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ABNORMAL CIRCULATION IN THE COMMON INDIAN FROG *RANA TIGRINA* DAUD.

ABNORMALITIES in the circulatory system of Anura are numerous. Those in the common European frog *Rana temporaria* have been reported by Crawshay (1906), Collinge (1915), Flattely (1926), Lloyd (1928), Grove and Newell (1934) and O'Donoghue (1932, 1933, 1935). A number of Indian workers (Ahuja, 1921; Bhaduri, 1929 *a* and *b*; Khatib Husain, 1938; Mathur and Sharma, 1938) have described abnormalities in the vascular system in *Rana tigrina*.

I have found the following abnormalities in a female specimen of *Rana tigrina*:—

I. *Venous abnormalities.*—(1) A persistent right posterior cardinal vein joining the innominate vein on the right side and the absence of the post-caval vein. (2) The presence of two dorso-lumbar veins on each side joining the renal portal veins.

II. *Arterial abnormality.*—An additional arterial branch arising from the Carotid arch.

Venous Abnormalities.—The absence of the post-caval and the persistence of the right posterior cardinal.

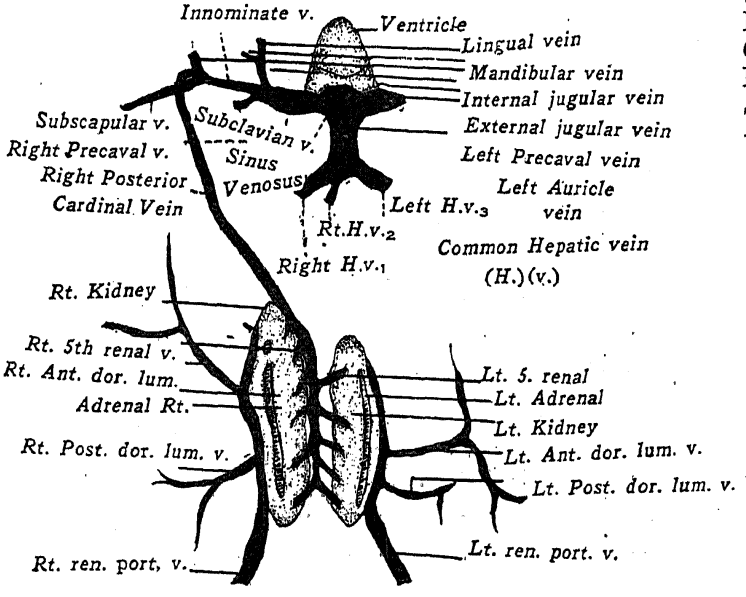
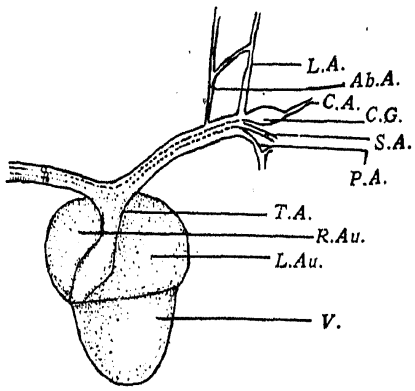


FIG. 1 ×·5

Rt. Ant. dor. lum., Anterior dorso-lumbar vein; *Rt.*, Right; *Lt.*, Left; *Rt. ren. port. v.*, Right renal portal vein; *Rt. Post. dor. lum. v.*, Right posterior dorso-lumbar vein; *Lt. ren. port. v.*, Left renal portal vein.

Fig. 1 illustrates the venous abnormalities. The post-caval is replaced by the persistent right posterior cardinal. The kidneys are dissimilar in size and the renal veins of the right side are more in number than those on the left side correlated with the larger size of the right kidney. The presence of two dorso-lumbar veins is also seen. So far as the veins from the liver are concerned, two hepatic veins arise from the right lobe of the liver while only one arises from the left. All these fuse to form a single hepatic vein which opens directly into the sinus venosus since the post-caval is absent.

Arterial Abnormality.—This is interesting since arterial abnormalities occur far less frequently than venous ones. The left Carotid arch gives origin to an abnormal artery before the point of origin of the lingual artery. It gives off two branches, one of which joins the lingual artery while the other supplies certain muscles (Fig. 2).



The ventral view of the heart showing only the left aortic arches.

FIG. 2 ×·75

Ab.A., Abnormal artery; *C.A.*, Carotid artery; *C.G.*, *Carotid Gland*; *L.A.*, Lingual artery; *L.Au.*, Left Auricle, *P.A.*, Pulmocutaneous arch; *S.A.*, Systemic arch; *T.A.*, Truncus arteriosus; *R.Au.*, Right auricle, *V.*, ventricle.

My best thanks are due to my colleagues and also to Principal Dr. K. Krishnamurti for their advice and encouragement.

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A NEW VARIETY OF *DROSERA INDICA* LINN. FROM KOLHAPUR (S.M.C.)

IN an intensive study of the flora of Kolhapur (Deccan) three types of the insectivorous plant, *Drosera* are met with. Two of these are the commoner species, *Drosera indica* Linn. and *Drosera Burmanni* Vahl., already described. Cook[1] mentions a few localities from the