Past experience tells me that some of you will find this course considerably more demanding than it now seems likely to be. Unfortunately, those destined to do the worst are precisely those who are least likely to have read these introductory remarks. For the rest of you, a few additional remarks perhaps are in order.
1. July 12:

A cephalogram is just a collection of radiolucencies and radio-opacities, most of which, including many of the most distinct, are of no significance to a given analysis. Only if you exert great care will you be able to extract useful information from the average cephalogram. Accordingly, right from the outset, it is important that you be thoroughly familiar with the radiographic anatomy of the face so that you can trace the right structures in the right way. Remember: you will never be able to trace properly until you know how each structure is supposed to look! These readings will help you separate the wheat from the chaff:


Xerographic copies do not do justice to the foregoing; a trip to the library would prove useful.

The various dental specialties\(^1\) did not begin when you came to Ann Arbor a few days/weeks ago. Indeed, you have a century or so of catching up to do. These few readings are intended to give you an appreciation for the questions that led to the development of the cephalometric technique and for the remarkable technical refinement of the original method:


\(^1\)Dentistry is a profession; orthodontics, pediatric dentistry, and oral surgery, however, are specialties. Keep the distinction in mind.
2. July 16 & 19:

For over 50 years, cephalometric “analyses” have been seen as an important part of orthodontic “diagnosis.” At the same time, because most of today’s mature clinicians graduated during an era when treatment was assumed to affect only the teeth, it is probable that most treatment is now conducted without input from the cephalometric technique. At present, however, orthodontists entertain seriously the concept of “growing” mandibles, retarding maxillae, and the like. I would argue that, before you decide to grow a mandible with some sort of proprietary functional appliance, it might be wise to gather evidence that the mandible in question needs to be grown. Accordingly, it is appropriate from the outset that you seek to discover for yourself what the technique has to offer the clinician. Some of the classic descriptive papers constitute a good place to start your quest:


Please note that the laboratory session of July 19 will use the Downs analysis as an introduction to measurement and interpretation; please be sure to pay particular attention to the details of this classic paper.


Servoss, J.M.: Derivation of acceptable arrangements in the Steiner analysis. Angle Orthod. 41:146-149, 1971. [Steiner and Servoss constitute an introduction to the concept of dentoalveolar compensation (vide infra)]


²The postwar publication schedule of the Angle Orthodontist was such that this paper actually appeared after that of Downs.
3. July 23:

When you write down a number on an analysis sheet, it has a certain air of authority: “Jimmy’s IMPA is 97 degrees.” Unfortunately, it is probable that Jimmy’s IMPA isn’t 97 degrees—it’s probably 95 or 100 or 103. You can never know; your only protection against fatal error is your day-to-day skill level. In casual hands, the cephalometric technique features more than enough random error to distort the decisions it subserves—an effect that you need to respect before you start making decisions that affect living human beings. Only with skill and care can worthwhile data be inferred from a cephalogram. If you work hard and become uncommonly adept at the art and the science, then perhaps you will be able to use the technique to the advantage of your patients. Cave! (Exercise care.)


4. July 24:

“What’s a cephalogram good for, anyway?” —description of shape:

5. July 26:

"What's a cephalogram good for, anyway?"—assessment of change. Note that the Björk (and Skieller) paper, along with many others from a lifetime of work with metallic implants, in effect supplies the biological basis for cephalometric superimposition. Please read the following in the order:


 Permit me to simplify things a bit: Look at the figures and attend carefully both to the discussion of "matrix" and "intramatrix" rotation and to the Appendix, pp. 40-44.


Be sure you understand the concepts underlying regional superimposition prior to the laboratory session. Specifically:

What is the difference between transformation and translation? See "matrix" and "intramatrix" rotation (above).

What is the role of "fiducial lines"? How do they simplify the analysis of change?

To measure change (say, the displacement of the maxilla relative to cranial base), you need a single point in each structure from which to execute the measurements. How does regional superimposition assist you in constructing this one point? What do you do if one or both structures rotate as they "grow"? "Best fit"—use a number of structures

What if one or both structures undergo massive surface change ("transformation")? How would you demonstrate this transformation?