

Starling (*Sturnus vulgaris*), and then apparently landed on a post atop the blind. At approximately 1215 a Sharp-shinned Hawk (*Accipiter striatus*) was taken in a net baited with a House Sparrow (*Passer domesticus*), and the vulture flew to a post about 20 feet from the enmeshed hawk. After sitting on the post for some time, the vulture dropped to the ground and walked toward a tethered Rock Dove (*Columba livia*). The vulture approached within three feet of the dove, stopped momentarily, turned, and walked about 30 feet to the net containing the hawk and the sparrow. After some time, and with what appeared to be considerable hesitation, the vulture killed and ate the tethered sparrow through the netting. The hawk was confined at a point less than two feet from the sparrow, and it struggled and called frequently while the vulture was eating. After consuming the sparrow, the vulture began to menace the enmeshed hawk and eventually pulled a secondary from one of the hawk's wings. Berger left the blind, crept to within 30 feet of the vulture, and flushed it into one of the hawk nets. The vulture was banded (597-48587) and released. It measured 514 mm (wing, chord) and 262 mm (tail) and weighed 1,729 g. The Sharp-shinned Hawk appeared to be unharmed and was also banded and released.

On 8 October 1965 we saw a juvenal Turkey Vulture at 1526 hours, approaching our station from the north. It hesitated in flight over a tethered Rock Dove and soon landed on the ground about 10 feet from the dove. It walked to within two feet of the dove, withdrew, approached again, and with wings outstretched, pecked at and struck the dove with its beak. The dove flapped its wings. The vulture retreated about six feet, sat for about a minute, and then took flight, disappearing to the south. Charles Sindelar and Nancy Mueller were also present at the time of this incident.

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Main arteries in the neck and thorax of three sun grebes (*Heliornithidae*).

—Recently I studied the thoracic and cervical arteries of one specimen each of three forms of sun grebes (*Podica s. senegalensis*, *Podica s. petersii*, and *Heliornis fulica*) at the British Museum (Natural History). I have found no previous reference to the carotid or associated arteries of any members of this family. A consistent pattern of the arrangement of arteries (Figure 1) was observed. The family displays the typical B-4-s carotid pattern (Glenny, *Proc. U. S. Natl. Mus.*, vol. 104, 1955; see p. 549). These sun grebes differ from other birds previously studied by possessing a second axillary artery from which the external thoracic artery takes its origin.

Concerning the origin and possible homology of the right ascending oesophageal artery in the B-4-s carotid forms, it is possible that, in some species, it represents a functionally modified right dorsal carotid artery. This remains as a superficial vessel in somewhat the same manner as does the left dorsal carotid of many of the parrots having the A-2-s carotid pattern (Glenny, *op. cit.*: 578-582). It is also possible that the ascending oesophageal artery represents a functionally modified right anterior radix aortae. The ascending oesophageal joins with the cephalic blood vessels of the encephalic carotid complex. However, as shown by A. F. W. Hughes (*Philos. Trans. Roy. Soc. London*, ser. B, 224, 1934; see pp. 75-129), primary and secondary anastomoses of sinuses or embryonic blood vessels in the avian embryo may result in a

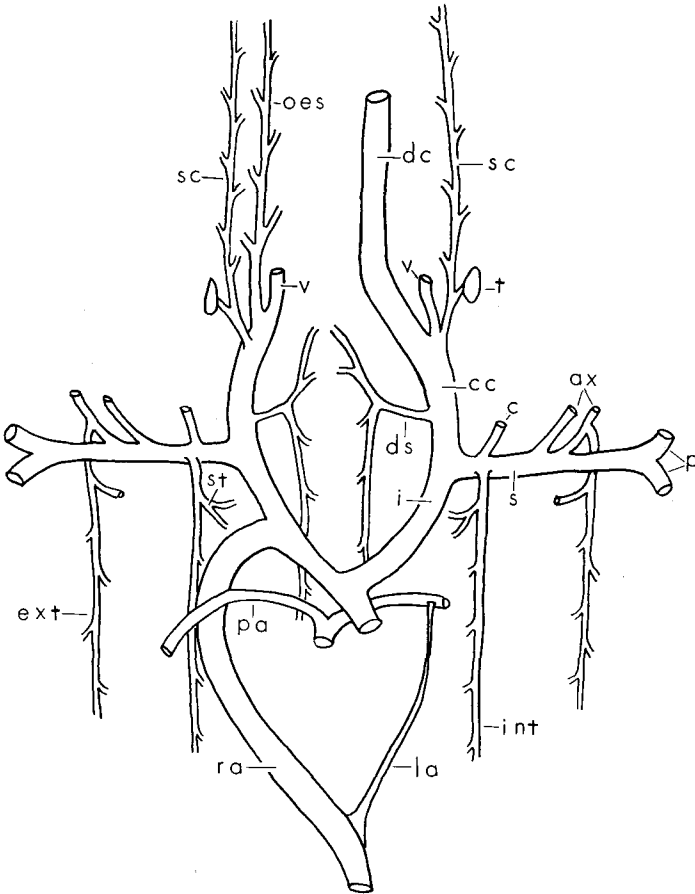


Figure 1. The main cervical and thoracic arteries in *Podica senegalensis* and *Heliornis fulica*. Abbreviations: ax, axillary artery; c, coracoid artery; cc, common carotid artery; dc, dorsal carotid artery; ds, ductus shawi; ext, external thoracic artery; int, internal thoracic artery; i, innominate artery; la, ligamentum aortae; oes, ascending oesophageal artery; p, pectoral arteries; pa, pulmonary artery; ra, radix aortae; s, subclavian artery; sc, superficial cervical artery; st, sternoclavicular artery; t, thyroid gland; and v, vertebral artery.

complex that makes it difficult to trace the origins of some of the encephalic vessels.

Of the Gruiformes studied, the Turnicidae and the Heliornithidae have the B-4-s carotid pattern. The other families in this order present the A-1 pattern, although members of the Otidae have either the A-1 or B-4-s arrangement.

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