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THE SEGMENTAL SENSORY INNERVATION OF THE SKIN OF THE SHEEP

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SUMMARY

The interest in the segmental basis of cutaneous sensory innervation evinced by the ancient Greeks was developed into a major contribution to experimental biology by the studies in man and animals by Sherrington, Head and Foerster. The present study is one of a number of more recent investigations of the dermatomes in animals from which a great deal of comparative information has been obtained. The particular significance of a study of the functional anatomy of the sheep in relation to veterinary medicine has been discussed.

The experimental work described in this thesis involved particular consideration of the following :

1. The features of the topographical anatomy of the vertebral column of the sheep which were found to be of importance in the experimental procedures.
2. The value of the "remaining sensibility" technique as a means of defining the dermatomes of the sheep.
3. The use of figurines and photographs in the schematic representation of the experimental results.
4. The justification for basing the definition of the dermatomes largely on the responses to pinch stimuli.
5. A discussion of the features of the dermatomes of the sheep in relation to embryological development and the observations which have been made in other species.
6. The changes in muscle tonus in the limbs which followed

section of the dorsal spinal nerve roots or damage to the spinal cord.

7. The aberrations in feeding, defecation, micturition and respiration produced by various dorsal root sections.

8. The major pathways in the spinal cord followed by the primary afferent fibres, as revealed by the Marchi technique.

9. A general consideration of the significance of studies such as the present, and their possible extension to include deeper somatic or visceral structures.

Details of the dorsal root sections undertaken have been provided in an appendix.
