in the same individual acts prejudicially on the course of the disease, and sometimes may have an unfavourable ending for its consequence.

As regards the combination of infectious pneumonia with strangles, observation has shown that through this mixed infection the infectious pneumonia can be obscured, just as, or even more than, with the simultaneous existence of influenza and infectious pneumonia; and the recognition of the latter may in certain circumstances be extraordinarily difficult. This fact is explainable on the long duration of strangles. With respect to the symptoms when both diseases are present Gross has made some valuable reports. The entire course of the disease in such patients lasted about fourteen days. Besides the symptoms referable to the thoracic organs, there was an abundant, white, muco-purulent discharge from both nostrils, which in the case of some horses was at times mixed with a rust-coloured discharge. According to the preponderance of the strangles or the infectious pneumonia the conjunctiva was more red, pale, or yellowish in colour. The sub-maxillary lymphatic glands, in part also the sub-parotideal and retropharyngeal glands, were markedly swollen, very painful, and in most cases went on to suppuration. Since in the animals suffering from both diseases the appetite was much diminished, they became very weak and emaciated. Reconvalence was very slow. Two of these patients died, and at the *post-mortem* the lesions of strangles as well as of infectious pneumonia were discovered.

According to the doctrine prevailing at the present time regarding the origin of purpura hæmorrhagica, that can only develop as a sequel to infectious pneumonia when purulent catarrh in the respiratory passages, or purulent areas of degeneration in the lungs or lymphatic glands, are present in mixed infection with strangles, and when in addition to these a special infection is superadded. As regards its importance and result this complication comports itself just as the disease in general does.

SPRAINS OF THE INFERIOR CARPAL LIGAMENT.

By J. MALCOLM, F.R.C.V.S., Veterinary Surgeon to the
Corporation of Birmingham.

THAT sprain of the inferior carpal ligament is a very common injury in cart horses is well known to all having much experience in the working of these animals, and it is a matter of some surprise that a lesion so frequently met with, and the cause of such heavy pecuniary loss, should have received comparatively little attention.

There is no doubt that all classes of horses are more or less liable to this injury; nevertheless, it is essentially a lesion of the hard-worked cart or dray horse, and is comparatively rarely met with in lighter breeds—a fact attributable to the difference in their work. But while it is the nature of the work chiefly that limits this injury to a heavy class of horses, conformation also plays a not unimportant part in its production, and renders certain individuals particularly liable or predisposed to it. This is well illustrated by the greater frequency with which it occurs in some types than in others; thus,

horses with small knees, round bones, and short upright pasterns undoubtedly suffer far more from sprain of the inferior carpal ligaments than those with large knees, big bones, clean flat legs measuring well under the knee, and good long pasterns.

Notwithstanding this, it has been suggested, mainly, I believe, on theoretical grounds, that a long pastern, and not a short one, is the chief predisposing cause of this sprain, the reason given for this being that long pasterns afford a greater leverage in starting heavy loads than short ones, and therefore permit of a greater strain on this ligament. But it must be remembered that although long pasterns afford greater leverage, they do not allow the strain to be transmitted so directly to the ligament, neither do they permit the same tension of it. When a horse is starting a heavy load the pasterns assuming a more upright position necessarily to some extent relieves the tense condition of both tendons and ligament, and this relief is naturally greatest in long pasterns.

As conformation is undoubtedly an important factor in the production of the sprain, it follows that the veterinarian in purchasing cart horses must necessarily consider it a matter of great moment; indeed it may not infrequently even surpass in importance certain conditions classed as unsound. If it were a question of passing as workably sound a horse with side bones, or one with small knees and upright pasterns, I should not hesitate a moment between them, provided the horse with side bones were five years old or upwards, had good feet, and went well. In the one case satisfactory results might fairly be expected, but in the other they could scarcely be hoped for. As a general rule, it cannot be too clearly recognised that horses with small knees, of small girth below the knee, and with upright pasterns ought to be rejected if required for heavy cart work, and this no matter how sound they may otherwise be.

It has been incidentally suggested that this sprain is often caused by the efforts required to start heavy loads, and no doubt it is often produced in this way; but in my own experience this is not responsible for so many cases as it is commonly credited with. Certainly I should say that not more than 25 per cent. of the cases I have seen have been caused in this manner. The great majority of our cases are caused, I believe, in stopping or steadying the cart, especially in going down hill, and when the horse at the same time carries a considerable weight on his back. In proof of this, I adduce the fact that about 90 per cent. of our cases occur in cart horses, against 10 per cent. in lorry or van horses, reckoning the horses *pro rata*.

Now, as it is a fact that our van horses have habitually to draw loads weighing half as much again as the cart horses, neither the starting nor the pulling of the loads can be the chief cause of the injury. During summer weather we experience more of these sprains than at other times, and I attribute this to the extensive use of two-wheeled carts. When going down hill with these the pressure from the combined weight of the cart, the man on front of the cart, and the water, is excessive; and when one of the wheels goes over a stone or other object, the forward impulse of the water throws on the horse's fore legs a strain that they are unable to bear.

When a horse is sprained in this way and the injury is not a severe one, after a short rest we transfer him to a four-wheeled van, where

he usually works sound again although drawing much heavier loads. At other seasons we also find most sprains are produced in the two-wheeled carts, although the van loads are invariably the heavier. In my own experience the most prolific source of sprain of the inferior carpal ligament is undoubtedly the use of two-wheeled carts, which surpass in this respect the combined influence of every other cause.

The common term applied to this injury is "sprain of the back tendons," but uncomplicated sprain of these tendons is a lesion rarely seen. The primary injury in the majority of these cases is confined to the ligament, the tendon being subsequently involved. Usually the initial sprain is comparatively slight, and the resulting lameness often almost imperceptible; and it may even remain undetected until the primary lesion has been intensified by a second, or even third repetition of the injury. On the other hand, cases are often met with in which the primary sprain is very severe, and the consequent lameness immediate. In the latter case there can be no mistake in diagnosis, the hot, painful, throbbing swelling clearly indicating the seat of injury; but in the former, especially when the sprain is very slight, it may very easily be mistaken for foot lameness.

With a little care a correct diagnosis is soon arrived at. A swelling, which is sometimes very slight, can be detected along the course of the ligament on the inside of the leg immediately below the knee, the tendons meanwhile frequently remaining quite clear and uninjured. Further confirmation will be found in the relaxed position of the limb at rest, the tendency to catch the toe in progression, and the history of the case, which together afford sufficient additional testimony for an unerring diagnosis. Indeed, the history alone is almost enough to lead to a correct conclusion. On inquiry it will be elicited that for some days the horse has not been going quite right, especially when newly taken to work. At first this is not considered of much moment, as the existing stiffness or lameness soon disappears with exercise; only, however, to reappear next day in an increased degree, and so on day by day until it is clearly recognised something must be done. The most favourable time to detect the lameness in these mild cases is immediately after the horse rises. When recumbent he exhibits less alacrity to get up, and when put up the lameness is at once apparent, although in a short time it may disappear to ordinary observation; this is a very critical period for the patient, and on the course adopted depends the future of the case.

If immediate rest be ensured, and proper treatment prescribed, a perfect recovery in a short time may be looked for; but if, on the other hand, this should be omitted, and an endeavour made to keep the horse at work, recovery will inevitably be retarded. A shoe with high heels ought at once to be put on, and hot fomentations frequently applied to the affected part. As soon as the pain has been relieved the fomentations should be discontinued, and the heels of the shoes lowered gradually or at once, according to their size, until the shoe is quite plain. Cold water irrigation and walking exercise are now of much benefit, and in a short time the horse in the majority of cases will go quite sound.

But if a perfect recovery is desired rest should be still enforced, and to secure this, as well as for its stimulating action, a blister is often advisable. If this be neglected and the horse sent back to work

too soon, the sprain is usually repeated, lameness returns in an aggravated form, the tendons become involved, and the case generally assumes a very intractable character; and if work should still be persisted in, contraction of the tendons and ligament supervenes, after which soundness is rarely ever re-established. During the prolonged period of rest from work which most cases require, regular exercise ought to be enforced, for the ultimate recovery will be far more perfect in that case than if it is omitted. The exercise is best obtained by turning the horse out to grass; but if from any cause this should be impracticable regular exercise should be ensured in some other way, and in many cases this can be perfectly secured by putting the horse to work of such a light character as cannot possibly give rise to another sprain. If rest from work and regular exercise be secured, perfect recovery is usually the ultimate result.

When a long period of rest does not give the usual termination there is contraction of the tendons. When this has been established successful treatment is well nigh hopeless, and in the majority of cases can only be palliative.

In cases where the contraction is excessive tenotomy has been recommended; but although I have had horses after this operation do real hard work for years, my experience does not warrant me in recommending it either from a utilitarian or pecuniary point of view, and I believe the majority of those who have tried it agree in discontinuing it in the future. A far less heroic remedy, frequently fairly successful, is the use of a plain shoe with a toe-piece projecting in front of it on a level with the shoe. If, with this, regular exercise be enforced a marked improvement is generally obtained.

In conclusion, it may be recapitulated that the chief practical points demanding our attention in connection with sprain of the inferior carpal ligament are: 1st, to avoid using cart horses whose conformation of legs renders them unsuitable for heavy work; 2nd, to discontinue the use of two-wheeled carts wherever practicable, and when substituting four-wheeled vehicles to avoid the common error of doubling the size of the loads; 3rd, to see that horses suffering from this sprain are at once laid off work and a long rest secured, as all other plans invariably end in failure; 4th, when re-starting the horse to work to secure for him for a time at least light work; and, failing this, it is much the best way to sell him at once to some one who can so employ him.

AN INFECTIOUS BRONCHO-PNEUMONIA OF AMERICAN OXEN: CORN-STALK DISEASE.¹

By Professor NOCARD, Veterinary College, Alfort.

DURING last winter several thousands of magnificent oxen from the United States, notably from Virginia, Indiana, and Illinois, were exposed for sale at the market of La Villette.

On three different occasions the sanitary service of the market has observed in some of these animals a disease of the organs of the

¹ *Recueil de Médecine Vétérinaire*, 30th August 1891.