

- IV. Give in detail the nursing of a case of Fractured Pelvis.
- V. Describe the preparation of the following :—
- (a) Benger's Food.
 - (b) Quickly made beef tea.
 - (c) Barley water.
 - (d) Peptonised milk.
 - (e) Egg flip.
- VI. Give the Incubation Period of the following and mention the symptoms of onset :—
- (a) Scarlet Fever.
 - (b) Diphtheria.
 - (c) Measles.
 - (d) Whooping Cough.
 - (e) Chicken Pox.

HOW THE TEETH GROW

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Going back to the first traces of life we find the human organism to be developed from a single cell—the result of the union of two highly specialized cells. By multiplication and division of this cell we soon arrive at a stage where the cells are arranged in three distinct layers. From these three layers are developed all the structures of the complete human body. The enamel of the teeth is derived from the outer layer, or *epiblast*, while the dentine and cementum come from the middle layer, or *mesoblast*.

The first indication of the formation of the teeth occurs at a very early period, even before the bones are ossified and is traceable to about the seventh week of foetal life. A special disposition of the soft tissues occurs at the spot where a tooth is destined to develop and to this special grouping of cells the name *tooth germ* is given.

In this tooth germ two special sets of cells in time appear. These are the enamel and the dentine builders respectively. Each dentine and enamel cell furnishes a process, or fibre, continuous with itself, which serves as a matrix for the laying down of lime salts. As the cells deposit these salts, they recede, leaving behind the fully formed dental tissues.

Calcification of the Dental Tissues

In the case of dentine, calcification never reaches the centre of the process supplied by the cell, but this remains as a source of nutriment. Therefore, as we saw last month, dentine consists of a number of tubes cemented together, each tube containing a fibril from one of the dentine cells. This is most important as we shall see later when we study the question of dental decay.

It will thus be seen that the two sets of cells begin operations in close proximity and gradually recede from each other as the tooth is formed. As calcification advances, part of the dentine organ becomes shut in by the process, thus forming the future 'pulp' or 'nerve' of the tooth. After the tooth is completed, the dentine cells remain on the surface of the pulp but the enamel cells disappear. This is of extreme importance as it means that dentine can still be repaired, but enamel cannot.

The third dental tissue, cementum, is formed in the same manner as bone, which it will be recollected, it closely resembles in structure.

Eruption of the Teeth

When the crown of a tooth is formed, it is still encased in the bone of the jaw. Before it can function, it must travel a certain distance to reach the mouth, perforating the bone of the jaw and the gum. The process by which this is accomplished is termed eruption.

The eruption of the teeth is far from being the simple process one might suppose. Indeed, being such a natural occurrence, it is doubtful whether many people ever pause to think why or how teeth do erupt. Many theories have been advanced to explain the mechanism of eruption, but none can be said to be thoroughly satisfactory, or to explain the many varied cases which one constantly meets in practice. When a tooth appears above the gum, the crown only is formed and the roots are added gradually during the following three or four years. As a rule, therefore, a tooth is not fully formed until at least three years after its eruption.

Too much emphasis cannot be laid on the fact that the teeth do not erupt into sockets already prepared for them. The sockets are moulded around the teeth. Hence where a tooth chances to get, there will the jaw be moulded around it. Upon the understanding of this fact depends our knowledge of the mechanism of teething and the treatment of irregularities. A slight obstruction, such as a small particle of bone, or even the constant tension of the lips and cheeks, will be quite sufficient to deflect a growing tooth and determine its future position.

The Second Set

In the case of the second, or permanent teeth, before they can replace the first teeth, the roots of the latter must be absorbed. This is accomplished by very large cells which lie in cup-shaped depressions on the roots of the milk teeth, which eventually they eat away. This process is not analogous to death or decay, as the second teeth when dead either remain in situ, or are cast off entire. Indeed, death of the first teeth greatly hinders the absorption of their roots and thus interferes with the eruption of the second set.

The teeth do not erupt all together but are cut in groups, the front teeth first, then the back ones, the jaw meanwhile increasing in length. This is really a wonderful provision of Nature's, for if all the teeth erupted together the back ones only would come into apposition and an open bite would result.

How the Teeth Grow

The dates of the eruption of the milk teeth vary considerably, and we shall consider these in detail in a subsequent article, but as a general rule all the first teeth should be cut by the end of the second year. If teeth erupt very early or very late, it may be generally considered an unfavourable sign. Early erupted teeth are found in syphilitic children, in which occasionally they are cut before birth, and in tuberculous children. Late eruption indicates general feebleness, rickets, unfavourable hygienic surroundings, and sometimes mental weakness.

Taking all the above facts into consideration, it will be appreciated, to some extent at least, what an important part these building cells play in determining the future texture of our teeth. But like all labourers, they are largely dependent on material, and the quality of their products, naturally, is influenced by the building matter at their disposal.

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