

amputated it was replaced by a perfect limb.<sup>19</sup> The new limbs in these cases bud forth, and are developed in the same manner as during the regular development of a young animal. For instance, with the *Amblystoma lurida*, three toes are first developed, then the fourth, and on the hind-feet the fifth, and so it is with a reproduced limb.<sup>20</sup>

The power of re-growth is generally much greater during the youth of an animal or during the earlier stages of its development than during maturity. The larvæ or tadpoles of the Batrachians are capable of reproducing lost members, but not so the adults.<sup>21</sup> Mature insects have no power of re-growth, excepting in one order, whilst the larvæ of many kinds have this power. Animals low in the scale are able, as a general rule, to reproduce lost parts far more easily than those which are more highly organised. The myriapods offer a good illustration of this rule; but there are some strange exceptions to it—thus Nemertean, though lowly organised, are said to exhibit little power of re-growth. With the higher vertebrata, such as birds and mammals, the power is extremely limited.<sup>22</sup>

In the case of those animals which may be bisected or chopped into pieces, and of which every fragment will reproduce the whole, the power of re-growth must be diffused throughout the whole body. Nevertheless there seems to be much truth in the view maintained by Prof. Lessona,<sup>23</sup> that this capacity is generally a localised and special one, serving to replace parts which are eminently liable to be lost in each particular animal. The most striking case in favour of this view, is that the terrestrial salamander, according to Lessona, cannot reproduce lost parts, whilst another species of the

<sup>19</sup> Vulpian, as quoted by Prof. Faivre, 'La Variabilité des Espèces,' 1868, p. 112.

<sup>20</sup> Dr. P. Hoy, 'The American Naturalist,' Sept. 1871, p. 579.

<sup>21</sup> Dr. Günther, in Owen's 'Anatomy of Vertebrates,' vol. i., 1866, p. 567. Spallanzani has made similar observations.

<sup>22</sup> A thrush was exhibited before the British Association at Hull, in 1853, which had lost its tarsus, and

this member, it was asserted, had been thrice reproduced; having been lost, I presume, each time by disease. Sir J. Paget informs me that he feels some doubt about the facts recorded by Sir J. Simpson ('Monthly Journal of Medical Science,' Edinburgh, 1848, new series, vol. ii. p. 890) of the re-growth of limbs in the womb in the case of man.

<sup>23</sup> 'Atti della Soc. Ital. di Sc. Nat.,' vol. xi., 1869, p. 493.