

Founded 1866.

THE FARMER'S ADVOCATE

—AND—
HOME MAGAZINE.

WILLIAM WELD, Editor and Proprietor.

The Only Illustrated Agricultural Journal
Published in the Dominion.

TERMS OF SUBSCRIPTION:

\$1.00 per year, in advance, postpaid; \$1.25 in arrears.
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A Visit to Powell Bros. "Shadeland," Springboro, Pa.

Their farm is located in the broad and beautiful Spring Valley. The place is amply supplied with all the necessary buildings to carry out the business of a stock farm on a large scale, and is also tastefully adorned with gardens and flowers, and fountains and purling rills, and orchards to an almost unlimited extent. Having previously visited the stock farms of Hamlin and the Jewett Bros. at Aurora, N. Y., as well as other large breeding establishments in various sections of the country, I was somewhat prepared to see something nice, but not as elaborate and finished as I found them here. The Jewett Bros. have one barn, the arrangements of their stables and paddocks are much better, and the best in many respects of any I have ever visited, but here I found things on a so much larger scale, the Jewett Bros. doing a retail business, while the

Powell Bros. are wholesale operators. The farm contains over a thousand acres, and they have a good half-mile track, where the horses can be exercised and trained. For road and track purposes they believe in breeding the trotting bred horse to trotting-bred mares, without the further addition of running-bred blood. I first looked at some broodmares, and one particularly attracted my attention. She was a large, fine-looking bay mare, sired by Rysdyk's Hambletonian, and has a record of 2:22. She belongs to Bolls Bros., of Boston, Mass., and had been sent on here to be bred to Satellite. Several other mares were shown that had been sent long distances to be bred to Satellite. Next I was shown some of their own, as fine brood mares, and as well bred as can be found anywhere. One of the number shown is an exceptionally fine and strong looking mare, sired by Thorndale and dam full sister to Volunteer. She is in foal to Satellite. By the way, they manifest quite a decided liking to Volunteer mares, on account (they say) of the indomitable will-power, energy and pluck, and ability to train which the Volunteers possess. They own and breed a goodly number of Volunteer mares. They have no faith in the theory of securing strength and endurance by engrafting more running-bred blood into the trotter, but say, if we need endur-

ance, give us Volunteer, Belmont, Almont, or horses of like stamina and breeding. I was shown a superb two-year-old filly by Satellite, dam by Volunteer, for which \$1,000 was offered and refused. I never before saw finer action nor so great speed in any untrained filly as she exhibited. But the fairest looking filly, by all odds, was a blood bay three years old, by Satellite, dam by Volunteer. She was a good size and very fine in every respect; she has been sold to some parties in Scotland, and was to be sent across the ocean in a few days; she will do credit to her sire, Satellite, and to the sire of her dam, Volunteer. I was also shown some very fine colts and young stallions, the produce of Satellite, and all showing fine action at the test. All over the entire farm the fences are strong and high, and the two and three year old stallions are turned loose together in the pasture, where they run peaceably all summer, a thing which I never heard of or saw practiced in any other place. I then drove to the barns where the Clydesdales are kept, passing on the way the Holstein and Devon cattle.

The large horses that I had previously seen were ungainly fellows, and often with poor limbs and feet, but when I came to see the Clydesdales I was surprised to see their flat, strong limbs and excellent feet, which I am told is a characteristic of the breed. In weight they range all the way from 1,500 to 2,000 lbs., and now and then one tips the beam at 2,400 lbs. They are fine looking, more active and better travellers than I expected to find them. As a breed they seem remarkably free

ter to stick to the sides and bottom, whereas with a non-absorbent material it would not near so readily adhere.

The joints should be made with cement and clean sand, care being taken to withdraw any particles that may fall inside the pipes in so doing by previously inserting a pad or brush fixed to a handle and passed beyond the joint about to be made. As each joint is completed the pad must be entirely withdrawn, bringing with it any fragments of the jointing material that have dropped inside.

Neither clay as a luting, nor mortar, are reliable to make watertight joints. The pipe trench should have an unyielding bottom, when otherwise a layer of ground lime or cement concrete is desirable.

The fall or inclination of both main carrier and branch drains must be considerably more than for ordinary house sewage, which latter is assisted in its passage by intermittent flushings of sink water and slops. The fall must be regulated by circumstances, but should never be less than 2 inches in 10 feet. Care should be exercised that the gradients are uniform throughout; the bad effects of some pipes being through carelessness laid level, is not compensated for by succeeding ones having double the proper fall. Branch drains should never be connected to the main drain by making a hole in the latter and plastering the junction with cement; nothing is surer to create a block. Junction pipes only ought to be employed, and such as have the arm or junction inlet at a sharp angle to the pipe itself, commonly known by workmen as "skew out" junctions, as distinguished from "square out."

Junction pipes should be laid to have their branch inlets pointing up, so that the contents of the branch drains are discharged into the main drain at a somewhat higher level. By this arrangement any small deposits that may exist in the main drain at these points do not create a corresponding deposit in the branches.

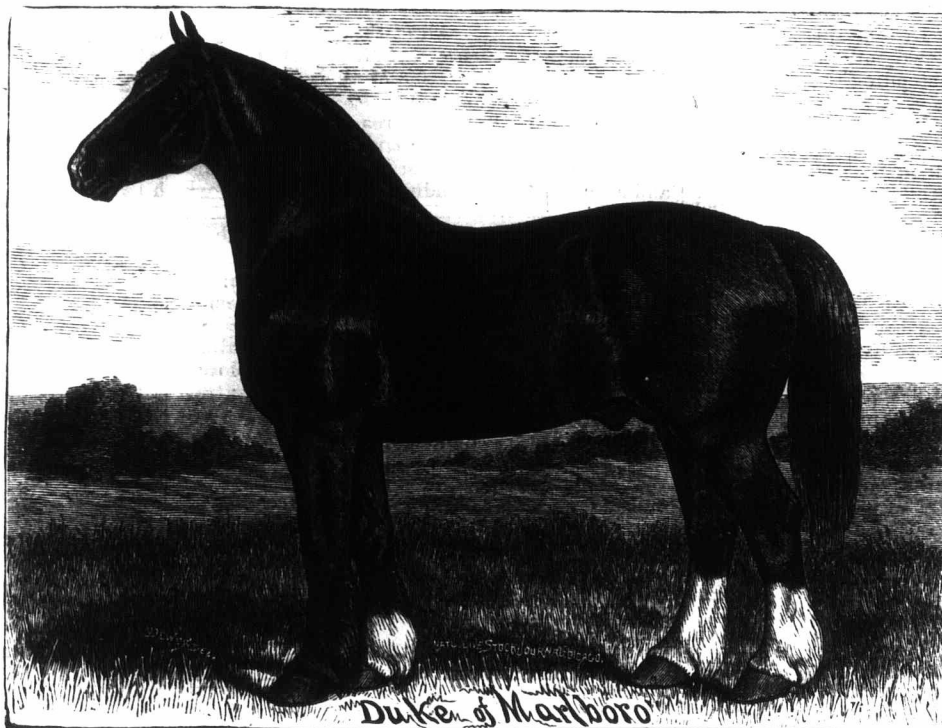
No traps, whether known as syphon or P traps, S traps, or bell traps, should be employed, for although serviceable in lines of drains connected with dwellings, they are unnecessary in a liquid manure drain, serving only to pen up the gases contained therein, and a certain means of creating a stoppage through solid matter resting in the lower portion of the trap. When these conditions are observed 6 inch pipes are sufficient for the main carrier of the largest farm buildings, and 4 inch ditto for branches. For safety in long leads 5 inch would be better, but it is a size very rarely made.

All lines of drains should be laid as straight as possible; where curves are necessary, the longer the radius the better. Under no circumstances should elbow pipes be used, but "bends," or curved pipes. Where junctions or curves are made, pipes for opening the drains should be fixed, to permit examination of the drains at these points without disturbing the drain proper.

Some means for an occasional flush of water is desirable. This may be often obtained where a water trough is dear by bringing a rain-water pipe to empty into the latter. A plumber's 3 inch plug and washer with chain attached, inserted into the bottom of the trough, and connected to the liquid manure drain at its head or commencement, is an excellent way of doing this. When full of water, the plug being lifted, the contents are rapidly discharged into the drain, and a scour right through takes place. For diluting the liquid manure in tank as much as may be required and no more, this is also a simple arrangement, clearing the drains at the same time.

A fault is committed in not having the receivers or catch pits for the liquid manure sufficiently deep. No doubt this is so in many cases, but no matter how deep, unless careful attention is given, they are sure to be left till the mouth or dead-end

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THE PROPERTY OF POWELL BROS., SHADELAND, SPRINGBORO, PA.

from unsoundness, such as splints, ringbones, spavins, etc. For heavy draught, for the farm, and for the general work-horse, they are destined to supersede all others. For the farmer it seems as though it were far better to dispense with a team that can only turn a narrow furrow and draw a load of a ton when he can get a team that can turn three good furrows at a time, and draw from three to four tons at a load. When the horses are once bred that can handle large things lively and well the machinery for their use will be supplied. On the farm there are over two hundred horses, consisting chiefly of Clydesdales and Hambletonians.

J. J. M.

Utilisation of Liquid Manure.

The best method of saving, storing, and distributing the liquid manure accruing from stock buildings is apparently a simple matter, and easily dealt with, but it is essentially one requiring practical as well as theoretical experience.

Drain pipes to act as carriers for liquid manure only should not be of ordinary red ware, for although cheaper than the kind known as "glazed socket stoneware," they are not so strong and being absorbent take up a good deal of the moisture passing through, causing the more solid mat-