



Werner Schupp

It is function that defines form

With the advent of modern dentistry, it became increasingly necessary to define principles of order. Bonwill (1833–1899) had already postulated that occlusion should not be viewed statically and called for the dynamic function to be included, speaking of articulation instead of occlusion¹. His invention of the ‘Bonwill articulator’ shows how far ahead of his time he was. As dentistry evolved and principles of order were outlined, the amount of different dental terminology grew, and is indeed still growing. Türkheim’s (1889–1955) intention to develop precise terminology in the sciences and apply it consistently was taken up half a century later by Hromatka, Jung and Kobes and subsequently summarised in the following statement: “A scientific discussion on a limited topic requires a uniform nomenclature”².

There is no doubt that such nomenclature is absolutely needed in science, in teaching and in everyday practice. I unequivocally agree with Türp’s statement when he postulates: “It is an indisputable fact that dental terminology to this day often lacks the precision and unambiguity that is not only a standard but a prerequisite for scientific work in other specialist disciplines”².

In orthodontics, the prominent figure Edward H. Angle (1855–1930) defined the principles of occlusion for adolescent, non-abraded teeth in didactic form³. In doing so, he shaped the doctrine of normal occlusion that is still referred to today. Angle’s rules are applicable and useful for both science and practice. They describe interdigitation, at least in one dimension, and allow colleagues to communicate with ease as they are universally recognised³.

However, the question of whether a class I occlusion and therefore eugnathic dentition should always be the goal for orthodontic treatment remains. Will what science sets as a norm today, and in some cases even stipulates irrevocably, still be valid 10 or indeed 100 years from now?

At this point, let me quote our pioneer in functional theory, the esteemed Prof Dr Rudolf Slavicek: “One of the most important intellectual and conceptual mistakes in dentistry is based on the fictitious objective of dogmatically declaring ‘eugnathia’ as the holy grail of dentistry. This dangerous branding that the young dentistry student is given will shape his future career. Eugnathia may be an image that can be used as a learning aid to help respectfully understand the dysgnathia, which in most cases still work. But life is not interested in form, but in function”⁴.

As dental practitioners and orthodontists, we are challenged to create a functional ‘chewing tool’ for our patients, one with which they are also able to engage in parafunctional activities and that in addition results in a beautiful ‘smile’. We need to define and describe this functional tool and provide a clear name for it and, since we live in a global world, we should also define it on an international level. Our thinking should be 3D: we know a great deal about the sagittal dimension and transverse dimension, but little about the vertical dimension. All three dimensions interact and influence one another, and every component has its own meaning for function, not only in occlusion and articulation. Every component and each of the three dimensions, above all the vertical dimension, has an effect on the entire envir-



onment: on the neuromuscular system of the masticatory muscles, the position and function of the temporomandibular joints, the periodontal ligament and its receptors and, of course, on the tooth itself. But this should not be the end – it is vital that we continue our reflection on the importance of misaligned teeth and their treatment in normal occlusion. It is essential to include the craniomandibular system in the context of the musculoskeletal system, and thus in the entire organism, with its somatic and psychological components.

We should meticulously define all individual, small and important components included and establish a system of nomenclature for them without forgetting that, as stated in the Upanishads, “the parts can only be defined by their relationship to the whole”.

Function and form interact constantly. We should describe function in the context outlined above and define it firstly under the principles of order. From here we can then determine the principles of order for form, including the nomenclature. Here we face a challenging task, and we hope that we can take a position on this topic in future issues of the Journal of Aligner Orthodontics. Pentti Kirveskari will make a start on addressing the topic in this issue⁵.

A handwritten signature in black ink that reads "Wouter Jansen".

References

1. Bonwill WGA. The scientific articulation of the human teeth as founded on geometrical, mathematical and mechanical laws. *Items Interest* 1899;21:617–636.
2. Türp JC. Konfusion mit der Okklusion. *J Craniomand Func* 2020;12: 247–252.
3. Angle EH. Classification of malocclusion. *Dental Cosmos* 1899;41: 248–254.
4. Slavicek R. *Das Kauorgan: Funktion und Dysfunktionen*. Klosternenburg: Gamma, 2000.
5. Kirveskari P. Significance of operative definitions in studies of the risk from occlusion. *J Aligner Orthod* 2020;4:275–282.