

*Arrests of Development: Rudimentary and Aborted Organs.*

Modifications of structure from arrested development, so great or so serious as to deserve to be called monstrosities, are not infrequent with domesticated animals, but, as they differ much from any normal structure, they require only a passing notice. Thus the whole head may be represented by a soft nipple-like projection, and the limbs by mere papillæ. These rudiments of limbs are sometimes inherited, as has been observed in a dog.<sup>81</sup>

Many lesser anomalies appear to be due to arrested development. What the cause of the arrest may be, we seldom know, except in the case of direct injury to the embryo. That the cause does not generally act at an extremely early embryonic period we may infer from the affected organ seldom being wholly aborted,—a rudiment being generally preserved. The external ears are represented by mere vestiges in a Chinese breed of sheep; and in another breed, the tail is reduced “to a little button, suffocated in a manner, by fat.”<sup>82</sup> In tailless dogs and cats a stump is left. In certain breeds of fowls the comb and wattles are reduced to rudiments; in the Cochinchina breed scarcely more than rudiments of spurs exist. With polled Suffolk cattle, “rudiments of horns can often be felt at an “early age;”<sup>83</sup> and with species in a state of nature, the relatively great development of rudimentary organs at an early period of life is highly characteristic of such organs. With hornless breeds of cattle and sheep, another and singular kind of rudiment has been observed, namely, minute dangling horns attached to the skin alone, and which are often shed and grow again. With hornless goats, according to Desmarest,<sup>84</sup> the bony protuberance which properly supports the horn exists as a mere rudiment.

With cultivated plants it is far from rare to find the petals, stamens, and pistils represented by rudiments, like those observed in natural species. So it is with the whole seed in many fruits; thus, near Astrakhan there is a grape with mere traces of seeds, “so small and lying so near the stalk that they are not perceived in “eating the grape.”<sup>85</sup> In certain varieties of the gourd, the tendrils, according to Naudin, are represented by rudiments or by various monstrous growths. In the broccoli and cauliflower the greater number of the flowers are incapable of expansion, and include rudimentary organs. In the Feather hyacinth (*Muscari comosum*) in its natural state the upper and central flowers are brightly coloured but rudimentary; under cultivation the tendency to

<sup>81</sup> Isid. Geoffroy Saint-Hilaire, ‘Hist. Nat. des Anomalies,’ 1836, tom. ii. pp. 210, 223, 224, 395; ‘Philosoph. Transact.,’ 1775, p. 313.

<sup>82</sup> Pallas, quoted by Youatt on Sheep, p. 25.

<sup>83</sup> Youatt on Cattle, 1834, p. 174.

<sup>84</sup> ‘Encyclop. Method.,’ 1820, p. 483: see p. 500, on the Indian zebu casting its horns. Similar cases in European cattle were given in the third chapter.

<sup>85</sup> Pallas, ‘Travels,’ Eng. Translat., vol. i. p. 243.