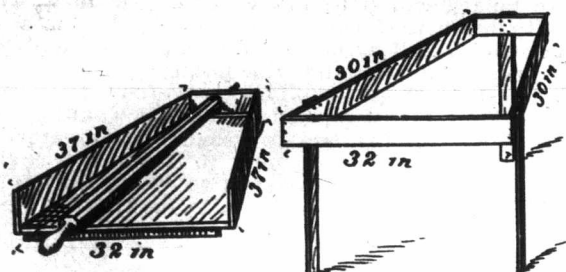


Homemade Butter-maker.

J. STONHOUSE, Wellington Co., Ont.:—"I enclose herewith a sketch of a butter-worker suitable for a herd of ten or twelve cows. Most workers are made with the legs fastened to the worker, but



a better plan is to make a frame of 1x4 inch strips of pine and fasten the legs firmly to that and brace them well with some light stuff, such as lath. The frame should be the same size as the worker, except that it should be six inches shorter so as to allow the worker to extend over far enough to run the water through a hole into a pail. The worker can be made of basswood or hardwood and should have a cleat across each end on the under side and so placed that they will just fit into the frame and hold the worker from moving sidewise or endwise on the frame. The sides should be six inches deep. The roller should be 45 inches long, made from a piece of maple 2 1/2 inches square and taper to two inches at the small end, with the corners dressed off so as to make it eight-sided. It should have a gudgeon in the small end, of half-inch iron and extend six inches from the end of the roller. This gudgeon should pass through a piece of hardwood which goes across the narrow end of the worker. The end piece of hardwood is raised half an inch or so to allow the water to flow off. Where the frame and worker are made separate they are much easier to handle and the frame can be hung up in any convenient place and the worker put in the cellar or some place where it will not shrink. I would suggest the dimensions of the worker to be 32 inches wide and 37 inches long, with a frame to correspond; the length of legs 28 inches behind and 23 inches in front."

The Diamond System of Setting an Orchard.

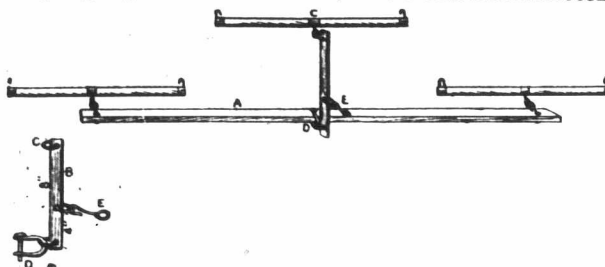
ELLIS F. AUGUSTINE, Lambton Co., Ont.:—"When planting apple trees considerable space can be saved by setting them on the diamond-shaped plan. This is most quickly and accurately done by



the following method. Drive a row of stakes on one side of the field, placing one where each tree is to stand. These should be 40 ft. apart. Now take two heavy cords 40 ft. long, stretch one from the first stake in the row and the other from the second, and at the point where the two meet will be the exact position where the first tree in the second row should stand. Now remove the first cord to the third stake and bring the two together as before to find the place for the second tree. Proceed in this way, as shown in the accompanying cut, until a stake is driven where each tree is to stand. This is a very simple, though accurate device, yet there are few people aware of its practicability. It is well to sight the trees both ways as they are being put in."

Three-Horse Whiffletree.

JAMES HAYDEN, Huron Co., Ont.:—"As I have derived so much benefit from your valuable paper, I thought I would contribute something towards helping my brother farmers, and I enclose a sketch



of the three-horse doubletree we use, as I consider it much lighter and more convenient than any other I have seen. The upright piece (B) is made of iron about as heavy as sleigh shoeing, and any blacksmith can make it. This is 12 inches long, with three large rings, as shown in sketch. The center horse should have longer traces than the other two, so as to let the iron stand upright which the center whiffletree is attached to. The doubletree should be 5 feet long, so as to give the center horse room."

[NOTE.—We have received a similar plan from another reader.—EDITOR.]

Shade for the Dwelling.

Shade trees are essential, only don't let them shade the house. Farmers, to enjoy life, must have their surroundings pleasant, commodious, convenient, and healthy. These conditions can only be obtained by attention to details, by having a place for everything and everything in its place. Once get started along these lines, and improved methods follow, and if we persevere we shall have our reward.

APIARY.**No. 3.—Hives and the Principles of Management.**

BY A. E. HOSHAL, LINCOLN CO., ONT.

If the principles of bee-keeping mentioned by me in my March 1st article, and others indicated and implied therein, are to be applied in our apiaries it will have to be done largely through the medium of our hives. This, I think, needs no demonstration. Now, while it is true that in proportion as we succeed in correctly applying these principles do we succeed in obtaining the greatest amount of honey from our colonies, it is still further true that in order to be successful honey producers, in competition with others and a declining market, we must apply them with the least expenditure of time and labor. These factors show to some extent the important relation our hives bear to our success. Some, I know, strongly claim that hives and appliances have nothing or little to do with our success; such, however, has not been my experience and observation. The person who uses hives and appliances necessitating slow, tedious (exasperating to the bees and disturbing to the colony) manipulations and methods of applying principles which do not render these principles the most effective, if not left behind entirely in the race of keen competition, will always be seriously handicapped. This may not be of much interest to those who have already started in bee-keeping and have already adopted their hives and other appliances, good or bad, and are tied to these and have to make the best of them; but I do consider it of very great importance to those who are thinking of taking up bee-keeping, because in this very often serious and even fatal mistakes are made.

At present we have three distinct systems of bee-keeping: the old box hive, the movable frame, and the case system. If we wish to make of bee-keeping a real success but two of these are practical, namely, the movable frame and the case system, sometimes called the Langstroth and Heddon systems respectively. The great majority of advanced bee-keepers use the Langstroth or movable frame system, but my own preference is decidedly in favor of the case system as invented and perfected by Heddon. While there are others, there are mainly two reasons of prime importance which cause me to favor the case system. (1) It requires a much less expenditure of time and labor to perform the various necessary manipulations of our apiaries, and (2) with it we can keep our colonies in a condition more nearly in accord with those fundamental principles and conditions which I mentioned and indicated in my article in March 1st ADVOCATE. To make this all apparent to the reader it would be necessary to describe the various necessary manipulations of an apiary as performed by each system and the conditions obtained thereby, but space forbids that now.

To lessen the expense of time and labor in the manipulation of our apiaries we must handle hives and cases more and frames less or perhaps none at all; and the farther our hives and other appliances are removed through their construction from the accomplishment of our purposes in this way the more seriously are they at fault. This is looked upon by many as only a kind of fad of the Heddon case system, and a peculiarity of its hive; but I wish to strongly emphasize the fact that it is equally as true of the Langstroth system and appliances, only it cannot be so perfectly and easily carried out, they never having been intended for this purpose, only so far as modified up to it; whereas the Heddon is and always was intended to be manipulated in this way.

To apply effectively and with little labor the principles of honey production, I have found the following points concerning hives and their construction true; and they are equally as applicable to those of either of the two systems we are considering:

1. All double-walled hives are mistakes. I know of scarcely one redeeming feature in their favor. They tend toward the handling of frames instead of the handling of hives. They are cumbersome, heavy, and awkward, and nearly all necessary manipulations are performed with them at an enormous expenditure of time and labor. If wintering outside, use single-walled hives protected with an outer case and packing, which can be painted dark to absorb heat from the sun, and removed during the summer.
2. Single story hives are bad mistakes.
3. To adopt what is known as a deep-frame hive is a serious if not fatal mistake.
4. Slides, glass, scrollwork, etc., about a hive are worse than useless.
5. Use but one kind of hive, and that a readily movable one, not only as light as consistent with strength, but so constructed that its frames will not get out of place when being handled, whether it has bees in it or not.
6. A hive the combs of which cannot be readily removed when containing bees should not be tolerated.
7. The brood chamber of a hive should be not more than eight combs wide, and of about eight or ten Langstroth frame capacity in comb, the combs being 1 1/2 inches from center to center, and adjusted so as to occupy the least cubic space practical.
8. When a brood chamber is being either expanded or contracted, its top surface should be neither enlarged nor lessened thereby. This is not

possible, so far as I know, with any Langstroth form of hive.

9. Surplus cases should not be more than five or six inches deep. If the top and bottom bars of shallow extracting cases are more than 1 1/2 inch wide they will interfere with quick and accurate inspection when being filled, and also the uncapping of the combs. Cases for comb honey should be fitted with separators and to take a standard size of section.

10. Every hive, especially for extracted honey, should be fitted with a break-joint queen-excluding honey board (a name better expressing its use would be queen and brace comb excluder). Where this can be dispensed with, and it can, it is a sign that the hive or system is more or less at fault in other more important respects.

11. A bee space of about 1/8 to 3/8 of an inch should be preserved between the different parts of a hive. The tendency of the bees is to fill a smaller space than this with propolis and a larger one with comb.

12. The bearings of a hive should be square, and not more than 1/8 of an inch across. They are less liable to crush bees, and tend to rapidity in handling.

13. A good bee-escape is a necessary adjunct to every hive.

14. I prefer a plain flat cover for a hive, with neither cloth nor gable.

15. Hives should be kept painted, and no other color used than white. This color will reflect the heat of the sun, and consequently add much to the comfort of the colony during the heat of the summer. Painting, besides preserving, helps much to keep a hive accurate. Wintering cases should be dark.

16. Tolerate nothing but absolute accuracy in hive construction. A frame or other part that fits one hive should fit every other hive in the apiary.

Enthusiastic beginners, after one or two years' experience, and sometimes less, frequently make a foolish mistake in trying to improve some hive or invent one in accordance with their own ideas. This perhaps is pardonable when we consider that older bee-keepers often show their ignorance and much folly in this respect. The points which I have enumerated are not intended to help young inventive genius, but rather to aid the beginner to make a wise choice among the various hives, good and bad, which we already have. Having done this, our other methods and appliances should then be those which are specially adapted to the system and hive of our choice. Don't try to hybridize matters with respect to Langstroth and Heddon by attempting to adopt the best in each; though they have much in common, yet, like oil and water, they won't mix. In adopting either do so in their entirety.

POULTRY.**How to Make Hens Pay.**

- 1.—How many hens do you consider it wise to keep on the average 100 acre farm, and to what age?
- 2.—With a view to eggs, table birds or both, what breeds or crosses would you recommend as likely to give most general satisfaction?
- 3.—What plans would you suggest for improving an ordinary farm flock of mixed fowls, such as selection or "weeding out," new breeding birds, setting of eggs, etc.?
- 4.—What period of the year is it advisable to retain male birds with the flock? How about numbers together?
- 5.—By what means do you secure the best eggs for hatching?
- 6.—What treatment would you suggest for a pen of breeding hens (from which the eggs are to be set) during the latter part of winter and spring?
- 7.—What sort of a house do you recommend with regard to (a) size, (b) location, (c) warmth, (d) sunlight, (e) ventilation, (f) dust bath, and (g) watering, and to what extent should fowls run out in winter?
- 8.—How do you manage to keep hens free from lice and disease?
- 9.—What foods or mixtures do you recommend for (a) egg production, (b) fattening, (c) how often would you feed per day, and (d) what value do you place on green bones, and vegetables, and sunflower seed?
- 10.—How many eggs per year should a good farm bird lay to be profitable, and at what age should broilers be sold?
- 11.—Should turkeys, ducks or geese be allowed to run in the same house with hens; if not, why?
- 12.—What is your idea of keeping turkeys, ducks or geese on the average farm, and how do they compare with hens as to profit, etc.?

Exercise and Green Feed Essential.

1.—Hens on a farm are usually kept in one house, and during most of the winter they have to stay there. Now, it is evident that the size of the farm has but little to do with the number of fowls one may keep. The question simply resolves itself into, How many fowls can be kept in one flock? Well, I would not keep over fifty, and twenty-five would be better. Fowls should not be kept over three years of age without they possess extra qualities.

2.—For eggs alone, I consider the Minorcas and Leghorns the best; for table birds, the Indian Game, Wyandotte, or Indian Game-Light Brahma cross; and for a combination of the both, I prefer Plymouth Rocks or Wyandottes. I think the last two breeds are the most suitable on a farm.

3.—To improve a common flock, I should secure a male—unsuitable for exhibition as to fancy points, but a thrifty individual—from some reliable breeder, mate him to the best hens, and next year secure a fresh one and continue on the same plan. A trio of good pure-bred birds might also be secured and in a little while the whole flock would be first-class. Buying eggs is often very unsatisfactory, discouraging both buyer and seller.

4.—The males should be kept in the flock during