

below the level of the palatal plates, and the anterior and posterior parts are but little developed. As age advances the alveoli lengthen, the tuberosities increase in size, and an active development of bone takes place in these situations. The tuberosities are to the upper maxillæ what the coronoid processes are to the lower jaw. From these points the alveolar line is lengthened. In the lower jaw an alteration in the position of its articular surfaces and ascending rami, together with an absorption of the coronoid processes, accompanies the development of the posterior permanent teeth. The jaw elongates by additions to its posterior cornua. The capacity of the jaws in childhood is nearly equal to the anterior portions of the adult bones; for the ten anterior teeth of the permanent set in each jaw replace the temporary, and occupy the same position as these, so that this part of the jaw in adult life is pretty much the same as in childhood. If contracted then it will remain so throughout life, and no subsequent development in the posterior regions will tend to expand it. The replacement of the temporary teeth by their successors is effected by a purely physiological process, and is absolutely independent of pressure. There seems to be a physiological law by which the cells composing the absorbent papilla in the neighbourhood of a developing tissue have the power of absorbing a mature structure. That pressure has nothing to do with the process may be proved by the fact, that in cases where the shedding of the first teeth has taken place prematurely, a layer of bone has been observed to intervene between the crown of the advancing tooth and the base of the socket of its predecessor. At the time when the temporary teeth are about to be shed, in the well-developed jaw a decided separation between contiguous teeth is noticeable: and this circumstance is a fair indication of a future regularity in the succeeding dentition, and a proof that this portion of the jaw has already been prepared to receive the larger permanent teeth. If the process of absorption continues uninterruptedly, the fangs of the temporary teeth will be gradually removed, leaving little more than the shells of the crowns, which readily drop from the gum as

their successors are in turn ready to occupy their places. But should any arrest in this process occur (and such is far from an uncommon circumstance), these temporary organs are liable to offer considerable obstacles to the regular advance of their permanent successors. The causes of irregularity in the position of the teeth may arise during the developmental periods of life, and are then due to a want of proportion in the size of the teeth and jaws, or to a faulty development of the jaw bones; or the displacement may depend on some accidental circumstances arising subsequently, such as the prolonged retention of the temporary teeth, the presence of supernumerary teeth, the habit of "thumb-sucking," or the undue pressure from an hypertrophied tongue. There is abundant evidence to prove how frequently such deformity depends upon hereditary influences. The conditions of life to which our race has for so many generations been subjected seems to have lessened the necessity for the broad and well-formed jaws which were so characteristic of our ancestors, and for many years the advances in civilization have been marked by a deterioration in the capacity of our jaw-bones. Mr. Coleman, in some interesting investigations made several years ago, found that the percentage of contracted jaws was immeasurably greater in the children of the well-bred population than in those of less refined cultivation. The prolonged retention of temporary teeth is frequently associated with irregularity in their successors, and is probably often the cause of such irregularity. The presence of supernumerary teeth in the dental arch may prevent the normal members from assuming their proper places; but doubtless a disproportion of size between the teeth and jaws is of all causes of irregularity the most common. This disparity leads to a crowding of the teeth, sometimes to such an extent as to altogether prevent the eruption of some one or more of the dental series, such remaining impacted in the substance of the jaws. Certain injuries in early life may occasion displacement of the teeth, especially in the lower maxilla, such as the contraction of cicatrices about the face and neck. Mr. Salter, in his work on Dental Pathology and Surgery, treats the subject of