

ACUPUNCTURE

*The Ancient Chinese Art
of Healing
and How It Works Scientifically*

Completely Revised Edition

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VINTAGE BOOKS

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the dermatomes of these organs are on the trunk and not on the legs. It is however an undoubted fact, observed every day by any doctor who practises acupuncture (for the leg acupuncture points are commonly used), that stimulation of a leg acupuncture point does

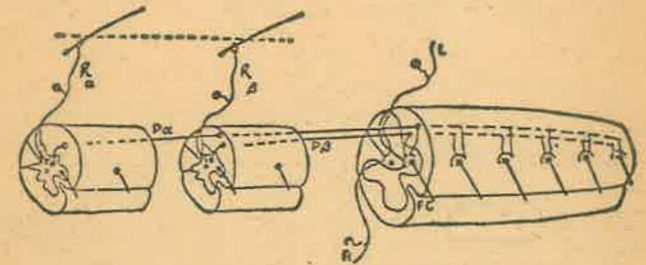
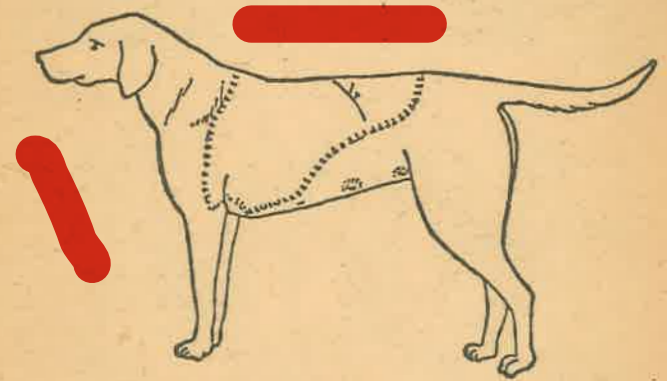


FIG. 9

have an effect on the appropriate organ, even though it may be ten dermatomes away. A possible explanation is via intersegmental reflexes, called by Sherrington long reflexes, whilst those effects of acupuncture that fit in with the dermatomes are segmental reflexes — Sherrington's short reflexes.

Sherrington's Reflexes

conduction, not only the one as in the scratch reflex. Both the scratch reflex and reflex figures are intersegmental (jumping several dermatomes) cutaneo-motor reflexes.

Downman* investigated long visceromotor and long cutaneo-motor reflexes in the cat with a spinal transection at T₁. The splanchnic nerve serving the viscera, intercostal nerves T₃-T₁₃, lumbar nerves L₁-L₃ and the tibial nerve at the knee were all exteriorised.

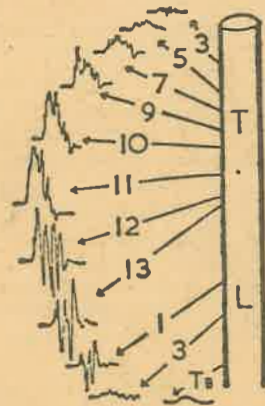


FIG. 11

Maximal single-shock stimulation of the central end of the splanchnic nerve evoked reflex volleys in all body wall nerves and the tibial nerve (Fig. 11). Even at threshold stimulation several intercostal nerves were involved. If an intercostal nerve was stimulated the response was in some cases as large as with splanchnic stimulation.

Downman showed that splanchnic excitation can spread up the

*Downman, C. B. B. Skeletal muscle reflexes of splanchnic and intercostal nerve origin in acute spinal and decerebrate cats. *Journal of Neurophysiology*, 1955, 18: 217-235. Also Fig. 11.

Downman, C. B. B., and McSwiney, B. A. Reflexes elicited by visceral stimulation in the acute spinal animal. *Journal of Physiology*, 1946, 105: 80-94.

Sherrington* described the scratch reflex in the spinal dog (Fig. 9) in which stimulation anywhere in a saddle-shaped area extending from the pectoral to the pelvic girdle caused rapid scratching movements in the ipsilateral hind leg and rigidity in the contralateral limb. If the stimulus is moved but slightly to the opposite side of the back the hind legs reverse their roles. Ipsilateral hemisection of the spinal cord abolishes the reflex, contralateral hemisection leaves it unaffected.

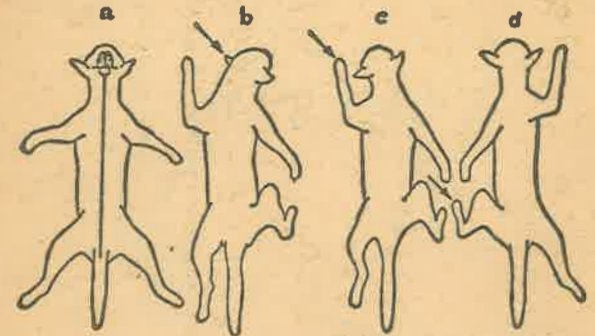


FIG. 10

Sherrington also experimented with decerebrate cats in which the nervous axis is divided at the level of the mid-brain. In the resultant decerebrate rigidity, the cats exhibit reflex figures (Fig. 10).

- (a) In normal decerebrate rigidity all limbs are extended.
- (b) If the left pinna is stimulated there is flexion of the left fore and right hind limbs, with increased extension of the others.
- (c) If the left fore limb is stimulated there is flexion of the left fore and right hind limbs, with increased extension of the others.
- (d) If the left hind limb is stimulated there is flexion of the left hind limb and right fore limb, with increased extension of the others.

The reflex figures require both sides of the spinal cord for their

*Sherrington, C. S. The integrative action of the nervous system, 1906, Scribner, New York. Also Fig. 9 and 10.