

158 (1905)

Chemical stimulation of the nerve cord of *Cambarus clarkii*.

By A. R. MOORE.

[From the Physiological Laboratory of Rutgers College, New Brunswick, N. J.]

A preparation of the central nervous system of crayfish was made by decapitating the animal and uncovering the nerve cord of the posterior abdominal segments. Application of a stimulating substance to this portion of the cord resulted in convulsive movements of the thoracic appendages. Stimulation was obtained from application of excitants of the first class, BaCl_2 , KCl , Na_3 citrate, in concentrations isosmotic with the animal's blood. Tetraethylammonium chloride in M/64 concentration acted as a strong excitant. Of the excitants of the second class, camphor, strychnine, atropine, picrotoxin, nicotine, caffeine and phenol were active. Creatine alone showed no effect. The central nervous system of *Cambarus* therefore differs from that of *Lumbricus*¹ in being sensitive to the action of nicotine, phenol and caffeine. The two forms are alike in being insensitive to creatine, and in the fact that the latent period for chemical stimulation is very short, less than a minute.

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The respiratory rate of the nerve cord of *Cambarus clarkii*.

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The rate of production of CO_2 of the nerve cord of *Cambarus* was determined by means of the colorimetric method previously described.² The nerve cord was removed entirely freed from other tissue. Stimulation due to cutting was only momentary. It could be shown, by leaving the cord attached at the anterior

¹ Moore, A. R., *J. Gen. Physiol.*, 1921, iv, 29.

² Moore, A. R., *J. Gen. Physiol.*, 1918-19, i, 613.