Book Reviews

CLINICAL CEPHALOMETRY

Viken Sassouni, Philadelphia, 1959. 248 pages. Illustrated.

THE FACE: IN FIVE DIMENSIONS

Viken Sassouni. Growth Center Publication, Philadelphia, 1960. 317 pages. Illustrated, including acetate transparencies of tracings.

These companion volumes represent a critical review of the literature (a mammoth task) and attempt a sharper focus on clinical appraisal via cephalometric analysis. They overwhelm a reviewer whose orthodontic training and experience have been totally oriented to private practice. With this apologia it may not be amiss to suggest that Dr. Sassouni has indeed covered too much ground. Too much for the average clinician as well as for himself; so great is his scope, sheer lack of space has required a "once-over-lightly" approach.

The two volumes are outgrowths of Sassouni's teaching and research activities at the Philadelphia Center For Research In Child Growth, under the direction of W. M. Krogman, and stem directly from their survey of world cephalometric literature compiled in the "Syllabus in Roentgenographic Cephalometry" published in 1957. Primarily intended for orthodontic teaching purposes it is the author's hope that both the clinician and researcher will be stimulated.

Lest the enormous detail cause the average orthodontist to shy off from an earnest study, he may be encouraged by the following from the last page of concluding remarks in "Clinical Cephalometry":

> "Its (Sassouni's archeal analysis) clinical significance and application for treatment planning depend, however, on the general background of the specialist".

The "raison d'etre" for Dr. Sassouni's contribution is found on page fifty-six of "Clinical Cephalometry". In the "Syllabus" he evaluated forty-five different types of analyses only to find a "vicious circle" confining them. No attempt at a solution for the contradictions was attempted; his hope was that others would be stimulated to seek it. This not having materialized he here attempts "on the basis of evidence from the literature and from personal investigation to give the clinician a temporary working tool".

"Clinical Cephalometry" contains four sections: I, General Background; II, Orthodontic Records; III, Cephalometric Technique; IV, Diagnostic Analysis. There is also an Appendix containing the author's project, undertaken for the Quartermaster Research and Development Command, United States Army, on a method of identification of war dead by means of roentgenographic cephalometry. This report could well have been omitted as not germane.

Parts I and III, general background and cephalometric technique, seem less well organized than parts II and IV. The general background material in Part I is available from other texts.

Part III deals with cephalometric technique — possible errors, selection of landmarks ("the best are easily and accurately located and represent - - - a significant point of a facial structure") and they are defined and illustrated. Here too, Sassouni explains his preference for the "optic plane", for orienting lateral film tracings on the printed page over the traditional Frankfort Horizontal Plane. The discussion of superimposition of tracings of serial

films is not handled comprehensively but a method of orienting the P - A and lateral films is described.

Part II, orthodontic records, is a comprehensive review of the possibilities in this area. Most clinicians will regard as impractical the recommendation that the parents and siblings of each orthodontic patient be not only examined but records taken on all. Nevertheless, and recognizing that much of this section is also available elsewhere, Sassouni's suggestions would more clearly evaluate the problem at hand. All details are organized on a printed form suitable for office use (p.23).

The fourth section of "Clinical Cephalometry", Diagnostic Analysis, describes, classifies and criticizes the various analyses. It is Sassouni's opinion that these analyses have, in general, two errors: 1) the use of only a single base line or plane of reference and 2) adherence to profile assessment. He shows how only one such base line, or plane may be subject to individual variation; then the entire analysis is invalid. For the second most frequent error in the available analyses, assessment of the profile, he seems to be on less solid ground. Most clinical problems are in fact problems of anteroposterior imbalance, but there is no denying that less attention has been given to transverse and vertical proportions and still less to correlation of the three dimensions.

The archeal analysis is presented as a means of overcoming these disadvantages. A single plane of reference is replaced, in the tracing from the lateral film, by four planes converging posteriorly at a point or, more often, at "an area of convergence", the center "O". (The four planes: supraorbital, palatal, occlusal and mandibular). From the center, or area, "O", the archeal analysis constructs four arcs, intersecting the four base planes, to the anterior, middle and posterior facial areas. These arcs provide a frame of reference to evaluate each patient's individual symmetry and proportions without recourse to measurements to be compared with a table of norms. Sassouni considers that "clinically, it shows the *minimum* required to correct deviations according to that facial type, rather than according to averages". It may be remarked that selecting the "area of convergence" of the four base planes would seem to leave much to individual judgment.

Clinical Cephalometry concludes with discussion of correlative analyses (Bjork, Bushra, et al.) which Sassouni considers of greater value than others since they recognize variations of dentofacial structures which may be normal even if undesirable.

Having applied the archeal analysis to "a couple of thousand cases", Sassouni considers it a simple, readily applied method but admits to needed refinement.

It is unfortunate that the material on the archeal analysis is not organized in a single chapter or section in place of being sandwiched in at multiple points.

"The Face: In Five Dimensions" is essentially the application of the theories enunciated in "Clinical Cephalometry" to a group of eighty-six individuals: normal occlusions, Class II, Class III, biprotrusion open-bite and biretrusion closed bite. This is a large order! Yet it is approached by a threefold assessment: 1) measurements in depth, height and breadth compared with averages having a standard deviation of ± one; 2) compared with cephalometric standard tracings; 3) assessment via the archeal analysis.

In Krogman's introductory outline of "The Face", the above is described as the core of the book. This is accurate and still there are nine other sections. The first four — the *Atlas*,

(the skull), the *Analysis* (three-fold assessment outline above), the *Standards* (geometrically derived averages of normal occlusion, as described by Broadbent, in the form of tracings of complementary lateral and P - A films of whites at four, eight, twelve and sixteen years and adulthood depicted on acetate transparencies, plus Negro and Chinese), and the *Racial Comparisons* — are better organized than the five parts following the case histories but suffer from lack of detail and meager information.

These, the last five sections, are titled *Facial Growth* (time, the fourth dimension), *Heredity* (the fifth dimension), *Pathology, Comparative Anatomy* and *Orthodontic Treatment*. These sections seem brief to the point of being ineffective. Part 6, Facial Growth, further elucidates the archeal analysis and contains Sassouni's comparisons with the standards of the Bolton study, of Bjork and of Moorrees.

Over-all, these two volumes bring together an enormous amount of material not otherwise readily available. It is unfortunate they are marred, particularly "The Face", by innumerable typographical errors and by failure to provide fundamental information in place of the author's opinions.

M. R. Newcomb

The Dentition of the Growing Child

Coenraad F. A. Moorrees, 245 pages with 68 figures. Harvard University Press, Cambridge, Massachusetts, 1959.

The material for this book was obtained from the plaster casts of one hundred eighty-four children, most of whom were participants in the Harvard Growth Study and the remaining youngsters from the Stucklen group of Wilmington, Delaware. Each child was observed over a period of twelve to fifteen years covering the transition from the primary to the secondary dentition.

Unlike some investigators, Moorrees does not dismiss lightly the limitations of his data. At the final examination, usually at age eighteen, one-third of the entire group had a normal anatomical occlusion with a full complement of teeth, exclusive of third molars. Twenty-eight children had pronounced malocclusions, while extraction of permanent teeth characterized many individuals. Despite these and other limitations, which he presents, the author believes an analysis of the material is justified for it is a comprehensive series. Furthermore, it would take at least another fifteen years to accumulate data more satisfactory according to present day standards providing that all the risks inherent in such a longitudinal project could be eliminated.

Through the use of individual composite graphs the changes in tooth positions and relations are charted.

A biometric analysis of the data from youngsters with *normal* occlusions comprises a large portion of the book. It is stated that a considerable range of variation exists between the combined mesiodistal crown diameters of the deciduous teeth and of the permanent teeth; despite the fact that, on the average, the permanent exceeds the deciduous, the combined crown diameters of the former can be smaller or larger than their deciduous predecessors, or even the same size.

Measurements from the casts corroborate Baume's conclusion that the average amount of interdental space in the deciduous dentition does not increase after three years of age.

Recognizing that *prediction* of future development is the basic aim of growth studies, Moorrees feels his data show definitely that the pattern of den-

tal growth is to a large extent peculiar for the individual and that it may deviate, sometimes to a marked degree, from that of the group.

Several case reports are given to illustrate the use of factual information, gathered longitudinally, which is helpful in attempting to forecast a probable course of individual dental development. The use of the data in orthodontic prognosis is discussed in general terms as are clinical applications of the research findings.

There is an Appendix of thirty-two tables containing the tabulation of the original data for arch length, arch breadth and available space.

To the reviewer, one fundamental conclusion can be reached from this book: the dentition of the growing child can only be studied by really studying the dentition of the child; no other individual or average can take his place.

Arthur B. Lewis

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