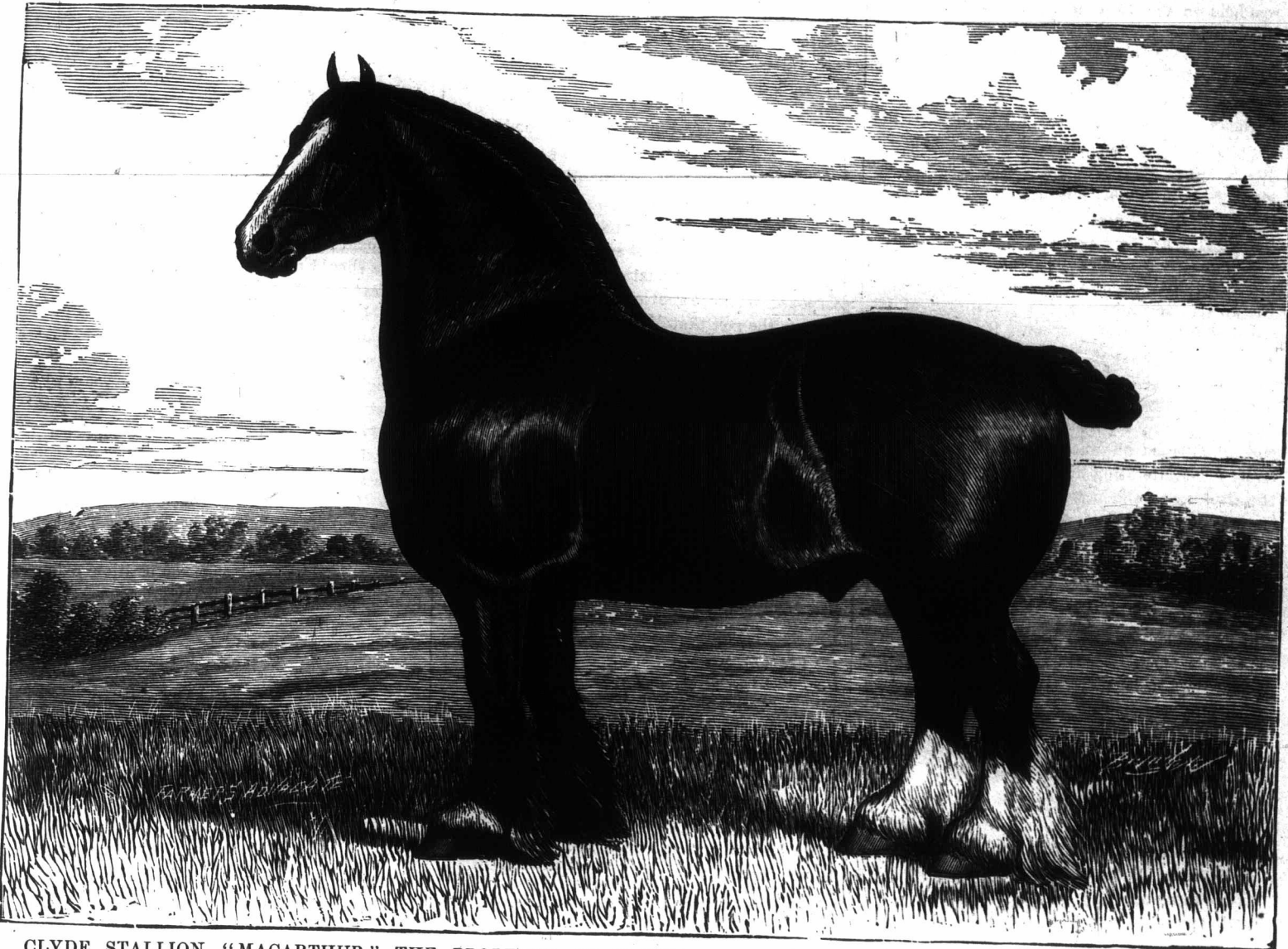


The Advocate for 1888.

The present number closes the 22nd volume of the ADVOCATE. We return you our sincere thanks for your liberal and continued support and appreciation of our labors. It is our opinion that from our trip to the Pacific coast and from our increased staff of able writers, that the FARMER'S ADVOCATE for 1888 will contain more important information, and will be better illustrated, than any numbers yet issued. If you appreciate any good that it may have done, we trust that the contents of the 23rd volume will tend to your interest and to the welfare of the

upon the fineness of the grains of sand. Gravel or coarse sand is scarcely a profitable soil, and yields with liberal manuring and watering at most a scanty crop. On the other hand, when the sand grains are very fine, almost dust-like, the sand holds the water very tenaciously between the particles, often holding the soil very compactly together, which obstructs the admission of air and the penetration of the roots of the growing crops. However, when a sandy soil has the sand particles of proper fineness, possessing also sufficient moisture or obtaining the same by capillary action from deeper strata,

nitrogen in the form of nitric acid. Some very fertile soils only contain 0.1 to 0.3 percent of lime; but it must never be entirely wanting, as no vegetation can then flourish, not even those plants which are poor in lime, such as the cereals. When the lime is in a finely pulverized condition, existing in the form of carbonate of lime, and being thoroughly mixed with the rest of the soil, it exercises a beneficial influence on the mechanical and chemical condition of the soil. An expert can readily detect its influence when there is only one or two percent of carbonate of lime in the soil. It improves the physical condition of both clayey and sandy soils, all extreme properties being regulated, as is done by an admixture of humus, and marl-



CLYDE STALLION "MACARTHUR," THE PROPERTY OF MESSRS. GRAHAM BROS., CLAREMONT, ONT. (SEE PAGE 366.)

agricultural and national interest in a much greater ratio than any of its predecessors.

In sending in your renewals, if you would take the trouble you might very materially aid your journal and the editor by adding one new name to our list. It is from the number we receive that we are able to improve.

Sand and Lime as Constituents of the Soil.

In our latest two issues, we set forth the advantages of humus and clay as constituent parts of the soil; we shall now speak of sand and lime.

In general, sand produces physical properties opposite to those of clay, sandy soils being light, dry, warm, and very porous for air and water. These properties are, however, largely dependent

it can yield good crops of many plants, and is often more benefited by concentrated and quick acting fertilizers than a clay soil, but these applications must be made oftener, also in smaller quantities, and in the proper time, in order to produce the best effects. When manures or fertilizers are liberally used, a sandy soil of medium fineness of the sand particles is well adapted for intensive gardening, admixed with a good supply of humus.

In most soils, the presence of humus, clay, and sand can be readily observed, and their relative qualities easily determined, but *lime*, which is found in every fertile soil, is not present in such quantities that it can be so readily determined. Lime is a constituent of plant food, while clay and humus must first be decomposed before they yield their food constituents, the former yielding the mineral or ash constituents of the plant, and the latter mainly the

soils (containing 4 to 8 percent of lime) which are generally the most fruitful and profitable. Finely divided carbonate of lime favors the gathering of a mild, fruitful humus, and brings about that medium state of activity which causes the plants to flourish in the highest degree. A real marl-soil can be worked without damage in almost any kind of weather, and although it may appear puddled and lumpy after plowing while in a wet condition, it readily crumbles in a few days into a finely pulverized mass. It should be borne in mind that carbonate of lime easily washes out of the surface soil. A soil may be poor in lime even though it originated from lime-stone rocks and still lies on such a formation, and may therefore be benefited by a dressing of lime or marl. From an agricultural standpoint, the percentage of lime in certain districts ought to receive greater attention than it has heretofore done.

In our next issue we shall show how to judge soils, which we consider to be of greater practical importance than the judging of live stock.