

“Inborn errors in metabolism”; and since metabolism depends upon cellular enzymes, so, in cancer, perhaps there is some innate error of metabolism, forming or altering the cellular enzymes, so causing increased tendency to cell proliferation, the actual growth activity being due to some accidental irritation.

It cannot be doubted but the processes of the body are largely influenced by heredity; for example, the endogenous toxins, diabetes, baldness, or the abiotrophy of Gowers.

The Mendelian Law would seem to be applicable to such a disease as cancer, which has not yet been shown to be due to infection, as is, for example, tuberculosis.

By the Mendelian Law one means the law of segregation, the germ cells being a single structure and the animal a double structure, having received a series of elements from its father and a series also from its mother.

The Mendelian Observation.—When dissimilars meet in one individual, there is, on formation of the germ cells, a separation between the two characters which come in; that is, the dominant and the recessive. The animal is a combination of many natures; for example, height, color, form, and so on, separately transmitted. For example, in eye color, the presence of the pigment is dominant. Color blindness and other deformities follow the law, so special resistance or special liability might follow the law; for example, resistance due to presence of something, as in color blindness, and liability to the absence, or recessive qualities, as, for example, in alkaptonuria.

So with sex-limited diseases, as hemophylia.

Hence, as to the causation, one may sum up:

1. No limitations as to species.
2. Diet and mode of living has little influence in causation.
3. Cancer is statistically a function of age of the individual.
4. Cancer is, biologically, a function of either immaturity or senescence, either constitutional or acquired; for example, immaturity, when, owing to limitations of function, the growth habit alone is differentiated, the cell becoming purely vegetative, due perhaps also to some error of its metabolism. Then its faulty metabolism causes enzymes, which may cause adjacent cells to take on this vegetative habit, etc., due to chemiotactic influence; so one sees the different reactions of the surrounding tissues or stroma developed.

Or again, in repeated attempts at repair, the cells specialize the growth habit, and so become more strongly vegetative and unspecialized as to function. For example, metaplasia and