

abnormal in the west, would be allowed to reach without condemnation  $104.4^{\circ}$ , a point entirely outside of the normal range.

Other things being equal,  $103^{\circ}$  Fahrenheit would appear to indicate the danger line, but no fixed rule can possibly be adopted, close observation and sound judgment in the operator being of more importance than hard and fast ruling.

The thermal rise is accompanied, or rather followed, by a hard, tense and exceedingly painful swelling at the point of injection. This swelling is usually circular, and shows a tendency to increase from the eighth hour after injection, at the same time becoming more painful, affecting the muscles and causing marked lameness in the forelimb of the side on which the injection was made. It is often accompanied by swelling of the surrounding lymphatics, which also become intensely painful.

The local reaction does not, as a rule, entirely disappear for several days.

Besides the thermal and local reactions Mallein produces well marked constitutional effects on animals suffering from Glanders. The pulse and respiration are increased, rigors are frequent, sometimes slight, but occasionally violent, and continuing throughout the whole reaction. There is great depression, while loss of appetite, staring coat and disinclination to move are also commonly noted.

In clinical cases reaction is, as a rule, early and well marked, and most of our inspectors agree that the severity of the reaction is in direct ratio to the degree of infection or the stage which the disease has reached. Clinical symptoms not unfrequently make their first appearance during the test, generally from 24 to 30 hours after injection. In advanced cases they may persist, the animal rapidly breaking down, while in incipient cases they may gradually recede, the animal regaining a normal and comparatively healthy appearance. Clinical symptoms already evident, are almost invariably aggravated by the test. One especially noteworthy feature is that in animals showing only a slight enlargement of the submaxillary lymphatic glands, these will become tense, swollen and painful as the test progresses. This also applies to other enlarged nodes. Dr. Moore describes one case in which both inguinal glands, slightly enlarged before the test, became, during its progress, so much swollen and so painful that the animal could scarcely walk. Post mortem revealed specific lesions in both glands.

Occasionally all evidences of reaction are present, except the thermal rise, while in others the opposite is the case, and it may be noted that these eccentricities are not unfrequently shown by all the horses tested in certain outbreaks, and further that they persist throughout repeated tests of the same animals, although, under ordinary conditions, the local reaction has a tendency to become less well marked with each succeeding test.

In animals in the last stages of Glanders, old horses, young foals and others of inferior vitality, a lowering of temperature not unfrequently follows the injection of Mallein. This is especially noticeable in advanced cases where