Venous System in amphibians
(Frogs and Toads)

The veins and their branches constitute the venous system

The venous system can be described under 3 headings:
(a) Systemic,

(b) Portal and

(c) Pulmonary.

Systemic veins:
Three large veins or venae cavae which open into the sinus venosus represent the systemic veins. The systemic veins carry deoxygenated blood from almost all parts of the body excepting lungs. The anterior two venae cavae are known as left and right Percivals and the single posterior one is called postcaval. Each precaval vein is formed by the union of three branches.

These are:
(i) External jugular vein,

(ii) Innominate vein and

(iii) Subclavian vein.

The external jugular vein is formed by two veins, a lingual carrying blood from the tongue and a faciomandibular from the snout and jaws. The innominate vein is also formed by the union of two veins, an internal jugular bringing blood from the head and a subscapular from the back of shoulder.

The subclavian vein is similarly formed by two veins, a brachial vein bringing blood from the forelimb and a musculocutaneous vein from the muscles and skin. As the skin acts as an accessory respiratory organ, the musculocutaneous vein brings oxygenated blood.

The postcaval vein is formed by four or five pairs of renal veins which receive blood from the kidneys. Blood from reproductive organs is also poured into renal veins by the genital veins. The postcaval vein then ascends to enter into the sinus venosus.

Portal veins:
A portal vein has its origin in capillaries and it ends in capillaries. The blood from the portal vein returns to the heart through an intermediate organ.

The capillaries from the gut unite to form a hepatic portal vein, which again breaks up into capillaries in liver. The capillaries from the posterior part of the body unite to form two renal portal veins which in turn break up into capillaries in the kidneys on their way to the heart.

Hepatic portal system:
This system comprises of hepatic portal vein and the anterior abdominal vein or epigastric vein. Hepatic portal vein carries blood from stomach, intestine, pancreas and spleen. The main vessel receives the anterior abdominal vein under the liver and enters into the substance of the liver.

The anterior abdominal vein is formed by the union of two pelvic veins in the mid-ventral line. The pelvic vein arises as an offshoot of the femoral vein. On its anterior, the abdominal vein receives small branches from the urinary bladder and the ventral body wall.

Renal portal system:
The blood from the hind limbs is carried by the femoral and sciatic veins. Each femoral vein on entering the body cavity gives off a pelvic vein. The main trunk of the femoral vein receives the sciatic vein above the level of the pelvic vein to form the renal portal vein.

Venous System in reptiles:

The deoxygenated blood from the different parts of the body is brought back to heart by means of veins except the pulmonary veins which carry oxygenated blood. The veins run parallel to the arteries, appear dark and in position are superficial to arteries.

The central meeting arena of all veins in the body is the sinus venosus. Sinus venosus is a triangular structure and its two base angles receive left and right Percival's while the apex receives a single median postcaval.

Each precaval vein has been formed by the union of three veins.

These are:

(a) The external jugular which brings back blood from the floor of mouth and tongue,

(b) The internal jugular which drains blood from the brain and

(c) The subclavian which draws blood from the forelimb.

The right precaval gets an azygos vein. The postcaval is constituted by the large median vein which is formed by the union of right and left efferent renal veins emerging from the two kidneys. Genital veins join the left and right efferent renal veins before their union. A pair of stout but short hepatic veins joins the median postcaval before its entry into the sinus venosus.

A median caudal vein carries blood from the tail region. The caudal vein ultimately bifurcates into two veins which enter into the kidneys. Each vein gives rise to the renal portal vein to the kidney and pelvic vein which receives femoral and sciatic veins from the hind limb.

The pelvic veins unite to form a median epigastric (or anterior abdominal) vein which ultimately opens into the left liver. The anterior abdominal vein and the postcaval are free of each other except through the renal portals in the kidneys. The blood from the visceral organs, i.e., stomach, intestine, pancreas, etc., enters into the left lobe of the liver by a hepatic portal vein.

In Calotes both renal portal and hepatic portal systems are present. These systems have got many advantages and fulfil the demand for a second set of capillaries through which blood must flow. The organisms having such a portal system are always provided with double supplies of blood, arterial and venous.

The pulmonary venous circuit comprises of pulmonary veins. From each lung two pulmonary veins carry blood to the heart. Of these veins, one comes out from the anterior part while the other comes from the posterior part of lung .Near the left auricle all these four branches unite and open into the left auricle. The pulmonary veins bring oxygenated blood to the heart from the lungs.

The lymphatic system is highly developed. The main lymphatic trunk becomes divided and enters into the precaval veins. Lymph hearts are present.