

of the horse's foot from undue wear, "the art of good shoeing" being "to afford the necessary protection with the least possible damage to the structure, or interference with the functions of the foot," a natural conclusion being that "to keep the foot sound and healthy when shod, we must aim at preserving it as nearly as possible in a natural state." This point the writer keeps steadily in view throughout his work, and in that principle—namely, the preservation of the foot in as natural a state as possible—lies the very essence of the subject.

The following extract will give some idea of the practical character of this valuable treatise:—

"Most people have noticed how badly many horses go when newly re-shod; how apt they are to stumble; and it is not until the shoes have been worn some days that they seem again to go at their ease. The reason of this is simple enough. As horses are usually shod, that portion of the toe which would, in a state of nature, have been worn away by friction with the ground, is retained. Not only is this the case, but the evil is further aggravated artificially by the presence of a straight iron shoe, which is made to fit the protected, and, therefore, elongated, toe. It can scarcely be a source of surprise that a horse so shod strikes his toes against the ground and stumbles. The horse has neither ease nor comfort nor safety in travelling until by friction with the ground he has torn off some portion of the projecting toe of his straight shoe; until, in short, he has in some degree by wear assimilated the toe of the shoe to the natural tread of his foot. But the horse which is shod with straight shoes never gains complete ease and comfort in action, because the shoe not only requires to be worn through, but a portion of the crust at the toe must also be removed before a really natural shape and level bearing can be attained. The relief gained by the wearing away of the toe of the shoe is only comparative, and is very inferior to that obtained by the use of turned up shoes, adjusted to fit the crust, previously lowered by the knife to represent the natural rounding off of the toe by wear, as seen in the unshod horse.

"From noticing how badly many horses went when newly re-shod, Mr. Hallan, late veterinary surgeon of the Inniskilling Dragoons, took his first ideas of turned-up shoes. Starting from this simple and notorious fact, he carefully traced out its causes, and was thereby enabled to throw much light on the whole subject of shoeing. At first to remedy the evil just spoken of, he made the new shoes in shape exactly like the old ones; improved going was the natural result. At the next shoeing he followed up his advantage, and made the new exactly like the then old shoes; and so on, each time with improved results. He did this at first only with horses that stumbled or 'toed,' as horsemen say; he thought on the subject, followed it up, watched the results carefully, and at last saw

that nature intended a horse to have a bearing on his whole foot, and not mainly on his toes. He saw, too, not merely that the straight toe caused the horse to trip and stumble in putting down his foot, but that it produced an unnatural, (clever like, resistance against the ground, and, consequently, an additional strain on the tendons every time the foot was raised from the ground. After much consideration and various trials, he eventually shod all horses with the shoes so turned up that the wear at the end of the month should be nearly even all over the foot. He rightly argued that if stumbling horses were sensibly relieved by complying with nature's requisitions, all horses would go more comfortably and more safely by following the same unerring guide. Mr. Hallan did not argue for any arbitrary degree of 'turn up' at the toes, but for a general principle, viz., *so to shoe the horse that there should not be an unnatural degree of wear at one part, and a total absence of it at others.* It would be found, however, that in practice most horses, as we might expect in the adoption of a natural system, require very nearly the same degree of turn-up at the toes."

We subjoin the Colonel's directions for shoeing ordinary feet:—

"To shoe horses with ordinary feet we would suggest the following directions to the farrier:—

"1st. With your drawing-knife take off from the ground surface of the crust as much as may represent a month's growth. Remember that there is generally a far more rapid growth of horn at the toe than at either the heels or the quarters. More, therefore, will require to be taken off the toe than off other parts; in other words, shorten the toe. Be careful to make the heels level. Having lowered the crust to the necessary extent with the knife, smooth it down level with the rasp.

"2nd. Round off the lower edge of the crust with the rasp. Do this carefully and thoroughly. If a sharp edge be left, the crust will be apt to split and chip. The preparation of the foot is now complete. It remains to fit the shoe to the foot.

"3rd. Let the shoe be made with a narrow web ($\frac{3}{4}$ -inch) of even width all round, except at the heels (see direction No. 8), flat towards the sole, and concave to the ground.

"4th. Turn up the toe of the shoe on the horn of the anvil. The degree of 'turn-up' must be regulated by what you find necessary in each horse to make the wear nearly even all over the shoe. It will be found in practice that most horses take much about the same degree of 'turn-up.'

"5th. Make five countersunk nail holes in each shoe—viz., three on the outside, and two on the inside. Make the anterior hole on each side immediately posterior to the 'turn-up.' Let the second and third holes on the outside divide evenly the remaining space on the heel.