

## II. BIOLOGICAL BASIS OF HYGIENE - THE CELL

### A. HISTORICAL

#### 1. Discoveries

Recognition of the cell was one of the great fundamental discoveries in science, for it offered the key to solution of every biological problem. William Robert Hooke (1668) first applied the term "cell" and is credited with its discovery.

Realization of its significance gradually became clearer to biologists, until Schleiden and Schwann formulated the so-called "cell theory" in 1838, a major step in scientific progress.

Fourteen years later (1852), Remak and Virchow demonstrated that living matter could come only from other living matter, a revolutionary conception at that time.

Advances in this field had awaited the development of the compound microscope. Lister is credited with the achievement in 1830.

#### 2. The Microscope

Early stages of the development of the microscope lead back to ancient Ninevah, Greece, and Rome. Application of microscope for scientific purposes is associated with a few great names:

- a. Galileo--for his work with use of lenses (1609).
- b. Kircher--first to report living micro-organisms (1646).
- c. Van Leeuwenhoek--improvement of microscope (1632-1723).
- d. Hooke--first used term "cell". (1668).

Modern period of microscopy dates from 1830. With improvements in magnification, illumination, and control, it became a perfected instrument of scientific investigation.

#### 3. Laboratory Technique

The development of laboratory technique was of equal importance with the improvement of the microscope. Hundreds of patient, devoted, and unknown laboratory workers devised the methods for fixing, hardening, sectioning, mounting, and staining specimens, and for their study in the living state.

### B. THE UNITS OF LIFE

The mystery of life is bound up in minute bodies or particles we have come to call cells. The cell is the smallest unit of living matter. Our bodies may be resolved into a vast assembly of these units. Out of them, with their great variations in structure and function, are built all of the complex organs and systems of the human body. If we are to have an intelligent understanding of our bodies as a basis for sound constructive hygiene we should be familiar with:

- a. The anatomy or structure of the cell.
- b. The physiology or functions of the cell.