

Fallopian tubes, and falls into the abdomen, "nature pours out a quantity of plastic lymph, which forms itself into organised membrane, richly supplied with blood-vessels," and the fœtus is nourished for a time. In certain cases of hydrocephalus the open and dangerous spaces in the skull are filled up with new bones, which interlock by perfect serrated sutures.⁸ But most physiologists, especially on the Continent, have now given up the belief in plastic lymph or blastema, and Virchow⁹ maintains that every structure, new or old, is formed by the proliferation of pre-existing cells. On this view false membranes, like cancerous or other tumours, are merely abnormal developments of normal growths; and we can thus understand how it is that they resemble adjoining structures; for instance, that a "false membrane in the serous cavities acquires a covering of epithelium exactly like that which covers the original serous membrane; adhesions of the iris may become black apparently from the production of pigment-cells like those of the uvea."¹⁰

No doubt the power of reparation, though not always perfect, is an admirable provision, ready for various emergencies, even for such as occur only at long intervals of time.¹¹ Yet this power is not more wonderful than the growth and development of every single creature, more especially of those which are propagated by fissionary generation. This subject has been here noticed, because we may infer that, when any part or organ is either greatly increased in size or wholly suppressed through variation and continued selection, the co-ordinating power of the organisation will continually tend to bring again all the parts into harmony with one another.

On the Effects of the Increased Use and Disuse of Organs.

It is notorious, and we shall immediately adduce proofs, that increased use or action strengthens muscles, glands, sense-organs, &c.; and that disuse, on the other hand, weakens them. It has been experimentally proved by Ranke¹² that the flow of blood is greatly increased towards any part which is performing work, and sinks again when the part is at rest. Consequently, if the work is frequent, the vessels increase in size and the part is better nourished. Paget¹³ also accounts for the long, thick, dark-coloured hairs which occasionally

⁸ These cases are given by Blumenbach in his 'Essay on Generation,' pp. 52, 54.

⁹ 'Cellular Pathology,' trans. by Dr. Chance, 1860, pp. 27, 441.

¹⁰ Paget, 'Lectures on Pathology,' vol. i., 1853, p. 357.

¹¹ Paget, *ibid.*, p. 150.

¹² 'Die Blutvertheilung, &c. der Organe,' 1871, as quoted by Jaeger, 'In Sachen Darwin's,' 1874, p. 48. See also H. Spencer, 'The Principles of Biology,' vol. ii. 1866, chap. 3-5.

¹³ 'Lectures on Pathology,' 1853, vol. i. p. 71.