SUMMARY

Spinal shock time was measured in several species of amphibians and reptiles. When species within a single class were considered, it was apparent that the specie with a significantly longer ($p < 0.01$) spinal shock time than others in its class had the larger 50% convulsive dose, minimal lethal dose, and 50% lethal dose for strychnine.

This observation apparently indicated that the degree of spinal shock and thus the degree of encephalization was related to an equal development of supraspinal facilitatory and postsynaptic inhibitory influences. However when the time to convulsions was measured as a function of strychnine dosage in both spinal and intact animals a variety of curves were observed, some in which the time to convulsions was less in the spinal animal than in the intact, and some in which it was more. In order to explain the shape of these curves a series of simplifying assumptions were set up and time to convulsions VS strychnine dose response curves were constructed for cases of varying degrees of supraspinal inhibition and facilitation. In this way it was possible to assign a rough index of the degree of supraspinal inhibition and facilitation to each specie and to correlate this information with the spinal shock time for that specie.

In the case of the anurans it was concluded that the specie with the largest degree of spinal shock had the greatest supraspinal facilitation and least supraspinal inhibition of this class. Thus the spinal

shock was due to the removal of facilitation normally reinforcing the excitability of spinal reflexes.

In the case of the snakes there appeared to be three classes of encephalization. 1) Predominantly supraspinal facilitation maintaining normal excitability in spinal reflex arcs. 2) Predominantly supraspinal inhibition suppressing a normally highly labile spinal reflex system. 3) Predominantly supraspinal inhibition inhibiting the motoneurons and excitatory interneurons and also the local spinal inhibitory interneurons. The measurement of spinal shock time can only be used as an indication of the degree of encephalization in the first two cases.

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