

merous in birds than in mammals, and more abundant in the latter than in fishes. In man and other mammals they are very small and nearly circular, (Fig. 78;) they are somewhat larger, and of an oval form, in birds and fishes, (Figs 79, 81;) and still larger in reptiles, (Fig. 80.)

229. The color of the blood in the vertebrates is bright red; but in some invertebrates, as the crabs and mollusks, the nutritive fluid is nearly or quite colorless; while in the worms and some echinoderms, it is variously colored yellow, orange, red, violet, lilac, and even green.

230. The presence of this fluid in every part of the body is one of the essential conditions of animal life. A perpetual current flows from the digestive organs towards the remotest parts of the surface; and such portions as are not required for nutriment and secretions return to the centre of circulation, mingled with fluids which need to be assimilated to the blood, and with particles of the body which are to be expelled, or, before returning to the heart, are distributed in the liver. The blood is kept in an incessant CIRCULATION for this purpose.

231. In the lowest animals, such as the polypi, the nutritive fluid is simply the product of digestion (chyme) mingled with water in the common cavity of the viscera, with which it comes in immediate contact, as well as with the whole interior of the body. In the jelly-fishes, which occupy a somewhat higher rank, a similar liquid is distributed by prolongations of the principal cavity to different parts of the body, (Fig. 31.) Currents are produced in these, partly by the general movements of the animal, and partly by means of the incessant vibrations of microscopic fringes, called *vibratile cilia*, which overspread the interior. In most of the mollusks and articulates, the blood (chyle) is also in immediate contact with the viscera, water being mixed with it in mollusks; the vessels, if there are any, not forming a