The Tells Teeth Tale

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The Tells Teeth Tale by Tanya M. Smith

Tanya Smith narrates the beautiful tales of teeth to the readers and how they are related to human evolution. For years teeth have played a significant role in evolutionary anthropology, especially in the skeleton and skull carbon dating. Research has shown that teeth preserve better fossils records and offer a more accurate picture of the underlying genome. Most of human evolutionary history is generated from teeth. This paper will explore the three major themes of development, evolution, and behavior, as explained by Smith.

Development

Smith explores the development theme by looking into the microscopic world of tooth growth. The tooth world comprises of dentin and enamel. Dentin is made up of fibrous and tough tissue found below the enamel. Enamel is the outer layer of teeth, which is hard due to the various minerals such as Calcium (Smith, 2018). These two features of the tooth determine how the teeth erupt, laid down, and how they will appear above the gums. Moreover, the two features tell the biological markers when observed under the microscope.

Smith describes how the dark neonatal line present in dentin and enamel tells the accurate age of an individual as it coincides with birthday. These exiting features are present in all evolutionary groups, including modern humans and ancestors. Incremental lines found inside the teeth are like annual rings in trees, which shows the growth rate of the tree (Smith, 2018). These incremental line helps to tell the health and age of an individual. Smith explains how dental microstructure tells the unique characteristics of human evolution, such as post-reproductive lifespan and extended childhood.

Shockingly, Smith describes how dental anthropologists utilize microscopic information to examine stress lines inside the teeth, which can tell when, and why a person stressed. The lines can tell whether the individual experience psychological or physiological stress during the growth process. Additionally, the teeth development theme dealt with how human eating habits evolved and changed the structure of the tooth. For instance, change from ancient foods such as nuts, meat, and fruits to highly processed sugary foods associated with various dental problems. The foods human eats today have profoundly impacted periodontal disease, cavities, and wisdom teeth.

Evolution

Evolution is the second theme that Smith tackles as she narrates the crucial stages that the teeth go through. For decades evolutionary biologists' question where the teeth originate. Some have argued that the teeth erupt externally from the pointy cheeks scales closer to the lips. Others have provided that the teeth originate internally from the pharynx structure (Smith, 2018). Smith understands that when and how the teeth evolved is of significance implication in determining whether it evolved once or severally.

Dental evolution takes place from single to multiple cusped, and finally, the ape-like dental structure that modern humans possess. The apes had big and long teeth that moved outwards from the jaws. The canines were long because they feed on raw meat before the discovery of fire. However, the teeth pattern evolved into a reduction of the canine teeth as well as small teeth to fit into the small jaws. This description relates to Charles Darwin's theory of evolution, which described how man evolved from ape-like animals (Chimpanzees). Darwin observed how the human skull and the jaws evolved to form the current structure.

Smith provides an interesting introduction to the evolution of teeth for the readers to understand why and how their teeth are shaped the way they are. Tooth growth and development is significant to the dental anthropologist. The author describes the microscopic lines present in the teeth and how they tell dental anthropologists how slow or fast an organism has grown. Moreover, the book narrates how the lines have helped to discover when the growth pattern of the humankind evolution.

Typically, modern human growth and development curve is normal, which means that growth is slow and take a long time. The curve shows that the juvenile dependence period is as long as the adult life span, which is incomparable to any primate. These factors have raised major debate in paleoanthropology concerning the growth of Homo sapiens and Neanderthals (Smith, 2018). The big question is whether the two species experience slow or fast growth. The author provides that H. sapiens growth rate was slower compared to Neanderthals. Readers got a chance to view both sides of the story as the author gives an important discussion on the big debate. Moreover, Smith discusses the reasons why anthropologists get confused with the mixed signals generated from fossils records.

Human behavior

The third theme provides a dental description and perspective on human behaviors. The theme focuses on behavior regarding the use of teeth as a tool, the diet, the teeth as a social signal, and how humans have consciously and unconsciously modified their teeth. Human behavior on tooth use is observed when examining tooth wear, stable isotope ratios, and ancient DNA (Smith, 2018). Studying these topics tells the readers that there is still a hotly contested debate on how it affects human behaviors.

Teeth evolution affected human behaviors, whether they lived in groups or in a monogamous pair during the early times. Smith questioned whether the Neanderthal man became extinct for lack of dietary breadth. However, the author went further to encourage readers not to give up on their quest for knowledge coupled with open questions that arise during her discussions. According to Smith, science is a growing knowledge that is continuously revised and refined to create a fact. Science involves dropping an old hypothesis and adapt a new concept which comes with newly founded knowledge.

The last chapter examines the future of dental research in developing human behaviors. For instance, technology-enabled stem research to regrow possible lost teeth (Smith, 2018). Advance technology is making humans transcend beyond their expectations or compared to hundred years ago. Now humans mature earlier and live longer due to developed medical care and a healthy lifestyle. Smith explains the human microbiome, which composes of trillions of microorganisms that inhabit the human body and help to preserve dental tartar.

Conclusion

Tanya Smith's Tales Teeth Tell is popular among the scientists as well as people who read for the quest of knowledge. Smith explores major themes in her book, including development, evolution, and human behavior. All three themes form the central concept, which Smith tries to inform the readers. The book is insightful and discusses various topics that are woven together into the three main themes. The author provides something which can be considered as the truth. The knowledge contained in the book is of great value because, at the end of every chapter, she provided a small summary of the main points discussed.

Reference

Smith, T. M. (2018). *The Tales teeth tell: development, evolution, behavior*. MIT Press.

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