pork, eggs, etc., we should never forget that they differ very materially from ordinary machines, that we can start and stop when we please, and stow them away when not in use. The animal machine is always running, winter and summer, night and day, and a farmer's first care should be to see that it is always running to some good purpose.

Horses.—If possible, work the horses moderately during the winter, and let them have grain enough to keep them in good condition. A horse that has been over-worked and surfeited with grain may be the better for a winter's run at a straw stack. But this is not the usual condition of farm horses. As a rule, it would be better to keep them in the stable and work them regularly. Labor is comparatively cheap in winter, and there is much work that can be done with advantage, especially if it has been prepared in advance. Gravel may be drawn for the roads; stones or rails may be drawn for

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Disease in Poultry.—"Mrs. L. H. B.," Postville, Iowa, finds that the feathers fall off the breasts of her fowls, and that the toes gradually decay until only stumps are left, and that this complaint spreads amongst her fowls. She asks what is it? and what is the remedy?—It is probably not contagious, as supposed, but spreads because the cause is general. The cause is very likely unclean roosts and floors in their houses, not sufficient variety of food, and want of an alternative as medicine. Their quarters should be well cleansed with lime, some rusty iron with sulphur should be kept in their drinking water, and they should have some cabbage or raw potatoes chopped given regularly to them.

fences; manure may be drawn out and spread on the fields; plaster can be drawn from the mill; apple-trees can be pruned and the branches drawn off at the time and not left on the ground; grain can be taken to the mill and be ground, not merely as it is wanted, but enough for the whole year. Draining-tiles may be procured, lumber drawn, wood brought to the house and sawn; straw, hay, and corn-stalks may be cut into chaff with a horse-power machine. In many places hay may be drawn to market, and a load of manure brought back with profit and advantage. These are only a few things that may be done. We are sure that farmers, by a little planning in advance, can very generally keep nearly all their teams moderately at work all winter.

Cows.—Where hay is scarce and straw and stalks abundant, it will pay well to chaff the latter for cows and mix mill-feed and corn-meal with it. Keep the cows in a moderately warm, well-ventilated stable, clean it out every day, and turn out the cows twice a day to water, and let them stay out an hour or two when the weather is favorable. But avoid letting them get chilled in storms.

Sheep.—The best way to feed hay to sheep is to cut it into chaff by horse-power. It is little trouble to feed, and there is little or no waste. And we are not sure that it is not better to cut up straw and stalks also, and feed them with a little meal as we do cattle. The first point in the management of sheep is to provide *dry* quarters; 2d, To avoid overcrowding; 3d, To litter lightly and regularly every day; and 4th, To guard against any fermentation of the manure under the sheep. Give fresh water every day, and salt regularly. Feed liberally *before sundown*. Let there be straw or other food in the racks for the sheep to eat during the night.

Swine.—Where corn is worth less than 40 cents per bushel it will *pay well*, even at the present low price of pork, to make the hogs *fat* before selling them. Packers want small, fine-boned pigs, but they want them well-fattened. Store pigs should be kept growing rapidly. The prospects are favorable for an advance in pork another year, and farmers, especially in the West, should feed their young stock liberally. Breeding sows should have as much exercise as you can make them take in searching for food. But, at the same time, they should be able to find as much as they need to keep them in vigorous health and good condition. For thoroughbred sows, which keep easily, and are apt to get too fat, the food should be of a rather bulky nature, such as bran, turnips, etc. Sows go sixteen weeks. If you have a number of sows, and are short of breeding-pens, it will be well to push forward a few sows and keep back the others. This can be done by giving those you wish served first a little extra corn for a week or ten days. Provide dry, well-ventilated quarters, and see that they are kept clean and well littered. Do not allow young and old pigs to run together. The young, growing pigs should have all the food they will eat and digest. If they are of the right kind, that mature early, they must have good food, and plenty of it, while young, or they will not be healthy.

Poultry.—Select out the hens and cocks you intend to keep, and fatten the rest. If you wish eggs in winter, provide warm quarters, and feed more or less animal food. Keep the hen-house clean, and see that the hens do not want for water.

As Long as the Ground is not Frozen keep at work getting ready for winter. Finish the fall plowing. Plow the garden. If you have any large stones to draw off, raise them up a few inches now, and put a small stone or piece of wood under them to prevent their being frozen to the ground. They can then easily be loaded on to a sleigh or stone-boat in winter and drawn off easily. Bank up the cellars. If potatoes are pitted, and have only one coat of straw and earth on them, put on another thin layer of straw and cover it with a few inches of earth. This is the great secret of keeping out frost. The layer of straw between two layers of earth holds dead-air, which is the cheapest and best of non-conductors. Go over the farm during or immediately after a heavy rain with a hoe and spade, and see that the water has a chance to flow off freely.

This is very important, not only for wheat, but for land intended to be plowed in spring.

Work in the Horticultural Departments.

There is seldom a month in which something can not be done towards advancing the spring work. There are many mild days when things which were neglected in the fall can be attended to. There is now plenty of time for reading, and no good gardener will fail to provide himself with suitable books and papers to employ his mind during the long evenings. New horticultural books are published from time to time, upon different subjects, most of which contain some items of interest, and are worthy of a careful perusal. During mild days, rubbish, which often collects around the barn and out-buildings, may be taken away, thus making the house and grounds look as if they were properly cared for.

Kitchen Garden.

Cold-Frames.—Do not close the sashes entirely, except at night, and when the weather is above freezing remove them entirely.

Pits in which roots are stored, should not be covered until really freezing weather comes, and then gradually, just enough to keep out frost.

Roots fresh from the ground are the best. The season of digging may be prolonged by covering the beds with litter, to prevent the ground from freezing. Store a quantity in dry earth in the cellar, to use while those outside are not accessible.

Spinach, Lettuce, etc., which are to remain in the open ground during the winter, should be covered with leaves, hay, or other litter.

Rubbish.—If there is no snow upon the ground, the dry weeds, old vines, and everything which will prevent the easy working of the plow, may be burned, and the ashes saved for use the next season.

Bean-Poles.—Do not allow these to remain exposed to the weather. With shelter they may be made to do service for several seasons. Pen-brush seldom lasts more than one season, though occasionally, with care, it will do the second spring.

Seeds.—Thrash out and clean all that remain, and see that each variety is supplied with a proper label and date. Keep in a cool room, where mice will not trouble them.

Orchard and Nursery.

Trees.—Young trees need care at this season, whether newly set or not, as there is great danger from mice and stray cattle. The gates and fences should be properly secured, and when a light snow falls, it should be firmly trodden down around each tree, to keep the mice from gnawing the bark. It is a good practice to raise a mound of earth, a foot high, around the trunk of newly-set trees, as a support for them during the high winds, as well as a security against mice.

Rabbits are prevented from injuring the trees by sprinkling blood upon them, or wrapping them with tarred paper; the former is, however, the best.

Pruning.—If any pruning is to be done, it is better to select mild days during early winter than to delay until spring. Where large limbs are removed, the wounds should be covered with a varnish of gum-shellac, or with melted grafting-wax.

Cions.—When the trees are not frozen, cions may be cut, labeled, tied in small bundles, and stored in earth or sawdust. Grafting is a very easy method of stocking an orchard with good varieties of fruit, and the operation has often been explained.

Water.—Should any water stand upon the surface of the orchard, surface drains should be opened.

Root-grafting.—This can be done indoors, when the weather is too cold to admit of working outside. The varieties should be kept separate; place the grafted roots in boxes with earth or sand.

Seeds of stone-fruits must be buried, if not already done, in order to expose them to the action of the frost. If the quantity is small, they may be buried

in boxes in the open ground, where they are subjected to alternate thawings and freezings.

Fruit Garden.

Raspberries.—Bend down the canes of the tender varieties, and cover with earth before the ground freezes.

Strawberry Beds.—These should receive a covering of straw, or bog-hay, or leaves, two or three inches thick. A little earth or some brush will be necessary to prevent the leaves from blowing away. Care should be used not to cover too deeply, as the object is to prevent sudden changes of heat and cold, and not to prevent freezing.

Grape-Vines.—These ought to have been pruned last month, but advantage may be taken of any mild days to prune now. Young vines, whether tender or hardy, do best if laid down.

Wood for trellises and stakes may be prepared ready for setting in the spring. Chestnut and locust posts are very durable, and are best where it is necessary to have wood in contact with the ground.

Flower-Garden and Lawn.

Protection.—The same rules apply here for the protection of half-hardy shrubs and trees, as given for strawberries, etc. Tender roses are best treated by laying down and covering with sods.

Climbers which are not entirely hardy at the North, should be taken down from their trellises, and covered with earth.

Pits.—Plants kept in pits and frames, must be kept dormant, and take care not to keep them too wet. Plants stored in the cellar do best when surrounded by dry earth, and kept without water.

Trellises, etc.—Put all movable wooden trellises and seats under cover. Unpainted ones will last longer if a good coat of petroleum is applied to them.

Evergreens.—Protect the young trees by surrounding them with evergreen boughs; this slight protection will often save trees which when older will prove perfectly hardy.

Greenhouse and Window Plants.

Air is one of the necessary elements of success in plant-growing, whether in the house or greenhouse. Open the ventilators every day when the weather is not freezing, opening only those on the opposite side from which the wind is blowing.

Water.—Give only when the plants are dry; if watered too much, the soil becomes so thoroughly saturated that it is impossible for the roots to grow well. Sprinkle or shower the plants as often as convenient, except in the coldest weather.

House Plants usually suffer more from dust and a dry atmosphere than from any other cause, and the only remedy is to shower often, and to occasionally sponge the foliage of the smooth-leaved plants, such as Camellia, Ivy, etc.

Commercial Matters—Market Prices.

Gold declined to 111 $\frac{3}{4}$ and advanced to 114 $\frac{1}{2}$, closing November 12th at 113 $\frac{3}{4}$ against 113 on the 12th of October. The disease among the horses in this city and vicinity has very seriously checked business in the Produce line, by retarding the forwarding movement. Breadstuffs have been less active, and variable as to values, but close with some show of firmness in the instances of Flour, Wheat, Oats, and Barley, which are now offered less freely. Corn leaves off easier, on a liberal supply. The export inquiry has been less confident. . . . Provisions have been generally quoted stronger in price, on a good demand, but close less buoyantly. An extraordinarily large sale of Beef, embracing 6500 tcs. and 300 bbls., product of a single Western packing house, was reported on the 12th of November. . . . Wool has been in more demand and on the advance, closing buoyantly, in view of the reported destruction of a large proportion of the stock of Domestic in Boston, by the great fire in that city. . . . Cotton has been active, but irregular, closing weak. . . . Hay, Hemp, and Seeds, quiet, but about steady. . . . Hops and Tobacco in good demand at steadier rates. . . . Apples have been purchased with unusual freedom, for export to Liverpool, Glasgow, London, and the German ports, and close higher.

The following condensed, comprehensive tables, carefully prepared specially for the American Agriculturist, show the transactions for the month ending November 12, 1873, and for the corresponding month last year.

TRANSACTIONS AT THE NEW YORK MARKETS.

RECEIPTS. Flour, Wheat, Corn, Rye, Barley, Oats. 24 d's last m'th 3,846,000 2,817,000 3,569,000 26,000 1,111,000 895,000

SALES. Flour, Wheat, Corn, Rye, Barley, Oats. 24 d's this m'th 3,113,000 2,438,500 3,597,000 41,000 416,000 1,196,000

Comparison with same period at this time last year.

RECEIPTS. Flour, Wheat, Corn, Rye, Barley, Oats. 21 days 1872. 348,000 2,817,000 3,569,000 26,000 1,111,000 895,000

SALES. Flour, Wheat, Corn, Rye, Barley, Oats. 24 d's 1872. 313,000 2,438,500 3,597,000 41,000 416,000 1,196,000

Exports from New York, Jan. 1 to Nov. 6.

1872. Flour, Wheat, Corn, Rye, Barley, Oats. 1872. 931,176 10,351,411 23,102,108 660,588 22,656 20,824

Stock of grain in store at New York.

1872. Wheat, Corn, Rye, Barley, Oats, Malt. November 6. 429,760 4,733,426 31,374 376,750 2,191,362 250,930

Receipts at head of tide-water at Albany each season to Nov. 1st.

Flour, Wheat, Corn, Rye, Barley, Oats. 1872. 104,100 7,901,400 25,484,800 357,300 2,119,000 3,075,300

CURRENT WHOLESALE PRICES.

PRICE OF GOLD. 113. FLOUR—Super to Extra State \$5 75 @ 7 75. Extra Western 6 75 @ 12 00. Extra Genesee 7 80 @ 10 00.

New York Live-Stock Markets.

WEEK ENDING. Bees, Cows, Calves, Sheep, Swine, Total. October 14th. 1,236 71 2,415 29,816 44,680 83,748

Beef Cattle.

The above figures show a decrease of 1500 bnlocks per week, as compared with the previous month. Fat native steers have been scarce, while a better grade of Texans have largely taken their place. We

usually expect the largest ran of cattle from Illinois, but during the past week Texas has led off. Where this kind of cattle has been improved by the introduction of native bulls, the progeny is very much better. For the most part our markets have been rather tame and inactive, but the close is very firm, with an advance of more than 1/2c for the week. Appearances point to high prices for prime stock the coming winter. The late horse disease made quite a call for work oxen, and when well-matched pairs could be picked out of lots, they brought much more for work than for beef.

The prices of the past 5 weeks were:

Range. Large Sales. Aeer. Oct. 14. 7 @ 14 c. 8 @ 11 1/2 c. 11 c.

Milk Cows.

Receipts have been light of late, and the market has improved, milk itself advancing with the cool weather. Very few good cows are now sent to market, farmers preferring to keep them over. The prices are \$25 @ \$50 each for very ordinary to thinish cows of small size; \$60 @ \$75 for fair to good milkers, and \$80 @ \$85 for prime to extra large cows. Calves.—As cold weather comes on these are sent in dressed instead of alive, the transportation being less. Live calves are both scarce and high, while hog-dressed sell well. They are in quick demand just now. Quotations for live, \$6 @ \$11 each for grass-calves; \$8 @ \$11 for ordinary to prime milk-veals; 6c. @ 9c. for hog-dressed grass-calves, and 12c. @ 16c. for poor to fat milk-veals. Sheep and Lambs.—Now that most of the lambs are in, the receipts are lighter. The only variation in prices from the previous month is that a class of stock has been sent in from frosted pastures which were worth very little there, and still less here. Some of these scallawag sheep and lambs have been sold at \$1.75 @ \$2.25 each. White choice stock, both sheep and lambs, continue in good request, thin flocks move slowly. The quotations are: for sheep, 4 1/2c. @ 5 1/2c. for poor to medium, and 5 1/2c. @ 6 1/2c. for fair to choice, a few extras going at 7c. Lambs take the wide range of 6c. @ 7 1/2c. for mean to thinish lots, and 8c. @ 9c. for medium to extra. Swine.—These show quite a gain in point of numbers, and there is no decrease in prices, the demand running very large at present. Being cheaper than beef, there is always an increased call for fresh pork as soon as cold weather sets in. Many dressed hogs are being sent in from the surrounding country. Quotations of live hogs, 5 1/2c. @ 5 1/2c.; city-dressed Western, 6 1/2c. @ 7c. for heavy to medium, and 7 1/2c. @ 7 1/2c. for light. State and Jersey pigs sell at 8c. @ 9c., the latter price for those of less than 100 lbs. weight.

The New York College of Veterinary Surgeons.

The recently prevalent horse-disease has done at least some good, as it has called the attention of the public to the need of educated veterinary surgeons. We were quite surprised to read in a paper so generally well informed as the New York Tribune the following: "There ought to be an Academy of Veterinary Science, and all that concerns the treatment of that inestimable animal in sickness and in health should be the subject of study as methodical, as patient, and as accurate as that which is exacted by the College of Surgeons or the medical schools of France and Germany." Now, this is what we have had for years. The New York College of Veterinary Surgeons, on Lexington avenue, has an able corps of professors, and offers admirable facilities for a veterinary education, and we wonder that young men should in such numbers enter the already overcrowded medical profession while there is a demand in every community for skilled veterinarians. It is not too much to say that the prompt and constant labors of Drs. Liantard, Large, and others of the college did much to abate the fatality attending the recent horse epidemic.



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 Health 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 Volume Thirty are now ready. 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.

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.

Immigrant Laborers.—"E. T.," Mobile, asks where he can procure families of immigrants for farm laborers and to do housework. A vast number of persons would like to know this, ourselves included; but there are difficulties in the way which seem insuperable. Immigrants may be procured, but in almost every case which has come to our knowledge, either they don't know anything at all, or shoemakers or townspeople who don't know a cow from an ox happen to be gotten, or women perfectly helpless in a house, or if they are good for anything, many have not sufficient honesty to work out the money advanced for their passage, and leave as soon as they find a place where they can get higher wages. We see no help but in organized action of those interested to send an agent and procure the right sort of immigrants, and pay them on their arrival as much wages as they can get elsewhere.

The New York Weekly Tribune has long been an institution. As a record of news, as an exponent of progress in the various departments of science and industry, and as an index of current literature it has no equal among papers of its class. While its circulation is already enormous, the publishers take the proper means to increase it by setting forth its claims in our advertising columns.

Mr. Sisley's Pelargonium.

Since our announcement of Mr. Sisley's good fortune in obtaining a double white Pelargonium, Aline Sisley, persons have written him from this country in relation to it. Mr. S. is an amateur, and does not deal in plants. He has placed his stock of the double white and some other fine doubles in the hands of M. Alegatiere, Horticulteur, Lyons, who sends us a catalogue of prices.

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and other short items is four pages less than usual. To give the index upon an extra sheet would increase the weight of the paper beyond the proper limit. Fortunately, the questions at this season of the year are not generally pressing, and the large amount of Basket matter that we have in type will be as timely next month as it would be were we able to publish it now.

Read It Over.

After writing a letter read it over, at least sufficiently to be sure that you have given Post-office, State, and signature. One or all of these are sometimes omitted. Always date from your post-office, and not from "Home," "Pleasant Valley," "Prospect Hill," or any other local name.

Costly Pictures.

Some people estimate the value of pictures as they do land—viz., by the acre, or rather by the number of square feet they cover. Hence, large pictures, as a rule, command a high price. Those of cultivated tastes look more to the subject and its artistic execution, as well as to the reputation of the painter. Thus, at Mr. Belmont's sale, Nov. 12th, a painting, by Meyer von Bremen, of two children looking at their sleeping brother, sold for \$1,900. It is about the size of our American Agriculturist Chromo, and by the mass of people would be considered of little more value. Another painting, by Jean Louis Ernest Meissonier, of Paris, entitled the Cavalier awaiting an Audience, sold for \$6,050! Yet this is only about the size of the Hearth and Home chromo, and probably the majority of people would choose the latter as the more interesting of the two.

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Michigan Agricultural College.

This, the oldest, and in many respects the best of our agricultural colleges, sends us its catalogue, which indicates that the institution is enjoying a well-deserved prosperity. For information, address Richard Haigh, Jr., Sec'y, or Prof. T. C. Abbott, Pres't, Lansing, Mich.

Canada Queries.

A correspondent at Montreal, whose name we can not make out, asks if it would pay for him to plant an orchard. For this we must refer him to local experience. It is difficult to give lists of apples for a particular locality. Among the hardiest varieties are Red Astrachan, Sops of Wine, Duchess of Oldenburg, Early Joe, Tollman Sweet, Famense, St. Lawrence, Wagener, Pomme Gris, Golden Russet, and Northern Spy. Trees usually come into profitable bearing in 6 or 7 years. Stable manure, at "reasonable rates," is better for nearly all purposes than concentrated manures.

The California Vintage.

The circular of J. M. Curtis informs us that owing to the late cold spring and severe frosts in April, the vintage may be set down as fully twenty per cent less than the average.

Wire Fence.

A. Hance & Son, Monmouth Co., N. J., writes us of what they know of wire fences as follows: As to fence wire, we would advise, after a very satisfactory experience of twenty years, No. 8 annealed. One pound will measure fifteen feet. We use five strands for cattle, and use No. 7 for the middle strand; posts six feet apart, end post well braced and secured; wires tightened whenever required by a cheap apparatus similar to that used in cording a bedstead.

Smutty Wheat.

"Mrs. M. L. B.," Montana. Smutty wheat is not wholesome food for fowls nor for any other animal. Boiling might prevent injurious results.

Feeding Fowls.

"W. N. T.," wants to know how much corn would feed 500 fowls for one day, and if it would pay to keep fowls for eggs alone.—The allowance of grain is a quarter of a pint per day per fowl. If they have a good run, where they can get grass and insects, one bushel per head per year is a proper allowance. Our experience has been that fowls kept for eggs alone will not always pay, but when chickens are raised, the eggs pay expenses, and the chickens yield a good profit. But there must be tact and experience.

Management of Horses and Cattle.—Subscriber will find Allen's American Cattle and McClure's Diseases of Horses, Cattle, and Sheep valuable books to put in the hands of a manager of a stock-farm.

Corn-Stalks.—"J. F. P.," Fredericksburgh, Va., has 100 tons of corn-stalks; hitherto he has burned them, but is ashamed to confess it; now what can he do to avoid this waste?—No one should be ashamed to confess his faults, but confess, repent, and learn better. There is a better way which has been frequently pointed out by the *Agriculturist*, which is to cure them and feed them to stock. This may be done by throwing them to the cattle in a yard or pen, when the finer portions are eaten, and the rest trampled down into manure; or, which is far better, cutting them up, wetting and sprinkling them with bran or mill-feed, when they will be eaten up clean. Horses, cows, and oxen will eat and thrive upon such food, if the stalks are well cured.

We repeat, that no one is bound to notice a letter which has no proper signature. We also repeat that we never print a name when the writer indicates that he would not like to have us do so. Sign letters whatever you please, but give us also the real name and place if you expect us to attend to your requests.

About West Point.—In reply to "J. R. W.," Portland, Me., candidates for admission to West Point must be between the ages of 13 and 21. They should be prepared for examination in the ordinary branches of English education, preparatory mathematics, and United States history. Appointments are made one from each Senatorial district and ten at large. The course is five years, and appointments are made as vacancies occur. Inquiries as to vacancies, etc., should be made of the Senator from your district.

Plants Named.—"G. A.," Stanhope, Prince Edward Island. Your plant is *Sonchus arvensis*, or Field Sow-Thistle. It is one of the weeds introduced into the United States and Canada with grass and other field seeds sent from Europe. The plant is best eradicated by plowing the land in the fall, thoroughly harrowing it, and putting in some crop which requires careful cultivation; or the land may be allowed to remain idle during

the summer, and plowed and harrowed at least once a week during the season. . . . A. E. Treadway, Havre de Grace, Md. No. 1. is *Triosteum perfoliatum*, commonly known as Feverwort, or Horse Gentian; No. 2, *Euphorbia polygonifolia*, or Shore Spurge, a very common plant along the Atlantic coast. . . . "H. B.," Pleasant Green, Va. It is impossible to name grasses from leaves alone; either send them in flower, or with ripe seeds. Your other plant is a species of Aster, probably *Aster Tradescanti*. It is necessary to send the whole plant, or at least the flowers and root leaves, in order to determine asters accurately, as there are upwards of fifty species in the Northern States.

Agricultural Schools.—The general failure of the efforts to make agricultural colleges what they were designed to be, seems to have turned the ideas of private parties towards attempting something which may take the place intended for them, or at least do their work. We understand that Thomas Judd, a wealthy farmer of Illinois, has about completed arrangements for opening an industrial agricultural college, in which practical and scientific studies shall be open to young men and women. A farm of 160 acres of land will be attached to the college. Competition is said to be the life of business; it may also help our agricultural colleges.

The "Eternal Corn."—A highly intelligent lady who has a somewhat rare knowledge—for a lady—of stock and other agricultural matters, made use of this expression in a conversation with us the other day. It was an apt expression. Our corn crop has become so immense that the inquiry, What will we do with it? becomes exceedingly apropos. Corn is worth ten cents a bushel in the far West. At such a price it had been better not to have raised it, for there is no profit in it. But what shall we do about it? Feed it! is a general recommendation. And this, though at present in most cases impracticable, must at some time be done. How to do it must be studied out, and the way learned as soon as possible, for it won't do to raise corn to burn always.

The Bluffton (Mo.) Vineyards., established in 1867 by a stock company, under the direction of Mr. Hasmann, of Missouri, with some 1,500 acres of land, and many buildings and other improvements, which have cost over one hundred thousand dollars, have been sold lately under mortgage. The present owners now offer the entire property for rent for a long term of years. These lands are known to be very superior for grape and fruit-growing.

Chickens without a Mother.—"J. W. B.," Carlisle, Mass., is troubled with lice on his young chickens, and asks: Can chickens be taken from the hen as soon as hatched, and reared successfully? And if so, how?—There is but little difficulty in hatching chickens artificially, but the trouble begins when it is undertaken to rear the brood. Our correspondent had better get rid of the lice, and leave his chicks with their mother. Sprinkle the nest freely with sulphur, and give the hen herself a dusting two or three times during her sitting.

How to Get Early Clover.—Top-dress it with manure in the fall. It would have been better earlier, but may yet be done. The manure protects the plants and enriches them at the same time.

How many Rows on an Ear of corn?—"E. N. H.," asks what is the largest number of rows of corn on an ear we have seen or know of.—We have raised corn with 32 rows on an ear, but believe we have heard of more. Have any of our readers?

No Milk.—"S. T.," Morrilstown, has a young Alderney cow, with her second calf, which has no milk. With her first calf, she gave bloody milk out of one teat, and dried up in two months. He thinks this is an unusual case, and asks if she would be likely to milk if she had another calf. We never met with so bad a case, in a cow at least, and fear that she would never be worth keeping. Can any one advise him what to do?

How to Renovate an Old Apple Orchard without Plowing.—We have only space to answer this question briefly. Prune judiciously, and manure heavily. Do not put the manure round the trunks of the trees, but spread it all over the ground. Ashes, leached or unleached, are excellent; so is lime or bone-dust. But superphosphate and nitrate of soda would probably act quicker than any other application.

The Cotton States Association Fair.—The Cotton States Association comprises some of the most active business men in Augusta, Ga., and vicinity. It has near the beautiful city of Augusta ample grounds, which are well arranged and tastefully orna-

mented, and offer every facility to exhibitors and spectators. Its fair was held in October last, but as the weather was adverse, the result was a pecuniary loss. There were many interesting things exhibited, and though some departments were less full than usual, the show of stock was remarkably fine. Some animals exhibited by A. B. Allen & Co., and by Wm. Crozier, both from New York, attracted much attention. The Brahmin cattle, both pure and grade, shown by Mr. Peters, were among the novelties. Of fruit there was a most meager display, but Floral Hall was made attractive by the abundant and tastefully arranged contributions of the President, Mr. P. J. Berckmans. The Association did everything to deserve success, some of the most prominent business men giving their whole time and personal attention to the different departments. We hope that another season fairer skies and a more abundant attendance of both exhibitors and visitors will reward the efforts of the courteous officers.

"PATENT MEDICINES."—Recipe for Getting Rich: Get from the medical dispensaries, or elsewhere, any simple stimulating compound or tonic, or take cheap whiskey and color it, adding any cheap stuff to give it a medicinal taste. Adopt any name you choose, the more nonsensical or mysterious the better—one having an Indian, or Japanese, or Turkish sound will be all the better. Employ the glass-blower, or printer, or both, to get up fanciful bottles, or boxes, or labels. Look out that the package, contents included, don't cost over 5 to 8 cents. Assume for yourself a name, as near that of some noted physician as you dare go, and add to the end of it M.D., F.R.S., D.M.D., etc., etc. Write a long story about your great age, experience, and success abroad. Invent 50 to 100 or 1,000 wonderful cures wrought by your medicines, giving names in full, with residences, date, etc., but be careful to not blunder into giving any real name of any person living in the same place. (An improvement is to refer specially to one or two persons, and have an ally at the place, to receive letters of inquiry, and write false letters confirming the story you tell of their being cured.) If you connect with your medicine a touching story about some old mythical person, or Indian, or South American, all the better. These matters arranged, advertise your medicines largely. Print and scatter circulars, pamphlets, and pictures by the ton. Call for agents, and let them give away samples of your medicine, to be paid for if it does good. You may begin in a small way with a few hundred dollars (printing is cheap now), but five or ten thousand dollars or more will make a more brilliant show, and produce large proportional returns. **Result.**—You will reach a multitude of weak, nervous, ignorant people who are slightly ailing, or think they are. They will take your stimulating or tonic preparations, and "feel better" right away. They will believe they have escaped or been cured of some terrible disease (the symptoms of which you should take good care to set forth vividly in your circulars). Henceforth, you have not only a regular customer, but one who will sign your certificates of cure as strong as you can write them, and who will talk up the wonderful virtues of your medicines to others. A dozen of your bottles or packages, costing you less than a dollar for the whole, if given away in any neighborhood, will find you one or two ardent customers, and thenceforth you may depend upon the annual sale of a hundred bottles or parcels, at \$1, \$2, or \$3 each—the price to depend upon the skill you use (or buy of some penny-a-liner) in writing up the medicines. The druggist of the town, as your "agent," will of course help scatter the medicine if you give a liberal profit. If you set aside three quarters of the receipts to cover cost of bottles, advertising, commissions to retailers or agents, etc., you will still have a net profit of say \$50 a year from each town where your medicine is well introduced. If you only secure 1,000 such towns in the whole country, you still get the modest income of \$50,000 a year! Do you ask, "Is this all true?" We answer, that **this is a fair history of the patent-medicine business**—with the variations of pills which give relief to some cases, and opiates which under the name of soothing syrups, etc., give quiet to young and old babies at the expense of future health. We have several other recipes in reserve to give.

SUNDRY HUMBUGS.—Our newer readers keep inquiring about the trustworthiness of this, that, and the other doctor for various diseases. We answer, that every so-called physician, every medical institute, or college, or association that advertises medicines or medical advice, by circular or otherwise, is a quack—in short, a swindle. The whole tribe of those who advertise "marriage guides," "female medicines," "advice to the young," "errors of youth," "eye doctors," "ear doctors," "consumption-curers," "cancer doctors or medicines," etc., etc., are positively quacks and impostors, to whom it is unsafe to address even a letter of inquiry. . . . A lot

of letters from various places in Texas show that the quack Dr. F. E. Andrews, of Lexington avenue N. Y., alias Albany, N. Y., is just now vigorously operating in that State with his humbugs, his "Good Samaritan," "American College of Health," etc., etc. "Dr. H. M. Brown," of Albany, N. Y., may be Andrews under another name, or a brother quack. Let them both alone, and burn all their circulars that are thrust into your hands. Five hundred letters of commendation will not whitewash "Rev. Edward Wilson" into anything less than an old swindler. The "Golden Remedies," inquired about by several, are nonsensical quackery. Our Hamburg Drawer for this month contains 43 different names of swindlers. The "363 Lottery of the Free City of Hamburg" is a swindle, at least so far as any agency in the U. S. is concerned. The "N. Y. Loan Brokers' Union," R. H. Lewis, manager, 4 Bond street, N. Y., is a humbug, as before stated. Pardee, of Binghamton, N. Y., was still selling his humbug tickets, etc., as late as October 23d. Why don't the good people of Binghamton drive this nuisance out of their midst? They are in danger of getting as had a reputation as New York. Don't be humbugged into sending money for watches to any but well-known, reputable parties. A large share of that sent to our large cities in answer to circulars is never heard of again, and so much of it as is heard from is poorly recompensed. The stories about falling firms, etc., etc., is all humbug. Good watches, like good gold coin, never go begging customers at half-price. No decent person of common sense will give the slightest heed to the circulars of C. Sheldon & Co., Hohoken, N. J., or any one of his class who pretend to be such great friends to the married and inferentially, to the vicious unmarried. To T. E., of Pennsylvania, and others: These various eye-doctors, eye-sight restorers, etc., are merely advertisers of cheap spectacles. Go to the nearest village, and you can try and be fitted with glasses every way as good, at a quarter of the cost, and with more certainty. We are tired of chasing up every advertising swindle of this kind after having looked into merits of a score or more of them, and find them all *de-merits*. To E. H. M., New York: No circular was inclosed. The syrup is doubtless quackery. The swindling fraternity have, in one way and another, got the P. O. address of most persons in the U. S. They sell and "swap" lists of these names among themselves and with quack-doctors, etc. The "Queer" or "Sawdust" swindlers are brisk at work, adopting a great variety of names to deceive the P. O. people, who try to keep letters from those known or believed to be cheats. The fellow operating in this line sends out, among others, the following names as his address: At 34 *Amity street*, N. Y.—H. L. Barnard; K. P. Douglass; Geo. Savory; L. F. Harness; M. L. Keiley; N. L. Werner; F. H. Park; L. P. Benchley; H. J. Keane; Chas. W. Young; K. G. Pott; H. W. Elston; E. S. Hale; L. F. Stark; Elbert Putnam; G. E. Starkevaut; F. P. Walters; G. L. Demey; Ben. L. Crowe, at 609 Broadway.—Col. James Warlow; Thos. Jackson; E. C. Catlin; Otis T. Bengor; S. W. Westervelt; K. M. Walters; Isaac S. Lewis; Edwin Virgil; Arthur Debenham, 190 Broadway. Also Reid, Delafeld & Co., 88 Broadway, N. Y., and New Haven, Ct.; David W. Coles, 357 3d ave.; Myron F. Brittle & Co., 30 Bond st.; W. H. Malcolm, 63 4th ave., etc., etc. All the above use essentially the same circulars. We have not room for a lot more of humbugs on hand, but will renew the war upon them in the next volume, and, as hitherto, we expect to shield at least all our readers from swindlers, and through them many other people.

Parsnip Seed.—"C. C. M." Leave the roots in the ground until spring, then dig. Select the best, and set them out to bear seed. If there are wild parsnips in the neighborhood, there is danger that they will cross with the cultivated ones, and deteriorate the seed. This may have been the cause of your trouble.

Evergreen-Trees from the Woods.—W. Oldfield, Canada. Evergreens from the woods need care the first year. Take them up and set them in rows close together, and put over a rough shelter—a rail plat form, covered with boughs, and a foot or two above the trees, will answer. Those that survive a season under this treatment, may be set out the next year, and be quite sure to live. You can judge whether it would be cheaper for you to take this trouble, or to purchase trees at the price named.

Cannas.—"L. A. G." Vernon, N. Y. The roots should be dug before the stems are fairly cut down by frost. When the stems are subjected to hard frost, the roots soon decay. We find that the roots do not keep well in the cellar, and shall try them in a drier place.

Borers.—"J. K. B." We doubt the efficacy of any external application after the borer has entered

the tree. They may be of use, at the proper season, to prevent the deposition of eggs. Remove the earth around the base of the trees, and search for the holes. Often they may be cut out with a knife, but if they have entered too deeply, a wire-probe must be used. Sometimes it is necessary to cut the wood away with a gouge, before the grub is reached, but the cutting will not be equal in injury to that done by the borer. Well-rotted stable manure, ashes, or lime are best manures.

Ground-Vinery.—"W. O.," Quebec. We do not know of any one who has tried to grow exotic grapes in ground-vineries so far north, but we think the probabilities are in favor of success. We figured the ground-vinery in June, 1866.

Vinegar Eels.—"H. L. D.," Oswego, N. Y. The so-called eels are worms, and are called by naturalists *Anguillula aceti*. There are several species, some being found in vinegar, some in porter and other fermented liquors, and others in wet moss and moist earth. The only way that we know of, to get rid of them, is to heat the vinegar to the boiling point, but it is not likely that this will prevent others from breeding after a while. The manner of the production and reproduction of low forms of animal life related to these vinegar eels is a subject of scientific controversy, and one too wide for our limits.

Peaches for Canada.—"W. O.," Quebec. Probably no variety of peach will endure your winters, no matter how well protected by evergreens. When the mercury goes 12° below zero, the fruit buds are usually destroyed. You can grow peaches in boxes or tubs, and remove them to the cellar in winter. We can not answer the other question.

Spreading Manure.—"J. C.," Ridgway, Minn., asks if it is best to spread manure direct from the wagon in the fall of the year for plowing in for corn, or let it lie in heaps.—Don't by any means let it lie in heaps, but spread direct from the wagon. It saves labor, and the ground is more equally fertilized.

Cross-Harrowing.—"M. B.," Brush Valley, Pa., sends us a method by which he cross-harrowed his field with only half as much turning of the team as by the usual method. He commenced at one corner and crossed the field diagonally to the opposite corner, turned to the left and returned, then turned at right angles until he reached the edge of the field at his left hand, then returned alongside of his first stroke to the end of it, then turned at right angles until he reached the fence at his left hand again, and so on, going continually round the field diagonally, when he finished at a corner, and the ground had been passed over twice and no hoof-marks were left on the field.

Cord-wood Sticks for Hay.—Those Northern farmers who put sixty pounds of wood in the bales of hay sent to Texas, which the Texan planters think not so kind treatment as they might naturally be led to expect, should remember that though such conduct may be profitable, it is not neighborly.

Lolling of the Tongue.—"L. W. W.," Defiance Co., Ohio, informs "O. C. S." how to cure a horse that carries his tongue out—viz.: Rivet a section of a knife from a mowing-machine on his bit; dull the edges, and make everything smooth. The knife running up in his mouth prevents him from drawing his tongue far enough back to get it over the bit. Carelessness in breaking colts is the cause of it. He has just finished breaking a colt that had this habit. He broke him by taking a strong rubber tape, sewing a buckle on one end, and running it through the rings in the bit and over his nose, tight enough to hold the bit up against the roof of his mouth. He thinks the rubber would not cure an old horse of the habit, although he never tried it; but the knife will prevent it as long as it is used.

Houdan Fowls.—"An Old Subscriber" asks if Houdan fowls have muffs in front of the neck as shown in the illustration of a trio in the *Agriculturist* of March, 1871.—This is indispensable in pure-bred fowls.

Sundry Questions.—"Wm. T. O.," Buncumbe Co., N. C., asks as follows—viz.: 1st. What is the difference in value between leached and unleached wood-ashes on a wheat crop? 2d. What is the best way of reducing bones to fine dust where there is no bone-mill? 3d. Is not \$20 per ton sufficient freight on fertilizers for 1,000 miles? 4th. What is the best and cheapest way, and what is the cost, of transporting a mare from Liverpool to North Carolina? 5th. What is the cost of a good drill to sow seeds and fertilizers at the same time? 6th. What is the chemical operation of burnt clay used as a manure for turnips? 7th. What is the rate of import

duty on English farm implements, new or second-hand?—Replies: 1st. Unleached are worth double the leached. 2d. There is no ready way. 3d. If they could be carried in bulk in large quantities. Yes; if not, No. 4th. By steamer to New York, thence by steamer to Wilmington, N. C. The passage costs from \$55, gold, upwards, with fare of attendant, \$80, and feed additional; total, probably not less than \$200, gold, if not more. 5th \$90. 6th. Potash is released and rendered soluble. 7th. Forty per cent *ad valorem*.

Question for Decision.—"J. D. H." asks the following question: At an agricultural fair a premium is offered for the "best coop of chickens, not less than three varieties, and three of each." The only coop on the ground that contained three fowls of each of three varieties was one with five light Brahmas, four dark Brahmas, and three half-bred Houdans. Was this coop entitled to the premium?—We should say it was, unless the judges, as they sometimes do, reserved the right to refuse a premium when in their opinion the specimens exhibited are unworthy. But unless this is expressly declared and understood, it leads to dissatisfaction and ill-feeling, which should be avoided.

Crushing Bones.—"Wm. A.," Gainesville, Va., wants to know all about crushing and reducing bones for manure, and if a two-horse railway power is sufficient to run a bone-mill.—There was a crusher figured in the *Agriculturist* of November, 1871, which could be run by such a power if the number of stamps were reduced to two or three. The ordinary bone-mills require five-horse power to run them. The methods of reducing bones with sulphuric acid or with alkalis have been so often described that almost any back number of the *Agriculturist* contains one or other equally effective method.

How to Manage a Lot of Calves.—"Young Farmer" has a lot of yearlings, which he wants to feed as cheaply as possible on corn-stalks and corn. He wants information on the subject.—We once fed twenty-four head of calves and yearlings in the following manner: A shed, fifty feet long, was furnished with a feeding trough to which access could be had from the front. The trough was divided into partitions, so that the animals could not crowd each other, and each had a feeding place from which it could not be ejected by the others. Corn-stalks were cut and wetted and mixed with corn-meal and wheat-bran, ground together in equal parts, and salted; and half a bushel per head was fed twice a day. Each animal had two quarts per day of the meal and bran. Plenty of straw was thrown into the shed, and none removed until spring, when there was three feet in depth of well-rotted manure which had not frozen at all, taken out, and which paid for all the feed the calves consumed. Regular currying, and exercise in the yard through the day when they wished, kept them in good health. We know of no better plan.

Books Received.

The Polytechnic and The Athenaeum are both new collections of music, the first containing selections for schools, and the other part-songs for female voices. J. W. Schermerhorn & Co. \$1.25 each.

Object-teaching Aids. J. W. Schermerhorn & Co., New York, send a catalogue of a great number of curious and useful appliances for the instruction of children.

Monteith's Comprehensive Geography. A. S. Barnes & Co. send us a copy of this new school-book, which has much to commend it to teacher- and others.

Hobbs's Architecture. by Isaac H. Hobbs & Sen. Lippincott & Co., Philadelphia. A handsome volume, containing a large number of designs in various styles of architecture. It will be found useful to architects and those who intend to build.

Dick's Encyclopedia of Practical Receipts. by William B. Dick, published by Dick & Fitzgerald. This is a compilation of over 6,000 receipts or recipes, covering every branch of art. The value of such a work, like that of a dictionary, can only be ascertained from actual use. The contents seem to be carefully classified, and to be obtained from the best sources, and the whole is presented in a handsome volume of 607 pages.

The Independent Child's Speller. A juvenile book, which teaches a child to spell by the use of script, or writing letters, which allows writing to be taught with spelling. A. S. Barnes & Co. 25c ms.

The Constitution of the United States, with a concordance and classified index. This seems to be a most carefully prepared and useful work. The index allows reference to be readily made to any article or section. The author is Charles W. Stearns, M.D. Published by Mason, Baker & Pratt, New York.

Trapping the Fox.—The article on page 451 was sent us by a correspondent whose name we have lost. He promises us other articles, and we shall be glad to hear from him.

"I find Three Papers enough."—So says one who is fortunately able to supply himself with as many as three newspapers. "I take my religious paper, for of course everybody wants to read about the work of his own denomination; and my local paper, for who wouldn't patronize that? and the *American Agriculturist*, for I must have that, sure. And I find three papers enough."—We commend our friend's selection.

Steaming Food.—"R. W. B.," St. Louis, Mo., says he keeps 1 horse, 2 cows, and 100 hens, and asks what is the best plan of steaming food for them.—We would not steam at all. It will not pay for such a small stock. If thought desirable to cook the food, we would pour boiling-hot water on the chopped hay or straw, and cover it up tight for a few hours. The simplest way to cook meal is to boil the water, and then, while it is still boiling on the fire, stir in the meal, gradually, a little at a time, and let it boil until it is well cooked and converted into pudding.

How to Make Ten Acres Pay.—"R. W. B.," who asks about steaming, also says: "I do business in the city, and live about 10 miles out on a railroad, and am trying desperately hard to make my place of ten acres pay part of my family expenses, but have not had much encouragement yet."—We do not think steaming food for your small stock will help matters. Food is much cheaper than labor. Better devote the time and labor to making the land clean, rich, and highly productive. As a rule, a man can not do business in the city, and carry on a farm or market-garden to advantage at the same time.

The Report of the Department of Agriculture for October contains the usual crop statistics, but these fall into insignificance by the side of an article by the Commissioner himself, upon the "Cultivation and Hybridization of Wheat." The profundity of the physiological knowledge there displayed would amaze us, were we not blinded by the dazzling brilliancy of the style in which it is conveyed. We at home expect nothing better, but what most scientific men abroad think of such stuff as this in an official document? The chemist tells us about zinc tree-labels, written upon with a copper solution, which may be new to him, though not to others. The microscopist informs us that, when weeds and brushwood are burned, "caustic potash" is liberated. Then there is an account of Prussian experiments in crossing the Zebu or Brahmin cattle upon European stock. The Department does not seem to be aware that such crosses were made in this country years ago, and that grades are still being raised which are highly valued. The Prussian account, allowed to pass without comment, would give the reader an impression that the grades were nearly worthless. But this is a wonderful Department.

A Dry Well.—"J. M. S.," Yonkers, has a well run dry for the first time; what shall he do with it?—Dig it deeper; this is the best season for doing it. Put a wooden curb inside the stone-work, and wedge it tight. Dig the new well of a diameter equal to the lining of the old well until water is reached, when it should be stoned up a foot or two higher than the old bottom. The curb should be removed as soon as the new lining reaches it. It is not probable that the water will fall again.

Pumping by "Clock-Work."—"L.," Brooklyn, Ct., asks if there is any machine of half or a whole horse-power, that could be wound up by a horse, and that would saw wood or pump water or cut feed.—Such a thing is impracticable, for the reason that no power is absolutely gained by employing machinery, and a horse-power would require a horse constantly working to keep it in motion. If power is to be stored up, as in "clock-work," by elevating weights quickly, to run down slowly, it would take 10 horses working one hour to make one horse-power for ten hours, to say nothing of the power lost by friction, so that no gain is made, except in time only. A boy with a taste for mechanics might use clock-work to churn with, for amusement, but for practical use it will "cost more than it comes to."

To Kill Moss on Fruit-Trees.—There is nothing better than carbolic soap and lye. We have used it on apple, pear, peach, and cherry trees with manifest advantage. It will kill every particle of moss or parasitic growth of any kind that it touches. Apply it at any time. Lye alone will answer, but we prefer to add carbolic soap to it. The lye need not be so strong. The poorest soft-wood ashes will answer for making the leach. We use the lye simply as we would water to dis-

solve the carbolic soap—say half a pound of soap to a three-gallon pail of boiling lye. It may be applied to the trunks of old trees while holling-hot. Use a swab or a large paint-brush. Go over the trunk and all the large branches. It will kill the eggs and larvae of insects as well as the moss, and will greatly improve the appearance of the trees. Try it.

Poll-Evil.—"C. F. K.," St. Joe, Mo., wants a remedy for poll-evil in a young mare.—Apply a poultice of linseed-meal or boiled carrots to the tumor until it suppurates, when it should be washed often with a solution of one dram of chloride of zinc in a quart of water until it heals. It is sometimes necessary to use the knife, but this is unsafe in unpracticed hands. A cloth dipped in tar should be kept over the wound, and a breast-strap should be used instead of a collar.

Feeding Pigs and Poultry on House Refuse.—In reference to an article in regard to feeding pigs on city swill, which appeared recently in the *Agriculturist*, a correspondent at Philadelphia suggests that it might be more profitable to feed it to poultry. Probably the better plan would be to keep both pigs and poultry. In Philadelphia he says there are several parties who do nothing else but collect swill and feed hogs, some to the number of several hundred, and the pork is sold in market at as high a price, and gives as good satisfaction, as any other.

Several Questions.—"Is old plaster as good as that freshly ground?"—There is a very general opinion that it is not. There is no chemical change, and we believe it is just as good, provided it is kept dry and does not adhere together in lumps. "Is salt a valuable manure?"—Sometimes it has a wonderful effect on wheat and barley, and, when cheap, is well worth experimenting with. It is generally beneficial on mangel-wurzel. Average quantity, four to five bushels per acre, sown broadcast. "Is it well to mix salt with guano?"—If salt is cheap, Yes—say 200 lbs. ammoniacal guano and 100 lbs. salt per acre. "Is nitrate of soda as good as nitrate of potash?"—No; but it is far cheaper, and better in proportion to cost.

Water in Turnips and other Roots.—When fresh from the field, common white turnips (the bulbs) contain about 94 per cent of water; Aberdeens, 92 per cent; ruta-bagas, 90 per cent, and mangel-wurzel, 88 per cent. The amount varies somewhat, according to the rapidity of growth, size, etc., but the above figures are not far from the average when these roots are growing in the field or are in a fresh state. After they have been gathered and exposed for some time, they may contain one or two per cent less.

Price of Pure Cotswold Sheep.—A gentleman in Pennsylvania complains of the high prices asked for thorough-bred Cotswold sheep by some of the breeders who advertise in the *American Agriculturist*. He says: "I am asked \$50 for a good ram, and yet two years ago I bought a good one, direct from Canada, for \$25, and will now sell him for \$15. I can only get from \$8 to \$10 for yearling rams."—That may well be. A sheep "direct from Canada," no matter how good he might appear to be, would, in all probability, be at best only a grade, and would be dear at \$25. There are very few breeders of pure animals either in England, Canada, or the United States. What our correspondent wants is a ram "direct" from a responsible breeder, and not from Canada or elsewhere. Fifty dollars is quite a reasonable price for a good, thorough-bred Cotswold ram. Our correspondent would smile to hear a Canadian say he got a Chester White pig direct from Pennsylvania.

Sowing Plaster in the Winter.—When plaster is cheap and the mill is a considerable distance from the farm, and you have no convenient place to stow away the plaster, it is a good plan to draw it in the winter and sow it on the clover at once. If there is not too much snow on the land this can easily be done. Our own plan is to put a boy to drive, and a man on each side the wagon-box, and one behind, and scatter the plaster with a free hand as the horses walk along. We sow two to three bushels per acre. A little of the plaster may be carried off by the melting snow in spring, or blown to the fences with the drifting snow, but not enough to occasion any serious loss. And it is certainly a great convenience to draw plaster on a sleigh rather than in the spring, when the roads are almost impassable, and the fields so soft that you can not take a team on to them without injury.

Lice on Dogs.—Our young farmer friend Harmon, of Ogden, N. Y., who reads the *Agriculturist* and believes in it, is in trouble, and thinks we can help him. He has a valuable and favorite shepherd dog that has had

the distemper, and is now troubled with lice. He wants to know how to kill them. Nothing is easier. Get some carbolic soap and dissolve quarter of a pound in a gallon of boiling soft water, and when cool enough to bear the hands in, wash the dog all over with it. Put on some old clothes, get a sponge, and make a thorough job of it, wetting every part of the dog, and rubbing it into the hair. If the work is well done one dressing will kill all the lice, but if after three or four days any lice are found on the dog, wash him again. This is a far better and safer remedy than mercurial ointment.

White Wire-Work.—The useful and ingenious articles made of white wire, described last month on page 425, are made by Woods, Sherwood & Co., Lowell, Mass., who have a patent for the process. As in the article referred to, it was mentioned that the French make articles beautiful in form of comparatively cheap materials, some have inferred that the wire-work was of foreign origin. It is due to Messrs. W. S. & Co. to say that the manufacture is a purely American one, and instead of being imported large quantities of the goods are sent abroad.

Fine Fruit.—The collections of apples and pears from Ellwanger & Barry, Rochester, N. Y., have formed an attractive feature at many of the fall fairs. Messrs. E. & B. not only raise fine trees, but large quantities of fruit of a perfection of form and beauty of color and bloom not often seen at exhibitions. That the beauty of the fruit is more than skin-deep we can attest, having received some samples sent to convince us of the same.

Painting Implements and Machines.—We know of nothing so cheap and so easily applied as crude petroleum. Put on all the wood will absorb. Cover the whole implement or machine with it—wood and iron both. It will keep the iron from rusting. Do not mix anything with it. If you prefer to use a paint, you can get it ready for use at the painter's. Give it time to dry.

Best Food for a Young Pig.—"A. R." There is nothing better than fresh skimmed milk and cooked corn-meal. Stir the hot corn-pudding into the milk, and feed warm, but be careful that the pudding is well broken up and mixed with the milk, so that there shall be no lumps or balls of hot pudding to scald the pig.

Chip Manure.—The chips themselves are worth little or nothing for manure. Better rake them out and burn them. The finer particles are good to spread on the grass in an apple orchard, or it may be used as mulch. We are afraid to use chip manure about pear-trees, as it favors the growth of fungus.

How to Keep Cider Sweet.—A correspondent says: Use only sound apples. Make the cider when the weather is almost cold enough to freeze the apples. Expose the cider during freezing weather, and stir it till the whole of it is reduced as near the freezing point as possible without freezing. Then barrel it, bung up tight, and place it in a cellar kept nearly down to the freezing point. As long as you can keep it cold enough it will not ferment, and as long as it does not ferment it will remain sweet.

What Roots to Feed First.—The White Strap-leaved turnip and similar varieties should be fed first, then such kinds as the Yellow Aberdeen. The different varieties of Swede turnip or ruta-bagas should not be fed until after the former kinds are gone. They are in their prime from February to April. Mangel-wurzel and other beets should be reserved to the last.

Bean Straw.—If well-cured and free from mildew, the pods and leaves of bean straw make excellent fodder for sheep and cows. If you have only a little bean straw do not feed it all out at once, but reserve it to feed occasionally, by way of a change.

A New Agricultural Implement House.—Mr. George W. Carr and Mr. J. W. Hobson, for a long time with R. H. Allen & Co., have established the firm of Carr & Hobson, for the purpose of carrying on the agricultural implement business at 56 Beckman st.

Christmas-Tree Rosettes.—There are several devices for decorating Christmas trees, and none prettier than these rosettes. By ingenious combinations of brilliant-colored papers and exceedingly neat workmanship, a very pleasing and ornamental effect is produced, and more cheaply than by most other decorations.

Your Subscription Expires NOW

(unless you have recently renewed it for 1873, or chance to be among the few whose time runs over into next year, of which fact you will be cognizant, without any personal notice from the Publishers).

PLEASE RENEW AT ONCE,

For the following Reasons:

1st.—You will have an early place on the list of those receiving the Splendid Pictures, which are sent out strictly in the order the names have been received.

2d.—If the subscriptions for 1873 are sent in the first week in December, it will greatly assist the Publishers in getting the names carefully and systematically upon the mail-books, without calling in additional inexperienced clerks, so that the January number can be mailed promptly before the Holidays.

3d.—It will take no more time to attend to renewing to-day, than will be required next week or next month.

4th.—The American Agriculturist for 1873 (Vol. XXXII) will in many respects be superior to any previous volume—in engravings, in useful and interesting reading matter, etc.—for all classes.

5th.—Please invite your neighbors to join you in taking the paper. Tell them about the beautiful picture given to each subscriber. See next column.

6th.—If you have German friends, or neighbors, or workmen, please let them know that the American Agriculturist is printed in German also, with the same illustrations, the more important reading matter, etc., besides a Special German Department by Hon. Frederick Münch, of Missouri, and that the German edition is furnished at the same rates, single and club, as the English edition.

7th.—NOW is the best time to renew your subscription for 1873.

Free.

A MOST BEAUTIFUL CHROMO

Richly worth Ten Dollars; A Perfect Copy of an Original \$400 Painting, by B. F. Reinhart, entitled "Mischief Brewing,"

PRESENTED

To Every Subscriber to the American Agriculturist for 1873.

A Splendid Ornament for every Home.

The above fine gift is completed, and is being supplied as fast as they can be worked (about 5,000 a week), to subscribers in the order the names have been received for 1873. It is a beautiful ornament that will greatly please everybody. It is printed in 16 colors, which give the exact shading of the original painting, so perfectly that it is just as good for all practical purposes, and few persons can tell the copy from the original. The last printing gives a canvas impression so perfectly that the Chromo has all the appearance of an oil painting on canvas.

The cost of putting this on 16 stones has been large, but this being done, by printing 200,000 copies, the Publishers are able to present a copy to every subscriber for 1873. It is a perfect Gem, 11 by 13 inches inside the frame.

The Picture will be given to every subscriber for 1873 (new or old), whether coming singly at \$1.50 each, or in Clubs of Four for \$5, or Clubs of Ten at \$1.20 each, or in Clubs of Twenty or more at \$1 each. Subscribers in Premium Clubs will also be entitled to it. Any and every subscriber for all of 1873, whenever received, will be entitled to this picture, on remitting the 25 cents to pay for mounting, packing, and postage. The picture will be delivered at the Office, unmounted, free of charge, or if mounted, for 15 cents extra. If to go by mail, unmounted, 10 cents must be sent to cover cost of packing and postage.

It will be mounted on heavy binder's-board, and Varnished, ready for use, even without any frame, or for putting into a frame, for 15 cents extra—that is, for 25 cents it will be Mounted, Varnished, Packed, and sent Post-paid to subscribers for 1873 only.

N. B.—The American Agriculturist Chromo will be delivered:

- At the Office, Unmounted, Free.
" " " Mounted, 15 cents extra.
Sent by Mail, Unmounted, 10 cents extra.
" " " Mounted, 25 cents extra.

We advise all to have them mounted before leaving the office, as in the large quantities we put up, we are able to mount them for

a quarter of the cost of doing it singly, and better than it can usually be done elsewhere.

GET The CHROMO By EXPRESS.

While we can mail the Chromo put up in extra pasteboard cases with safety, it will be better where half a dozen or more go to the same place to have them put in one parcel and sent by express, one person receiving the package and distributing them to others. The cost to each will seldom be more than the postage (10 cents each), and where there are large clubs, the express charges will amount to only a few cents each. Where this is done, only the 15 cents for Mounting will be required.

Hearth and Home

And Its Beautiful

FREE CHROMO.

READ THIS.

While the old American Agriculturist is their "first and best love," as it has been for many years past, and while it will still continue to receive the most earnest attention and care of the Publishers, they are, in addition to this, in conjunction with an able corps of assistants, supplying in HEARTH AND HOME a first-class Weekly Journal, entirely different from the American Agriculturist. It is beautifully Illustrated, and filled with a high order of useful and interesting reading matter for all classes, including a special department for HOUSE-KEEPERS, and a most entertaining, instructive CHILDREN'S Department, filling two Illustrated pages or more, and which in its extent and quality stands unrivaled, and forms a distinctive feature of HEARTH AND HOME. (This is under the special care of Mrs. Mary E. Mapes Dodge, the authoress of "Hans Brinker," etc., and one of the most popular writers of the time.) That the Publishers are meeting a public want is evidenced by the fact that HEARTH AND HOME has already risen to a circulation equaled by very few other Weekly Journals in the entire country, and it has for some time past increased more than twice as fast as at any previous period—and this, too, in the midst of the absorbing presidential campaign.

Edward Eggleston, whose American Stories of the "Hoosier School-Master" and "The End of the World" have been so popular that tens of thousands of copies in book form have been demanded by the public, has a New American Story far advanced, the first chapters of which will appear in HEARTH AND HOME the first of this month (December), and be continued in that Journal. It promises to far surpass Mr. Eggleston's previous popular stories. It is founded on facts, and its scene is laid in one of the newer North-western States, during the Immigration fever and Land Speculation of a dozen years ago, and aptly illustrates Western life and society in some of its striking phases.—It will be finely Illustrated.

But, while HEARTH AND HOME itself, as large, valuable, and as finely Illustrated as it is, is supplied at the low rate of \$3 a year, the Publishers are

happy to announce that they will have the pleasure of presenting to Every Subscriber for 1873 a most beautiful and artistic copy of a large, CHARMING PAINTING, which is every way equal to the European copies sold for \$20 GOLD, each. (Those happening near the Office are invited to call and see the picture.) It will be a most beautiful Ornament for Every Home. The two Chromos supplied with the *American Agriculturist* and HEARTH AND HOME will not only give great pleasure, but they will be more ornamental to every dwelling containing them than many Oil Paintings which have cost Hundreds of Dollars. Yet \$4 pays for both Journals from now to January 1st, 1874, including both Chromos. All new subscribers to HEARTH AND HOME for 1873 arriving early in December will receive the remaining numbers of that Journal for this year, including the first chapters of Edward Eggleston's New Story, without extra charge.

The HEARTH AND HOME Chromo will be delivered at the office free of charge, beginning some time this month, in the order in which subscriptions have been received for 1873. If to be sent by mail, unmounted, 20 cents will be required for packing and postage. It will be carefully Mounted on strong Binder's Board, and Varnished, ready for use with or without a frame, for 30 cents. We repeat: HEARTH AND HOME Chromo will be delivered

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 If sent by mail, **Unmounted**,.....20 cents extra.
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We advise all to have them mounted before leaving the office, as in large quantities we are able to have them mounted for a quarter of the cost of doing it singly, and better than usually done elsewhere.

Wherever practicable, it is best to have the Chromos mounted at the office, and then have them go by EXPRESS. If several persons unite and have all their Chromos sent in an express parcel to one of their number, they will save the 20 cents postage, as the cost by express will be but a few cents each, depending upon the number that go to one place; and pictures of this size ought to go by Express whenever convenient.

Worthy of Everybody's Attention.

The fine Premiums offered on page 469 are well worth looking into. Over 14,000 Persons in all parts of this country, in British America, in Australia, in the Sandwich Islands, in South Africa, and elsewhere, have each obtained one or more of these valuable articles, with little trouble, by simply collecting a list of subscribers. This has been done by many Children, by many men in all pursuits and professions, and by a large number of Ladies. See "A Good Paying Business," on page 468.

A GOOD HOLIDAY PRESENT

for your wife, or your best friend, will be easily obtained by collecting at once a club of subscribers, and thus securing a desired article from the Premium List on page 469. Hundreds have done this annually for many years past.

\$66.67 to \$100.00 worth of Engravings for One Cent.—At least \$10,000 will be expended in procuring pleasing and instructive Engravings, of fine quality, for the *American Agriculturist* during 1873. Every subscriber will have a neatly-printed copy of each of these, in the pages of the paper, in addition to all the carefully prepared information given in the reading columns. This will give \$66.66 $\frac{2}{3}$ worth of engravings for every cent of cost at \$1.50 a year; or \$30 worth to those in clubs of four to nine at \$1.25 each; or \$33.33 $\frac{1}{3}$ to those in clubs of ten to nineteen at \$1.30 each; or \$100 worth for each Cent, to those in clubs of twenty or more at \$1 each. In addition, every subscriber will be presented with a perfect copy of Reinhar's beautiful \$400 painting, "Mischief Brewing," which will be a charming ornament in any home—a picture so much like the original oil painting that none but experienced artists will be able to detect the difference.

Bee Notes for December. — By M. Quinby.

We have a little more anxiety about wintering our bees than heretofore. If the lesson of last winter is not lost, instead of a calamity, we may yet be able to call it a blessing. We shall investigate closer than before, and if we get a correct idea, we can expect to ward off all fatal consequences. It was thought that we were pretty well acquainted with all the phases of winter management. But we find that a season like the last will affect bees as they have not been before in forty years. It was not the extreme cold so much as the length of time it was continued. The strong wind blew through every crack. The fatal dysentery was attributed to various causes. Probably there was not one case produced in the absence of protracted cold. With the experience of the last season in view, we can make preparation for winter with confidence that all will be right. Watch the weather a little closer. Arrange so that the bees may be warmed at any time, if occasion requires. Everything should be in readiness to put the bees into winter quarters the first severe weather. If put in the house, and if the number of stocks is less than fifty, even in a small room, they will hardly, in a winter like the last, keep each other warm, unless adjoining a room with a fire, or in a cellar, under a room with fire. They would hardly keep up the requisite heat of themselves with less than 100 stocks. A large number of box-hives in a room should be inverted—movable-comb hive should stand right side up—as it is possible to get up too much heat as well as not enough. Let the room be perfectly dark.

The number disposed to keep bees in the open air, will be much less than heretofore. But last winter taught us that housed bees were not safe without artificial heat. Many, with a few bees, can not afford the expense of a special room or cellar for winter quarters, and would like to know how best to dispose of them, with the least trouble compatible with safety outdoors. I examined some apiaries last spring, that had been in the open air, that were in comparatively good condition. The hives were brought together and a row placed near the ground, and straw packed between the hives, under the bottom and on the top. The second and third rows were packed on these, and a good thick packing on the back of them. The place was sheltered by surrounding hills. The front side of the hives was exposed to the sun, that occasionally warmed them a little. When they can be sheltered from the cold winds, such a situation is a good one. If the sun is warm enough to melt the snow, allow the bees to fly; otherwise keep just the entrance shaded, allowing the sun to shine on the other part of the hive. The weather must be very mild when third, and even second-rate stocks can stand safely out of doors. Bees not housed need frequent attention, to keep the ice from closing the entrance. The moisture from them that condenses on the side of the hive in frost, may pass off through holes in the top, slowly, without freezing, if the cap is filled with some absorbent material. With a proper degree of heat, the liquid portion of their food probably passes off in the form of vapor, leaving the more solid part as feces, which can be retained until occasion offers for flying out and voiding them. But when the colony is kept a long time in a cold state, the warmth of the bees is insufficient to drive off the liquid portion, which accumulates in the form of feces so rapidly that the bees can not retain, and they leave the cluster in the hive, during severe weather, to void it, very often besmearing each other and the combs. When bees and combs are badly soiled, the bees become greatly reduced, and are seldom worth anything. This state of things must be prevented by keeping them warm occasionally, if not continually. It may be necessary to bring them to a warm, dark room for a few hours. If the hives in the open air have any passages large enough for mice to enter, cover with wire-cloth, leaving

room for only one bee to pass at once. Set traps for mice. About twenty-five pounds of honey will be required to keep a strong colony of bees until May 1st. If there are doubts about the weight of honey, the stock should be weighed, and subtract the weight of hive, bees, etc. It is too late to feed to best advantage, such as are short of the required weight now. Ten pounds will probably last a colony until the first of March. After that time—if healthy—they will require more. Bees, when fed in cold weather, must be kept warm. Let them be so warm that a bee can leave the cluster and take after the feed, without becoming chilled. For feeding, make a syrup of four pounds coffee-crushed sugar and one quart of water, and one teaspoonful of cream of tartar, or its equivalent in vinegar, to prevent graining; scald and skin. If disposed, the feeding may be done now, but the room in which they are fed, should be kept warm.

The Great Wheat Region.

One of the most notable discoveries relating to the economic value of the "Great West" is that of the existence of an immense territory, including the head-waters of the Missouri, specially adapted, by characteristics of soil and climate, to the growth of wheat. This territory stretches from Minnesota westward to the Pacific Ocean, with here and there an intruding, intervening strip of mountain range. Northward it extends far into the territory of the Dominion of Canada. Part of this immense tract of country has been known for many years as a wheat country, and has been well settled, principally by Scotch and Canadian farmers. Their settlements, generally known as the Red River settlements, have been thrifty and successful, although heretofore far removed from what we have been used to call civilization. The country south of these settlements, alike rich and fertile, enjoys a climate equally salubrious but more genial, and lies within our own boundaries. It is now rapidly settling by farmers who find their way thither by means of the Northern Pacific Railroad, by which all this vast tract is being made available to the settler. Wheat is the great staple of this portion of the country, although other crops usual in the West are raised successfully. But wheat is the crop most easily raised. The samples brought hither of last year's harvest are excellent. They show a splendid head, with grains of extraordinary size and weight. Crops of 40 bushels per acre, of grain weighing 66 pounds per bushel, are said to be of ordinary occurrence, and this is not doubtful, after seeing the quality of the grain. The climate and soil are also well adapted to roots, and we know from personal experience that this is a perfect grass country. Having wheat, roots, and grass, cattle and sheep, dairy products, meat, and wool inevitably follow. There needs but population to bring about the fullest fruitfulness of result, and this is rendered possible and desirable by the rapid completion of the railroad, which will cause all this hitherto silent and neglected territory to soon hum with a diversified industry.

Tim Bunker on Self-sucking Cows.

"What ye gwine to dit with that 'ere keow," asked Seth Twigg, as he poked his head over the wall where Jake Frink was busy tying the cow's head to a bar-post.

"I'm jist gwine to put the confounded critter into a bag to see if I can't keep her from stealin' her own milk. Never had sich a beast afore in all my life. I bot her of Kier Funk, up in the White Oaks, and ought to have known better, for he allers cheats me in hoss trades. The slippery skunk told me that she was a cosset

cow raised by his wife, and would give her weight in milk every month, and keep fat on't. The knavish scamp wern't fur from right—for she sucks herself dry every chance she can git, and Polly has been on the keen jump ever sence I bo't her to git a drop for tea. If I keep her head in the stanchions I can get the milk, but ye see if I turn her out she does her own milkin'. A mighty ekernomical ceow that!"

"A ceow in a bag!" exclaimed Seth, as he knocked the ashes from his pipe and drew out

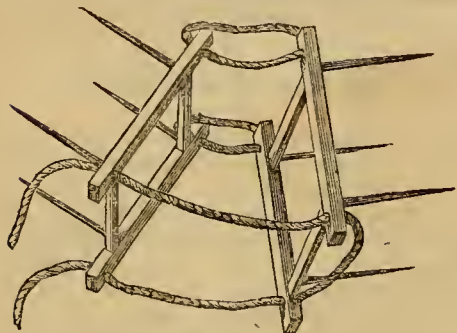


Fig. 1.—UNCLE JOTHAM'S POKE.

his tobacco-pouch to load again. "I have heern of a pig in a poke, but a ceow in a bag is the latest fashuun."

"Jes so," said Jake. "Ye see, it is one of Polly's contrivansis to save the milk."

Jake tried this plan of curing the White Oaker's cow for a week, and all Hookertown came to see the cow in a bag. It was a big piece of sacking tied on just back of the fore-shoulders and under the belly, covering the cow's bag, and leaving the rump and tail free. But Polly's contrivance did not work well. The cow would sometimes get her nose through the canvas, and when she failed to do this, she would lie down and double the canvas over the teat, and suck herself through the strainer.

"Take that thing off," said Uncle Jotham Sparrowgrass one morning as he came up the street. "I've got suthin' they used to use over on the Island forty years ago, and it was never known to fail. It is kill or cure, I assure you."

Uncle Jotham's poke was fig. 1: Two frames of white-oak, armed with half-inch iron rods sharpened like hatchet-teeth. The frames bound upon each side of the neck of the cow with ropes.

Jake tried this establishment for a couple of weeks. It saved the milk effectually, but it drew blood. If the cow attempted to get her head toward the tail, it pricked her severely.

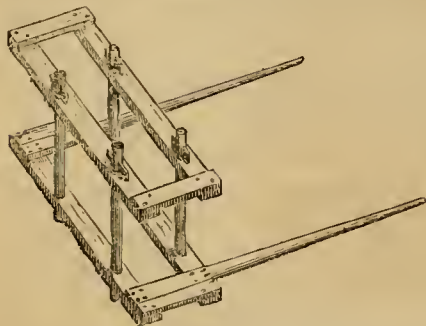


Fig. 2.—O. W. TUCKER'S POKE.

The flies were troublesome, and every time she threw her head round to drive them off she wounded the skin. Polly said this thing would not answer in Hookertown, even if it did on the Island. She thought Long Island folks must be heathen if they tortured their cows in that way.

George Washington Tucker was the next doctor to prescribe for Jake's cow.

"You see, Jake," said Tucker, "that are thing is agin Scripture, for 'it's hard to kick agin the pricks,' and the ceow won't give milk long that is goaded in that way. I can fix you a poke in about an hour that will keep her from sucking jest as well as them spikes, and not hurt her a bit."

So Tucker took Jake's saw and auger, and from some slabs and a pair of worn-out ox-bows he constructed fig. 2. The top frame slips off easily, and the uprights are fastened in place by a wooden peg or bow-pin. The cow's head is fastened in this frame, and the side-pieces come just back of the fore-shoulder, so that if she attempts to get at her bag she gets a smart punch in the ribs, without breaking the skin.

"Now," said Tucker, after he had put on his machine, "that is what I call a persuader of a merciful sort. Tell Polly I'll pay for all the milk that 'ere ceow sucks after this."

This thing worked well, and Jake had peace until Benjamin Franklin Jones came along one morning, and hailed Jake: "Are ye gwine into the lumber business, Mr. Frink?" looking at the poke as if he saw a lumber-yard.

"Wal, neow," said Jake, "I'll allow there's considerable wood about the machine, but then it duz the work, and 'handsome is that handsome duz.'"

Seth Twiggs happened along at this juncture, and seeing by the smoke which way the wind blew, asked: "Have ye got plenty of fencin' stuff, neighbor? I've got a stack that wants a yard round it, and rails is skase on my farm."

Jake Frink grew restive under these pleasantries of his neighbors, and had about made up his mind to drive the cow back to the White Oaks, when Deacon Smith dropped in, and said

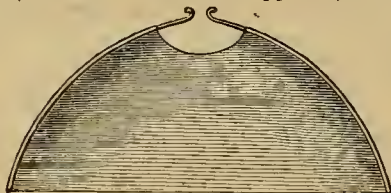


Fig. 3.—THE DEACON'S JEWEL.

he thought he could help him out of his trouble. He had a contrivance that he never knew to fail. He said it was much used up in Berkshire County, and it was the cheapest and best remedy he had ever seen.

So the Deacon took out his pencil, and made a picture like fig 3, and told Jake to go down to the tinman's and have a jewel made just like it. When it hangs in the cow's nose it looks like fig. 4. It is simply a piece of tin cut out in half-moon shape, and bound on the edge with a wire. The wire is cut and bent over at the two ends for the purpose of slipping it into the nostrils of the cow. If she attempts to suck, the bit of tin is always in the way. She can not get her tongue over nor under the tin. It is not in the way of feeding, for the ground raises the lower edge of the tin and it slides along before the cow's nose. This is a sure remedy, and is much better than carrying a lumber-yard upon the neck, or the barbarous practice of slitting the tongue. It is a very convenient article to put upon a calf's nose when he is weaned, and turned out to grass with the herd. He is about as effectually cut off from his mother's milk as if he was in a separate pasture. They may be made of sheet-iron, tin, or zinc. They cost but little, and it is but a moment's work to put on the jewel or take it off.

I am surprised to see by your last paper that there is one man left who does not know where Hookertown is, and thinks you may have been

gassing people for the last twenty years. This is the biggest joke you have printed in a year. Sally burst out laughing when she read it, and said she thought the school-master hadn't been around where that man lived. For his benefit, I want to say that there isn't a five-year-old boy in any of our schools but could tell him just where the place is. It is just five miles south of the White Oaks, and there are three

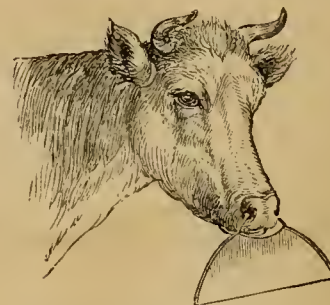


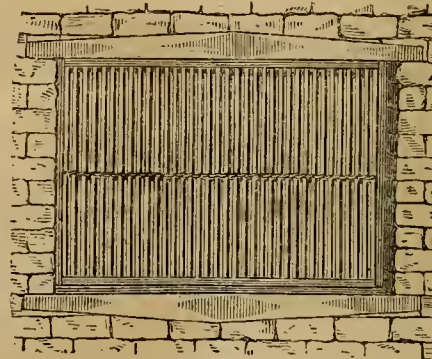
Fig. 4.—THE COW ORNAMENTED.

guide-boards at the cross-roads on the way. It is two miles east of Shadtown, and there is but one turn out, and there you keep the main travel.

Yours to command,
TIMOTHY BUNKER, Esq.
Hookertown, Ct., Nov. 10th, 1872.

The Striped Bass (*Labrax lineatus*).

The great value of the Striped Bass as a food fish, and its high price in winter, have led to some experiments for growing it in confined waters where it could be taken at pleasure and marketed. In summer, when the fish bites freely, and is taken in our rivers in seines and nets, it is sold at wholesale quite cheap, so that the fishermen do not average more than six cents a pound. In winter, the price goes up to twenty-five cents, and the market would take a much larger quantity if they could be furnished. The spawn has never been taken, that we are aware of, but the young fish, weighing from a few ounces to a pound, are caught in pound-nets in immense quantities along the coast wherever these destructive engines are not interdicted by law. The small fish are not desirable for market, and are sold cheap. These fish, from a half-pound upwards, can be bought for five



SCREEN FOR BASS POUND.

cents a pound or less, and put into an inclosure that admits the tide, and there fed regularly until they are fit for market. This inclosure may be of any size that suits the convenience of the fish-grower. The only essential things about it are that it should admit the tide-water with its abundance of sea food, and shut in the bass. It should be near the house, that it may be protected from poachers. Any small bay of a half-acre or more, or the mouth of a small brook that runs into tide-water that can be easily

dammed and screened, will serve. Almost every estuary furnishes a multitude of little bays that could be used as pounds for raising this fish. A bulkhead of stones or plank is made across the narrowest part, leaving a channel three or four feet wide for the water. The channel should be filled up to low-water mark, or a little above, and a screen made of strong iron rods be put in the channel, as shown on p. 450. This screen consists of a frame of 2×3 joists, three feet long and two feet high. The iron rods are five eighths of an inch in diameter, and the space between them is three eighths of an inch. It is desirable that the water should be eight or ten feet deep in some parts of the pound, and that there should be a regular flow of the tide, both to admit food and to keep the water cool in

summer. If the water is shoal, and the tide does not come in, the fish will suffer from heat, and some of them will die. If the water is kept fresh and cool, a large number of fish may be kept in a comparatively small inclosure. They may be fed with any kind of fish or fish offal, daily, or two or three times a week.

Along the shore where the menhaden fishery is prosecuted, this fish makes the favorite food. Bass eat voraciously from May to October, and then go into winter quarters. They grow quite rapidly in these pounds if well fed, and growth is mainly a question of food. A four-pound bass will in three years reach the weight of eighteen pounds. Every one can see that this industry must be exceedingly profitable in the shore towns, where there are the requisite facilities for making the inclosures and procuring the young bass and their food. There is not only the profit of the growth of the fish, but of the increase of price, which is not infrequently quadrupled in winter. The menhaden can be bought at the fish-works and from the boats for from one to two dollars a thousand, weighing from five hundred to a thousand pounds, according to condition. This cheap, unmerchanted fish is

transmuted by the bass into a table luxury that sells readily in winter at twenty-five cents a pound. The business is not yet organized or transacted on a large scale, but enough has been done to demonstrate its feasibility. Nothing as yet has been done for the protection

of this fish. It is hunted by all methods and at all seasons of the year, and its numbers are greatly reduced. There ought to be laws passed in all the sea-board States prohibiting its capture in rivers during the spawning season—say from June 1st to July 15th. If they could have

unlucky woodchuck from its tenement, which is enlarged to a size that will admit his body.

He is the cunning thief who makes such havoc among the inmates of the poultry-yard.

In ancient times the Fox was represented in prose and poetry as a model of craft and cunning,

and at the present day he fully sustains the reputation for sagacity that was accorded to him of old. His sense of hearing is so acute, his sense of smell so delicate, that to take him in the hunt or catch him in a trap requires considerable skill and knowledge of his habits. So instinctively cautious is this animal that it is with difficulty he can be induced to approach a trap, even when baited with the choicest morsels. It is smell more than any other faculty which seems to guide him, and so

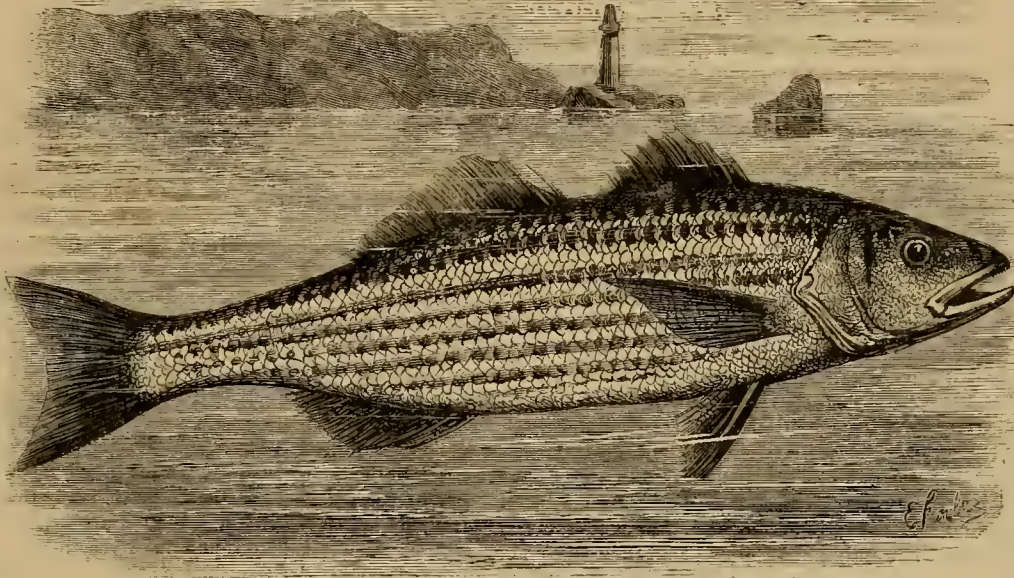
excessively keen is this sense that he will detect the work of the human hand unless skillful efforts have been made to hide its presence.

The method adopted by the most successful fox-hunters is to set the trap in some spring or small rill, thus covering up or washing out with water the traces which are the occasion of so much caution on the part of this sagacious and highly-sensitive animal. Taking a hoe, the trapper proceeds to some small stream, ascends it, walking in the water, to find a convenient place to commence his work. A place is selected as

near as possible to where the fountain springs from the earth; it will be less liable to freeze on the approach of cold weather, and will be less affected by the rise and fall of water. With the hoe the banks of the stream are excavated, making a pool some four feet in diameter, and from three to five inches in depth. No more earth is removed in digging than is absolutely necessary; all turfs and clods are pushed beneath the water, and the whole made to assume an appearance as natural as possible. This pool is called by trappers "a bed." If made several days before wanted for use, so much the better.

Returning in the stream for a distance of five

or six rods, in the same manner as the bed was approached, the trapper prepares for setting the trap. First the bait is carried between forked sticks, and placed in the center of the bed, a third part or more remaining above the surface of the water. The trap should have a small



STRIPED BASS.

six weeks' close time they would rapidly multiply and soon be restored to their former abundance.

Trapping the Fox.

The well-known Fox belongs to the genus *Vulpes*, of which there are several species, differing but little in their habits and characteristics.

The Red Fox of America (*Vulpes fulvus*) is the common fox of this country. This species is widely distributed, and in some localities quite numerous. The fox burrows in the ground,



FOX-TRAP.

where the young are born in early spring, some four to six in number. The remains of birds and animals killed by the mother-fox are often found scattered near the entrance.

These burrows are seldom dug by the fox himself, his usual practice being to eject some

clog of heavy wood attached to it by a chain, twenty inches in length; when set, a dry brittle weed-stalk is placed beneath the pad, with the ends resting on the jaws for a support. It should then require a weight of about two pounds to spring the trap. When ready, the trap is placed between the bait and the adjacent bank of the bed; the clog is stowed away as most convenient. Both, however, must be entirely covered with water.

Now comes the most difficult part of the whole process—to cut a turf of a diameter a little less than the distance across the trap, and of a thickness equal to the depth of water over the pad. It must be cut from firm sod, circular in form, where the grass is short. It will not do to touch it with the hands, but proceed in the same manner as directed for bait. When placed evenly on the pad, the work will be complete.

A fox coming near, scents the bait; he walks around the bed, but can not reach the coveted treasure from the bank; and as he dislikes to step into mud or water, he steps upon the turf so cunningly arranged to aid him in his efforts, seizes the bait, and the next moment has a foot fast between the jaws of the trap.

If skillfully set, the first fox that comes along will be taken; sometimes several days will elapse before there is a capture. A heavy rain does much towards washing out any traces left by bungling hands. The skillful trapper is very particular about his bait. In selecting this important requisite, it should be borne in mind that the fox is as fastidious in his tastes as any epicure, though sometimes driven by hunger to coarser fare. Poultry of all kinds is his special delight, and he will run the greatest risk to obtain it. The carcass of the muskrat is to him a great rarity, and from its musky odor is probably the best bait known. He has also a remarkable fondness for a cat, the body of which is often used for bait by trappers. Choice pieces of any kind of meat may be used in the absence of other bait.

Mice are caught by the fox, and eaten with avidity. A few grains of strychnine inserted in the body of a mouse placed near the haunts of the fox, is the usual mode of poisoning—a dangerous and objectionable method of taking game. No animal intended for bait should come in contact with the naked hand after life is extinct. Cut into pieces of two or three pounds' weight with an ax, it should then be carried between forked sticks.

Walks and Talks on the Farm.—No. 108.

"I tell you," says the Deacon, "farmers have worked cheap this year."

"I suppose," replied the Doctor, who, though city-born, has had charge of a country church for some years, and knows something of the trials of farm life, "I suppose you can not get up a strike! I have often thought that farmers work harder and for less compensation than any other class with the same amount of capital and of equal intelligence."

This is probably true. But it should not be forgotten that we run no risk with our capital. We get a low rate of interest, but our principal is safely invested, and is steadily rising in value. In the mean time, we have a home and many of the comforts of life. Let us be thankful. It is no use complaining. We can not strike for higher prices. It would do no sort of good. And hard as we have to work, and poor as is our pay, I can not but admit that American

farmers, as a whole, are as well off as any farmers in the world.

"We are fortunate in one thing," said the Deacon. "Apples bring nothing this year, and we have none to sell!"

One thing is certain—we can not get extravagantly high profits from any one product for any length of time. It soon gets understood, and enough people will embark in the business to bring down prices to their proper level—and generally as much below the level as they rose above it. A well-managed apple-orchard has been more profitable for some years past than any other farm crop. I have no doubt apples will always be a good, paying crop in this section, but it is not to be expected that they shall be so very much more profitable than other products. The fruit-growers that will make the money are the men who set out the best varieties, and give their orchards the best care and treatment. There is no error so wide-spread and so pernicious as the idea that *easily-grown* crops are the most profitable. From the very constitution of things this can not be true. Were I a young man, and about to set out an orchard, I would select the choicest variety I could find, and the one which required the highest culture. And I would aim to carry this same principle into the selection and management of all the crops and animals on the farm.

"I have had bad luck with my Bates stock," said a young Shorthorn breeder to me a few days since; and he went on to give me the particulars. This cow would not breed, and the calf of another was sick, and another died, etc., etc. This is precisely what I should expect. It is absurd to expect that an animal bred for rapidity of growth and early maturity should be as hardy and breed as readily as an animal that has no other object in life but to propagate its species. I wish this matter was understood. It is no argument *against the breed*. If I offer to sell you a barrel of choice Northern Spy apples for \$5, you might say: "I do not want them. They cost too much. I can buy Baldwins and Greenings cheaper."

But it would show a sad confusion of ideas if you should say: "I do not want them. They are very difficult to raise. The trees are a long time in coming into bearing. They need much pruning, and the land must be deeply drained and made very rich, the bark kept free from moss or the apples will be specked; and when the trees *do* commence to bear, they bear too much, and the fruit is small, insipid, and poor. To get good specimens, you have not only to give the trees the highest culture, but you must thin out the fruit, and take special pains in picking and packing the apples to avoid bruising their delicate skin."

You would say to such a man: "Here are the apples—large, fully matured, high-colored, free from specks, and of the choicest and highest quality. Eat one. It is the best apple in the world. What you say may be a good reason for not buying Northern Spy trees, but is no argument against buying Northern Spy apples."

And so it is with high-bred Duchess Shorthorns. If they are difficult to raise, that may be a reason why you should not engage in breeding them. But it is no reason for not buying them. If you could show that they were of little use after you had bought them, that would be a good reason. But the evidence is all the other way. The Duchess Shorthorns are kept for the purpose of improving other tribes of Shorthorns, and these in their turn are used for the purpose of improving common cattle. Universal experience sanctions their

use for this purpose and proves their value. This principle applies to all our thorough-bred animals. No one should engage in their breeding unless he is prepared to bestow more time, thought, care, and labor on their management than on common animals. If faithfully, honestly, intelligently, skillfully, and perseveringly carried on, there is money, pleasure, reputation, and honor in the business of raising thorough-bred stock. But where one man succeeds ten fail. And I believe it is owing in a good degree to a misapprehension of the principles here alluded to. Paying high prices for choice animals and then leaving them to the care of common hired men will not insure success. And it is to me one of the most encouraging features of our agriculture that so many young American farmers are turning their attention to this matter. I get a great many letters worded somewhat as follows: "I am a young farmer of limited means, but I read the *Agriculturist* and other papers attentively, and am satisfied that we need better stock, and I would like to know what I can get a pair of choice thorough-bred animals for?" Depend upon it, that "young farmer with limited means," but with unlimited energy, will be heard from. He will attend to the stock himself, study the principles of breeding, and bestow the necessary care and attention, and in a very few years he will carry off the ribbons at the County and State Fairs.

The Deacon smiles at this kind of talk. He is clear-headed, and is prepared to accept the truth when he sees it, but he is as yet only half-convinced. I have great hopes of him, but it is not an easy matter to drive new ideas into an old head!

Perhaps I ought not to say it—perhaps I am not free from blame myself; but it seems to me that agricultural writers do not discriminate as closely as they should. We have too many *half-truths* in our agricultural literature. I know two or three popular writers who are great sinners in this respect. They have not the patience necessary to a thorough examination of a subject, but content themselves with presenting crude, undigested, one-sided notions. They dabble in science, but quote scientific men only so far as they agree or seem to agree with their own preconceived opinions. They allude to "practical experience" in the same spirit. They have great respect for it as long as it favors their views, but utterly ignore any facts that are opposed to them.

While I was at the State Fair three dogs killed two of my Merino sheep and one thorough-bred Cotswold. One of my neighbors took his gun and followed the dogs home, and shot all three of them. The owners of the dogs threaten to commence an action-at-law to recover the value of their property. In the mean time, I propose to sue the owners of the dogs for the value of the sheep killed. If I can recover anything like what the sheep were worth, it will have a good effect. It will, I hope, convince some of my good neighbors that keeping a lot of half-starved dogs in the vicinity of a valuable flock of sheep may be an expensive luxury.

"Can you tell me," writes a correspondent at Camden, Miss., "why spring pigs are more subject to disease than fall or winter pigs? Such seems to be the fact, not only in my own experience, but also of others in this neighborhood." Perhaps it may be that the spring pigs do not get old enough and strong enough to stand the

hot weather or the system of summer management at the South. In my own experience I have never observed any difference, except that we usually lose more young pigs in the spring than in the fall. This is attributable to the fact that the weather is colder in the spring than in the fall, and the little pigs are more likely to get chilled. At the West, farmers who let their hogs follow the cattle in the cornfields object to fall pigs as not being strong enough to stand exposure to cold storms, etc. The breeders of the large Butler County hogs in Ohio do not, I am told, let their sows have pigs in the fall. They only allow them to have one litter a year, and that in the spring. This is one reason why they raise such large hogs.

But the butchers and packers do not want large, coarse hogs. Provided they are fat enough, they will pay the most for a fine-boned, small pig that does not weigh over 350 or 400 lbs. There is a great demand for bacon to send to England, and for this purpose especially pigs should be fat, but not too large and coarse. If our pork and bacon commanded as high a price abroad as the English and Irish bacon, we should now be reaping a rich harvest. With our cheap corn, we ought to beat the world in the production of choice hams, bacon, pork, and lard—and we shall yet do it. But we must give up talking about "big" hogs, and aim to raise those of the finest and best quality.

The last number of the Irish Farmers' Gazette, in its report of the Dublin market, says: "There was a fair supply of bacon and hams; demand fair; old cleared out. Fritch bacon, new, 73s. to 76s.; Middles, new, 80s. to 82s.; American, 40s. to 46s." How do you like the figures? The Irish bacon, if I understand aright, is quoted at double the price of the American. The American sells for less than nine cents and the Irish for over seventeen cents per pound in gold. And you must recollect that if our bacon advanced eight cents per pound in Dublin it ought to advance eight cents per pound in Iowa or Kansas. This additional eight cents per pound is worth striving for. We talk and think a good deal about the demand in England for American wheat, but the demand for and price of our pork attract little attention from farmers. We have exported so far this season over 250,000,000 lbs. of bacon, pork, and lard.

A Western farmer asks me: "Why is it that farmers as a class have no price for their goods, like merchants, mechanics, lawyers, cobblers, etc.?" They have. A farmer sells his corn for the market price, just as a grocer sells his sugar. He can not get more, and need not take less. A lawyer, after years of hard study and much patient waiting, gains a great and deserved reputation, and can command his own price. So a farmer who has spent years in improving a breed of cattle, sheep, or swine is often able to fix his own price. Think of an American-bred Shorthorn bull being sold in Great Britain the other day at auction for 1,650 guineas, or, with gold at 113, \$9,397 in American currency!

"Why," he continues, "should the sons of the soil be the ignorant dupes they so often are, and be subject to the 'tricks of the trade,' and why should traders live more expensively than farmers? Is there no balm in Gilead?" If farmers are "ignorant," that is a sufficient answer to the questions. I know a good many that are not ignorant. An average farmer is as intelligent as the average merchant. There are rascals in the city who will cheat if they can, and farmers sometimes are their dupes. But all the cheating is not confined to the city. I

have known farmers to tie up dirt in their wool, and put wet or damaged hay in the middle of the load. I know a farmer who lost over fifty dollars last year from putting wind falls in his barrels of winter apples. When I first moved on to this farm, although I am farmer-bred and farmer-born, and have lived on a farm nearly all my life, yet it was known that I had been editing an agricultural paper for some years in the city, and was consequently supposed to be "green," and a fit subject of the tricks of country sharpers. Every horse within a dozen miles that was spavined, or broken-winded, or blind, or balky was trotted out for me to buy. If a cow kicked, or had lost a teat, or was a poor milker, the owner, though half-a-dozen miles off, would think that she was just the cow to sell to me. If a flock of sheep had the footrot, it was thought desirable to give me a chance to cure them—without, however, telling me what the trouble was. Every blacksmith, carpenter, wheelwright, mason, and stone-wall builder in the neighborhood deliberately cheated me, and then made his boast of it to a crowd of admiring listeners at the country tavern. I never go to an auction sale, because I know the auctioneer, himself a farmer, will bid against me on the sly, and cheat me if he can.

I do not wish to say hard things about my neighbors. Nine tenths of them are as honest, intelligent, industrious, sober, peaceful, respectable, kind-hearted people as any to be found in the world; but among the other tenth you will find men who, according to their ability and opportunity, are as thorough-paced scoundrels as you will find in Wall street. There is amongst them as much low-bred cunning, as much vulgar shrewdness, as much lying and profanity, as I have ever happened to meet with in the city.

As to "why traders live more expensively than farmers," I know of no good reason except that they have more ready money and spend it more freely. Poor men as a rule are more extravagant than rich men. A farmer with a farm and stock worth \$20,000 may not have more than \$2,000 pass through his hands in a year, while his brother in the city, an enterprising man that enjoys a good reputation, but with no more actual capital, may, by the aid of discounts, indorsers, and credit, use more than one hundred thousand dollars a year in his business. He takes greater risks, and may sooner or later lose everything, but in the mean time he makes larger profits and lives more expensively than his brother in the country. To make great profits you must run great risks. The farmer runs little or no risk, and makes comparatively little profit. For my part, I prefer to be a farmer; if you would rather engage in other business, I have no sort of objection.

Farmers are making small profits. There is no doubt about that. But it is useless to complain. It seems hard for a farmer in Illinois to be obliged to pay 45 cents for sending a bushel of corn to New York, and then sell it for 65 cents. But there is no law to compel him to send it. He had far better convert it into pork, or beef, or mutton, or wool, or cheese. It would be better for him, and better for us poor farmers at the East who have corn to sell, and who can not get as much for our corn as it costs us to raise it, owing to the market being flooded with Western corn. Our policy at the East should be to buy all the corn we can use to advantage, while the policy of the Western farmer should be to sell as little as possible.

The one central fact that deserves the thoughtful consideration of farmers everywhere is the

advance of wages throughout the world. It means an enormous increase in the consumption of cheese, butter, beef, mutton, and pork. The first effect of this increased demand for meat will be felt here in the cheese and pork market, because cheese and pork can be shipped to any part of the world. But it will also cause an increased demand for beef and mutton. Our aim must be to produce the best quality of meat, and then it seems to me there will be no limit to the demand. We must introduce better breeds, and feed more liberally.

Corn to-day is the cheapest food in the market. I think many farmers are making a great mistake in selling cows at such low prices. They are making a still greater mistake in wintering them on such poor, innutritious food. Why not give them four or five pounds of corn per day? Less hay, and more corn and straw, is my motto for the present winter.

This summer my horses got badly run down. We fed them liberally, but they did not eat well. They had no appetite, no digestion, and no strength and spirit. They came home at noon and night fagged out, and their night's rest did not refresh them. I sawed a barrel in two, and placed the ends on the platform of the pump. These are for watering the horses. Into one of them we put a pailful of corn-meal and mixed it with the water. The horses at first did not like it, and would only drink a little when very thirsty. After they had drunk what they would they were allowed pure water. In a very few days, however, they drank this corn-meal soup with a relish, and in less than a week there was a decided change for the better in the appearance of all the horses. We do not let them eat the meal, but merely let them drink the milky water. I have no doubt it is as good for them as a plate of good soup is for a tired and hungry man before dinner. It seems to stimulate the appetite and aid digestion.

It is a capital thing for cows as well as horses, but it is not so easy a matter to give it to the cows, as they soon learn to stick their heads in the water almost up to their horns to get the meal that settles at the bottom. It is necessary to have a large trough with a false bottom.

This is my last Walk and Talk with the readers of the *American Agriculturist* for the year 1872, and there are a great many things I want to say, but have not time.

I want it understood, however, that my faith in good farming and my respect for good farmers grow stronger and stronger every year. I still believe in summer-fallowing on clay land, and am satisfied that fall-fallowing is a good thing. I believe that weeds can be killed, and am making considerable headway against them. My corn is the best and my corn-stubble the cleanest I have ever had—better and cleaner than the Deacon's! I think we plow too much land, and do not plow our land enough. We must have cleaner land. We must raise bigger crops, or there is no profit in farming. We must keep better stock, and feed more liberally. We must make more manure, and what is still more important, we must make better manure. And we must take care of what we do make.

HAVE YOU PURE WATER?—Water is as necessary to the comfort and health of stock in the winter as feed; and if they are to be kept free from disease an ample supply of it, free from ice, snow, or filth, must be furnished them.

A Barn for Mixed Farming.

"J. F. G., Highland Co., Ohio, says: "I want a barn for mixed farming, for storing hay and

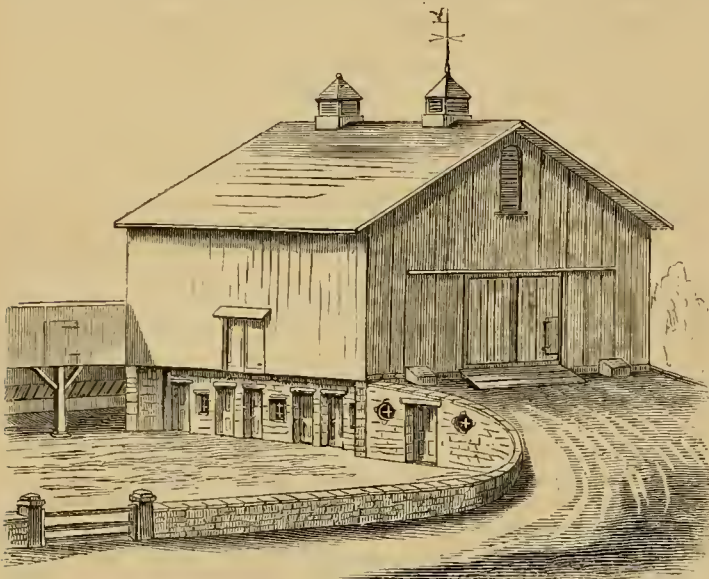


Fig. 1.—ELEVATION OF BARN AND STABLE.

grain, and for keeping stock; I want all the labor-saving improvements, and also a root-cellar in a convenient place, and a yard for manure." This is a general want, and the importance of a well-arranged barn to the comfort of the farmer as well as to the comfort and well-being of the stock is very great. We give on this page an engraving of a barn which has been found very convenient by the writer for his own use, with all the plans necessary for laying out the stables, sheds, and other accessories. Its cost will be from \$1500 to \$2500, according to price of materials and the amount of finish put upon

cellar, which should be two or three feet below the surface, to fill in the ascending road-way. The stable-floor is thus on a level with the ground, and windows on each side furnish ample light and ventilation. The foundation-walls are of stone, sunk three feet below the surface. Drains from the bottom of the foundation would be found of great use in keeping the stables perfectly dry at all seasons. Below the ground the walls may be built of dry work, but above the surface the best of mortar should be used in the building. Much of the solidity and durability of a building depends upon the excellence of the mortar. The stable-walls are built so that the barn overhangs the entrance-ways six feet, which

gives protection against rain or snow, as well as prevents drifting of either into the open upper half of the doors or windows, thus permitting ventilation in stormy weather, and allowing comfortable access from one door to another. The plan shown in figure 2 gives the arrangement of stalls and passages. *AB* is the horse-stable, with two double stalls and a loose box for a mare and colt. *CC* is the cow-stable, with stalls for 22 cows, arranged so that the animals' heads in each row are towards each other, with a central feed-passage between. *DD* are ventilators and straw-shoots, which carry off through the cupolas on the top of the building all the effluvia from the stables, and by which straw for bedding is thrown down from the mows or barn-floor above. *EF* are compartments for calves or a few ewes with early lambs which may require extra care and protection. *G* is the root-cellar, entered from the feeding-room, which also communicates directly with each compartment. *H* is the cistern, sunk twelve feet beneath the floor of the root-cellar, and which receives the whole of the water shed from all the roofs. It is prevented from overflowing by an outlet into the drain, which runs beneath the stable-floor. *I* is the pump in the feed-passage, *J* the shoot by which cut hay or fodder is thrown down from the barn-floor. *L* is the feed-mixing box, or steam-chest, if steaming is practiced, and *M* the stairs to the barn-floor above. On this floor are four bays for hay, straw, or fodder, a spacious thrashing-floor, with a cross-hall for cutting machine, and shoot (*O*) to pass the cut feed below. A door in this cross-hall opens into the barn-yard, by which straw may be thrown out for litter. A door at the rear of the thrashing-floor opens into the upper part of the open shed, where hay, straw, or fodder may be stored. The cutting machine is shown at *K*. *NNN* are grain bins or boxes for feed. *PP* are bays, *Q* the thrashing-floor; *RR* hay-shoots and ventilators, which are carried up level with the plates, doors being made, through which to pass the hay either from the barn-floor or the mows. *S* is the straw-shed, with open traps to pass straw or fodder into the racks shown beneath in fig. 1.

Fig. 1 shows the elevation of the barn, the arrangement of the barn-yard, the doors and windows of the stables and root-cellar. The

shoots for discharging roots into the cellar, and for ventilation, are seen at each side of the barn-door. The open shed seen in the rear of the barn-yard is for the purpose of airing stock in stormy weather, and is furnished with a straw-rack for feeding them. This barn is calculated for a farm of 100 to 200 acres. Exactly such a barn was built for a farm of 90 acres, on which soiling in summer and steaming food in winter were practiced, and was found ample to meet every want for the stock it was made to accommodate. A cart-load of green fodder hauled to the stable was unloaded into a small feed-truck through the window of the feed-passage, between the cows' stalls, and was distributed to 22 head in fifteen minutes. The same number of cows could be fed from the steam-chest, by means of

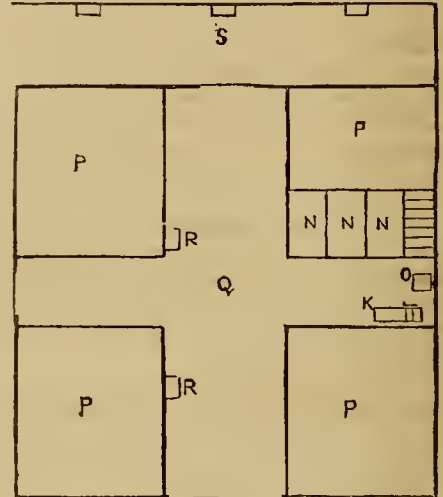


Fig. 3.—SECOND STORY OF BARN.

the same truck, in even less time, if necessary. Such conveniences as this make a comparatively costly barn much the cheapest in the end.

Butter-Molds

In reply to many inquiries made by some of our readers, who can not procure the butter-molds which we described in a former number of the *Agriculturist*, we give directions for making them at home. The difficulty lies in getting the stamp made. Any one who can work a foot-lathe, can turn the mold and the plain stamp with the handle, but the device which ornaments the stamp troubles them. To make this, take a

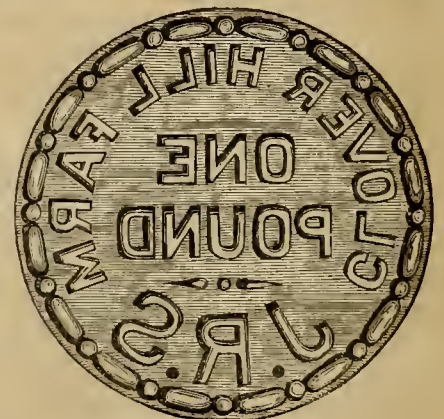


Fig. 1.—BUTTER-MOLD.

piece of wood free from grain—a piece of soft maple or birch-root is very good—and have it turned or dressed the proper size, and a smooth face made on it. Then either draw on the face, the wrong way (as shown in figures 1 and 2), or cut out letters from a printed bill or newspaper,

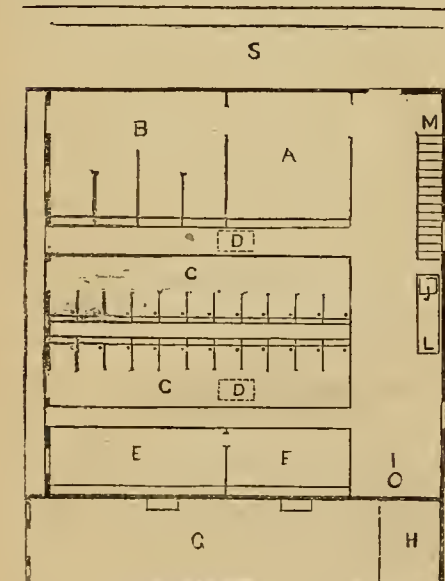


Fig. 2.—PLAN OF MAIN FLOOR OF BARN.

the work. In most places where stone for the lower story and lumber can be procured cheaply, \$1500 will be sufficient to build a barn fifty feet square, including everything needed. This is not a basement-barn. It is not built in a hill-side. Partly underground stables are not generally desirable, on account of dampness, too much warmth in winter, and want of ventilation. But a slight rise of ground which may be availed of for an easy ascent to the barn-floor is a convenience, although not at all necessary. This may be easily made by using the earth from the root-

and paste them on to the face of the mold, *the wrong way*, and make a border to suit the fancy, in the same manner. Then take a small, sharp gouge, like the one shown in fig. 2, not larger

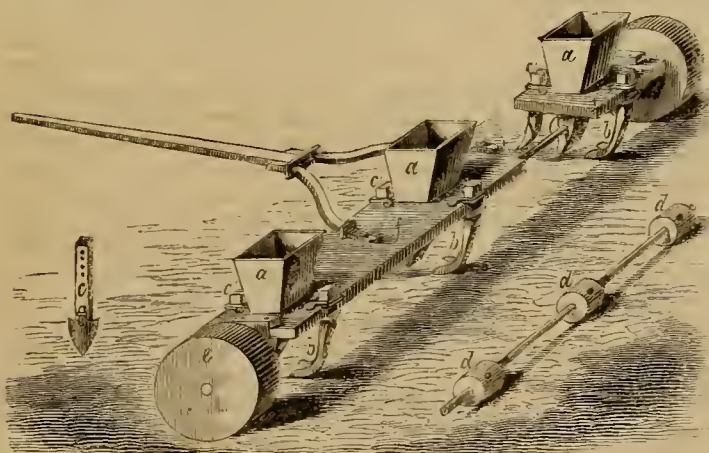


Fig. 2.—BUTTER-MOLD.

than a quarter of an inch in diameter, and smoothly cut away the wood beneath the letters, making them deep enough to show well when printed on the butter. About a quarter of an inch would be right. The depression should be neatly smoothed out, so as to make a neat, smooth print. A pretty border for a mold is a quantity of clover leaves; they may be pasted on, and the wood then cut out as before described, or any other leaves would answer.

Corn-Planter.

W. C. Detweiler, Northampton Co., Pa., writes as follows: "In 1872, May number of the *Agriculturist*, you give a representation of a corn-planter, and state that by widening the machine it might be made to plant 2 or 3 rows. I have used your drawing as a guide from which to construct one that will plant 3 rows. You will notice by examining the drawing that I dispense with the wheelbarrow frame, substituting



AN IMPROVED CORN-PLANTER.

therefor a frame of oak (or other hard wood) planks, say 2 inches thick and 1 foot wide, also causing the driving wheels to serve the purpose of the pulleys, thus saving labor in constructing the machine, and the annoyance of slipping of the strap. The wheels I think should be 1 foot in diameter, thus causing a spread between the hills of 3 feet by each revolution. (By putting 2 holes in the receiving cups, the wheels might be made 2 feet high, and so on, but I should prefer to have them low, so as to prevent strain on the plows and scrapers.) The plows and scrapers are to be attached to wooden bars, which may be elevated or lowered, and fixed with a pin, so as to plant deep or shallow. I think that we could, with such a machine, by putting several more holes in the revolving cups, plant beans, peas, fodder-corn, etc., and by removing the plows, and attaching them to a cultivator, save extra ones for that purpose.

"I am no farmer at present, but do intend to be one shortly, and as I never intend to patent

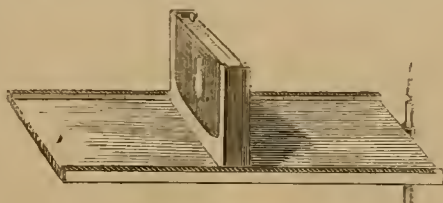
anything, I would ask of you to suggest such improvements as you see fit."

We give an engraving of the sketch sent by our correspondent, which has some very good points. The implement can be made by almost any one who can use tools, and will be found useful where corn is planted in large fields. Eight acres per day could be planted by such a machine. The addition of a roller, to follow the scraper, which covers the corn, would be an improvement, as would also be the enlargement of the wheels to 3 feet in diameter, and the making of three holes or cups in the seed-dropper. If the corn is to be dropped three feet apart, one cup in the seed-dropper will be needed for each foot in diameter of the wheels. The construction is easily seen in the engraving. The hopper for the seed is shown at *a*, the scraper which covers the seed at *b*, the plow which opens the furrow at *c*. A separate figure of the plow is also given, which shows its construction, with the pin-holes by which the depth of furrow is regulated. The revolving cups and the shaft which carries them are shown at *d*, the wheels, made from plank, at *e*, and the frame plank (which is cut away in one place, to show the part of the hopper in which the seed-cups revolve) is shown at *f*. The hoppers should be separated at such a distance from each other, as will bring the rows in the desired position, either 3 feet or 4 feet apart, as the case may be.

Milk-Tester.

An instrument for testing the quality of milk by its density has been used in Germany, and is of sufficient value to be introduced here amongst those whose business makes it desirable to use such a test. It consists of a small table of wood, with raised sides, one of which is marked with a scale of degrees for ascertaining the comparative densities of different samples. Within the raised sides a wooden frame, carrying two plates of glass, separated a quarter of an inch apart, is moved back and forth. The glass

plates are cemented into the frame with shellac, so as to be water-tight. A spring, which holds a piece of candle of a certain size, is affixed to one end of the table. When pure milk is poured into the space between the glass plates, the frame holding them is pushed into such a position that the light of the candle can just be distinguished through the liquid. It is evident that if the milk should be diluted with water, it will be less opaque, and the in-



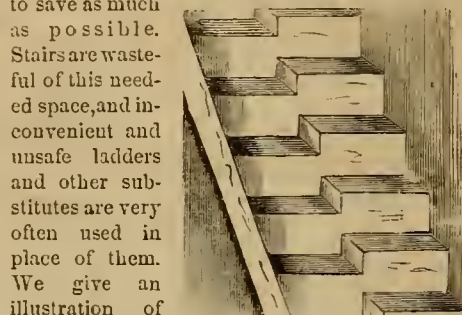
MILK-TESTER.

creased distance to which the frame must be moved to render the flame barely visible will

become the comparative measure of the adulteration. If foreign matter is suspended in the milk, its opacity becomes increased, and the lessened distance between the light and the frame made necessary to permit the light to be seen, shows the comparative impurity. Now that the milk question has become one of the leading problems waiting solution, it will be of interest to those whom it may concern to make for themselves one of these simple milk-testers. It is obvious that the candle used in these tests should be always of the same size and power. A piece of wax candle is preferable.

Barn-Stairs.

Barns and granaries are generally so much curtailed of available space, that it is an object



BARN-STAIRS.

to save as much as possible. Stairs are wasteful of this needed space, and inconvenient and unsafe ladders and other substitutes are very often used in place of them. We give an illustration of stairs for a barn or similar building, which occupy only half the space of common ones. It is seen that the steps are alternate; and while each has only the ordinary rise of say nine inches, yet each step, in perpendicular height, rises double this distance. A great saving of space is thus gained.

Composting Sods.

Being lately in Orange County, New York,



Fig. 1.—SOD-HOE.

we saw a farmer busy doing valuable work, which might at this season be very profitably



Fig. 2.—COMPOST HEAP.

done by thousands of farmers throughout the country. He was making manure. With the tool shown in fig. 1, he was cutting sods in a very rough, boggy meadow, covered with tussocks and coarse grass and weeds. These he was piling up in heaps, with weeds gathered seemingly from his fields and fence-rows, and all arranged in layers, with lime between them as shown in fig. 2. This is quite a common plan in several European countries, and we should judge this farmer was an "adopted citizen," paying for the privilege of his citizenship by giving some new ideas to his neighbors.

At any rate, it is a very useful thing to do, and by spring these heaps will be all rotted down into fine, rich mold, which will make an excellent top-dressing to grass lands or young wheat.

Large Cows, or Small Ones?

It is a question much discussed whether large or small cows are the more profitable, and experiments on the subject have not thus far sufficed to decide it. It must depend very much on the purpose for which the animal is kept. Mr. Leander Wetherell publishes the result of Villero's experiments, as follows:

Holland cows (Holsteins?)	gave	28.92	quarts	per	100	lbs.	of	hay	consumed.
Yorkshire	gave	27.45	quarts	per	100	lbs.	of	hay	consumed.
Devons	"	19.13	"	"	"	"	"	"	"
Herefords	"	15.97	"	"	"	"	"	"	"
Jerseys	"	26.33	"	"	"	"	"	"	"

And he concludes that it has been clearly demonstrated, by careful experiments made at the agricultural schools on the continent of Europe, that the large breeds of cows are more profitable than the small breeds.

Surely the table given above does not establish this conclusion. The Jersey is much smaller than the Devon and Hereford, yet it gives more milk from the same amount of food.

Then, again, if it is the purpose to sell milk only, the test given will do very well; but if butter or cheese is the object, it will all depend on the quality of the milk. For instance: Mr. C. M. Beach, of Hartford, Ct., made a careful experiment which showed that (the condition of the cows being the same, as to pregnancy, feed, etc.) he required to make one pound of butter $6\frac{1}{2}$ quarts of Jersey milk, and 11 quarts of "native" milk. By this test, 100 lbs. of hay fed to a Jersey cow would (according to Villero's estimate) produce 4.16 lbs. butter, while if fed to a Yorkshire (supposing her milk to correspond to that of our "native") it would produce but 2.49 lbs. Probably the Yorkshire would weigh fully fifty per cent more than the Jersey. In like manner the amount of cheese would depend less on the amount of milk produced than on the proportion of casein it contained.

The fact is that there is no rule by which we can judge from the size of the animal as to the economy of different breeds or of different individuals of the same breed for any purpose. It will depend on the character of the animal and on the purpose for which it is kept. The best, almost the only standard of comparison will be the actual performance at the pail, at the churn, and at the cheese-vat, and in practice the decision will be most safely made by an experienced dairyman according to the appearance of the cow, and his trained observation of her consumption of food and of her actual production.

△ Farmer's Savings-Bank; or, How to Manage Manure.

There is a very decided advantage in fermenting manure, provided it is done without loss. It converts the woody fiber of the straw into ulmic and humic acid and the nitrogenous matter into ammonia. In other words, it decomposes the manure and renders it soluble or available. Chemistry and experience agree on this point. Farmers and gardeners know that well-rotted manure acts more quickly than fresh manure; chemistry tells us why, and also teaches us that there need be no loss of ammonia during the process of fermentation.

It is undoubtedly true that there is often

great loss in keeping manure. This arises principally from leaching. The rain washes out the soluble matter. If the liquid was run on to a meadow or otherwise applied to the land, there would be little loss. But when it runs off into drains or ditches, we unquestionably lose much of the best plant-food of the manure.

The first thing to be done is to spout all the barns, buildings, sheds, etc., and carry off the water where none of it can come in contact with the manure. Some farmers seem to like a wet barn-yard. They think more manure is made. If the object is merely to wet as much straw as possible, there is some truth in the idea. But straw alone makes very poor manure, and letting straw lie saturated with water is not the best way to rot it. We have, moreover, rarely been on a farm where all the straw could not be used up to advantage in bedding the cattle, horses, sheep, and pigs.

NOW FOR THE MANURE.—And we wish we could get all the farm boys that read the *American Agriculturist* to try the plan we have to recommend. We have two boys who "boss" the job on our own farm—and do nearly all the work themselves—and they soon feel a real interest in what we call our "Savings-Bank."

We have in the center of the barn-yard a basin, or hole, with sloping sides. Into this basin the old-fashioned plan was to throw the manure, promiscuously, anywhere, just as it happened, and the result was that for several weeks or months it would form only a thin layer, spread out all over the bottom of the basin. It was too thin to ferment, and had a slovenly appearance. Our plan now is to wheel or cart the manure into one corner of this basin, making a kind of hot-bed of it. Make it four or five feet high, and as you get more manure, increase the length and width of the heap, but always keeping it in a compact mass. It soon begins to ferment and to get warm and throw off steam. This pleases the boys, and we, too, like to see it fermenting, because we know, if the heap is properly managed, there is no loss of ammonia. That is an exploded notion. There is water in the form of steam or vapor escaping, mixed with a trace of volatile oils and carbonic acid, but these are of no manurial value.

This little fermenting heap is the "nest-egg." It has an attraction for the boys. They seem to like to clean out the pig-pens and the cow-stables, in order to get manure to add to the heap. They have a horse and cart, and if they can find anything that will make manure, it is drawn to the savings-bank and deposited.

Now, is not this better than having a heap of horse-litter at the stable-door, where it gets so dry and hot as to "fire-fang"? or better than having another heap or heaps on the side of the cow-sheds, where the drippings from the caves wash out much of the best substance from the manure? or than having the pig-sties reeking with filth? or the sheep-yard so foul and damp that there is great risk of the foot-rot, and no possibility of the sheep doing well?

The great point is to get the heap started. Many a rich man dates his wealth from his first deposit in the Savings-Bank. Once get a little manure into the heap and start the fermentation, and it will keep growing bigger and bigger. Manure scattered about the premises is soon frozen solid, and remains in a crude state until spring. But this snug little heap will not only keep itself warm, but, like yeast, will induce fermentation in the fresh manure that is daily added to it. It will, as we can state from

actual experience, keep fermenting slowly during the coldest weather in winter. But it would not commence in such cold weather; hence the importance of starting the heap now. What we gain by this fermentation, we will tell the boys at some future time.

The Shad in Mississippi Waters.

The stocking of the rivers that empty into the Mississippi and into the Gulf of Mexico has ceased to be a problem. We have received a photograph of a shad which was taken from the Ouachita River, near Hot Springs, Ark., April 18th, 1872. It measured 19½ inches in length, and 12 inches in circumference around the dorsal fin. No one acquainted with the fish, we think, can doubt that it is a genuine *Alosa præstabilis*. Dr. Geo. W. Lawrence, of Hot Springs, informs us "that shad were first taken in this stream, so far as he knows, in 1860. Three were caught during the month of April, 1860, in a small wooden trap, erected in the middle of the stream, a few rods below Farr's mill-dam. This dam obstructs the river about eight miles west of Hot Springs. It is the first obstruction found between the mouth of the Mississippi and this place, a navigable distance of over 1000 miles. The Ouachita River empties into Black River, the Black into Red, and Red River into the Mississippi about the eastern center of the State of Louisiana. Farr's dam is at least 60 miles above steam navigation. The trap was built for the purpose of supplying Hot Springs market daily with fresh fish and soft-shelled turtle. Above Rockport the river has a rocky bed and barriers, and is protected in this mountainous part by forest margins. The Ouachita affords shelter and good feeding surface for all kinds of fish. The shad are as delicate and fine-flavored as any that can be found in the Susquehanna River, or elsewhere in the Eastern States. The first fish-trap was destroyed in 1862, and was not rebuilt until after the war. The number of shad taken in the trap has annually greatly increased. The present year shad commenced running early. The abundant rains that fell in April and May, about 7 inches in each month, kept a good volume of water in the river during that period. I was supplied with shad this year from April 5th until May 12th. Wagon-loads of these large, fine fish were brought into the village of Hot Springs, to supply visitors to our famed resort with the luxury of shad from the Ouachita River."

How did this fish find its way into the Ouachita River? It will be recollected by those who have followed the progress of fish-culture in this country, that Dr. Daniells, of Savannah, Ga., transplanted shad spawn from the Savannah to the head-waters of the Alabama in 1848, and that these fish were taken for the first time in the Alabama three years afterward, and that the Alabama and its tributaries are now abundantly stocked. They are also found in large numbers in the tributaries of the Escambia, the first large stream east of Mobile Bay, having, without much doubt, gone into that stream from the Alabama. It is highly probable that the shad of the Ouachita are a delegation from the Alabama. Their complete success in that stream is about as good evidence as we can have that the shad will flourish in all the tributaries of the Mississippi. If they will go a thousand miles through muddy water to reach their spawning-grounds, why will they not go two or three thousand? If they reach Hot Springs in perfect condition, why may they not reach Pitts-

burgh, St. Paul, or Denver? Their distribution by natural methods is extremely slow, as this case shows. By the artificial process it can be greatly hastened, as has been demonstrated in the Connecticut. If Congress will furnish the funds there is very little doubt that all the people of the Mississippi Valley will be eating fresh shad in less than five years.

The Labor Question in American Agriculture.

Indeed we need not confine our discussion to the agriculture of America alone, for the same causes which are threatening the stability of labor in this country, are operating in Europe as well. Their operation is natural, and the causes themselves are to be encouraged and sustained—which makes the problem a very difficult one. The growing prosperity of the world and the more active demand for labor in manufactures and kindred employments, are sufficient to account for much of the scarcity of farm hands, but this might be to a great extent met by an advance in wages, to draw out the idle men from towns, which, though serious, would be of secondary importance, compared to the need of going without sufficient labor at any price.

The real causes of the revolution that is slowly but very surely undermining the supply of farm hands, are the cheap newspaper and the common school. Formerly the man who was contented to work, year in and year out, as hired man on a farm, and had plenty of competitors for his place—the horizon of his life and thought was the "*pays bleu*," the blue country that bounded on every side the outlook from his township's hills—and he sought his soundest wisdom at the corner store, and his only suggestion of fancy in the staid sermons at the country church. The few strangers who came at odd times across his vision were too infrequent and too different from his standard of excellence, to awaken any emotion but curiosity or contempt. The district school had taught him only the 3 Rs, and even they had been allowed to fall into much disuse. He knew nothing better than his life, and he wanted nothing better. He was a steady, honest, hard worker, with the sort and amount of common-sense that are needed to enable a man to trundle along through the uneventful life of a country neighborhood; with no knowledge of and no respect for any further intelligence. He was exactly the stuff for a good farm laborer. If he was Irish, he seemed not more disposed to roam nor to dissipate his usefulness in foolish ventures than if he was "native and to the manner born." Most of us can remember when such hands were plenty, when they were glad to get a good place, and zealous to keep it. Those were good times for the employers, but we shall never see them again.

The later generations of the race have been inoculated with the poison of unrest. The scales have dropped from their eyes, and they have learned the great lesson that the world does not revolve around their own small village, and that there are better men than they in the world, and better opportunities to achieve success and happiness than their fathers dreamed of.

It would be idle to discuss the advantage or disadvantage to the world of this wide diffusion of intelligence—our duty is only to consider its effect on agriculture. It has broken up or is breaking up, in all the civilized world, the old, reliable system of farm labor. Men who take and read a newspaper, and have their

minds stimulated to an interest in the affairs of the world at large, gravitate toward each other, by a natural law, and the towns grow at the cost of the country. Pages might be written about the why and the wherefore of this tendency of men into whose minds the dawn of the new day has broken, but we could not change the fact. Our old race of farm laborers is going to drop away from us, and we must bestir ourselves to meet the new state of things—gradually, of course, as the change will come.

The extension of the use of machinery and artificial power will help us more than we now imagine, and, for one or two generations, we may find our relief in the employment of Chinese, but if we care for the interests of posterity, we must consider some reorganization of our system of agriculture which will allow of a concentration of the workmen into communities where they can enjoy the advantages they crave.

Straw for Bedding.

In some parts of the country straw is so abundant that it is left in the fields where thrashed and set fire to. Even in the wheat-growing sections of this State there are many farms where straw is scattered about the yards all winter for the mere purpose of rotting it into manure. In other parts of the State it is so scarce that the cattle must lie on the bare boards, or be bedded with sawdust or shavings.

We believe there are few farms where straw need be wasted. We propose to say nothing in regard to the demand which exists for it to make paper or for bedding in the cities, except to remark that in some cases it might be more profitable to sell the straw and buy bran or grain rather than to waste the straw at home.

Some farmers seem to suppose that they *must* get rid of their straw during the winter. We know many farms where straw is thrown a foot deep at a time about the yards in winter and early spring, where not a handful of straw could be found in June! We hope all the readers of the *Agriculturist* will avoid this mistake. There is not a week in the year when straw can not be used to advantage on a farm.

Where straw is fed to horses, cows, or sheep, we would not be sparing of it. Put enough into the racks for them to pick out the best, and use what they leave each day for litter. What we object to is scattering a great layer of straw about the yards two or three times during the winter. Better litter the yards every day where it is necessary. In the case of sheep, there is nothing more injurious than to compel them to lie on a mass of fermenting straw. Sheep are very fond of having a clean bed of straw to lie down upon. We have often observed sheep in winter standing about uneasily, and when a little clean straw was spread under the shed or about the yard they would very soon lie down and chew the cud of contentment.

The great point in littering sheep, then, is to give little and often—the less the better, provided it keeps the sheep out of the mud, and gives them a dry, clean bed to lie upon. A sheep must be very tired before it will lie on a dirty bed. Another point to be observed is either to change the position of the racks occasionally, or to be careful every day to scatter the straw that is pulled out. Unless this is done, there will soon be a thick layer of straw on the side of the rack, which will be liable to ferment.

It is sometimes a great convenience, and we think economical, to cut the straw into chaff, not only to feed, but for litter. We think it

absorbs more liquid, and the soiled portions can be removed more readily from the rest of the bedding, or at any rate with less waste of straw.

Wintering Cows.

An ordinary-sized cow will eat about 200 lbs. of hay per week. In the dairy districts of this State it is estimated that it requires two tons of hay to winter a cow. Where hay is worth \$20 per ton at the barn, as it is where we reside, the expense of wintering a herd of cows take a large slice out of the profits of the dairy. But with us, while hay is comparatively high, grain is cheap, and corn-stalks and straw abundant and of good average quality. Cows also sell for an unusually low price. We do not advise those of our readers similarly situated to buy cows and winter them in hopes of making a good thing out of it by selling them at a high price in the spring. They may or they may not make money by the operation. But we think we are perfectly safe in recommending those farmers who have plenty of straw and stalks not to *sell* their cows; and if they will need more cows next summer, we think they can buy now and winter them over to good advantage.

A cow will eat say three bushels of chaffed hay per day. So far as *bulk* is concerned, we must not vary much from this standard. In our own case, however, we would feed 2½ bushels of chaffed straw and stalks, half a peck of bran, and half a peck of corn-meal per day. We think a cow can be wintered better and (with us) far cheaper than on hay alone. If you have plenty of clover-hay it may take the place of the bran. But do not try to winter the cows on straw and stalks alone. It is very poor economy.

A New Sensation.—Horse Disease.

If, two months ago, any one had predicted that the streets of New York, Boston, and other cities were to echo to the cry of the ox-driver, and that horses would be for a time removed from the streets, he would have been received with contempt. But nevertheless, in 1872 the unwonted sound has been heard, and the strange sight has been exhibited of express and other wagons slowly moving behind ox-teams, which were urged along by the usual noisy epithets and maledictions of their drivers. A strange disease had suddenly stricken down the greater part of the horses and rendered them unfit for work. It originated in Canada, and in a few days had spread as far as New York and Philadelphia, and it may, before these lines can reach the readers of the *Agriculturist*, have spread south and west over the whole country. If the conditions are favorable, not only is this highly probable, but other stock may be affected also. But it is quite needless that serious apprehension should be felt. Fortunately the disease, although so sudden in its attack and so widely spreading, is comparatively harmless if rightly treated.

Its first appearance is made known by the following symptoms: A depressed condition of the animal, roughness of the coat, drooping head, watery eyes, and disinclination to exertion. On the first appearance of these symptoms, the animal should be cared for, kept dry, warm, and well bedded and blanketed, and fed with slightly-warm bran-mashes, scalded oats, and chopped and moistened hay. A little sweet spirits of niter, or a light dose, say a teaspoonful, of powdered saltpeter, may be given. Some



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SCENES IN NEW YORK DURING THE PREVALENCE OF THE HORSE-DISEASE.—Drawn and Engraved for the American Agriculturist.

of the usual condiments or prepared cattle-feed will be found useful with slightly-warm flaxseed tea or thin bran or oat-meal gruel. If these simple remedies are used at once, the attack will generally pass off in a few days. If, however, through inadvertence or otherwise, the symptoms are allowed to increase in severity, and a copious discharge from the nostrils occurs, with sore throat, cough, and falling off from the feed, cold feet and legs, and fever, more active remedies must be applied in addition to the above-mentioned treatment. The nostrils should be washed often with warm water, in which a little vinegar has been mixed; the head steamed by means of a bag of scalded bran, hung beneath the nose; the feet and legs, after bathing in hot water, should be rubbed dry with woolen cloths; let the whole body be thus rubbed and then immediately blanketed from head to tail, and the patient kept free from drafts in a thoroughly ventilated, dry

stable. Tar should be burned in the stable for a disinfectant; take a small quantity in an iron pot and stir it with a red-hot iron, and allow the smoke to penetrate all through the building. The soreness of the throat may be relieved by rubbing externally with mustard, mixed in milk-warm water, as for the table, and also by placing on the back of the tongue a spoonful of molasses or of honey and vinegar, made as thick as possible. No medicine should be poured down the throat under any circumstances, and no bleeding should be allowed. On fine days gentle exercise is to be given, but no work should be permitted, nor exposure to damp or rain allowed. Rapid recovery should not be injudiciously attempted, nor should work or high feed be hastily resumed, but ample time given for complete restoration to health, before these precautions cease. With them there will be no fear of anything more serious occurring than a few days' idleness.

Our artist has engraved some of the scenes which have been common during the course of this disease in New York and other large cities. The lightning express has owed its slower motion to ox-teams, and the accumulation of all sorts of freight would have been greater than it has been had it not been for their needed help. Street-cars have been overloaded until car and horses have both broken down under the excessive loads, and occasionally a poor horse died, not from the disease, but from overwork when feeble and sick. On one occasion a horse-car has been drawn by men at increased rates of fare, and loaded wagons have also been thus drawn along. In the middle of the picture the methods of treating the complaint are illustrated; and on the whole, the scenes depicted—not exaggerated in the least—go to show to what straits we should be brought if we should suddenly be deprived of our patient and absolutely indispensable beasts of burden.

The Maiden-hair Rue-Anemone.

We have several species of Rue-Anemone, commonly known as Meadow-Rue, botanically *Thalictrum*. All of these have very much divided or compound leaves, and flowers without petals, but very showy stamens. The foliage of none of our native species is equal in beauty to that of the European smaller Meadow-Rue, *Thalictrum minus*. This species is found all over Europe and Russian Asia, and is so exceedingly variable that it is not surprising that we find various forms of it in the catalogues under different names. Last spring we received from W. C. Strong & Co., Brighton, Mass., a variety under the name of *Thalictrum adiantoides*, or Maiden-hair Rue-Anemone, so called from the resemblance of its foliage to the fronds of the Maiden-hair Fern. Messrs. Strong & Co. have introduced this as a plant to furnish foliage for bouquets. The leaves have all the delicacy and grace of a fern, while they are much more lasting and much more easily produced. The engraving gives an idea of the form, but well-developed leaves are several times larger than the one from which the illustration was taken. Certainly nothing can be finer for bouquets or other ornamental work than these beautifully dissected leaves. Being a hardy herbaceous perennial, it should be treated like other plants of its class. We grew ours in the open air during summer, and potted it on the approach of frost. It will be kept in a cold-pit until February, and having had a season of rest it will be brought into heat and forced like other plants of similar nature. The flowers of this species are not at all showy, and to get the best developed leaves the flower-stems unless it is desired to produce seeds should be removed as soon as they appear.



MAIDEN-HAIR RUE-ANEMONE.

The Glut in the Fruit Market.

The year 1872 will long be remembered as the abundant fruit year in all parts of the country. The rains have been abundant, and almost

have been so abundant that the larger part of the crop has rotted upon the bushes. The vineyards in the West have been loaded with grapes, and the growers have found it difficult to market

have jumped to the conclusion that there is no profit in fruit-growing, and that we may as well cut down our orchards. Certainly, we ought not to plant more fruit-trees. This is a hasty conclusion. There is just as good reason for planting orchards, especially of winter fruit, as there has been for the last twenty years. For some years past there have been serious doubts among intelligent men about the possibility of raising apples in sufficient quantity to make them pay. The trees would not bear. The crop of this year must have dissipated all doubt of this kind. The soil has not lost its fertility. The climate is not unfriendly to fruit. It is much to have our faith restored by the bountiful yield of this year. It is also a great good to have fruit so cheap that the poorest families in city and country can enjoy it. It has been so dear, in most years, that laboring men, in cities especially, have felt that they could not afford it. Apples at five dollars a barrel, and grapes at twenty-five cents a pound, were beyond their reach. A great many families have come into the full enjoyment of fruit this year, and will be good customers of the fruit-grower henceforth, as long as they can afford it. There can be no doubt that the market for fruit has been greatly enlarged by the bounty of this year, and the losses of the fruit-growers, so far as they have made them, may be regarded as so much capital invested for future operations. Every market in the country will take more fruit next year at paying prices, in consequence of the abundance of this. Those who have large orchards of winter fruit, of popular varieties, and plenty of storage room, will not lose money even this year. Apples will not be a drug in the market

next spring. The man who does not take pains to save his fruit will be sorry when he hears the cheerful prices of the late-keeping apples.

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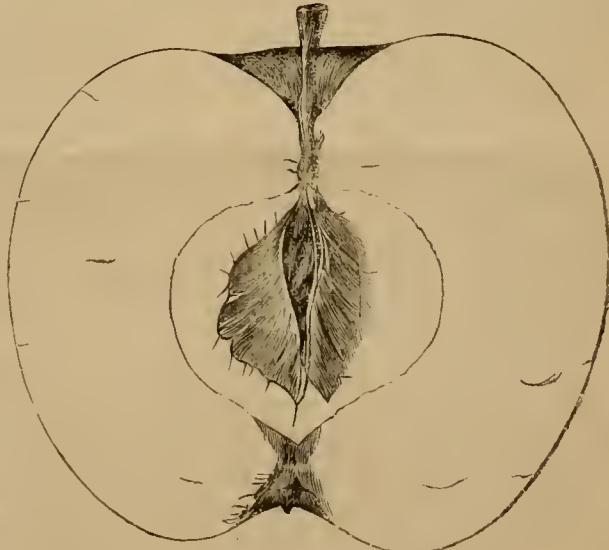
The Mexico Apple.

The illustration shows the Mexico Apple of the natural size of a selected specimen. It



MEXICO APPLE.

they have orchards, that immense quantities of summer fruit have rotted upon the ground. Trees in old pastures that have been barren for years have hung full. Dusty cider-mills, and presses unused for years, have been put in order, and the familiar squeak of the grinding apples has been heard in almost every rural district. The prophetic symbol of agricultural prosperity has been realized in all parts of the land. The presses have burst



MEXICO APPLE—SECTION.

without exception every kind of fruit has done well. The wild fruits, grapes, strawberries, whortleberries, blackberries, raspberries, plums,

out with new wine and cider. What is to be done with all this abundance, and what is the true policy for the future? Some

originated in the town of Canterbury, Ct., and was widely disseminated from the nursery of the Messrs. Dyer all through Eastern Connecticut.

cut. It is a fruit of great excellence, and ought to be more generally cultivated. It is the best apple of its season we have ever found. The tree is hardy, a good grower, and, on good soil, very productive. The fruit is of medium size, round, regular; surface bright crimson red, striped darker; dots, numerous, yellow-green. The basin is shallow, regular; eye medium, closed. Cavity acute, regular; stem long or medium, slender. The core is large, open, meeting the eye; seeds numerous, angular, pointed. The flesh is white, tender, fine-grained, and juicy. Flavor, sub-acid. Quality, best; season, August and September. It is a superb dessert apple, worthy of a place in any small collection or fruit-yard.

The Canker-Worm.

The wingless female moth that lays the eggs of the Canker-worm must ascend the tree by climbing up the trunk. All the methods of prevention oppose some obstacle to her ascent, or catch her in the act of climbing. One great difficulty with all these preventives is that they are not put upon the tree early enough. It has been found that the insects ascend very early, even during the warm spells that we often have in February, and that the only safety in sections where they are abundant is to keep the protecting material always ready. Tar has been used, but the following, from our correspondent "Bay State," is much better. He writes:

"Having had some twenty years' experience with the Canker-worm, and during that time having either tried or witnessed the results of the experiments of others, with all the various methods, patented and otherwise, to prevent the female from ascending the trees, I feel that the right thing has been hit upon at last. It consists simply of bands of sheathing-paper, 6 or 8 inches wide, tacked around the trees (same as for the old tar process), and an application of refuse printer's-ink. The ink is now manufactured for the purpose and costs 12½c. per pound. This remedy has been used in Massachusetts three years, and gives general satisfaction. Two to four applications a year are sufficient, and an orchard averaging from four to twelve-inch trees can be protected for an annual sum of *ten cents* per tree. As some evidently know but little of the persistency of the Canker-worm, I thought the above item might be useful."

Hints about Cheap Greenhouses.

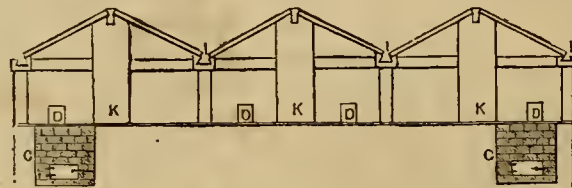
BY PETER HENDERSON.

I find so many inquiries coming in at this season of the year about the heating and general construction of cheap greenhouses, that I am compelled to give instructions which are known now to nearly every one in and around our large cities. Yet, simple though the matter may be to us who see so much of it, it is evidently perplexing enough, when they come to construct, for those who have nothing to copy from. Those of us who write on such subjects too often take for granted that those for whom we write know something about the matter, when for the most part they really know nothing.

The cheapest kind of construction is a lean-to (already described by me in the *Agriculturist* for February, 1872)—that is, where there is anything to lean it against, such as the gable of house or barn. But if the greenhouse has to be constructed entirely new, I think the ordinary span-roof is best—see end-section. The walls

are four feet high, formed of locust or cedar posts. To the outside of these are nailed boards—rough hemlock will do, if appearances are not considered. To the boards is tacked the ordinary tarred paper used by roofers—a cheap article, and an excellent non-conductor of heat. Against the paper is again nailed the outer or weather boarding. This makes really a better wall for greenhouse purposes than an 8-inch one of brick, as we find that the extremes of temperature of the greenhouse—inside at 50°, and perhaps 10° below zero outside—very soon destroy an 8-inch *solid* brick wall, particularly if exposed to the north or west. A wall of wood constructed as above will last for twenty years, and be as good a protection as one of 8-inch brick. So much for the construction of the frame. The roof is formed by the ordinary sashes, six feet in length by three feet in width, which can be bought ready made, or easily be made by a carpenter or any one handy with tools.

Such a house, if cheapness is an object, should be heated with a flue. It should not be



END-SECTION OF GREENHOUSES.—C, Furnace; D, Flue; K, Walk; I, Gutter.

more than 60 and not less than 30 feet in length; if more, the flue would not heat it enough, and if less it would be likely to get too much heat. About 50 feet by 11 is we think the best size of a greenhouse to heat with a flue. The flue should run all around the house—that is, it should start along under one bench, cross the end, and return under the other bench to the end where it begins, making the length of flue in a greenhouse of 50 feet about 110 feet long. It should have a "rise" in this length from the furnace of at least 18 inches, to secure a free draft. For the first 25 feet of flue nearest the furnace it should be built of brick, forming an air-space inside of about 7 by 7 inches. From this point (25 feet from the fire) the flue should be formed of the ordinary drain-pipe cement or terra-cotta. The former is to be preferred, and that of 7 or 8 inches diameter is best. The drain-pipe for flues is now almost exclusively in use here wherever flues are used, and it is found not only to be much cheaper, but better for rapid radiation than brick. The cost of a plain greenhouse so built, complete, in this section, is about \$6 per running foot—that is, one 50 feet long by 11 feet wide costs about \$300.

The use of tarred paper for the walls or drain-pipe for the flues of greenhouses is not given in my "Practical Floriculture."

Hints on Pot Plants for Winter—Cheap and Effective Manure.

People who live in the country have no excuse for being without good food for pot plants. Dead leaves and earth or mold from the woods are always attainable. My advice is mainly for dwellers in cities.

First, make your calculations a year ahead. You who have not been accustomed to make plans for gardening, in-doors or out, for a month ahead, need not be discouraged at this. The amateur and professional florist make their plans for a much longer time. There are very few cities where a bushel or two of dead leaves can

not be gathered in the fall from the many trees that line some streets, or adorn your own or your neighbors' yards; but don't be afraid of getting too many. The older and more thoroughly rotted the manure is, the more valuable, and a bushel or two of leaves will go very far—much farther than you think. Put the leaves in a sheltered place, say against your back wall or fence, and put a board or two over the heap, to shed rain. Then to a bushel of leaves add a peck of loam or garden soil (sods are best), and a half-peck of common sand. Every washing day empty a pail of hot suds on the heap, and stir it as often as possible with a garden fork, hoe, or shovel, or anything else that will mix it up well. Of course, it will freeze up solid many times during the winter, unless kept where it does not freeze, but if you begin now, and stir as often as you can, by next fall you will have the whole thoroughly rotted down. Oak leaves do not rot as quickly as some others, maple, for instance. My heap was begun last October, and you can not now distinguish the least form of a leaf in

the mass. Although out of sight, under a flight of steps at the back door, it is perfectly odorless, and is springy and spongy—just what is needed.

To recapitulate: A bushel of leaves, a peck of loam or sods, a half-peck of sand are all the important ingredients.

Whatever you can add in the way of stray bunches of moss, or bones burned in the kitchen fire and powdered, is so much gain.

When ready for use, sift through your coal-sieve (let it be a coarse one), and take one third of the manure and two thirds of the best garden soil you can get, and make your heap for potting. With very few exceptions all plants will thrive in this mixture, and your courage will not be damped by the formidable array of soils paraded as necessary in most works on flowers. Through the winter you will have flowers that will be the envy of your less energetic neighbors—Geraniums that are Geraniums, Bouvardias and Primroses that no greenhouse need be ashamed of—especially if you have a sunny window. It is of no use to attempt to have winter flowers without some system. Better have none at all than the sickly specimens that disgrace so many windows from November to April.

I do not find in my horticultural reading much said about Geraniums for winter-flowering; yet they will be much more satisfactory, if some of the better varieties are tried, than many other plants chosen. Two years ago I gave a lady friend, living in the country, two cuttings of Geranium—one a bicolor (salmon pink, shaded with white) and the other pure white. She has a little winter sitting-room, about nine feet square, with a window each to the south and west. The south one is devoted to flowers, and it isn't worth while to boast of Geraniums unless you could see hers. The first winter they were less than a foot high, the leaves so thickly set that the stalks were not visible, and the horse-shoe or zone on each leaf almost black. They each threw up one cluster of buds, then another, and another, until finally through the greater part of the winter there were always from one to four clusters of blossoms. And such clusters! Nearly as big as your fist, and each floret as large as an old-fashioned cent. The shape of the cluster was such that the flowers seemed to grow in trusses, like the Hyacinth, and hid the stem entirely. The difference between the summer and winter blooming of the same plants was very marked. Out of doors they bloomed like

nearly all Zonal Geraniums; one half the florets faded before the other half came out. In the window each cluster would keep about three weeks; if one floret dropped, another came out in its place, or the rest pressed together and filled up the gap. Cuttings from these did equally well last winter. They stood on the window-sill, close to the glass. The room had only a wood-fire, and was never very hot—which last item, by the way, is a very important one for your own health as well as for that of your plants. Don't let the thermometer get above 65° or 70° at the most, going down not lower than 45° at night if possible. You can easily accustom yourself to the temperature, and will be all the better for it.

PROVIDENCE, R. I.

G. H. B.

Seedling Pelargoniums.

BY JEAN SISLEY, OF LYONS, FRANCE.

Mr. Sisley, well known as the originator of several choice varieties of double Zonale Pelargoniums, writes to the editor as follows:

LYONS, 16th October, 1872.

Editor of *American Agriculturist*, New York:

You have asked me how I proceeded to obtain the new double-flowered Zonale Pelargoniums, and since then I have received many applications for information from Belgian, English, and French horticulturists, particularly since my friend Carrière, speaking of my double White Zonale in the *Revue Horticole* of 1st October, says that it is the result of scientific combinations. I must decline to accept this encomium, but am very willing to let the horticultural world know my very simple practice, which I have never kept secret. It is not necessary to discuss here the process of artificial impregnation; one familiar with horticulture knows how it is practiced. I will therefore at once inform your readers of my proceedings.

When, six years ago, I began the artificial impregnation of Zonale Pelargoniums, I first procured about fifty of the best varieties of single-flowered Zonale Pelargoniums, selected from the various colorings, and about two hundred plants of the then existing double-flowered varieties. And until 1870 I continued to buy all the new double varieties that were brought out, and all the single-flowered varieties which were of different shades from those in my collection.

Without any preconceived theory I impregnated all the single-flowered with the pollen of the double ones which had stamens.

For three years I did not obtain a seedling worth mentioning, and I was on the eve of giving up artificial fecundation, when in 1869 I obtained Victoire de Lyon and Clémence Royer, which, although not perfect in form, were very different in color from any double Zonale Pelargonium until then produced. This led me to continue my efforts. Since the first year I had kept my seedlings that were alike in shape and color to those in my collection, and rejected the old ones. I proceeded in the same way with the double-flowered, and rejected principally all those that had few or no stamens as useless to me. I had been led to this selection by the idea that single flowers obtained from single flowers impregnated by double ones, might perhaps be more disposed to produce double flowers than the old sorts.

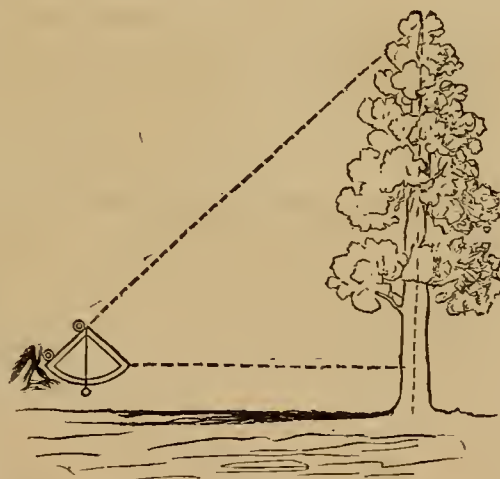
This selection is the only scientific combination I have used, and although I can not affirm that this proceeding is the cause of my success, I recommend this method to those who may be disposed to practice artificial fecundation with

other species of plants. Nevertheless I have not learned by my practice anything that can be called a theory, because among my seedlings coming from the same mother and the same father I have found them all differing from one another. My double White is the produce of a single White (one of my seedlings second or third generation) by a double Red; but four other seedlings from the same fecundation are either white, pink, or red, and all single flowers.

And there is nothing astonishing in this. Why should the laws of nature vary and act differently in the vegetable world from what they do in the animal world? Nature and science have not yet taught us why the offsprings of the same father and the same mother are *always* different from one another, notwithstanding their family likeness. And it is very likely that man will always be ignorant of this and many other laws of nature. The only thing I know, and every horticulturist knows, is that to obtain double flowers, single flowers must be impregnated by double ones.

Measuring the Hight of Trees.

It is often desirable to determine the hight of a tree, if not with mathematical correctness, with something approaching to accuracy. There are instruments made for the purpose of measuring with great precision, but there are several methods by which the hight can be



MEASURING THE HIGHT OF A TREE.

ascertained without expensive appliances. By measuring the shadow of a rod or other object of a known length and the shadow of the tree, a simple sum will give the hight. Suppose that we measure the shadow of a perpendicular rod six feet long, or that of a man of the same hight, and find it to measure eight feet, and then measure the shadow of the tree and find it to be 132 feet; then

$$\text{as } 8 \text{ ft.} : 6 \text{ ft.} :: 132 \text{ ft.} : 99 \text{ ft.}$$

The Gardeners' Chronicle figures a simple quadrant for tree-measuring which we here reproduce. A quarter of a circle is made of some light wood, and a small plumb-bob is suspended from what would be the center of the circle, and a mark made just half-way of the curved side of the quadrant. Two small eyes for sights attached to one of the straight edges make the implement complete. The quadrant is held as in the diagram, the operator moving backward or forwards until he can see the top of the tree through both sights, the plumb-line at the same time hanging over the mark. The distance of the observer from the tree, when he

can see the top of it in this manner, will be the hight of the tree. Allowance must be made for the hight of the eye from the ground, and for any difference in the level of the ground between the tree and the observer.

Yuccas and Insects.

At the last meeting of the Association "with a name," Mr. Riley stated as a discovery of Dr. Engelmann, that our American Yuccas could be fertilized only by means of some artificial agency, and that an insect was engaged in the work. This insect, a moth, was described by Mr. Riley as one hitherto unknown to entomologists, and one by its structure well calculated for its work. The insect collects the pollen which would not otherwise reach the pistil, and places it upon that organ and lays her eggs. The young larva after hatching eats its way into the developing fruit, lives on the maturing Yucca seeds, and by the time the seed-pod is ripe the full-grown larva leaves the capsule and enters the ground, where it undergoes its transformation, and comes out the following spring as a moth to repeat the work. Mr. Riley is quoted as saying, "In the more northern portions of the United States and in Europe where Yuccas have been introduced and are cultivated for their showy blossoms, the insect does not exist, and consequently the Yuccas never produce seed there," and suggests that the insect be

captured in the chrysalis state and sent to those countries where it is lacking. Three large plants of the Adam's-Needle, or Bear-grass (*Yucca filamentosa*), in our garden near New York, produced fine clusters of capsules this autumn; upon examining them we found that apparently every seed-vessel either contained an insect, or had a hole showing where one had escaped. The capsule of this Yucca consists of three cells, and generally but one of them was inhabited by the larva, which destroyed the seeds in that, while the contents of the other two cells were untouched. All the capsules were one-sided or contorted, owing to the presence of the caterpillar. The fact is an interesting addition to our rapidly-accumulating knowledge of the relations between plants and insects, but it is a question if all Yuccas require this insect aid in order that they may produce seed, or that it is always necessary, even with our commonest species, *Yucca filamentosa*. A very observing friend who made extensive experiments with seedling Yuccas in the hope of obtaining some new varieties, is quite sure that he has obtained crops of seed without any of the distortion of the capsule to which we have referred. A recent Gardener's Chronicle, alluding to the statement that Yuccas do not fruit in Europe, cites two cases in which *Y. filamentosa* produced seeds, which would show either that the moth in question is in Europe, that some other insect does the same work, or that the presence of an insect is not always required. During a recent visit to Georgia we found *Yucca gloriosa* in fruit. The fruit of *Y. filamentosa* is a dry capsule, while that of *Y. gloriosa* is pulpy, and when quite ripe is as soft as a banana. We examined a number of fruits of *Y. gloriosa*, and failed to find any distortion, perforation, or other indication that an insect had entered or made its exit. We hope that those who live where this and other species fruit will continue the investigation begun by Dr. Engelmann and Mr. Riley.

Vegetation in the "Pine Barrens."

There is no more interesting section of country than that extending from Ocean County to



YELLOW MILKWORT.

Cape May, New Jersey, commonly known as the Jersey "Pine Barrens." Here it is that many of our rarest plants are found, some species of which are not known in any other locality. There are the dry and the swampy "Pine Barrens." The former consist of large tracts of dry sand, covered with a growth of scrub oaks and pines; the latter, which border the coast, support a dense growth of Magnolias, Rhododendrons, etc. Many of the plants found here are very beautiful, while others are interesting on account of their rarity. We here figure two species which came from the swampy "Pine Barrens" in the vicinity of Tom's River. The *Gentiana angustifolia*, or Narrow-leaved Gentian, though having a wide range, is not often found growing in any considerable numbers in one place. The plant grows from six to twelve inches high, and bears one to three flowers; these are two inches long, of a beautiful azure blue, with the inside of the corolla striped with white. There are nine species

of Gentian found in the Northern States, all of which produce handsome flowers. One of these, *Gentiana Andreinii*, or Closed Gentian, was figured in the *Agriculturist* for December, 1870.

Very little attention has been paid to the cultivation of Gentians in this country, owing to the supposed difficulty in growing them. When, as is usually the case, the plants are taken up from the fields, they seldom do well under cultivation, but if the seeds are sown as soon as ripe, they vegetate freely, and may be easily transplanted, though it requires several years before they become well established. The other plant we figure is the *Polygala lutea*, or Yellow Milkwort. The leaves are thick and fleshy, mostly clustered at the surface of the ground. From this cluster of leaves rises the flower-stalk, six to twelve inches high, usually bearing a solitary head of showy orange flowers. As it is a biennial, it can only be grown from seeds. We do not know that any attempt has ever been made to grow this plant, but it is worthy of a trial. Besides the plants mentioned there are many others which are interesting, though they generally have no common name, owing to their local character. One of the earliest found is *Pyxidanthera barbulate*. This is a prostrate evergreen plant, producing numerous white or rose colored flowers, which appear early in April, with the Trailing Arbutus. Following the *Pyxidanthera* is the Sand Myrtle, *Leiophyllum buxifolium*, a low, branching evergreen with terminal clusters of small, white flowers. Next follow *Helonius bullata*, bearing fragrant purple flowers, in a dense raceme, two or three inches in length, upon a stalk fifteen to eighteen inches in height, and *Xerophyllum asphodeloides*, a plant resembling somewhat an Asphodel, which produces a raceme of showy white flowers in June. The last two did well with us this year under cultivation in common garden soil.

The Pinneo Pear.

This pear, represented in figs. 1 and 2, was brought to the notice of the horticultural world by Mr. Hovey, of Boston, some years ago, and was by him called the Boston. It is an old variety, cultivated and quite extensively disse-

years ago, on the farm of Esquire Pinneo. It is a chance seedling which he found in an outlot where he was cutting brush. He transplanted it to a place near the house, thinking to graft it, but finally concluded to let it stand and mature the natural fruit. The pear was so good that



NARROW-LEAVED GENTIAN.

he never wished to change it, and his neighbors were so far of his mind that they came to him for grafts. It was scattered all through the northern part of New London County, and finally found its way to the Hartford and Boston markets. Mr. Hovey was so well pleased

with it that he propagated it, and sent it out extensively among horticulturists. There is no longer any doubt about the identity of the pears bearing these names of Pinneo and Boston. The tree is vigorous and productive, the young wood brownish red. The fruit is below medium size, obovate, inclining to conic, remotely pyriform. Skin yellow, with numerous small green or gray dots, and patches of russet all over the fruit, but much more upon one side than upon the other. The stem is rather long, and inserted in a slight depression, and sometimes a little upon one side. Calyx set in a broad, shallow basin. The flesh is white, tolerably juicy, with a pleasant, sweet, somewhat aromatic flavor. CONNECTICUT.



Fig. 1.—PINNEO PEAR.

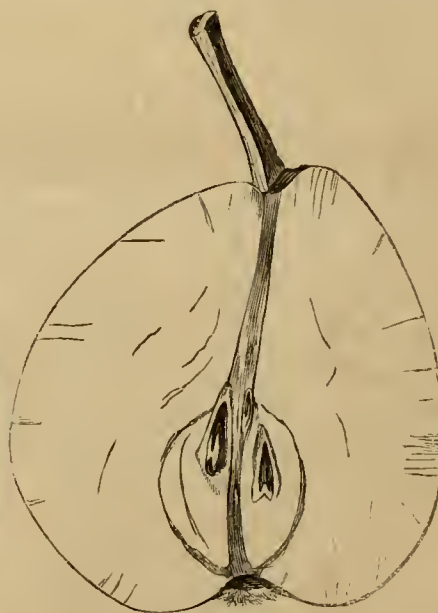


Fig. 2.—SECTION OF PINNEO PEAR.

minated in Eastern Connecticut. It originated in the town of Columbia, more than a hundred

September.

THE HOUSEHOLD.

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

Chopping and Choppers.

Chopping or mincing is one of the frequent mechanical operations of the kitchen. Where any special apparatus is used for the purpose it is the old-fashioned chopping-knife, fig. 1, made with a curved cutting edge if a round or oval bowl is used, and with a straight one if a flat-bottomed tray is to hold the material to be chopped. Chop-

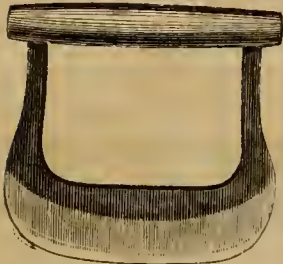


Fig. 1.—CHOPPING-KNIFE.

ping in this way is tedious work, not on account of the strength required, as this is but little, provided the knife be sharp, but from the many blows or cuts necessary to reduce the material to the desired fineness. Sometimes the common knife is made with two blades, and this with some materials facilitates the work, while with others it is apt to clog. In fig. 2 is given a French chopping-knife, which is made of two blades a foot or more in length. The material to be minced is spread upon a chopping-board, and the knife is worked

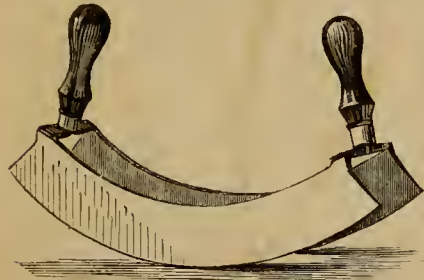


Fig. 2.—FRENCH CHOPPER.

with a rocking motion. The German butchers, who often chop meat for their customers, use two heavy cleavers, one in each hand; these play upon the meat alternately, and chop it rapidly, though at an unnecessary expense of strength. Chopping machines of various kinds have been devised, and have met with more or less success. One of the earliest of these was a cylinder in which the blades, placed on an axis in a spiral form, revolved against other blades attached to the interior of the cylinder. This, however, tore rather than cut the meat, and

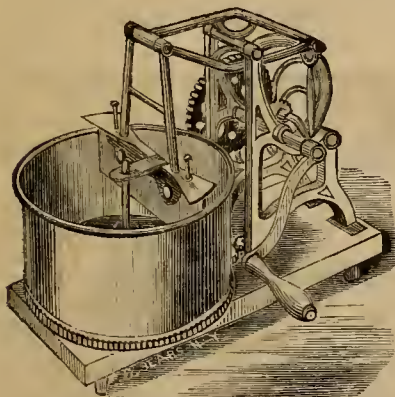


Fig. 3.—THE AMERICAN CHOPPER.

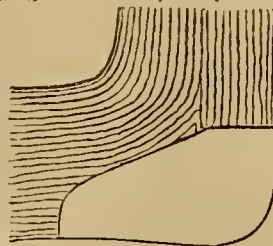
is now much less used than formerly. The latest chopping machine is called the "American Meat and Vegetable Chopper." It is made of several sizes, one of which is shown in figure 3. The knife is moved up and down in a cylinder which turns a short distance around with each movement of the knife, and thus exposes a fresh place to the

cutting edge. The motion is communicated by a crank, and by means of multiplying wheels is very rapid. The machine is much more simple than it appears to be, is easily cleaned and kept in order, and does its work in a very satisfactory manner.

New Heels in Old Socks.

I like to darn stockings, but sometimes the heels of my husband's socks gave way before his rough boots in such a shocking manner that I had no heart to undertake their repair, and was fain to provide new socks instead. The heels of these I lined with strong cloth. Once, before the use in our family of farmer's "stoga" boots, I thought it enough to run the heels with doubled yarn like the socks. In spite of even the linings, the heels would wear out all too soon, and a day came when my stocking-bag was no longer a pleasure, but just a reproach to me, and I dreaded nothing more than the call for clean socks.

One night, when the baby was restless and prevented my sleeping, light broke in upon my mind. Eureka! I was impatient for morning to dawn, and at the earliest convenient moment I sat down to make those socks "almost as good as new." I took strong cloth, new denim, hickory, drilling, or ducking, and cut out heels large enough to cover all the ragged portion of the sock-heel. All this ragged part I cut away, and put the new heels in double, the outer cloth being larger than the inner, in order that there might be no bungling place where the new heels joined on to the old socks. I turned in the edges of the outer heel and hemmed them down neatly, but the inner cloth I only cross-stitched on. It all took but little time, not one quarter so long as it would to knit in new heels, as some good knitters do, and I think the cloth heels will wear much longer, as none of these double cloth heels have worn out yet. I do not doubt that many and many a smart woman has made this discovery for herself long ago, but she failed to report it for the benefit of the sisterhood of stocking-darners—"hence these tears," and hence the delight I found in invention. MARMAR.



HEELING A STOCKING.

Home Topics.

BY FAITH ROCHESTER.

THE SCHOOL EXHIBITION.—Some of the best teachers and some of the wisest parents are opposed to school exhibitions. These are of two kinds—the public examination and rehearsal, and the regular exhibition with its foot-lights, stage scenery, and dramatic performances. Of the latter we will speak first. Intelligent teachers get up these exhibitions with a good deal of secret misgiving as to their utility. They know that the learning of parts in dialogues, and the attendance at rehearsals, and all that, interfere with the regular progress of the pupils, or overtask them. They see also how the public display cultivates jealousy, and vanity, and selfish ambition among the little men and women. The rehearsals take place in the evening, and children going to them without the company of their parents are liable to exposures of health, and perhaps of morals, from which careful parents would protect them. The exhibitions usually take place in the evening, and close late. Late hours and crowds are bad enough when children are only quiet spectators and auditors, but when they are the excited actors upon the stage, subjects of the criticism or applause of the crowd, it is very great abuse of innocent childhood. Flushed and heated by the close air and by excitement, the children expose themselves to cold

draughts of air, and become victims of disease, sometimes of speedy death. Little girls are in especial danger of catching cold, because more barbarously exposed by their insufficient clothing. One would suppose that the parents of these rate their children's lives very cheaply.

The reason most frequently urged in favor of putting children upon the public stage is that "it gives them confidence"! O dear! So it does! But does it seem to you that Young America suffers from excess of modesty? Human nature hardly needs cultivation in the way of self-confidence, love of display, desire for applause. Oratory is well in its way, but I think it is over-rated. I have a suspicion, too, that our children may be taught to read and speak with proper expression, and with a natural (or, if you please, *dramatic*) rendering of conversations, better in the regular reading-class than in the especial training for exhibitions and theatricals. That subject is too large for this page, and I want to take it up again.

The public examination is superseding the old-fashioned dramatic school exhibition, and it has many firm friends among professional educators. The pupils are examined in the presence of their parents and friends, so that all may see just what progress has been made by each, and give credit accordingly. The expectation of these periodical examinations is supposed to act as a stimulus with teachers and pupils alike. That is the *idea* of the public examination, and if I had not been interested as pupil, as teacher, and not exactly as parent, but as elder sister and children's friend, I suppose I might not feel so much like calling these examinations a *humbug*. The parents are deceived most; the children take another lesson in the arts of deception, and in the immense importance of being able to make a show; and the teachers feel how almost impossible it is to help this wretched state of things until the public mind learns the true idea of education.

The public examination is no true test of the advancement of the pupils, or of the teacher's ability as an educator. Children naturally quick and ready show to the best advantage, while slower ones are abashed and discouraged. Those who need stimulus most get the least help from the public exhibition. Those whom nature has gifted with quicker wits, get praise which nurtures their self-conceit, instead of encouraging their lagging faculties. The poorest educators often make the best show as exhibitors on examination-day. They can show you that the pupils have been trained to a certain dexterity and mechanical precision, and to concert action which is very effective with the unreflecting crowd; but no teacher can exhibit the best things a good teacher can do in the way of education. The illustrations which have brightened all the daily tasks; the bits of history and biography which have endeared to each pupil textbooks otherwise dry and dull; opportune suggestions as to methods of study; and, better still, sympathetic help toward the formation of noble character, toward the development of honest men and women with clear heads, and warm hearts, and helpful hands—can any public examination, yearly or monthly, make a true exhibit of these most precious works of an educator? Will it be likely to help or to hinder this larger education?

If you would satisfy yourself as to the faithfulness and ability of your children's teacher, go and see him or her at work two or three times at least every term, dropping in unexpected for fifteen minutes or a half-day, as you can find time. Let the teacher feel that your eye is on him and your heart in his work. If you talk with the children at home about their school work frequently, as well as visit them in school, it will do them a deal of good—provided all is done with true sympathy, and not in the character of a cool superior critic.

WARM FEET.—To go with cold feet is to undermine the constitution, and this half of the women and girls are doing. They have a habit of cold feet and an accompanying habit of ill-health. Thick, home-knit woolen stockings are not very fashionable. Once, no country girl was reckoned fit to be married until she had knit her pillow-case full of

stockings, but it is not so now. I do not regret that less hand-knitting is done now than formerly, but I hope we shall not give up warm woolen stockings for winter until we can replace them with something better. Merino, or the common "boughten" white wool stockings, are rather thin, but some of us supplement them with an additional pair of cotton stockings, wearing the cotton or the woolen pair next the feet, as individuals prefer. Cold feet are often caused, at least in part, by too tight elastics or bands at the tops of the stockings, or by tight shoes, or shoes tight in the ankles. These interfere with the circulation of the blood, and there can not be a comfortable degree of warmth without a good circulation and aeration of the blood. My last lesson in this matter came from baby's experience last September. Suddenly she contracted a habit of having cold feet, and when I warmed them the skin seemed hard and inactive, suggesting the need of a bath, when a bath did not seem necessary except for the feet. At length it occurred to me that her "ankle-tics" had been too loose, and just before we came home from our visit a young lady cousin had set the



Fig. 1.—OFFICE STOOL.

button back further, to make the little slippers stay on better. Ever since that change the slipper-straps had been too tight around her ankles, especially after I put on woolen stockings. I changed the buttons again, and her feet no longer got cold, except in consequence

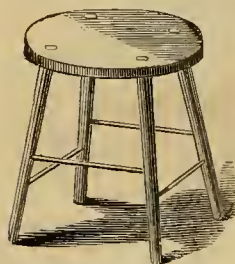


Fig. 2.—STOOL FOR TABLE.

of the actual rigors of the climate. Some well-informed persons object to Congress gaiters, the elastics are usually so firm and close about the ankle. Only very loose garters are allowable, and these may not be necessary when the stockings are worn over under-drawers. Garters in the shape of straps buttoning to both waist and stockings are most sensible for women as well as children.

Many women are obliged to work in kitchens where the floors in winter are always cold. It helps matters to have a carpet down, but the kitchen carpet is objectionable on the score of cleanliness, especially where there are many children. A few large thick rugs are better. These can be shaken often, and will afford the kitchen occupants warm places to stand or sit at their work. There

are some very cold days when the mercury sinks from 10° to 30° below zero (in Minnesota), and then I wear my arctic overshoes all day, and the children also keep on overshoes. The floors of our houses are many degrees colder than the air about our heads.

One thing too little thought of in this connection is absolutely essential to healthy warmth of body. That is pure air. Men who work in the

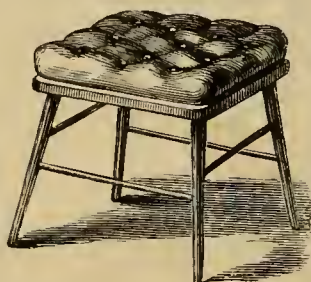


Fig. 3.—LOW STOOL.

open air some every day have a great advantage over housekeepers. Their blood gets oxygenated, and so purified (as far as such a degree of air can do it) and prepared to warm and nourish the body, of which the blood is the constant up-builder. Everybody, male and female, old and young, ought to get out of doors some every day, and breathe freely *with the mouth closed*. The air of sleeping rooms and other living rooms should be purified each day.

Keep bricks or soapstones in the oven, to be wrapped up and put under your feet when you are obliged to sit for some time at a distance from the fire, especially if you are writing or studying.

HIGH SEATS AT TABLE FOR EX-BABIES.—There are nice large high-chairs, a little lower than regular baby high-chairs, to be found at some furniture stores, but many parents neglect to procure them when baby No. 1 is dethroned by baby No. 2. But no child of six or seven is large enough to sit comfortably and gracefully at table in a chair made to suit a grown person, especially if not allowed to put its feet upon the chair-rung. Its feet do not reach the floor, and are apt to swing about in a way to fret nervous people, and in a way that certainly is not graceful. And its elbows are not high enough to give it easy command of its plate and knife and fork. So, in teaching table manners, look first for the comfortable seating of your children. A cheap piano-stool does very well for an intermediate seat between high-chair and common dining-chair. Any man with tools can make one on a rainy day, if it seems too much to purchase a second high-chair.

A friend of ours purchased a high, yellow office-stool for a dollar. This was sawed off, to suit the needs of a child of six, above the lower rungs. A second very comfortable and useful seat was made of the part sawed off, by putting a square board atop, and cushioning it with gay woolen patchwork.

SKINNING SUN-FISH.—Mr. Rochester says that I was mistaken when I wrote that sun-fish are as easily skinned without scalding or sealing as with. It was found to be the best way to scale the fishes and wash them, also the hands, and then to strip off the skins, leaving the fishes all clean for cooking. In trying to skin the fishes without scalding, the whole got badly slimed. A small matter, perhaps, but having mentioned it, I had better get it right.

Toughening and Coddling.

BY RELL.

In certain minds there is a prejudice against protecting children much from the cold or from any hardships, for fear it will make them effeminate or unduly weak and dependent. One may be over-careful, it is true. There is such a thing as "coddling children" by a fussy, unwise tenderness, so that they develop no nerve, no power of endurance. There is also such a thing as false "toughening," a process that kills off the children of weaker constitutions. How steer clear of this Scylla without being drawn into that Charybdis?

To keep children close in warm rooms, never allowing them to feel a rough breath of air; to do everything for them, paying heed to every whimper "I can't" and "I don't want to;" to inquire anxiously after all their preferences and listen pityingly to all their whining; to teach them no tasks, and never to let them get wholesomely tired—all that comes under the name of "coddling," and I pity the children who are put through the weakening process.

The false toughening which is equally to be avoided, is on its face a compound of neglect and cruelty; but sometimes it is deliberately undertaken by parents of really kind hearts, from mistaken ideas of what Nature really needs. What she needs is a fair chance to do her work. She has wonderful power of adaptation, but she can not stand everything; and if her children be pinched with cold and starved for nourishment, she will surely tell the tale in her own time and way. She says that her little animals (and she makes no exceptions in favor of humans) must have regular

meals of simple, nourishing materials, and that their growing bones and muscles should have plenty. And then she insists upon plenty of warmth. If the surface of the body gets chilled, some harm to internal organs is sure to result, though not always in a perceptible degree, at the particular time. A succession of such chills, or a shivering, half-cold condition for any length of time, makes a serious drain upon the vitality, and weak constitutions break down under it, and the little victims of neglect fall an easy prey to the diseases of winter's cold or summer's heat. These "die a-toughening."

To be tough is to be "strong and able to endure hardships." Strength is born of struggle. Ability to endure hardships is the result of discipline in the way of endurance. Some children are born with "iron constitutions," apparently; or were in our grandfathers' day—and they bore a wonderful amount of knocking-about and deprivation of one kind or another. You may think they turned out well enough in spite of it; but I don't. I think that many of those foreparents of remarkable mention came out of the hard mill in which they were ground, pitifully stunted and deformed in more ways than one, and that, too, in spite of their iron constitutions—constitutions so used up by their hard early life that they could not bequeath one half their own native vigor to the sons and daughters born of them.

Yet I believe in toughening children, and in discipline. But these are consistent with perfect tenderness and unceasing care. Turn them out of doors—no, never turn them out, but let them go, or coax them out if they have morbid fears. But have them so well protected with warm overcoats (give sleeved sacks to girls, instead of bothersome pretenses, called shawls), over-socks, or over-shoes with leggings, mittens, and hoods, or caps with ear-taps, that they can run and coast and skate and slide and snow-ball without any discomfort from the north wind or the ice.

Teach children to wait upon themselves, and to take pleasure in helping others. Encourage them to bear necessary pain with as little fuss as possible. Give them good tools, and show an interest in their use of them. Show them *how* to work as you do, but *require* very little at first, letting them make things for friends, or do their tasks to "help" those they love, until they learn to feel an ambition about doing their work fast and thoroughly. Expect them to keep their engagements, and not allow them to back out of an undertaking as soon as the flush of novelty wears off. Therefore let them not attempt too much—unless to cure a habit of bragging. Give them long, warm night-clothes and bedding enough (too much will induce perspiration) to keep them warm in any position, and let them sleep in cool, ventilated rooms, and give them all the natural sleep they can take.

Devonshire Cream.

One of the noted luxuries of the London market is "Devonshire cream," or "clotted cream." The method of its preparation is as follows: From six to eight quarts of milk is strained into a thick earthenware pan or crock, which, when new, is prepared for use by being stood in clear cold water for several days, and then sealed three or four times with skimmed milk. Tin pans may be used if they are sealed in hot bran and left to stand with the bran in them for twenty-four hours. The milk being strained into the pan is stood in a cool room from nine to fourteen hours, according to the temperature. It is then carefully moved to the top of the stove or range, or placed over a bright fire (not too near it), and slowly heated—so that at the end of a half-hour the cream will have shrunk away from the sides of the pan and gathered into large wrinkles, the milk at the sides of the pan commencing to simmer. The pan is then carefully returned to the cool-room and left about ten hours, when the cream is skimmed off.

This cream is very delicious to use on fruit or preserves, and is esteemed a great luxury—selling for about the price per pound of the best butter.

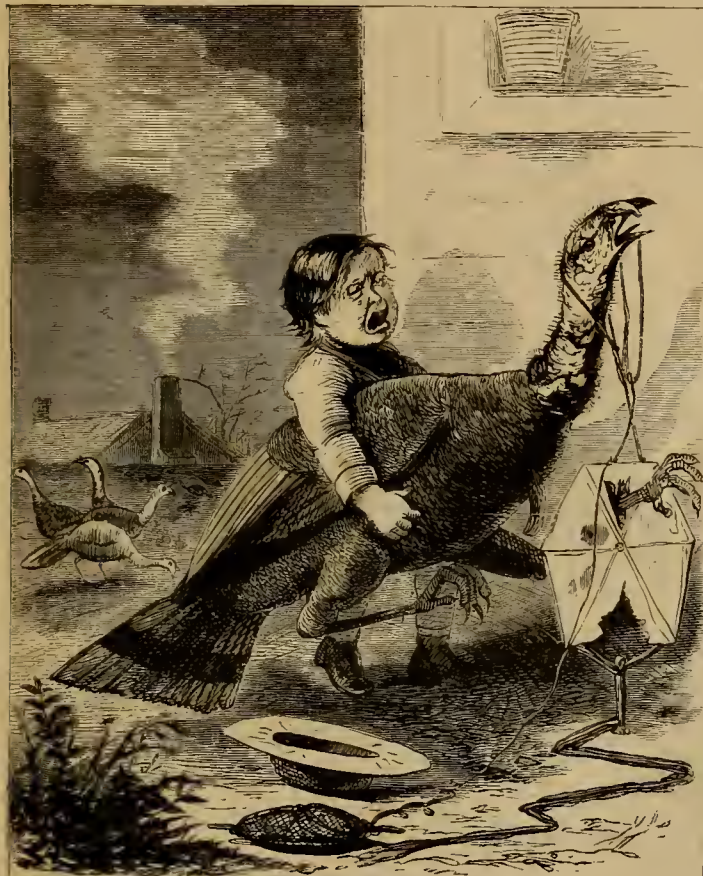
BOYS & GIRLS' COLUMNS.

The Doctor Talks about Indian Relics.

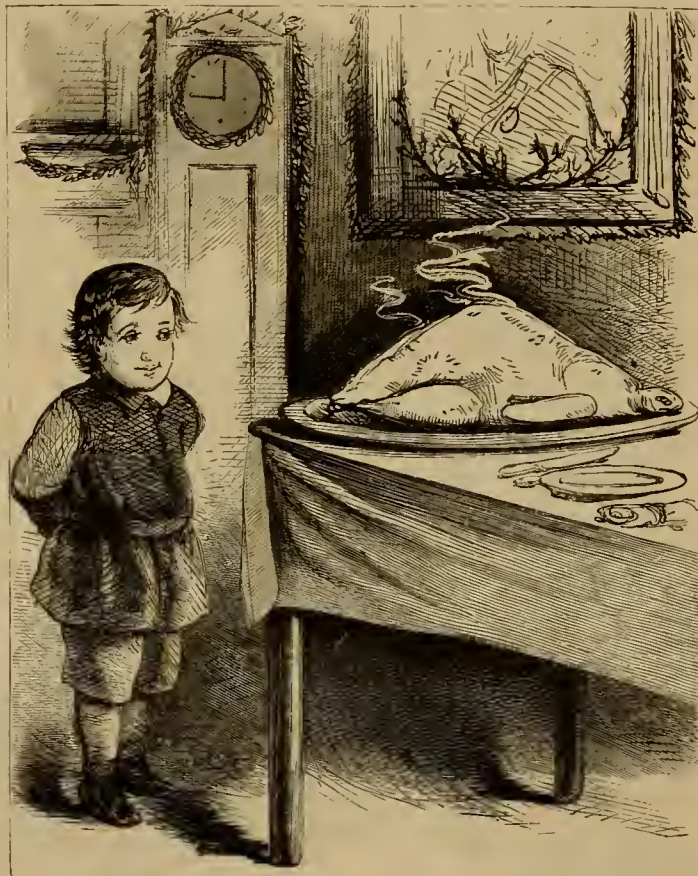
Georgia is a queer place for the Doctor to write you from, but he finds himself here, and not liking to have the *Agriculturist* appear without a word to his boys and girls he writes from this far Southern State. One of our boys, Louis, lives here—where don't they live?—and he of course showed me his curiosities. Near his home he had found in the woods the place where had been some old Indian graves, and not many days ago he and another went and explored the spot. The graves were so old that about the only things to be found were stone imple-

ing them, and in trying to find out how they were made. This Mr. Evans, for that is the gentleman's name, has published a book which is full of fine engravings of the things that have been found in England and other parts of Europe. The puzzle as to how such things could be made out of flint and other hard stones without the aid of steel or iron he has solved by going to work and trying to make such things himself. He has found that by selecting the right kind of a stone, and using no other implement than another stone, he could make just as good arrow-heads and spear-heads as are found in the old graves and mounds. More than this, he discovered that by the use of a stick and sand he could drill just such holes as are in the ancient hammers and such things. To be sure, it required much patience and lots of "elbow-grease" to do it, but he proved that probably these early

thought at length that he had had enough of it. Then came the winding in of the string, which was almost as much fun as letting it out. Down, down came the kite, every now and then giving an angry toss as if it did not like to be taken away from its fine place up in the air, where it could look down upon everything. But Tommy kept on winding in the string, until at last, when quite near the earth, the saucy kite gave a toss of its tail, and came head foremost with a pitch to the ground. You may be sure that Tommy was over the fence in a minute to pick up his kite, and what was his surprise to see that it had come down in the midst of a flock of turkeys, and that the slack of the string was directly around the neck of the old gobbler! It was a very respectable gobbler, but not at all used to such tricks as this of the kite, so he immediately showed fight, and began to twist himself



TOMMY'S HOUR OF TROUBLE.



TOMMY'S HOUR OF TRIUMPH.

ments. You will think that implements are strange things to find in a grave, but you must know that almost all savages think that they can carry into the other world the things they have used in this. Believing this, the friends of an Indian bury with him his weapons, his ornaments, and his treasures, and some even kill a horse at his grave, so that the dead man may be mounted in the "happy hunting-grounds" to which he is going. Louis' collection contained various things that must have been buried with the occupants of the graves. There were large stone "arrow-heads," as they are called, but as these are over two inches long, and broad in proportion, I doubt if they were ever used upon arrows, as they are too heavy for this purpose. I have seen stone arrow-heads in use among the Indians of the present day, but these were slender, and not more than a tenth as heavy as those found in graves and mounds in various parts of the country. It looks more probable that these heavy so-called arrow-heads were used as spear or lance-heads, or they may have been fastened to a staff to be thrown by hand. I don't think any bow could carry an arrow with such a heavy weight at one end. Besides these war-like things, Louis found more or less perfect hammers or tomahawks, one of which had a neat hole bored through it, apparently to admit a handle. I am not sure that this particular piece was not a portion of a pipe. At any rate, there was a clean round hole in a solid stone an inch or more through. So far as we know, these early Indians—for these relics are so old that no one knows what tribes made and used them—had no hammers, drills, nor other tools of iron and steel, and how hard stone could be worked into these various shapes has always been a great puzzle.

Implements and other relics similar to those Louis and others have found in this country also occur in Europe, and an English gentleman has spent a lifetime in study-

inhabitants of England drilled their holes in stone in this slow and laborious manner. All relics like those my young friend Louis has collected are interesting, as they show us what were the habits of the people who inhabited the country long, long before our ancestors came here. We can now buy for a few dimes a hammer much better than one which the forgotten Indian spent weeks and perhaps months in making. It seems not so very strange that they desired to have these things, so precious on account of the labor expended on them, buried with them. There are but few places, even in what are called the "older States," where these Indian relics are not occasionally found, and in some of the Western and Southern States they are very abundant. Now, I would like to have those youngsters—whether boys or girls—to tell me about what things of this kind they find. It may be that something interesting will come of it.

Somewhere in Georgia, Oct. 26.

THE DOCTOR.

Tommy's Trouble and Triumph.

In there any story, needed with these two pictures—one showing the troubles which befell Tommy, and the other giving the scene when Tommy had the better of the cause of all his trouble? These pictures are intended for our little readers, and very young people like to have a little tale with the pictures, no matter how plainly they may tell their own story.

Once there was a boy whose name was Tommy—but there is no need to tell you that, for if there had been no boy Tommy, how could we have had any picture of him? Well, this boy Tommy had a kite; a new and a fine one, which his big brother John had made for him. Tommy went out one fine day to fly his kite. How that kite did fly, and what a happy boy was Tommy! It was great fun, to be sure, but after a while the best of fun, even that of flying a new kite, becomes tiresome, and Tommy

up worse and worse with the kite-string. Tommy made a hard struggle for his kite, but when he recovered it, it was not at all the beautiful new one that he had sent up that morning, but a poor, torn, dragged kite, that would have put its tail between its legs—only you see it had no legs. Tommy never liked that gobbler after the affray. Some months afterwards it came the gobbler's turn to furnish the family dinner, and when it appeared on the table Tommy looked mightily pleased. The rest of the family could not guess why Tommy's face wore such a broad grin, but he knew, and we think you do too.

Aunt Sue's Puzzle-Box.

NUMERICAL ENIGMA.

I am composed of 14 letters.

My 8, 14, 14, 5, 12 10, is to declare.

My 1, 7, 8, 9 is a design.

My 13, 11, 3, 4 is part of the body.

My 6, 2, 1 is a toy.

My whole are useful at night.

B. W. P.

PL.

A leanig nomtem fot ash eving

Thaw earsy fo lito dan napi,

Fo golin, sourtanidhis toli veah niverts

Ot niw, nda jal ni navi.

OWEGO.

ANAGRAMS.

- 1. Rest my claim.
- 2. Mundane flat.
- 3. Due in his mind.
- 4. I need cents.
- 5. Nat's son hit me.
- 6. In scant cover.
- 7. Happiest prince.
- 8. I a sure bond.
- 9. Rain tiger.
- 10. Cleared vine.

SQUARE WORD.

- 1. A round ball.
- 2. A diseased person.
- 3. A fashionable entertainment.
- 4. What sailors steer clear of.
- 5. To expunge.

R. T. IBBESTER.



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A DREAM OF FAIRY LAND.—Drawn and Engraved for the American Agriculturist.

HOOR-GLASS PUZZLE.

1. Purity. 2. Something very welcome of a summer evening. 3. A fruit. 4. A pronoun. 5. A vowel. 6. A metal. 7. Steep acclivities. 8. An architect. 9. A flower. The center letters, read downwards, will give a word which means without fail. ALICE H. P.

GEOGRAPHICAL OPPOSITES.

- | | |
|-----------------|-----------------------|
| 1. Old shanty. | 6. How do you do? |
| 2. She's off. | 7. Don't marry Alice. |
| 3. Peace file. | 8. Martin's orchard. |
| 4. Land whist. | 9. Cow hat land rise. |
| 5. Genuine saw. | A. M. NAGEL. |

ANSWERS TO PUZZLES IN THE OCTOBER NUMBER.

NUMERICAL ENIGMA.—Steam.

Cross-Word.—Richmond.

SQUARE WORDS.

- | | | |
|---------|---------|---------|
| 1. PANG | 2. LAMB | 3. CAGE |
| AQUA | ALOE | AGUE |
| NULL | MOSS | GULL |
| GALL | BEST | EELS |

TRANSPOSITIONS.—1. Dismayed. 2. Wide-apread. 3. Embodiment. 4. Heartaches. 5. Heavenward. 6. Neuralgia.

PL.

Patience is a virtue,
Possess it if you can;
'Tis seldom seen in woman,
Less often seen in man.

ALPHABETICAL ARITHMETIC.

3 4 7 9 2 0 5 8 (2 6 5
6 9 4
2 2 6 5
2 0 8 2
1 8 3 8
1 7 3 5
1 0 3 (Key: Uncle Smith.)

ANAGRAMS.—1. Interminable. 2. Perpendicular. 3. Overpowered. 4. Congratulations. 5. Participated. 6. Plagiarist. 7. Re-appeared. 8. Solitude. 9. Convulsions. 10. Prerogative.

All contributions for the PUZZLE-BOX may be sent to AUNT SUE, Box 111, P. O., Brooklyn, N. Y.

Jenny's Dream.

Jenny had many good friends who sent her Christmas presents. Most of them, knowing her to be fond of reading, sent her story-books, and these, together with the books given by her parents, made a nice child's library. How pleased was Jenny, and how she did read! No sooner had she finished one story than she began another. She could hardly leave her books long enough to take her meals, but she read on and on until she was so tired she fell asleep. It was a very wrong thing for Jenny to do, but the books were so pretty, and the stories were so fine, that she thought she could not read them half fast enough. She had filled her head with so many fancies that when she fell asleep she dreamed and saw in her dreams all the things she had been reading about. Our artist has pictured the things Jenny saw in her dream. There are poor Cinderella and—but we will not tell you, because we wish you to have the fun of picking out the characters in the picture yourself, and then you will know what Jenny had been reading.

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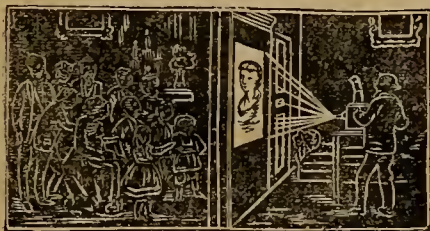
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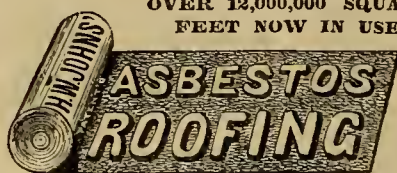
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of our Premiums are given in our last October number, which will be mailed free to applicants. We have room in this paper only for the following **Descriptive Notes**:

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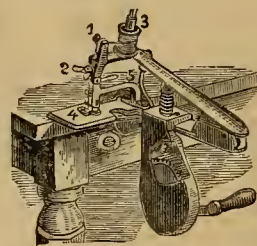
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Before closing these prefatory remarks, the casual examiner, and more particularly the intelligent student, are requested to give special attention to the following examples and their treatment:

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A second method, and an example of every kind of face-mould drawn by ordinates.—Plates **D, E, and F.**

The object, application, and use of face-moulds for squaring wreaths.—Plate 9.

Shaping the top and bottom of wreath-pieces by finding correct center lines to work from on the plumb sides of wreath.—Plate **A.**

The proper way to plan and arrange the treads of winding stairs, head-room, etc.—Plate 10.

How to lay out from its edge a string for winders having treads of different widths by the use of the mean tread.—Plate 12, FIG. 2.

Case of hand-rail showing how to make one instead of two wreath-pieces serve every practical purpose. Plate 15, Figs. 10 and 11.

Management of a steamboat stairs and hand-rail.—Plate 16.

Construction of stairs for wholesale stores having close strings, paneling, etc.—Plate 18.

Simple method of controlling and working a flat curved side-wreath mitering to newel-cap.—Plate 20.

Angle newel stairs, designs, plans, and elevations.—Plates 23 and 41.

Bending-strings, building-forms, saw-kerfing, laminated and solid mouldings.—Plate 26.

The true method of planning elliptic stairs.—Plate 32.

Designs for newels and balusters.—Plates **F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z,** 39, 40, and 41.

Plans and management of close paneled curved strings with continued hand-rails.—Plates 33 to 36.

Twenty-two complete plans of stairs variously arranged, drawn to a scale, and all their dimensions figured.—Plates 37 and 38.

Design for wainscoting, thirteen forms for hand-rails.—Plate 39.

Design for a floral bower, etc.—Plate 42.

Door-making in detail, including the best hard-wood doors.—Plate 43.

How to make window-frames for brick and wood houses.—Plate 44.

Sash-making, glazing, and hanging.—Plate 45.

To find the form from any given moulding for the face-edge of a revolving cutting-iron.—Plate 57.

Splayed work, of great variety.—Plates 58 to 61.

Pitching planes, a preparatory study to roofing.—Plate 64.

Roofing, giving bevels and lengths of all timbers.—Plates 65 to 69.

French roofs, in detail.—Plates 70 and 71.

Balloon-framing.—Plates 80 to 83.

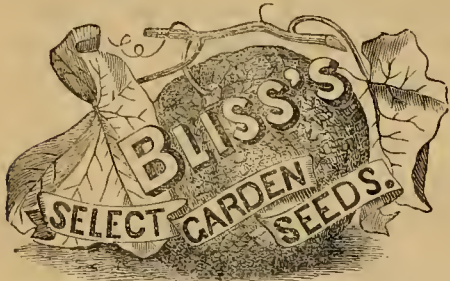
Without asking further special consideration of the value and uses of the remaining contents, and their manner of presentation, the Author would say in conclusion, that the most of the above features being new, and not before contained in any work on Carpentry, and many of them of very great value, the whole is respectfully submitted with the fullest confidence that the book will gain the approval of all who require the instruction it proffers.

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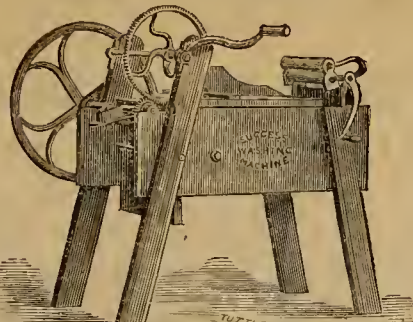
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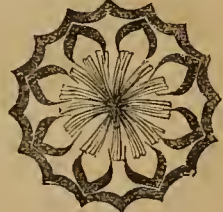
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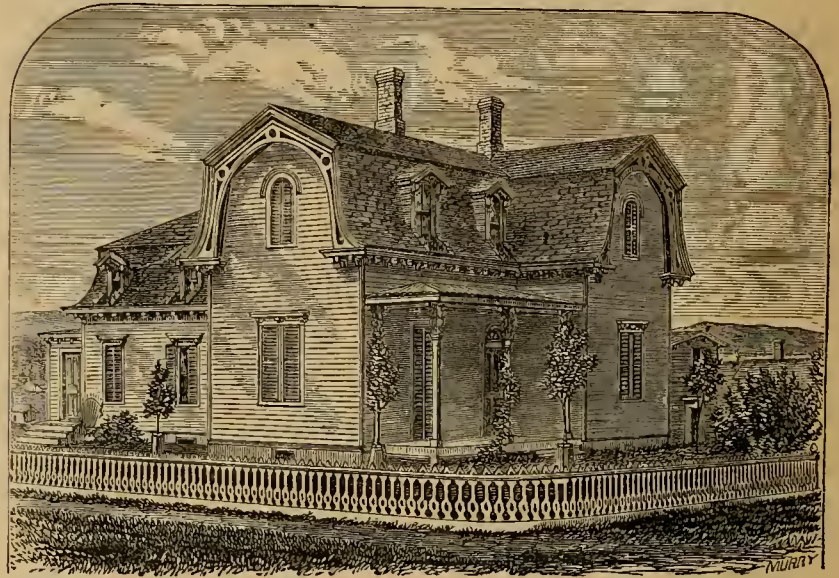
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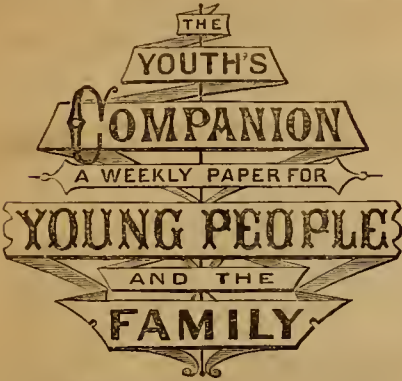
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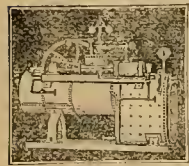
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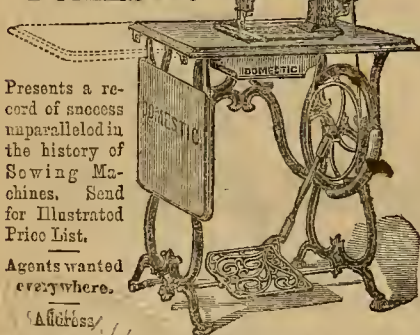
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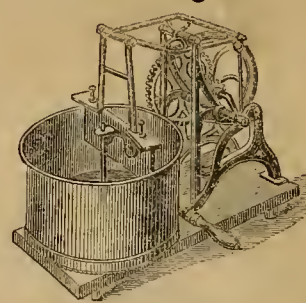
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