

CLASSIFICATION OF OKEN.

The following diagram of Oken's classification is compiled from his *Allgemeine Naturgeschichte für alle Stände*, Stuttgart, 1833-1842, 14 vols. 8vo.; vol. 1, p. 5. The changes this system has undergone may be ascertained by comparing his *Lehrbuch der Naturphilosophie*, Iena, 1809-1811, 3 vols. 8vo.; 2d edit., Iena, 1831; 3d edit., Zürich, 1843; Engl. Ray Society, London, 1847, 1 vol. 8vo. — *Lehrbuch der Naturgeschichte*, Leipzig, 1813; Weimar, 1815 and 1825, 8vo. — *Handbuch der Naturgeschichte zum Gebrauch bei Vorlesungen*, Nürnberg, 1816-1820, 8vo. — *Naturgeschichte für Schulen*, Leipzig, 1820, 1 vol. 8vo., and various papers in the *Iais*.

1st Grade. **INTESTINAL ANIMALS**; also called *Body-animals* and *Touch-animals*. Only one cavity; no head with a brain, only the lowest sense perfect, intestines and skin organs, but no flesh, that is no bones, muscles, or nervous marrow = *Invertebrata*.

Characterized by the development of the vegetative systems of organs, which are those of digestion, circulation, and respiration. Hence —

Cycle I. *Digestive Animals*. = Radiata. Essential character: no development beyond an intestine.

CL. 1. Infusoria, (Stomach animals.) Mouth with cilia only, to vibrate.

CL. 2. Polypi, (Intestine animals.) Mouth with lips and tentacles, to seize.

CL. 3. Acalephæ, (Lacteal animals.) Body traversed by tubes similar to the lymphatic vessels.

Cycle II. *Circulative Animals*. = Mollusks. Essential character: intestine and vessels.

CL. 4. Acephala, (Biauriculate animals.) Membranous heart with two auricles.

CL. 5. Gastropoda, (Uniauriculate animals.) Membranous heart with one auricle.

CL. 6. Cephalopoda, (Bicardial animals.) Two hearts.

Cycle III. *Respirative Animals*. = Articulata. Essential character: intestine, vessels, and spiracles.

CL. 7. Worms, (Skin animals.) Breathe with the skin itself, or part of it, no articulated feet.

CL. 8. Crustacea, (Branchial animals.) Gills or air tubes arising from the horny skin.

CL. 9. Insects, (Tracheal animals.) Tracheæ internally, gills externally as wings.

2d Grade. **FLESH ANIMALS**; also called *Head-animals*. = *Vertebrata*. Two cavities of the body, surrounded by fleshy walls, (bones and muscles,) inclosing nervous marrow and intestines. Head with brain; higher senses developed. Characterized by the development of the animal systems, namely, the skeleton, the muscles, the nerves, and the senses.

Cycle IV. *Carnal Animals proper*. Senses not perfected.

CL. 10. Fishes, (*Bone-animals*.) Skeleton predominating, very much broken up; muscles white. brain without gyri, tongue without bone, nose not perforated, ear concealed, eyes without lids.

CL. 11. Reptiles, (*Muscle-animals*.) Muscles red, brain without convolutions, nose perforated, ear without external orifice, eyes immovable with imperfect lids.

CL. 12. Birds, (*Nerve-animals*.) Brain with convolutions, ears open, eyes immovable, lids imperfect.

Cycle V. *Sensual Animals*. All anatomical systems, and the senses perfected.

CL. 13. Mammalia, (*Sense-animals*.) Tongue and nose fleshy, ears open, mostly with a cochlea, eyes movable, with two distinct lids.