Review of Current Literature

Present Status of Knowledge Concerning Movement of the Tooth Germ Through the Jaw

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From a study of the literature concerning eruption of teeth it is apparent that the problem has been attacked by two different methods, those who have studied the crypt and its tooth in eruption and those who have been concerned with general growth and developmental problems and that neither has taken much heed of the other.

The following theories have been advanced concerning eruption. (a) elongation of the root; (b) multiplication of the cells of the pulp; (c) addition of cementum to the root; (d) growth of alveolar bone; (e) combinations of all of these. An explanation of these theories is given.

From birth to maturity the cranium increases in size four times while the face increases in size twelve times. The higher rate of growth of the face causes it to swing downward and forward. The greatest increase is vertically. At birth the face is said to be back under the cranium and the hard palate at a level only slightly below the floor of the orbits, which literally constitute the bases of the alveolar processes. Into this small alveolar process lie packed the germs of all the maxillary teeth, (except the second and third molars) in close proximity to the floor of the orbit.

The growth of the maxilla is accomplished by surface addition, form and lightness are maintained by the interplay between this and absorption.

The descent of the palate is by a similar process addition below and absorption of the nasal surface but at a slower rate thus permitting development of the alveolar ridges. The most active sight of growth for the purpose of increasing depth is at the tuberosities.

The increase in the size of the mandible is similar to the method found in the maxilla. Height is gained by addition to the alveolar process, width by lateral addition and length by heavy deposition on the posterior border of the ramus with accompanying absorption of the anterior border. Form is likewise, as in the maxilla, maintained by an interplay of deposition and absorption. Position adjustment apparently lies in the modification of the articular surface of the condyloid process.

During the growth of the face the teeth travel from one and one-quarter to one and one-half inches, exceeding the rate of movement of the maxilla and indicating that there is a changing relationship between the maxilla and the crypts. The mechanism of this change remains unexplained. It is tentatively suggested that eruption be considered in two stages, migration of the crypts through the jaw and emerging of the tooth from the crypts.

W. B. D.

The Clinical Importance of the Gingival Crevice

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The authors in discussing the gingival crevice bring out the former thought that it was believed to normally extend to the cemento-enamel junction. The new school of which Gottlieb is the leader believes that the gingival crevice is very shallow and that the gingiva is normally attached to the enamel. The so-called Gottlieb enamel cuticle consists of a double membrane. This was formally called Nasmyth's membrane. The inner membrane is closely adherent to the enamel while the outer membrane becomes fused with the oral epithelium when the tooth breaks through on its eruption. Many ground sections are shown of teeth of man and animal to show this contention.

Injury to the epithelial covering of the enamel by scaling below the gingival crest causes the gingival crevice to become deeper and deeper. This

is also believed to be true when restorations are placed and orthodontic bands are seated.

E. M.

Osteomyelitis of the Maxilla in Nurslings and in Infants

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Following a brief review of the literature the authors report in detail the case of a three week old, white, male infant with osteomyelitis of the left maxilla. Osteomyelitis of the maxilla in infants may arise in several ways. It is Wilensky's belief that the condition in no way differs from that found elsewhere in the body, and that this particular localization is influenced by trauma. Zarfl believes that purulent inflammation in a tooth bud occurs by direct extention from the surrounding tissue and is not primary in the tooth anlage. Poncher and Blayney feel that nasal infection and sinusitis must be considered as playing an important role in the pathogenesis of maxillary osteomyelitis in infants. A study of serial sections of the tissues taken at autopsy from this infant support their beliefs.

H. J. N.

A Study of the Teeth of a Group of School Children Previously Examined for Rickets

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During the years 1923 to 1926, the United States Children's Bureau in collaboration with the pediatric department of the Yale School of Medicine carried on a study of community control of rickets in New Haven, Connecticut. In this investigation 480 infants were given anti-rachitic therapy and observed from birth to 12 to 36 months of age. In addition, 1,000 infants and young children, who had received no cod liver oil or anti-rachitic treatment, were examined. This report is that of a more recent check-up on the

children of the two groups previously examined. This latter examination was conducted with particular respect to "the effect of rickets on skeletal and dental development." 451 children were studied (315 white—138 colored). Of these 215 showed no rickets, or a minimum degree, by x-ray and clinical diagnosis; 108 showed moderate rickets and 128 severe rickets. A compilation of the data of this study indicates that the late deformity of rickets and hypoplastic defects in the permanent teeth are both in proportion to the occurrence and severity of early rickets, the latter being about one-third as common as the former. It is interesting to observe that the incidence of dental caries, while over 40% in the non-rachitic group, was over 60% in the children with mild and severe rickets. There was, however, no material difference in the incidence of caries in the two rachitic groups.

There was bound to be a negative correlation between caries and hypoplasia when the teeth affected were recorded, hypoplasia being most common in the incisor area and decreasing posteriorally, while caries was found more often in the first permanent molar area and decreased anteriorally. This is, perhaps, of even more significance than attributed to it by the authors. Hypoplastic defects appeared to be more common in the colored children than in the white while the reverse was true of dental caries. These two factors rather contradict the suggestion that is made in the authors' summary, namely, that it is possible that the hypoplasia may account for the caries.

The conclusions of the writer are quoted as follows: "It appears from the data here presented that enamel hypoplasia of the permanent teeth, especially the type that is characterized by a symmetrical distribution of defects in those teeth which are forming during infancy and early childhood, is frequently associated with rickets. It has been shown that the more severe the rachitic process, the more frequently do hypoplastic defects develop; conversely, when severe hypoplasia was found, a definite history of moderate or severe rickets was established in practically all cases by roentgenologic evidence.

"Dental caries, too, was found more often in children with a known history of rickets, but since the data also indicates that caries was found more often in teeth with hypoplastic defects than in those with none, it is possible that the latter relationship may account for the former. That the administration of antirachitic therapy in infancy reduces the incidence of enamel hypoplasia and also to some extent lessens the incidence of caries, has been shown."

H. J. N.