him. The matter is really of very little importance, but, as it has been prominently brought forward in this *Journal*, it is perhaps well that the sequence of events should be correctly stated, so far as India is concerned. The statements made can be verified by a reference to Lingard's *Surra Report*, Vol. I., and the *Veterinary Journal* for 1896 or 1897.

A REPLY TO CAPT. MARTIN ON TRYPANOSOMIASIS.

By Capt. J. D. E. HOLMES, M.A., M.R.C.V.S., I.C.V.D.

THE corrections which Capt. Martin kindly offered in the note which appeared in the last number of the *Journal of Comparative Pathology and Therapeutics* seem to me rather unnecessary and most misleading. Capt. Martin objects to the statement that "up to the present it has not been demonstrated that the cattle of India suffer from trypanosomiasis," and informs us that Major Raymond had shown him trypanosomes in the blood of cattle as far back as 1898, etc. I do not doubt Capt. Martin's word, but I am not aware of any publication on this point. Has any accurate description of the trypanosome been given to identify it as the *trypanosoma evansi*? Can Capt. Martin offer any evidence in support of his statement that "the spontaneous occurrence of *trypanosoma evansi* in cattle in India has been well known for years"? Is this alleged fact confirmed by any reliable authority, or is it merely a "matter of general knowledge"? As far as I know there are absolutely no grounds for such an assertion, nor have I any reason to believe that such an opinion is prevalent in India.

There are also grounds for condemning an opinion of this kind as erroneous. Inoculation experiments on cattle with the *trypanosoma evansi* carried out by Lingard show that the parasites apparently do not persist for any length of time in the blood stream, and after some weeks they disappear and cannot again be demonstrated. The blood of these experimental cattle was examined daily for over two years with negative results.

Capt. Martin attempts to throw ridicule on the suggestion that the outbreak among the cattle of Mauritius was not caused by the *trypanosoma evansi*. Without any consideration of the question, he condemns us for our audacity in venturing an opinion contrary to that expressed by Laveran and Nocard. To any one who has followed the most recent work on this subject there is nothing startling in the suggestion. It is, in fact, in strict accordance with the findings of an investigator second to none in the field of trypanosomiasis.

Novy has shown that the apparent similarity of morphology is not sufficient for the correct classification of trypanosomes, and that the cultural test is the more reliable one. As our knowledge stands, there are no satisfactory grounds for connecting the *trypanosoma evansi* with any other disease than the one known as surra of horses.

Capt. Martin is not satisfied with accusing us of robbing Major Raymond of his discovery of trypanosomiasis in cattle, but also finds us guilty of indirectly claiming priority for Stockman in the finding of piroplasms in the blood of cattle of India. On page 319 I mention the work done by Major Raymond in 1898 before speaking of Stockman's investigations in 1902.

As regards the contradiction which Capt. Martin points out on page 209, I should have thought that what I wished to express would have been clear to the average intellect. The word "affected" is here used in a broader sense than to convey the meaning of "infected" only. In the second sentence I state the temporary infection and speak of the general health as not being affected.

SUGGESTIONS FOR A UNIFORM SYSTEM OF INTERPRETING THE TUBERCULIN REACTION IN CATTLE.¹

By Prof. Dr A. EBER, Leipzig.

By the tuberculin "reaction" is generally understood a rise in bodily temperature amounting to fever, which rise is accompanied by more or less acceleration of the pulse and breathing, less frequently by rigors, loss of appetite, and other visible signs of disturbance in the bodily functions. In adult cattle these secondary symptoms are less marked and are sometimes entirely absent. A "local reaction" (swelling) is not invariably to be expected, for experience shows that when it is possible to avoid irritating the skin at the point of inoculation (by clipping and shaving away the hair, washing with sublimate or strong alcohol) it fails to occur. As a consequence, the only reliable criterion of reaction is to be found in a distinct rise in bodily temperature amounting to fever.

What is to be Regarded as a Febrile Reaction in Cattle?

At the present moment we are not in possession of generally-recognised uniform data on which to base our answer to this question.

A priori we may assume one of two logical positions:—

(1) The decision may be based on the highest observed temperature after reaction, without reference to the animal's actual temperature before injection or to any arbitrarily fixed temperature.

In this case the highest temperature to be regarded as normal is fixed upon to begin with, and any rise beyond is regarded as a reaction.

(2) The decision may be based on the rise in temperature relatively to that observed before injection or to an arbitrarily fixed temperature.

In this case a certain rise in temperature is fixed upon as the utmost which can be regarded as falling within the normal limits of variation, and anything exceeding this, without reference to the absolute temperature attained, is regarded as a reaction. In this case different conclusions are possible, depending on whether we adopt as our basis the highest temperature recorded before injection, the average temperature of a series of readings, or the particular temperature existing at the moment of injection.

As a general rule, it is customary in medicine when using the first method to solve the question by comparing the highest observed temperature with a scale of normal temperatures compiled on the basis of prolonged observation for each species of animal. Having

¹ From the "Proceedings of the VIIIth International Veterinary Congress," Budapest.