EXPERIMENTAL EPIDEMIOLOGY

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Epidemiology, according to common usage, is knowledge of the mode of spread of infectious diseases. This knowledge is especially concerned with epidemics and endemics, long-time and short-time cycles of disease prevalence, general and local extension of disease and relative severity of disease in racial and familial groups and in individuals. Data, mostly descriptive and poorly organized, accumulating for centuries, were simplified in part by experimental pathologists and bacteriologists at the close of the nineteenth century into several principles, a postulate and a theory.

Considered chronologically, the first two principles are the communicability of certain diseases and the living specific nature of their known incitants. This knowledge was present in substance 4,000 years ago in popular superstitions and beliefs but was not established on an experimental basis until Bassi transmitted silkworm muscardine in 1835, Remak transmitted favus in 1840, and Braunell, Pasteur, and Koch transmitted anthrax in 1857 to 1890. Three additional principles, namely, the operation of host resistance, diet and climatic factors influencing the spread of infectious disease, were likewise recognized from earliest times, but are only recently being studied experimentally. The last two, the doctrines of the carrier state and of specific immunity, established by Koch and by Behring and Kitasato, respectively, are modern both in concept and experimental proof.

Knowledge of infection underwent further organization during the Pasteur-Koch period. Theurgical and supernatural doctrines of epidemics were dis-