

Veterinary.

Brittle Hoofs.

BY JAMES LAW, F.R.C.V.S., OF CORNELL COLLEGE, ITHACA, N. Y.

Every horse owner learns, sooner or later, that the strength and integrity of the foot is of essential importance to the permanent value of the horse. "No foot no horse," is a hackneyed expression, but it is none the less true to-day than when enunciated by Lafosse or Jeremiah Bridges. The aphorism is especially applicable to England and English speaking nations, where a faulty system of shoeing has crowded the cities and roads with lame horses, and where even the Veterinary Colleges have considered it *infra dignitate* to give any sound and thorough instruction on this pre-eminently important subject. Among the most common failings in the foot, and one which is especially troublesome in the dry season, is that of "brittleness." This may be due to a great variety of causes, some of which are beyond the control of the owner, while others are to a certain extent susceptible of mitigation.

Many horses are born with unnaturally brittle hoofs, which no care can bring into a satisfactory condition. And yet in not a few of these the fault may be traced to improper conditions of life, which have operated on the sire or dam, or on some still more remote ancestor, and the effect of which has been propagated like the form and color. Illustrations of this may be seen on a large scale in the Belgian or Flemish horse, which, though bred in a dryer and more bracing climate, retains for generations the large, flat, soft hoof peculiar to the breed. Also in the Arabian, which retains its narrow but strong, tough and resistant hoof, though it saw the light at the antipodes of the dry, sandy plains of its ancestral race. Many breeders will recall instances in which a sire or dam, the victim of some accidental disease, producing permanent injury to the foot, has afterwards produced foals, a majority of which fail in their feet under the slightest provocation.

In other cases the feet suffer from a generally improved nutrition. A horse in poor health from starvation, abuse, disease or overwork shows this in the dry, unthrifty coat, the lack of lustre and the late shedding, perhaps more than in any other part of the system. The hoof, which is a product of the same material and from the same source as the hair, is equally affected with it in these conditions; and thus is often laid the foundation of thin, imperfect, brittle hoofs, deficient in toughness and in power of resistance to tear and wear.

A third cause of brittle hoofs is to be found in excessively hot localities; and above all wet mucky straw yards, in which the feet are kept continuously soaking day after day. With this may be classed the standing on accumulations of decomposing and reeking manure, from which damp ammoniacal products rise to continually steam the feet. These soak and soften the horny matter, enlarging the horny tubes and expanding the intertubular material, so that the power of resistance to strain or attrition is to a large extent lost, and when the horn is allowed to dry it splits and breaks up under the slightest strain. When to the simple soaking is joined the influence of the ammoniacal vapor the case is still worse; for this, like other alkalies, has the power of dissolving horn, and after a prolonged exposure the disintegration of the hoof is an affair of great simplicity.

A fourth cause may be found in want of care and regularity in feeding and watering. An overfeed of grain is very often followed by severe inflammation of the feet, and still more frequently by a slight irritation, which, impairing the nutrition of

the horn, causes drying, hardness and contraction, while pinching the already irritated structures, serves to increase the fault of nutrition, and thus to go on in an increasingly vitiating circle. Drinks of iced water, or of cold water, when heated and fatigued, are another frequent cause of the same trouble.

A similar state of things is a common result of a severe purgation; the irritation in both cases commencing in the stomach and extending to the skin and feet.

But of all causes of brittle hoofs, perhaps none is more generally operative than faulty shoeing. The blacksmith is too often satisfied when he has attached a rim of iron to the lower border of the hoof, without any too nice consideration as to the perfection of fit or the evenness of pressure. Many, indeed, to secure a tolerable adjustment, apply the iron at a red heat, and, by a somewhat prolonged application, burn down the offensive elevations. In the feet and on soles already well habituated to such applications the heat is transmitted to the deeper, sensitive parts, and irritation being set up, the nourishment and growth of horn is impaired and the foundation laid for permanent weakness and brittleness. In other cases the sole and frog are well pared out, the flakes and powdery horn removed, and the knife carried deeply into the tough, elastic horn below. As a result, the natural moisture is rapidly exhaled from the open ends of the horn tubes, and the horn dries, hardens and compresses the sensitive parts above like a foreign irritant. This paring is especially to be condemned when it implicates unduly the heels and bars. These, with the frog, form the natural supports of the wall, and, if destroyed, allow the latter to curve in beneath the sole and to press most injuriously. Another common fault is to apply the shoe on a foot with a greater depth at the outer side than the inner, or an undue depth at toe or heel. A still worse method is to apply a shoe so as to press very unequally on different parts of the circumference of the foot, thus straining particular points unduly. Still another is the application of the shoe on the lower border of the hoof wall only, without the natural support which should be obtained from the sole rising to the same level, wherever practicable. Some do much damage by setting clips in deeply at the toe or sides, and then paring away the adjacent overhanging horn of the wall. The driving of the nails too high and too close to the gincle, and the drawing of them too tightly in clinching are often very noxious. Finally, the rasping of the front of the hoof is quite as hurtful as the undue paring of the sole. In both alike, the open ends of the horny tubes are exposed, excessive exhalation is induced, the shrinking, underated horn presses inward on the gincle and imperfect nourishment and brittleness are inevitable. I need only further hint at the bad results of having shoes on until they set in on the heels, at the bruises attendant on the accumulation of hardened clay or stones above the shoe or in the sole, and at the jarring attendant on severe or rapid work on hard roads or paved streets.

To the reader must be left the deduction and the application of the various preventions suggested by the above remarks, and in cases of actual brittleness good may be derived from such measures as the following:—When there is undue drying and contraction of the feet, the shoes may be removed, the edges of the hoof rounded and the foot poulticed or placed daily for twelve hours in a wet clay puddle for a week or a fortnight. The skin above the hoof should meanwhile be greatly stimulated by frequent applications of acitum cantharides. When the foot has been sufficiently expanded the soaking must be stopped and the entire hoof daily anointed with a mixture

in equal parts of linseed oil and crude turpentine. The acitum cantharides may still be applied at intervals to keep up a slight heat and irritation around the top of the hoof, and to increase the growth of horn. When shod, the greatest care must be taken to have the shoe perfectly adapted to the foot, and to preserve the latter in every available point, so that each portion may obtain due support from its fellow, and that all may grow increasingly thick, strong and resistant. In many cases a pad of leather below the hoof and shoe will serve to diffuse injurious concussions, while in others missing portions of the lower border of the hoof wall may be advantageously repaired by gutta percha, rendered more adhesive by admixture with gum amoniac.

The Apiary.

How to Become Successful.

In order to become a successful apiarist, three things are absolutely necessary:

1. A location abounding with honey-producing plants, of the different varieties, both early and late. For early—such as willow, elm, soft maple, cherry, plum, apple, currant, gooseberry, raspberry, etc.

For summer—white clover, basswood, mustard, cucumber, squash, poplar, pumpkin, etc.

For fall—buckwheat, golden rod, wild sunflower, and all the many varieties of flowers that bloom in August and September—thus keeping one continual flow of the saccharine juices of nature's laboratory, from early spring until the icy hand of winter prepares all nature for her long slumber.

2. A good hive—not such as our fathers used (the old log gun, nail keg, round straw cap, etc.)—but a hive that permits every comb to be taken out and examined, and all necessary operations performed without killing a single bee, or exciting their anger. It should afford suitable protection against extremes of heat and cold, sudden temperature and the injurious effects of dampness. It should be capable of being adjusted to the wants of either large or small colonies; to allow the combs to be removed without any jarring; and to furnish all needful security against the ravages of the bee moth. The bottom board should be permanently attached to the hive, for convenience in moving it and to prevent the depredation of moths and worms; and it should enable the apiarist, who relies on natural swarming and wishes to multiply his colonies as fast as possible, to make vigorous stocks of all his small after-swarms. Such swarms contain young queens, and if they can be judiciously strengthened, usually make the best stock hives.

3. In order to become a successful apiarist, it is necessary that he should understand the internal economy of the bee-hive, to some degree at least, and unless he is in possession of such knowledge (he may be in possession of the best hive in the world, and be placed in the best locality that the country affords), he will be almost absolutely certain to make a failure.

I know a man that has 200 colonies of bees, and his average amount of surplus honey per hive will not fall short of 50 lbs. He is the right man in the right place, and has the right bees in the right hive. With him it is bees first, and recreation and hunting afterwards. Such a man will succeed in a greater or less degree in any locality where fortune may place him.

The enemies of bees are: Toads, spiders, woodpeckers, king birds or bee martins, as some call them, the moth miller, and man. But the moth miller is the most destructive, if we except man.

Think of the colonies so arranged in the apiary that the young queens fail to enter the right hive, and thus are lost, while the stock has no means of raising another; thus becoming a sure prey to the moth miller or to be robbed by other bees; and if not robbed, the whole inside of the hive becomes one's lid mat of web and worms; and after all, the whole damage lies at the door of the self-styled bee-keeper; with a little knowledge on his part, nine tenths of the damage might have been averted. Look at the increased destruction of bees for the past few years, brought about by the construction of clap-trap hives, by those utterly ignorant of the