

## IMMUNITY.\*

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By the term immunity is meant a non-susceptibility to a given disease or to a given organism, under conditions such as occur naturally or may be produced artificially.

Immunity may be natural or acquired.

*Natural Immunity:* Certain diseases affect the lower animals but never occur in the human subject, *e. g.*, swine plague; and on the other hand, diseases as typhoid fever and cholera, which are common to the human subject, do not as far as is known, affect the lower animals. Native races in different parts of the world are insusceptible to yellow fever, typhoid fever and malaria. The dog and the goat are rarely affected with tuberculosis. Tetanus is never met with in the fowl. And to come nearer home some individuals are fortunate enough to escape most of the more common infections, others seem to contract disease on every possible occasion, and to suffer from all the ills the flesh is heir to.

A remarkable example of race immunity is that of Algerine sheep against anthrax, a disease which is very fatal to other sheep.

Both man and the lower animals, therefore, respectively enjoy immunity from certain diseases when exposed under ordinary conditions. It must not be inferred, however, that when the organisms of the respective diseases are introduced artificially, pathological effect will not follow. Immunity may be of varying degrees; such a thing as absolute immunity is scarcely known.

In addition to general race immunity or susceptibility, we have individual differences in susceptibility or resistance to pathogenic bacteria. As a rule young animals are more susceptible than older ones. Thus in man the young are especially susceptible to scarlet fever, whooping cough, etc.; and after forty years of age the susceptibility to tuberculosis infection is very much diminished.

With regard to the natural immunity of the native races, this is probably due to natural selection and heredity. It is an illustration of the survival of the fittest. During long periods of time, the

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