

Recollections as told by Alton Moore

William Benham Downs

Al Moore did not just teach orthodontic diagnosis, he taught students how to examine, test, question, and search for answers. He was more a cross between teacher and detective. Al would put out a question for his students to ponder and then act as coach and facilitator as he pushed them along to a logical evaluation and conclusion. Dogma was never Al's goal. Questioning dogma was the goal. The student was required to find the flaw in logic of a theory or research or treatment proposed by orthodontic pioneers and then to describe a more appropriate direction that would better describe or explain or treat. What a great teacher.

Following Broadbent's development of the idea and eventual invention of what became the cephalometer, orthodontics entered a long period of devising various measurements of growing patients. Early measurements were similar to what had been done clinically before the cephalometer. For example, Charlie Tweed trimmed the base of lower plaster casts parallel to the occlusal plane. He then estimated the angulation of the lower incisor relative to the occlusal plane which usually led to extraction of premolars if this angulation was excessively flared labial, or alternatively, non-extraction if tipped lingual. The cephalometer made such treatment decisions more exacting and sophisticated. But beyond simplistic measures, not dozens but many hundreds of angles and linear measures were proposed and led to a wide array of analyses born during that era, a few remained popular while most faded. Some measurements represented an ideal toward which the clinician tried to treat, a 'favorites list' of sorts. Most norms were not based on untreated patient ideals, but this changed when Bill Downs entered the mix.

Alan Brodie established the graduate orthodontic department at the University of Illinois and Bill Downs was among the first fledgling orthodontic class of 1931. A few years after graduation, Dr. Brodie asked Bill to join his developing faculty as a clinical instructor. A decade or so later, Al Moore entered as a student of the program and came under Bill's influence. By then Bill had built a reputation as a teacher and clinical researcher. Above all, Al thought of him as a master clinician and gifted thinker.

Bill Downs wanted to establish cephalometric standards useful for diagnosis and treatment. He began by accumulating records of 100 'normals', that is, children with perfect, untreated occlusions. Bill used many measurements already in vogue and developed some of his own. Charlie Tweed had already influenced orthodontic treatment planning by using profiles of Hollywood screen stars as his norms and treated his patients toward those adult standards of facial beauty. Given that Tweed mind set, Bill eliminated 80 of his 100 normals to concentrate on those with Tweed standards of facial profile beauty, that is, those with straight facial profile. What became the Downs' Analysis was a biased sample of Caucasian children with Tweed favored profile standards.

For each of five skeletal and five dental measures, Downs determined the mean and range for these 10 measures. On graph paper he arranged his 10 means on a straight vertical line along with the plus and minus acceptable extremes. A zigzag line connected the lesser extremes and

another connected the greater extremes so it was easy to compare patient measures to the ideal ranges. Measurements outside of the Downs extremes showed where the treatment challenges and difficulty laid. With this data, a treatment plan followed to address the patient's orthodontic pattern and progress measurements illustrated degree of improvement or areas needing further attention.

The Downs polygon formed a wiggle of sorts, the finished polygon later called the Downs' Wiggle. Al had the students prepare a number of cases using the Downs Analysis and the 'Wiggles' were then assessed. He led the students along until finally one sharp student would eventually point out that the Downs' Wiggle was symmetric for skeletal measures but not for dental measures. Why? With more prods from Al, the students would realize that the Downs Analysis was biased toward the Tweed concept of straight or flat facial profiles and not toward the full range of untreated normal dentition people or younger ages or other racial groups.

Using this example of flawed and biased research, Al would prod the students to find the flaw of other accepted diagnostic strategies. For example, another well respected leader of the time was Cecil Steiner. Cecil advocated his own analysis that relied on several incisor angular and linear measures. These were placed on a diagram that allowed his followers to easily note how the patient deviated from the Steiner ideal norms thus leading to a treatment plan. Mid-treatment measurements were then added to indicate progress toward the goal. These Steiner progress measurements were know as 'chicken feet' and were readily interpreted by Cecil's followers just as Downs advocates could envision facial pattern from a 'Wiggle' polygon. But where did Cecil's ideals come from? Al knew the answer: they were from 4 of Steiner's favorite completion cases - clinically useful but not exactly high level research. Al enjoyed exploring the many analyses in common use revealing that most were based on personal opinion, not research.

PS from Bob Little: Al Moore described Bill Downs as a shy, quiet, and thoughtful teacher, not a showman pushing a philosophy or brand. The Downs Analysis became the standard for decades and was used for American Board exams, Angle Society requirements, and for routine use in private practice and study clubs for perhaps the majority of orthodontists. As a student of Bill and later a faculty colleague, Bill was one of Al's mentors. Al emulated the teaching style of Bill and brought that inquisitive, detective attitude to UW. Al preferred the Downs method of seminar and discussion rather than lectures and we who grew up under Al's care were all the better for it. Al once told me that his teaching strategy was to allow a student to go down a line of reasoning 'as far as he or she would dare' until the student realized that this was the wrong path. It was our job to not ridicule but then push and encourage the student to withdraw from the wrong path of logic and try another path. So I learned to fight the urge to jump in with the right answer. Al waited for the student to finally get there on his or her own whether it be a treatment plan, research proposal, hair brained idea, etc. This was then followed by praise but never ridicule.