

Pathogens. The proof that specific bacteria were the cause of specific diseases marked the first great step in the rational, scientific control of communicable diseases. The more important members of this group will be considered in connection with the diseases which they cause.

Proof of Disease Production

In order to be certain that a given organism is the cause of a given disease, a very exact, scientific method was devised which is known as Koch's Postulates, after their originator:

- (a) Same bacteria always found with same disease.
- (b) Same bacteria isolated from diseased animal and grown in pure culture outside the body.
- (c) Pure culture must reproduce disease in animal.
- (d) Same organisms recovered from animal and grown in pure culture.

Growth and Reproduction of Micro-organisms

The growth and reproduction of bacteria are dependent upon favorable conditions adapted to their peculiar needs:

- (a) Temperature
- (b) Moisture
- (c) Food supply

Destruction of Micro-Organisms

Sterilization or disinfection is the name applied to the procedure of destruction of micro-organisms.

Methods: 1. Heat--dry or moist. 2. Sunlight. 3. Chemicals.

Spread of Micro-organisms

A knowledge of the ways by which micro-organisms spread from person to person is vital to any intelligent defensive hygiene plan against communicable diseases. Chapin classifies them as follows:

- (a) By contact
- (b) By fomites (inanimate objects)
- (c) By air
- (d) By food and drink
- (e) By insects

Sources of Infection

The chief source of infections is to be found in man and lower animals.

Modes of Infection

The micro-organisms which cause disease enter the body through one of the following channels:

- (a) Respiratory tract
- (b) Digestive tract
- (c) Genito-urinary tract
- (d) Skin and conjunctiva