

been published on the heart physiology of this group of animals.

The work of the present writer, while it confirms Gaskell's conclusions as regards the cardiac accelerator, is wholly at variance with his views as to the functions of the vagus. The vagus in the *Crocodylia*, at least in the alligator, is not a pure cardiac depressor, but is on the contrary a powerful cardiac augmentor.

The result of the stimulation of the vagus may be thus stated :

(1.) Stimulation of the vagus with a weak, interrupted current may weaken the cardiac beat with or without arrest of the auricles ; the latter may be arrested and give rise to a brief stop of the ventricles.

(2.) With a stronger current, the sinus may be so weakened as to lead to arrest of the auricles and ventricles ; or the sinus may be arrested wholly, in which case the auricles and ventricles invariably cease to beat.

(3.) When the cardiac beat recommences, it may be in the order, sinus, sinus extension, ventricles ; or sinus, auricles, s. extension, ventricles, *i. e.*, the auricles may remain quiescent as in the Chelonians and fishes when all the rest of the heart is beating.

(4.) The rhythm after vagus stand-still may be (*a*) without acceleration, or (*b*) accelerated.

The augmentation in the force of the beat is more marked than acceleration in the rate. Both rate and force follow, as in the Chelonians, the law of *inverse proportion*.

*Comparison of the Vagi and Results of their Prolonged Alternate Stimulation.* The vagi in the alligator, as in the Chelonians, have not, as a rule, equal power in causing and maintaining cardiac inhibition ; the right, as in the other cold blooded animals examined, being more effective. Prolonged stimulation of the vagi alternately leads to corresponding lengthened cardiac arrest.

*Accessory Vagi.* Certain small nerves are in the alligator given off from the Glossopharyngeal shortly after its exit from the skull, proceed downwards, apart from the vagus, and pass beneath the trachea over the vessels to the heart.