money-making possibilities which such progress carries with it. That fact should be kept in mind, both by those who teach and those who receive instruction. There are other objects, it is true, and in their way, higher ones than this, but the practical man in the industrial world judges of the worth of what is offered him in the name of education, by what, if carried into effect, it is likely to produce for him in wealth. If not in wealth, then, secondly in ease and comfort. If your agricultural educationist cannot teach practical money-making things first, and before he attempts to sketch the state of ideal agricultural existence, he will fail in the purpose he undertakes.

HORSE

Building Horse Stables

In the building of horse stables, there are four points to be kept in mind while plans are being prepared and construction work is under way. The stable requires to be well lighted; to be warm in winter, and so constructed that it may be kept as cool as possible in summer; to be built with a view to economy, and to ensure the healthfulness of the stock, it requires some adequate system of ventilation; to be so built as to save labor in looking after the horses; the stalls, passages, doors, feeding and watering facilities being so arranged that little time is wasted, also that no part of the building is unfitted for the purposes for which it was designed, and that no useless space is roofed..

Light in the stable is one of the essentials of cleanliness and health. A dark stable is generally, more or less, a filthy one, and is not conducive to the best health of the animals confined in it. In arranging the windows, they should, as far as possible, be placed so that the maximum amount of direct sunlight may pass through them, that is,as many of them as possible should be on the south side of the building, next to the south, the east side is the best adapted for the entrance of sunshine; the west next, and the north last of all. It is not the best plan to have the stalls arranged so that the horses are facing the light all the time. The sunshine is better entering the stable from behind the stalls rather than in the front. It may be possible to have too many windows in a horse stable, but one seems unable to recall a single instance of a horse barn too abundantly supplied with them. They should be of fair size and not too high up in the wall. Some men seem afraid their horses will jump out through the windows, and consequently, the window space sometimes is up at the ceiling, where it can be of the least use.

In this country, a horse stable needs to be warmly constructed. There should be one dead-air space at least in the walls, two, if a man thinks he can stand the cost of an extra sheathing of lumber. Studding lined on each side with good building paper, and sheathed outside and in with good tight-fitting lumber makes a fairly warm stable. Warmth, of course, depends to a large extent upon the number of horses one is stabling. A large stable full of stock is always warmer than a small one with only two or three head in it. Some builders, in erecting a stable, lose sight of the purpose the dead-air space in the wall is intended to serve. On that space depends, to a large extent, the warmth and dryness of the building. The air confined in it should be as nearly "dead," that is, immovable, as it is possible to have it. It quite defeats its purpose if the air can circulate freely. The stable will then be little warmer than if no air space existed in the walls at all. The lumber and paper lining should fit tightly about the bottom of the studding, oustide and in, and at the joists the wall space should be completely cut off from the loft by folding under the building paper and fitting in short pieces of boards between the studs. The foundations in all cases where a permanent structure is being made, should be of concrete, stone or brick, whichever is the most convenient and cheapest to use.

Concrete is not the most desirable material for stable floors, but it is the most durable. It makes a "cold" floor, cold because it draws heat rapidly from the animals' bodies. Plenty of bedding beneath the horses reduces the loss of heat and diminishes to that extent the "coldness" of the floor, but, unfortunately, straw or bedding of any kind is difficult to keep under horses standing on a concrete floor—more difficult than with wood. Clay is perhaps the best flooring of all, desirable because it is the natural material for horses to stand on; but a clay floor in the average stable is an impossibility. Except for the boxes, the floor must be either wood or concrete. The boxes, if the situation be one easily drained, may be of clay; but the flooring in the stalls must be either wood or concrete, or as some arrange it, a combination of both, a concrete bottom to make the floor watertight and planking laid on it for warmth. If the planks are sawn properly—thicker at one end than at the other—and two layers put down, it is possible to have the horses stand on the level, and at the same time permit drainage to the rear. This method of placing, sawing and laying the planks is described in detail by a correspondent in this issue.

The problem of ventilation, that is, of perfect ventilation, has not yet been completely solved. By perfect ventilation is understood an atmospheric condition within the building, at least as regards the purity of the air, equal to that prevailing outside. To obtain this degree of purity is a practical impossibility by reason of the fact that, were it obtained, the temperature of the of the air inside would be so very nearly outside conditions that the required degree of warmth could not be maintained. Warmth in the stable is derived from the animals' bodies, and retained by walls so constructed that the greater portion of it is kept within the building. But, if a system of ventilation were in operation that would remove completely and continuously the air from within and replace it with cold air from without, it is readily seen that practically every unit of heat from the animals' bodies would pass out and the stable would be unduly cold. Only a certain degree of ventilation in any case may be secured or is desirable, but it by no means follows that no facilities at all should be provided for introducing fresh air into the stable and removing the vitiated and foul. As a general rule, in this country, horse stables are insufficiently aired. The air inside, moisture-laden from the respiration of the animals, deposits its moisture as frost on the walls and produces conditions far from desirable, both as regards the effect upon the health of the stock and durability of the building.

Of methods of ventilating stables, the King system, described frequently before in these columns, is perhaps the best. If one does not care to go to the expense of installing this or some other complete system, he may, by giving a reasonable amount of attention to the location of doors and windows, by having windows that may be opened, and providing outlet shafts to carry off the heated foul air, secure a fair degree of ventilation. Regarding windows being easily opened, it might be remarked that it is is well to have wire screens fitted, so that in summer the windows may be opened to let in air and yet prevent some of the enterprising flies and mosquitos of the neighborhood from coming in for a fill of blood.

Having a water trough in the stable is convenient in winter and on stormy days, but it is of little advantage during the working season. If the well is located close to the building, one may pump the water directly in; but if it is some distance away, a windmill or some power to force the water into a supply tank in the loft or some place in the building is necessary. One of the best ways to provide a supply is to have a galvanized sheet or iron tank attached to the ceiling joists at some point in the stable, say, the end of of a feed passage, where it will be out of the way, and connect with the trough by means of a pipe. Except in extremely cold stables, there will be no freezing, and the ceiling is anyway the warmest part of the building. The tank should be flat, not over eighteen inches in depth and fastened to the joists by iron straps passing underneath the tank and bolted to the overlays. Light tire iron is strong enough to hold up a fair sized tank. The straps should pass under each end and be spaced about two feet apart on the length of the tank. The arrangement of stalls depends a great deal on what a man's ideas are regarding economy of space and convenience of doing the stable work. In a great many stables in this country, the feeding alley in front is dispensed with, the mangers built against the outside walls, and the horses standing in double stalls fed from behind, the width of the building in this case being just sufficient to provide for stall space and the passage behind. In an up-to-date stable, however, this style of stalling and feeding does not prevail. Single stalls, in all cases, are preferable to double, one reason being they offer more comfort, and another, the horses are less liable to injure one another. A single stall should be five feet in width, less than that is not sufficient. The partitions between stalls should be of two inch plank, and for the lower six feet should be the full length from the manger to the rear stall post. Over this height they may taper forward, being sufficiently high at the mangers to prevent the occupant of one stall from reaching over to fight with the animal in the stall adjoining him. The post to support the rear end of the stall partition should be of cedar, if wood is used, or of iron, if one wants things arranged a little more substantially. The post should be of good length, long enough to be set in the ground three feet and leave five feet or more above the floor to receive the ends of the plank partition. It should be set in concrete, so as to be immovable, despite any amount of side pressure on the partitions. A two-inch groove sawn down the inside of the post is the most convenient arrangement for fastening in the planks of the partition. Feeding in mangers is the common practice, and perhaps the best. Feed racks are convenient, but they obscure the light as badly as partitions, and where one wishes to admit the maximum amount of sunlight, it is as well to dispense with this method of feeding.

No properly equipped stable is complete without a separate room for harness. It is economy in in the long run to have a harness room, and while a builder may think at the first that the space such an apartment occupies is room wasted, he will find in the end that it pays to have it. The fumes arising from the manure, particularly the ammonia gas from the urine, is distructive to leather goods. The harness room should be shut off as completely as possible from the main part of the stable. Space at the end of the row of stalls or a box near the center may be fitted up to hold harness, and while it appears more convenient to hang harness up on pegs behind the team one strips it off, it is not much more trouble, after all, to place the leather safely away. It pays to do so, because it means money saved in harness and repair bills.

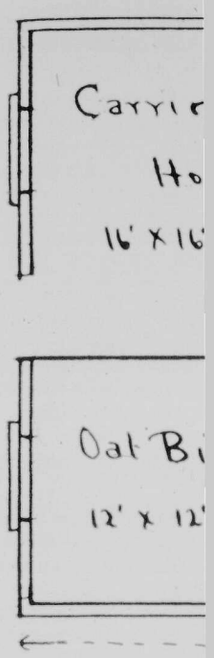
Horse Stable Plans

EDITOR FARMER'S ADVOCATE:

The construction of the horse stable is a matter that should be of paramount importance to every farmer of Western Canada, for unfortunately it is one that requires attention on a great many of our farms. In some instances the cost of construction has materially retarded the erection of a suitable building, but in many other cases, where the farmer can well afford to have his horses properly stabled, he has apparently been content to go on from year to year, putting up with the little, low stable that he erected on his arrival in the country and which, in many cases, is without either loft or flooring.

In putting up a stable a man must be guided by his individual requirements, and if he does not intend to farm more than a quarter-section, his plans must of necessity differ widely from those of the man who requires stable room for horses sufficient to work a section. However, in submitting this plan, we presume that the average western farm is a half section and that stable room would be required for about eight horses with a couple of extra stalls that could be turned to good account at threshing time, and at other seasons could be used for stabling the colts or the driver.

The three most important points to be considered in the construction of any building are: first durability, second, convenience and third, cost of construction. That "the best is usually the cheapest" certainly applies to the question of building, and especially in the essential points of of construction, such as the foundation and supports, cost should not be considered of first importance. We would, therefore recommend that the foundation consist of stone and cement properly laid and that the supporting posts rest, not on the floor, but rather on stone underneath. Cement makes a very satisfactory floor for the main part of the stable, but an idea that is probably an improvement on the general plan of flooring the stalls is to have good, sound plank (preferably 3″ x 6″) ripped on an angle with the circular saw so that the plank would be two inches thick at one end and one inch at the other.



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EDITOR FARMER'S ADVO

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