the limb was cut off, the deficient part, and no more, was exactly reproduced. When a diseased bone has been removed, a new one sometimes "gradually assumes the regular form, and all the attach-"ments of muscles, ligaments, &c., become as complete as before."[3]

This power of re-growth does not, however, always act perfectly; the reproduced tail of a lizard differs in the form of the scales from the normal tail: with certain Orthopterous insects the large hind legs are reproduced of smaller size:[4] the white cicatrice which in the higher animals unites the edges of a deep wound is not formed of perfect skin, for elastic tissue is not produced till long afterwards.[5] "The activity of the *nisus formativus*," says Blumenbach, "is in an "inverse ratio to the age of the organised body." Its power is also greater with animals, the lower they stand in the scale of organisation; and animals low in the scale correspond with the embryos of higher animals belonging to the same class. Newport's observations[6] afford a good illustration of this fact, for he found that "myriapods, "whose highest development scarcely carries them beyond the larvæ "of perfect insects, can regenerate limbs and antennæ up to the "time of their last moult;" and so can the larvæ of true insects, but, except in one order, not in the mature insect. Salamanders correspond in development with the tadpoles or larvæ of the tailless Batrachians, and both possess to a large extent the power of re-growth; but not so the mature tailless Batrachians.

Absorption often plays an important part in the repair of injuries. When a bone is broken and does not unite, the ends are absorbed and rounded, so that a false joint is formed; or if the ends unite, but overlap, the projecting parts are removed.[7] A dislocated bone will form for itself a new socket. Displaced tendons and varicose veins excavate new channels in the bones against which they press. But absorption comes into action, as Virchow remarks, during the normal growth of bones; parts which are solid during youth become hollowed out for the medullary tissue as the bone increases in size. In trying to understand the many well-adapted cases of re-growth when aided by absorption, we should remember that almost all parts of the organisation, even whilst retaining the same form, undergo constant renewal; so that a part which is not renewed would be liable to absorption.

Some cases, usually classed under the so-called *nisus formativus*, at first appear to come under a distinct head; for not only are old structures reproduced, but new structures are formed. Thus, after inflammation "false membranes," furnished with blood-vessels, lymphatics, and nerves, are developed; or a fœtus escapes from the

[3] Carpenter's 'Principles of Comp. Physiology,' 1854, p. 479.

[4] Charlesworth's 'Mag. of Nat. Hist.,' vol. i., 1837, p. 145.

[5] Paget, 'Lectures on Surgical Pathology,' vol. i. p. 239.

[6] Quoted by Carpenter, 'Comp. Phys.,' p. 479.

[7] Prof. Marey's discussion on the power of co-adaptation in all parts of the organisation is excellent. 'La Machine Animale,' 1873, chap. ix. See also Paget, 'Lectures,' &c., p. 257.