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A METHOD OF DEMONSTRATING THE SURGICAL ANATOMY OF THE MASTOID BY MODELS.*

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Variations in the normal anatomy of the temporal bone are so frequent and minute details that might seem of academic interest only are of such vast practical importance that the aural surgeon must constantly visualize a more or less composite anatomic picture that shall include not only the external aspect of the mastoid region but more especially the complicated system of cells that exist within the mastoid and petrous portions and which are, as Sir Charles Ballance so clearly emphasizes, "quite distinct from the medullary, the diploetic and the Haversian spaces proper to the bone substance."

Of course it is most essential that one first acquire his mental impressions of the anatomy of the mastoid and tympanic cavities, in their relationship one to the other, and to contiguous structures by the study of many temporal bones and by the practice of the various surgical procedures upon the cadaver. Knowledge so gained may be, however, of only relative value in the performance of the actual mastoid operation for the cure of disease, for the most constant concomitant of a pathologic process is the change wrought in the appearance, the structure and the relationship of the part involved and, therefore, it is also necessary to be prepared to meet anatomic condition which are the result of the disease itself.

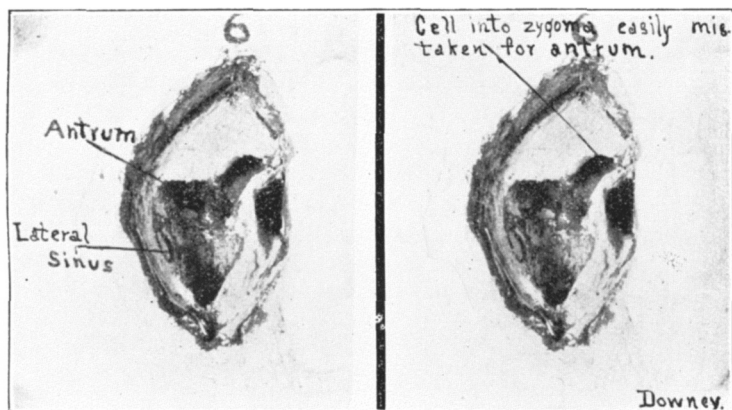
It is these variations in both normal and morbid anatomy which place the modern mastoid operation in a class of surgery requiring not only technical training but the ability to interpret operative findings that follow the exception rather than the rule, and as it is by no means easy to describe one's

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findings at the time of operation, either in written words or by flat drawings, a clinical history, especially when presented before a class of students or a medical society, can be much enhanced by a model of the operative findings. No operation lends itself better to modeling than does the mastoid operation, and I hope to demonstrate that the method is practical.

The twelve models which I wish to show have been modeled in artist's water clay from actual operations. Measurements were made at the time of operation, dictated to a nurse, and the model made within a few hours after the operation. Any otologists will find the process surprisingly easy, if he will take a piece of clay and imagine he is operating. The attempt to reproduce the appearance of the mastoid cavity teaches one to pay the strictest attention to details at the time of operation, and certainly good mastoid surgery, like genius, is dependent upon the ability to take infinite pains.

Twelve models of actual operations were exhibited, demonstrating: Extensive destruction of the mastoid process. Anomalous positions of the lateral sinus. Zygomatic cells simulating the antrum. The difficulty of reaching the antrum in certain sclerotic bones. The marked alteration in anatomy occasioned by chronic suppurative conditions, etc.



Stereoscopic photograph of one of the models described in this article. This should be viewed with a stereoscope to obtain an idea of the value of the models for teaching purposes.