

is effecting results that are plain and undoubted. The improvement of our existing grain and other plants by breeding them up to a higher standard in quality and productiveness will be one of the important factors in the next half century in working out the economic problems which, through increasing population, are beginning to bear more heavily upon agriculture.

By the end of the present century, it is estimated, the agricultural land of the world must produce a much larger annual acre yield than it is producing now to support the requirements of our increasing populace. Better methods of farming is one means by which production may be made to keep pace with consumption. The development of a superior type of grain, forage, fodder, fruit and other crops is another.

As a general rule, it is vastly more difficult to experiment with animals than plants, but recent developments indicate that we are on the verge of important discoveries in the domain of animal breeding as well. The Mendelian law is capable of application in animal breeding as well as in the breeding of plants, and when some experiments have been conducted and data gathered, upon which a regular system may be worked out, results even of greater economic importance may be looked for than have yet been attained in experiments in the crossing, breeding and building up of strains in plants.

principal use of the Shetland is in the amusement of children. In this later capacity their docility and intelligence, as well as their small size, makes them especially valuable. They have no vicious habits, at least few of them have, and are about as apt to injure the youngsters as the family dog is.

The Shetland pony is a heavy harness horse in the miniature. He is built solid, with a paunchy body and strong, heavy legs. In color he may be anything that horses are, even piebald. He weighs from 300 to 450 pounds. He is not much in action. His gait is that of a trotter and, while capable of doing a great amount of work, and standing a good deal of abuse, the Shetland will never overwork himself. He has a lot of endurance, but he won't exhaust himself on any kind of a job, and even the vigorous use of the whip will not excite him to exertion beyond his strength.

On this continent breeders have tried crossing the Shetlands with other horses, the Hackneys especially. The results of such breeding in some cases have been satisfactory, the size and action of the ponies were improved but since the class is used now solely as children's pets, and the smaller in size the ponies are, the more valuable they become, there has been little encouragement to crossing. In fact the breeder's greatest care is to keep his stock within the regulation limits as to size.

observation, though, if the animal walks on three legs, the decision is easy to reach. The action of galloping will often, by the rapidity of the muscular movement and their quick succession, interfere with a nice study of their rhythm, and it is only under some peculiar circumstances that the examination can be safely conducted while the animal is moving with that gait. It is while the animal is trotting that the investigation is made with the best chances of an intelligent decision, and it is while moving with this gait, therefore, that the points should be looked for which must form the elements of the diagnosis.

Much may be learned from the accurate study of the action of a single leg. Normally, its movements will be without variation or failure. When at rest, it will easily sustain the weight assigned to it, without showing hesitancy or betraying pain, and when it is raised from the ground in order to transfer the weight to its mate, it will perform the act in such a manner that when it is again placed upon the ground to rest, it will be with a firm tread, indicative of its ability to receive again the burden to be thrown back upon it. In planting it upon the ground or raising it up again for the forward movement while in action, and again replanting it upon the earth, each movement will be the same for each leg and for each biped, whether the act be that of walking or trotting, or even of galloping. In short, the regular play of every part of the apparatus will testify to the existence of that condition of orderly soundness and efficient activity eloquently suggestive of the condition of vital integrity, which is simply but comprehensively expressed by the terms *health* and *soundness*.

But let some change, though slight and obscure, occur among the elements of the case; some invisible

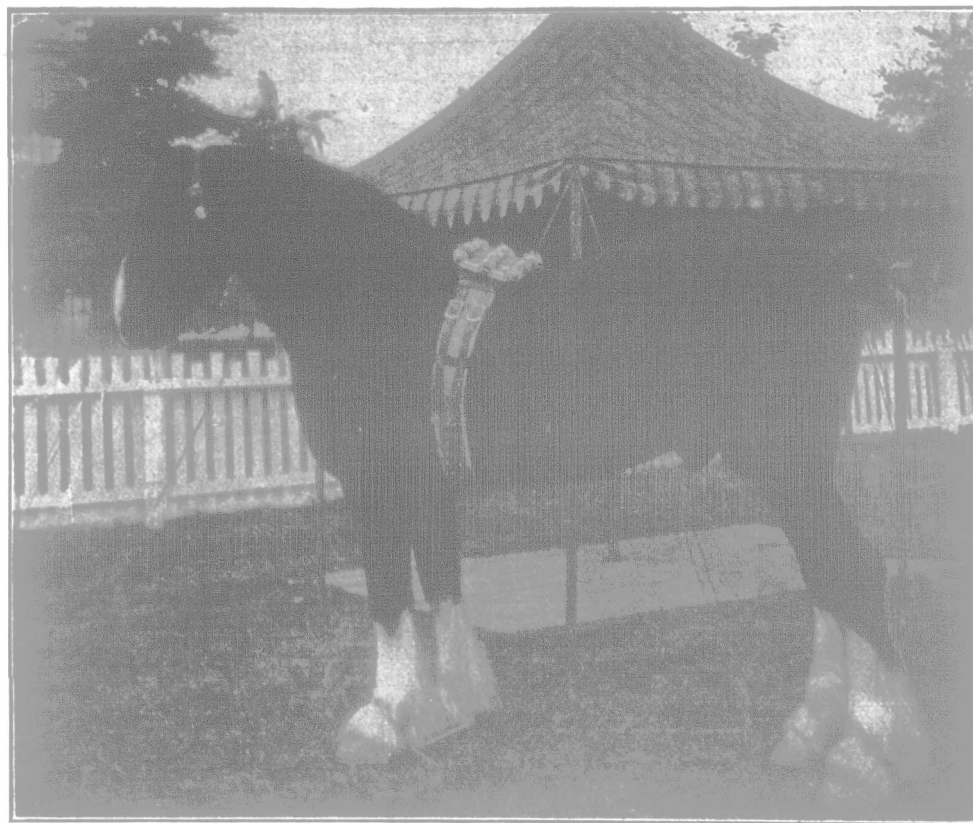
## HORSE

### The Shetland Pony

Of all horses Shetland ponies are the most diminutive, the most docile, and for their size possessed of the greatest strength. To trace the origin of the Shelties, one must go back beyond the dawn of written history. They were on the Shetland Islands probably before the Norseman came to settle there. For as far back as man can trace human existence on the Islands the ponies were known. How they reached the Shetland's, and where they came from, history does not disclose. Written history of the breed, in fact, does not go back very far. That they were on the islands before the Norsemen came is very probable, for in Edinburgh Museum there is preserved an ancient Celtic stone, discovered in the Isle of Bressay, bearing amongst other things the picture of a horse on which a man is mounted. The horse is a Shetland pony, judging from its diminutive size, and the man is supposed to be a Celt. But the first authentic record we have of such ponies existing in Shetland is furnished by an historian who wrote about the islands in 1770. Since then the Shetland pony has been better known, record books have been started for the breed, he has been taken to all quarters of the world where his docility, intelligence and wonderful endurance have brought him much into favor for certain uses.

The Shetland Islands, in which these ponies have their home, lie northeast of Scotland and only 360 miles from the Arctic circle. They are rough and hilly, forage is scarce, and the climate severe, the ponies run out all season, changing their existence with the few sheep which the islanders keep. Scant forage and a boisterous climate account for their small size and shaggy coats. That they probably originated from a larger species is evident in the difficulty which breeders have of keeping the ponies small enough when they are bred in a more favored climate and fed on a more nutritious diet than they get in their own hilly and wind-swept isles. It is only by the most judicious selection and mating that this difficulty is overcome. Even as it is, the Shetlands are gradually becoming larger. Seventy years ago, according to Youatt, they were very diminutive, sometimes not more than seven hands and a half in height and rarely exceeding nine and a half. The standard height now is from 9 hands to 10.2, the latter being the limit set by the *Shetland Pony Stud Book*. Neither are they so shaggy as they formerly were in the coat.

The first ponies exported from Shetland were used in coal mines as pack and saddle animals. For this work their small size, wonderful strength, and easy keeping qualities seemed particularly to adapt them. They could go anywhere a man could, and keep fat on anything. Now-a-days, however, they are not so much used in mines as they were. Cheaper power has been found for carrying and hauling below ground and the



MONA'S ROCKET, IMP. (534).

Shire stallion. Bay; foaled 1905. First in Class and reserve Champion, Canadian National Exhibition, 1908. Owner, Thos. Mercer, Markdale, Ontario.

### Detecting Lameness in Horses

Comprehensively and universally considered, the term *lameness* signifies any irregularity or derangement of the function of locomotion irrespective of the cause which produced it, or the degree of its manifestation. However slightly or severely it may be exhibited, it is all the same. The nicest observation may be demanded for its detection, and it may need the most thoroughly trained powers of discernment to identify and locate it, as in cases where the animal is said to be fainting, tender, or to go sore. On the contrary, the patient may be so far affected as to refuse utterly to use an injured leg, and under compulsory motion keep it raised from the ground, and prefer to travel on three legs rather than to bear any portion of his weight upon the affected member.

Usually the discovery that the animal is becoming lame is comparatively an easy matter to a careful observer. Such a person will readily note the changes of movements which will have taken place in the animal he has been accustomed to drive or ride, unless they are indeed slight and limited to the last degree. But what is not always easy is the detection, after discovering the fact of an existing irregularity, of the locality of its point of origin, and whether its seat be in the rear or off leg, or in the fore or the hind part of the body. These are questions too often wrongly answered, notwithstanding the fact that with a little careful scrutiny the point may be easily settled. The error, which is too often committed, of pronouncing the leg upon which the animal travels soundly as the seat of the lameness, is the result of a misinterpretation of the physical signs of lameness in the crippled animal. Much details upon the gait with which the animal moves will be under examination. The act of walking is an even one for each

agency of evil intrude among the harmonizing processes going forward; any disorder occur in the relations of co-operating parts; anything appear to neutralize the efficiency of vitalizing forces; and disability of a limb to accept and to throw back upon its mate the portion of the weight which belongs to it to sustain—present itself, whether as the result of traumatic accidents or otherwise; in short, let anything develop which tends to defeat the purpose of nature in organizing the locomotive apparatus, at once we are confronted by that which may be looked upon as a cause of lameness.

Not the least of the facts which it is important to remember is that it is not sufficient to look for the manifestation of an existing discordance in the action of the affected limb alone, but that it is shared by the sound one, and must be searched for in that as well as the halting member, if the hazard of an error is to be avoided. The mode of action of the leg which is the seat of lameness will vary greatly from that which it exhibited when in a healthy condition, and the sound leg will also offer important modifications in the same three particulars before alluded to, to wit, that of resting on the ground, that of its elevation and forward motion, and that of striking the ground again when the full action of stepping is accomplished. Inability of the lame leg to sustain weight will imply excessive exertion by the sound one, and lack of facility or disposition to rest the lame member on the ground will necessitate a longer continuance of that action on the sound side. Changes in the act of elevating the leg, or of carrying it forward, or both, will present entirely opposite conditions between the two. The lame member will be elevated rapidly, moved carefully forward, and returned to the ground with caution and hesitancy, and the contact with the earth will be effected as lightly as possible, while the