are formed in the liver. That mighty gland elaborates the food material borne to it by the current of the portal vein. It also converts waste matters into forms which admit of their being cast out of the body by the kidneys. When kidneys first appear we find the form of excrementitious matter to be uric acid. Uric acic as urates, belongs to animals with a three-chambered heart and a solid urine—Birds and reptiles. When the higher mammals appear we find them possessed of a fourchambered heart and a fluid urine. The nitrogenised waste now takes a soluble form, viz., urea. So long as the liver can practically convert waste and surplus nitrogenised matters into the soluble urea, so long indulgence in gout-producing food is compatible with impunity from unpleasant consequences. But the mammals never quite escape from the ways of their ancestors; and a small portion of the uric acid of their far away progenitors clings to them—like original sin. If from any reason, as the inheritance of an inefficient liver, or the viscus is impaired by excessive demand upon it, or, what is less frequently realized, the weight of prolonged care tells upon it and its delicate processes, - its functional capacity is diminished, we see the liver fall back upon the primitive urine product. It becomes less equal to the formation of urea, and reverts to uric acid. And what ensues after that? Either the kidneys become injured by the output of these primitive products of the liver, and we get chronic Bright's disease in time: or the urates are retained in the body and we get gout in all its numerous and Protean forms. Gout and Bright's disease with many and wide-spread complications, are the effects of a materies morbi formed within the body, and possessed of toxic properties. Like a fire embarrassed by its own ash we find the body may be poisoned, partially or fatally, by its own waste matters. The urine of one animal introduced into the veins of another is fatal to it.

Certain animals, as the poison snake, and the scorpion, distil a venom within them for offensive and defensive purposes. Serpent venom is a deadly poison. But poisons are formed by other animals than snakes and scorpions. Dr. Lauder Brunton, F.R.S., has pointed out ("Indigestion as a cause of Nervous Depression"), that malproducts formed in the digestive act may be toxic. These poisons oppress the brain and depress the action of the heart. They are excreted by the kidneys, while the liver, acting as a sieve, obstructs their entrance into the general circulation. In old gouty persons, the liver—as a porter at the gate—is impaired; while the contradicted kidneys fail in their duty of excretion. Hale old gouty persons are sometimes found dead in their beds after an unusually good meal, and a post-mortem examination of the body throws no light upon the cause of death. The learned doctor believes in these cases death

is really due to toxic alkaloids formed within the body.

In one member of the Mustelidæ, to which belong the civet and the pole cat, we find a curious and singular weapon of defence in the shape of glands in the lower bowel which secrete, and emit a most offensive fluid. Ill-smelling products in human intestines are formed as scanthal and indol; and these bodies give a decided fætor to the breath of some individuals. At other times they lend an indescribably offensive odour to the urine; not as a product of decomposition, but formed in the body and cast out in the urine when voided. Something derived from a common ancestor gives the fætid fluid of the skunk, and the indol series in perverted conditions in man.

Then let us look at the relations of fœtal development to the diseases of later life. The epiblast, the outermost of the three early layers of the embryo gives the cerebro-spinal system, and the sensitive From the hypoblast, or innermost layer, we get the glandular epithelium of the viscera. From the mesoblast spring bone and muscle, blood-vessels, and nerve sheath, as well as the packing material of the body. How much of the disease we encounter is due to the after growth of this connective tissue at the expense of the tissues derived from the other embryonic layers? Inflammation, involving all tissues of an organ, we are now told takes its initial step in an impaired state of the connective tissue, which leads to dilatation of the minute blood-vessels—thus deprived of the usual support given by the packing material. Parenchymatous inflammation, induration, or cirrhosis, is a growth of connective tissue at the expense of the glandular elements of the viscera, or at the expense of the pure nerve structure in cerebro-spinal sclerosis. So is arteriocapillary fibrosis. Tubercle is a growth of lowly connective tissue amidst the products of the two other layers of the embryo. The glands of the intestine, and the epithelial lining of the bowels are its seat in early life, while tubercular growth of intra-cranial seat presses upon the true cerebral structures. After puberty cellproliferations of tubercular character are common in the lungs. Indeed, the encroachments of the connective tissue of the mesoblast gives us a large array of morbid conditions in after life.

Cancer, also, Virchow says, is not a heteromorphic histological element. Scirrhus has been described as a hetertopic growth of cartilage cells. Sarcomatous growths consist of muscular tissue. Encephaloid cancer is the hetero-chronic growth of the marrow cells of fætal bone we are told. Melanotic cancer is a pigment growth. While it is asserted that colloid cancer is undistinguishable under the microscope from the sarcode of the umbilical cord. As to cancer of the breast, Dr. Creighton has shown us that the histological elements thereof are identical with the materials