

supplies branches to both walls of the stomach, but chiefly to the anterior or ventral wall. From this trunk are derived the hepatic arteries.

This branch is absent in *Spheniscus mendiculus*, its place being supplied by branches from the posterior gastric artery.

*The Hepatic Arteries* are two in number, and arise from the anterior gastric branch close to its origin. They pass forwards together, and reaching the posterior surface of the liver, are distributed, the one to the right and the other to the left hepatic lobe.

In *Spheniscus mendiculus* the hepatic arteries are derived from the posterior gastric artery. In *Spheniscus minor* and *Spheniscus demersus* there is only one hepatic artery.

(3) *The Posterior Gastric Artery*.—A branch of the cœliac axis, this artery passes backwards, to reach the right margin of the stomach close to its anterior extremity. Here it applies itself to the stomach, and travels backwards parallel to the anterior gastric artery, but on the dorsal (posterior) surface of the stomach, at the posterior extremity of which it terminates. This artery gives off numerous branches to both surfaces of the stomach, but principally to the dorsal wall of that viscus.

In *Pygosceles*, as well as in *Aptenodytes*, the posterior gastric artery comes off from the anterior gastric artery, instead of from the cœliac axis as in the other species which I have examined.

(4) *The Intestinal Artery*.—This, the largest branch of the cœliac axis, travels horizontally backwards, parallel with, but at some distance from, the right margin of the stomach. Passing between the folds of the mesentery, it breaks up into numerous branches, which supply the upper third or fourth of the small intestine as well as the pancreas. The upper branches of this artery inosculate with the anterior gastric, the lower with the superior mesenteric artery.

#### V.—The Superior Mesenteric Artery

Comes off from the abdominal aorta, half an inch behind the cœliac axis. It travels backwards, and, lying between the folds of the mesentery, gives off numerous branches from either side. These secondary branches divide dichotomously, but do not anastomose with one another. Hence there is an absence of the arterial arcades met with in this situation in the mammal. The smallest branches of this trunk only anastomose when in contact with the wall of the intestine, and from this anastomosis the minute vessels which supply the gut are derived. The superior mesenteric artery supplies the lower half or three-fourths of the small intestine, in other words, so much of the gut as is not supplied by the intestinal branch of the cœliac axis.

In *Spheniscus minor* the cœliac axis gives off no intestinal branch. In this species, therefore, the entire length of the small intestine is supplied by the superior mesenteric artery, additional branches of which take the place of the intestinal branch of the cœliac axis of other species.