species by means of experimental evolution.

Neither heredity nor environment is all-inclusive. Both are necessary for the highest form of development.

Heredity is the first determining force in constructive hygiene. It may be defined as "the process which is responsible for the particular combination of transmissable characters possessed by an organism." (Burlingame)

3. Methods of Study of Heredity

Our knowledge of heredity has come to us by three principal methods:

a. Observational. "Like produces like" came as a result of mankind comparing individuals, species, and races and observing certain constant resemblances and differences.

b. Statistical. This method studies characters singly and applies quantitative methods to them. Francis Galton was its founder. His researches were applied to several selected traits, as: Genius, artistic ability, stature, eye color, and certain diseases.

The two principles connected with the name of Galton are:

(1) Law of Ancestral Inheritance: A statistical evaluation of the contribution of each ancestor to the individual.

(2) Law of Filial Regression: Or tendency of children to return to the average of the group.

The weakness of the method lies in the fact that it is not always possible by observation alone to distinguish between inherited and environmental resemblances and differences. The statistical method outlined the problem of heredity; it did not solve it.

c. Experimental

(1) Mendel is the outstanding pioneer, with his study of the breeding of peas. His experiments enabled him to formulate what are known as Mendel's Laws:

Law of segregation
Law of independent assortment

The principles of Mendelian inheritance apply to man. Many inheritable traits, both normal and abnormal, have been shown to be of this nature. See the list given in Storey's Principles of Hygiene, Pp. 253-260.

(2) Later research has confirmed and extended Mendel's observations greatly. It has also added new conceptions which explain some facts which were apparently inconsistent with his findings. The foremost of these newer principles are: