The Foundations of the Cleft Palate Center and Training Program at the University of Illinois

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In casting about for a topic proper for this afternoon's program, it occurred to me that these reunion meetings are an occasion for review and reflection upon progress made during preceding years. It is well that we do this, for to appreciate how far we have come toward the solution of a given problem, we must first recall where we stood in relation to the same problem at some previous point in time. In keeping with this spirit and in search of the perspective that comes through the passage of time, I elected to present a history of the Cleft Palate Center. It is a history in which the Department of Orthodontia played a major role.

There are also other reasons that make this an appropriate moment for commenting on the work of seven years. We have arrived at a point in our investigations where certain concepts and principles ought to be formulated and held aloft lest they be immersed and lost in the steady stream of contributions from many points of view.

Writing a history implies a great deal more than reporting on the passage of events in their chronologic order, for these events may be but superficial symptoms of larger things beneath the surface. The analytic historian seeks to delineate those factors, be they social, economic, political, scientific or religious, which seemed to motivate and shape the course of human enterprise. In the same sense, I believe that the ultimate value of the Cleft Palate Program will be determined by more than the chronology of numerous research papers. In the long run, we shall be judged by the ability of our team approach to meet present needs in professional education, to serve as an instrument for inter-disciplinary research, and as an agency for providing service for patients whose problems have not been adequately resolved within the departmentalized structure of the hospital or dental school. Our history will be concerned not only with things, such as casts and cephalometric tracings, but also with evolution of ideas.

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ADVENT OF CEPHALOMETRIC ROENTGENOLOGY

When the Cleft Palate Program was launched at the University of Illinois in 1949, it was not so much the planting of new seeds as it was the harvest of a crop previously prepared by many individuals working in different fields. In many ways, it all began back in the 1930's. First, there was B. Holly Broadbent and the introduction of cephalometric roentgenology—that capital invention of the orthodontic research industry. What followed at the Bolton study under Dr. Broadbent's leadership and at Illinois is too well known to this audience to warrant review. The important thing, so far as our history is

concerned, was the development of a scientific tool to measure the growth of structures within the living head and the accumulation of data describing the normal.

At Illinois, Brodie and others extended this interest to include abnormal patterns of facial growth and from these studies formulated certain concepts as to the nature of various deviations from the normal. As you can see, long before anyone thought of a Cleft Palate Center, there existed minds prepared to accept the research challenge that the cleft palate problem offered.

Cephalometric Roentgenology in Speech Research

While orthodontists were preoccupied with measuring tooth eruptions and the growth of facial bones from cephalometric x-rays, experimental speech physiologists were employing precisely the same tools in the analysis of organ positions and their spatial relations within the vocal tract during sound production. Out of their own necessity to measure structures previously hidden from their view, speech physiologists were quick to seize the opportunity offered by the x-ray. Only two years after Roentgen's discovery, Scheier[1] presented a paper entitled: "The Application of X-ray in the Physiology of the Voice and Speech." In 1934, only three years following the publication of Broadbent's method, the Department of Speech at the University of Iowa published two papers in which the principles of cephalometric roentgenology were applied to the study of tongue position in vowel production in normal, nasal, and denasal individuals.[2, 3] Other reports[4, 5, 6, 7] followed on velopharyngeal closure in which quantitative measures of oral and pharyngeal soft tissue structures were compared among subjects with different voice qualities.

Looking back from our present vantage, it seems that orthodontists and speech physiologists engaged in cephalometric research pursued their special interests in ignorance of each other's progress and the inter-relatedness of their separate research efforts. It was only as orthodontists and speech physiologists came to work together on problems of cleft palate that their common interest in cephalometric research was discovered. The establishment of the Cleft Palate Center provided the symbiotic environment in which team research could become a reality. It was this intellectual atmosphere that provided the motivation for Ricketts[8] to analyze the variables affecting the dimensions of the nasopharynx and the stimulus for Subtelny to investigate the width of the nasopharynx[9] and the growth of the adenoid.[10]

The Anlage of Cleft Palate Teams

It was also in the early 1930's that a young psychologist and speech pathologist returned to America from postgraduate study in Vienna. Herbert Koepp-Baker, later to become Director of our Cleft Palate Program, had studied at Stern's Logopedic Clinic where he was exposed to a systematic presentation of the speech problem in adults with cleft palate. In this country, Dr. Koepp-Baker assumed directorship of the Speech Clinic at Pennsylvania State College. State College was far removed from large urban centers but it was close to Osceola Mills, where a dentist, Cloyd S. Harkins, was making his reputation as a successful designer of speech appliances for cleft palate. Harkins needed the assistance of a speech clinic and Koepp-Baker was destined to learn from Harkins.

The two men pooled their talents and, working together, they fabricated about twenty speech appliances. This collaborative effort was to provide the anlage for the formation of multi-pro-

fessional teams for the treatment of cleft palate.

In January, 1943, Dr. Linwood Grace, Chief of the Dental Division of the Department of Health in the state of Pennsylvania, announced in the State Dental Journal that his department would sponsor a course in the construction of speech appliances for children with cleft palates to be held at the Speech Clinic of the Pennsylvania State College. Twenty-five Pennsylvania dentists and oral surgeons attended a three day clinic conducted by Drs. Harkins and Koepp-Baker. This particular course was designed to acquaint dentists and oral surgeons with the medical, dental, speech, and psycho-social problems of the cleft palate patient. This course was the first of its kind held in the United States.[11]

In reflecting upon this experience, Dr. Koepp-Baker[12] said that the cases that gravitated to State College in those days were all surgical failures and the students saw only the cases that had gone sour. There was no opportunity to see the defect as it occurred in infants and to see the problem in all of its dimensions.

During one of the discussions which followed the lectures given by Harkins and Koepp-Baker, one of the students suggested that a permanent organization be established. At a meeting in Harrisburg, Pennsylvania, on April 4, 1943, the American Academy of Cleft Palate Prosthesis was formed. Six years later, a reorganization was undertaken to broaden the membership base and the name of the organization was changed to "The American Association for Cleft Palate Rehabilitation." This marked a change of emphasis from the purely prosthetic approach to include a broader interest in the person who had a cleft.[11]

No discussion of what emerged from Pennsylvania would be complete without mention of Herbert Cooper and his one-man campaign to arouse public and professional interest in the problems of these handicapped children.

The Social Security Act

Ambitious ideas for experimental projects, however worthy and urgent they may be, wither on the vine for lack of financial support. Without such support from the federal government, the cleft palate project could not have been launched or continued. History takes us back once more to the 1930's and the era of New Deal legislation. On August 14, 1935, the Social Security Act was enacted. Title V, Part 2 of this law provides the authority enabling the Children's Bureau to support projects such as the Cleft Palate Program. In general, the mandate is "For the purpose of enabling each State to extend and improve . . . services for crippled children. . . ."

According to Dr. John T. Fulton, Dental Services Advisor to the Children's Bureau, the bureau had followed the development of the American Academy of Cleft Palate Prosthesis with great interest and had sent representatives to several of the early meetings. The bureau's concern for a training center devoted to the cleft palate problem dates back to an advisory conference on orthodontics held by the bureau in Washington in 1947 and attended by Drs. B. H. Broadbent, Herbert Cooper, Earl Jones, George Moore, J. A. Salzmann, and L. B. Higley. Cleft palate was not on the agenda but Dr. Cooper introduced the subject quite early in the conference. As a result, the conference gave considerable time to the cleft palate problem, including the need for training in the team approach.

The Children's Bureau recognized that the proper care of the cleft palate child demanded the integrated services of many disciplines. Also, the bureau

emphasized that group attention to the malformation was required from the time of its discovery. Since such teams were not generally available in the United States, the need existed for training centers where various professional skills could be coordinated into one approach. Therefore, in February 1948, the Program Planning Section of the Division of Health Services of the Social Security Administration prepared *"Suggested Principles for a Training Program in Care of Children with Cleft Palate."*

Some general selection guides were formulated to assist in choosing a proper locale for such a training center. A university setting was held essential, one that provided basic education in the various professional disciplines to be represented on the cleft palate faculty. It had to be strong in the field of graduate education, vigorous in its research, and cooperative between various schools and departments. Illinois seemed to fit these requirements better than other universities. In addition, the Division of Services for Crippled Children in the state of Illinois (regarded by the bureau as one of the best) was an agency of the University. The presence of Dr. Koepp-Baker on the faculty of the University was regarded by the bureau as particularly fortuitous, for he, more than anyone else, understood the importance of the project in all of its dimensions and had the ability to guide its development. Accordingly, in May of 1948, Dr. John T. Fulton approached Dr. Herbert R. Kobes, Director of the Division of Services for Crippled Children, concerning the possibility of accepting a special training grant from the federal government.

The Division of Services for Crippled Children

Dr. Kobes' interest in the problem of the child with a cleft palate originated late in the 1930's while serving in the Crippled Children's Program in the state of Maine. There he came to recognize the difficulties in integrating services and information regarding facial malformations.* The possibilities inherent in getting various professional people together to work toward a single purpose stimulated him to go into the problem a good deal more when he assumed his post in Illinois. Out of this interest came a meeting at the Illini Union Building in Chicago on April 17, 1946.

As Director of the Division of Services for Crippled Children in the state of Illinois, Dr. Kobes brought together leading specialists in medicine, dentistry, and special education from Chicago and St. Louis to discuss the care of children with cleft lip and palate. The transactions of that meeting,[14] though full of polemic, are nevertheless a revealing record of the attitudes and knowledge prevailing at that time.

Dr. Wayne B. Slaughter discussed the problem from the point of view of the surgeon and reflected upon his experiences in the well organized Wisconsin State Program. In their clinic set-up, the responsibility for the child was carried largely by the pediatric department. Surgery was viewed as but part of the total chain in the care which was given the children. In discussing the possible percentage of the total

* Prior to 1940, he and his colleagues of the Division of Services for Crippled Children in Maine provided, on an extremely informal basis, clinical integration through Dr. James Mabie, a maxillofacial surgeon, and Dr. Albert MacDougal, an orthodontist, who jointly occupied an office in Bangor, Maine. The speech clinic at the University of Maine in the nearby town of Orono gave speech services during the summer months to a small number of children.

This pattern was later repeated in southern Illinois, where Dr. Cecil R. Conroy, an orthodontist, provided valuable service to the state in his office in Belleville, Illinois.

treatment which was handled by the surgeon, Dr. Slaughter felt that about thirty percent of the responsibility rested with the surgeon.

A contrasting point of view was offered by Dr. Frank McDowell. In his office, the surgeon carried the entire responsibility and utilized appropriate consultants when the need for speech therapy, orthodontic, or otologic care arose. He felt that some of the problems which developed in the latter phase of the treatment were the result of surgical failures and, therefore, the surgeon stood ready to take this responsibility.

Dr. Harold Noyes presented the point of view of the orthodontist. He felt that the orthodontist's problem had never been sufficiently related to the other phases of care and, from his point of view, the orthodontic problem began not when the child was brought in with all of his permanent teeth, but at a much earlier stage in the total treatment.

One orthodontist dissented in regard to the time when orthodontic treatment should begin. He saw no real benefit to early treatment and felt that treatment could be postponed until the eruption of the permanent teeth. Another participant in the conference representing speech pathology stated that from the speech point of view, the orthodontic problem was of minor importance because of the ability of the human mouth to compensate.

Toward the end of the meeting, Dr. Allan G. Brodie presented a proposal for a long-term research study. He reported that studies heretofore had shown that normal growth occurred in children with congenital deformities in exactly the same way as it did in the normal child and that the deformity got no better or worse with age. Since normal standards for growth studies were already established, he urged a related investigation of the growth of the child with a facial cleft.

The meeting closed with the suggestion that a committee be established at the University of Illinois to plan a statewide program. The University was now on record as seeking improved services for children with cleft palate deformities and accepted a research project as an integral part of the overall program. This was more than two years before the federal government approached the University with the offer of a grant.

Converging Events

Lancelot Whyte,[15] a British physicist and philosopher of science, in writing about the phenomenon of simultaneous discovery quoted Goethe as saying that "the most beautiful discoveries are made not so much by men, as by the period. . . . They mature in the course of time, just as fruits fall from the tree at the same time in different gardens." What has been prepared will be developed.

Simultaneous research and discovery tend to occur wherever there is an actively developing climate of interest with a sufficient number of specialists capable of thinking in advance of their fellows. Under such circumstances, advances will be made often by more than one person and in different places.

It is now apparent that circumstances which were scientific, social, economic, and political converged upon the University of Illinois as the logical site for a Cleft Palate Training Program. Its human and physical resources were unequalled elsewhere for this venture. Dr. Koepp-Baker was already on the premises as Head of the Speech and Hearing Clinic at the Eye and Ear Infirmary and held a professorship in the Department of Otolaryngology. Dr. Kobes was Director of the Division of Services for Crippled Children, the organization in charge of case finding and coordination of field work throughout the state. Dr.

Henry G. Poncher, as Chairman of the Department of Pediatrics, was sympathetic to the broad approach in terms of the whole child and thus served to condition the attitudes of the program. Dean Brodie understood the need for longitudinal research and so urged this as an indispensable part of the entire project. But best of all, the professional campus in Chicago was favored by a physical adjacency and intellectual companionability that characterized the relationship between the medical and dental schools.

The organization of a cleft palate team at Illinois in 1949 was nothing new. The Cleft Palate Institute at Northwestern University was already in operation and earning a valued reputation. At the University of Wisconsin, Dr. Wayne Slaughter, Gretchen Phair, and others had already chalked up a remarkable achievement by their team approach. In Pennsylvania, several centers were in operation.

What then was so unique about this program? Whereas other programs were essentially service-oriented with occasionally a single individual conducting an isolated research project, our specific mandate was to develop a training program designed to provide interested specialists in the health services with additional training in their particular field; to promote knowledge of, and consideration for all dimensions of the cleft palate person's need, and to foster research supportive to the overall program of education.

In further contrast, this program represented more than the vested interests of a single department or school. The manner in which the resources of the professional colleges were committed to the project is reflected in the original table of organization (Chart I).

The Research Project

So far, you have had a bird's eye view of the Cleft Palate Center. Now, let me share with you the worm's eye

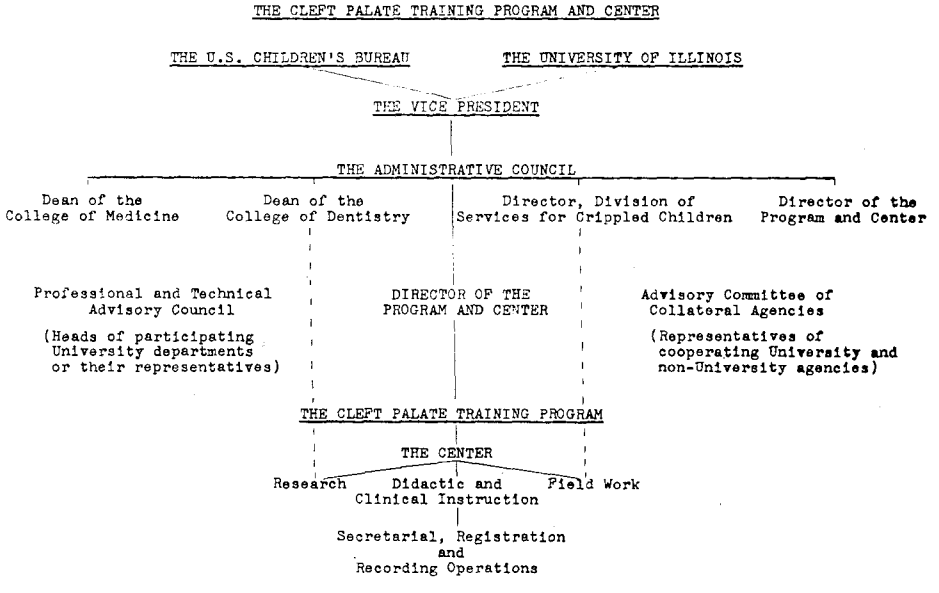

Chart 1

view. Early in 1949, I was assigned the task of developing the longitudinal growth study for the Cleft Palate Program. One morning I followed Drs. Slaughter and Brodie into the operating room at the old Loyola University Hospital on Wolcott Street, and was shown a week old infant with a wide unilateral cleft of the lip and palate. Before I could recover from the psychic effect of what I saw, the voices of authority turned upon me and commanded that henceforth, I should take impressions and headplates of all such infants. Too frightened to run away, I stayed on.

Since the technics involved in this study were not part of the prescribed curriculum in graduate orthodontics from which I had recently emerged, they had to be developed. Previous attempts to obtain cephalometric films of infants were largely unsuccessful in that babies could not be accurately positioned within the head-holding device and maintained without movement for the duration of the exposure. Fortunately, Dr. Poncher of the Department of Pediatrics, had investigated the effects of Seconal sedation[16] and advised me of the usefulness of this technic. With the guidance and supervision of Dr. Edward F. Lis of the Department of Pediatrics, more than 1500 sedations have been performed for the purpose of cephalometric study without untoward effects.

A special cephalometer was built to our specifications designed to obtain oriented cephalometric films. As a result, the usefulness of cephalometric roentgenology was extended to include the measurements of an age group that so far had not been fully explored.

Our impression technics have been refined so that single alginate imprints that include the nose, lips, palate, and nasopharynx have become daily routine.[17]

Prior Growth Studies

In 1949, when we began our studies, the articles by Graber[18, 19, 20] and the paper by Slaughter and Brodie[21] had already served to condition the minds of many concerning the effects of palatal surgery on the growth of the face. Whatever shortcoming one may find in this prior research, one thing must be kept uppermost in mind. The conclusions derived from these investigations served as a kind of shock therapy and placed surgeons on guard. Whether these investigations were properly conducted or the pronouncements entirely justified is, I believe, a minor objection in view of the end result of an attitude of caution and respect for growing organs. I would point out that although the orthodontists were particularly articulate in their objections, their views were shared by many surgeons who were equally dissatisfied with the long-term results of certain surgical practices.

We have come a long way since 1949 and for this reason, prior studies warrant re-assessment. The extremist reaction against palatal surgery stemmed mainly from the research by Graber. He had reported on a cross-sectional cephalometric study of two groups of patients with cleft palate. The larger group consisted of patients who had been subjected to one or more surgical procedures on the palate. A smaller series of cases was made up of patients who had never been subjected to palatal surgery. Graber then compared his data with the known standards for the non-cleft population. His findings demonstrated that the operated group showed greater deviations from the normal than the unoperated group. He also found a positive correlation between the number of operations and the degree of insult.

One of his conclusions read: "To minimize interference with growth

centers, it seems advisable to postpone surgical correction of cleft palate at least until the end of the fourth year of life when five-sixths of total maxillary width has been accomplished."[19] In view of the added increments in downward and forward growth yet to be attained, Graber implied a pessimistic attitude about surgery even at that age.

As a result, there developed a movement to delay surgery on the palate until school age. Proponents of this school of thought assumed that all operations upon the palate posed a definite impediment to the growth processes of the maxilla. Prosthodontists, conditioned to surgical failures, seized upon Graber's research as objective evidence for their convictions that palatal surgery was to be avoided in most instances. And some surgeons began to report on procedures for which they guaranteed no interference with growth sites.

In part, Graber's conclusions were justified for there was no question that poorly conceived, badly executed, ill-timed and excessive surgery was to blame for the poor results in many instances. But, it should be noted that the cases Graber selected for illustrations represented a loaded sample in which multiple and mutilating surgical procedures had been performed. Progressive plastic surgeons deny that Graber's sample of operated clefts reflects present day experience and argue further that palatal surgery does not jeopardize the full expression of the potential for growth. However, the number of surgeons who reflect the newer conservatism in the manipulation of palatal tissues remains in the minority. The kinds of cases that Graber reported on are still being produced in too many places.

Another shortcoming in these prior studies stemmed from the failure to differentiate more accurately between the various kinds of clefts. Our own investigations have clearly demonstrated that cleft palate and cleft lip are to be regarded as generic terms encompassing a multitude of variations. Because each kind of cleft seems to have its own pattern of growth, any attempt to group all clefts as one tends to mask important individual differences.

One other important deficiency appeared in this prior research and reflected the limited viewpoint of the orthodontist working in isolation. The emphasis had been on growth of skeletal tissue. Results of therapy in cleft palate were labeled good or bad largely on whether facial growth measured up to our standard for the norm. The most important objective of cleft palate habilitation, that of intelligible and pleasant speech, was largely neglected. Patients were assessed in the negative terms of non-interference with growth of skeletal tissue rather than by the positive goals of attainment of normal speech.

Improved communication between the several disciplines involved in cleft palate research has made for the greater utilization of the cephalometric film. The neglected areas of soft tissue and the pharyngeal spaces which appear on these films are now being explored by teams of orthodontists and speech physiologists. There is no doubt but that the results of these investigations will find interest and clinical application outside the field of cleft palate and will apply to the general problems of orthodontics.

Current Research

Since 1949, we have been engaged in a longitudinal growth study beginning with the unoperated infant. Our sample represents the surgical experience of 15 different surgeons whose methods and attitudes toward palatal surgery repre-

sent as many different points of view. The primary purpose of these investigations has been to examine the mechanisms by which success or failure in therapy is achieved. The present status of our research allows for the following general conclusions:

1. Plaster reproductions of the palate are indispensable in the interpretation and study of the cephalometric films. To illustrate, two unoperated bilateral clefts of the lips and palate were chosen for comparison (Fig. 1). The difference between the two is that one is a complete bilateral cleft lip and the other is incomplete. To some, this may seem as a trivial difference for both must be repaired in similar manner. Yet, to the student of facial growth, this difference observed at birth is a difference that makes a difference in terms of facial profile. In the completely cleft case the premaxilla protrudes far ahead

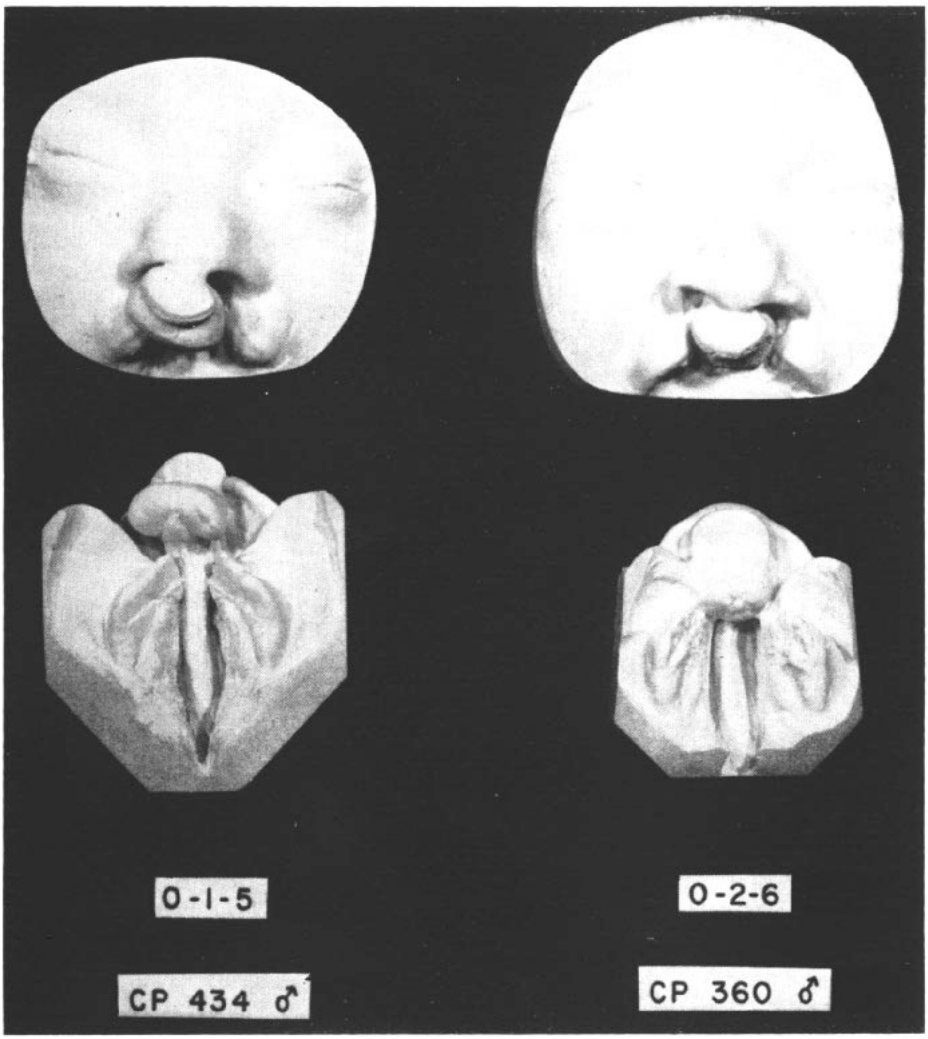

Fig. 1 Casts of two unoperated bilateral clefts of the lip and palate.

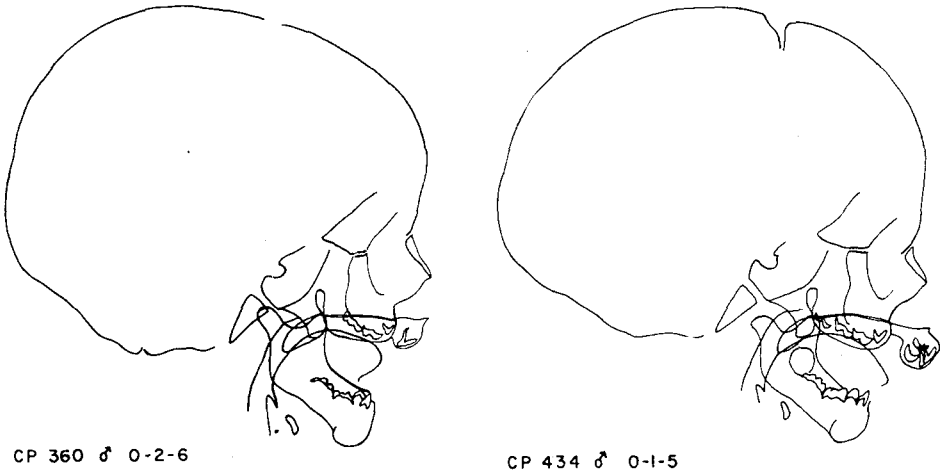

Fig. 2 Tracings of lateral cephalometric x-rays of patients in Fig. 1.

of the maxillae; whereas in the incomplete cleft case the premaxilla is contained within the maxillary arch. The lateral cephalometric tracings reflect the differences observed in the casts (Fig. 2).

Although these two cases qualify as members of the category of bilateral cleft lip and palate, they can hardly be grouped as one. Cephalometric analyses of the facial profile which disregard these differences recorded in the casts of newborns can only lead to confusion and misinterpretation.

2. The structural and functional differences which exist even between patients with the same kinds of clefts are significant, for these differences are often the important determinants of success or failure of therapeutic efforts.
3. Documentation and analysis of the variables encountered offer a means for improving clinical prognostications. Once adequate criteria are established, prescription of treatment becomes highly individualized and in accord with the assets and deficits presented by each patient.
4. There is no single age at which palatal surgery is ideally performed. If proper circumstances allowing for conservative manipulation of tissues exist at an early age, then surgery will succeed at an early age.

   A small percentage of cases can be operated upon before one year of age to produce functionally adequate results and without retardation of growth processes. In other instances, proper circumstances do not exist until a later age and in some, palatal surgery can never produce adequate palato-pharyngeal function. Where palatal surgery must be delayed, the child may be fitted with a prosthetic speech appliance in order not to penalize the development of speech. Where palatal surgery is impossible, the prosthetic speech aid offers a valuable alternative.
5. The deformity can get better, remain the same, or become worse with age. These variable differences in behavior can occur independently of any treatment and are a reflection of individual growth patterns. For example, as we have reported in some detail elsewhere,[22, 23] infants with

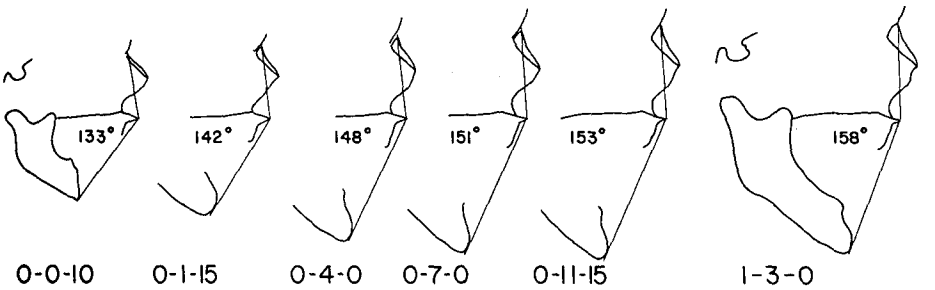

Fig. 3 Serial changes in the facial profile from ten days to fifteen months of age.

mandibular micrognathia demonstrated remarkable improvement in facial profile (Fig. 3). Similarly, some children with extreme protrusion of the premaxilla following repair of the lip demonstrated spontaneous and natural improvement (Fig. 4) while other children with similar deformities operated upon by the same surgeon, utilizing the same technic, did not show the same improvement. The difference seems to reside in the integrated growth of the various parts of the face, a variable in each patient and one beyond the influence of the surgeon's skill. Thus, individual biologic variation is just as much the determinant of success and failure in surgery for cleft palate as it is in orthodontics. The increasing success of the surgeon, as of the orthodontists, depends on the ability to recognize these variations and plan treatment in accord with the individual's assets and liabilities.

Future Research

The quest for criteria by which clinicians may be guided in prescribing treatment for the individual patient has dominated our research interest. We are proceeding toward our goals not as individuals working in isolation but as participants in a project whose research design is influenced by the various disciplines involved. The following outline

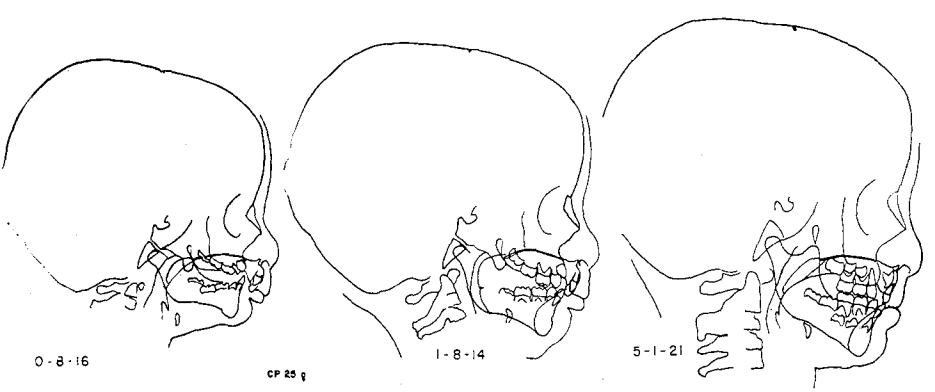

Fig. 4 Serial tracings of lateral cephalometric x-rays following repair of a bilateral cleft lip. Note the gradual improvement in the facial profile without any form of intervention by the surgeon or orthodontist.

indicates, in brief, the criteria which are being evaluated as part of our overall program:[24]

I. General Factors
   A. Health of the patient
      1. Physical
      2. Mental
      3. Social
      4. Emotional
   B. The Family
      1. Attitudes
      2. Environment
   C. Availability of professional resources in the community
II. Local Factors
   A. Width of the cleft
   B. Adequacy of tissue adjacent to the cleft
   C. Length of the soft palate in relation to the nasopharynx
   D. Configuration of the nasopharynx
   E. Functional activity of the palatopharyngeal muscles
   F. Changes in the above as a result of
      1. Growth
      2. Treatment

A Pilot Experiment

Since the Cleft Palate Center was an experiment, what of its future within the University? The College of Medicine and the Research and Educational Hospitals have recognized the significance of the Center's accomplishment in recruiting a staff from several departments of the medical and dental schools and instilling in these individuals a broad interdisciplinary interest and an ability to work productively within a team enterprise. The Administration of the Hospital has also recognized the usefulness of this team in areas other than cleft palate and has utilized the resources of the Cleft Palate Center in evaluating and planning for a variety of cranio-facial-oral defects.[25, 26]

Encouraged by the success of this program, plans are under way to incorporate the Cleft Palate Center within the larger framework of a newly organized center for handicapped children—a center which in function will transcend the boundaries of departmentalization and fragmentation in the care of a child whose basic need is for comprehensive total child care. Improved service, integrative teaching, and research are basic goals in this design.[27] Thus, the experiment has succeeded and not only has the Cleft Palate Center been incorporated into the organization of the Research and Educational Hospitals, but its success has served as a model for the extension of the multidisciplinary approach.

Our experience must be viewed as part of a larger movement from scientific and departmentalized medicine toward a commitment to a new philosophy of so-called comprehensive medicine. This transition in medical education can be characterized as a change in emphasis from "the disease the patient has" to "the patient who has a disease". It is an attitude that compels attention not only to the handicap that the child may have, but toward a realization of what the handicap does to the child, his family, and the community in which they reside.

Dentistry's Stake

What of dentistry's opportunities in this movement toward comprehensive medicine?

The Washington Newsletter of the Journal of the American Dental Association of August, 1955, reported that the Senate Appropriations Committee in acting favorably upon the Budget Bureau request for dental research funds, added the following comment:

"As non-scientists, the Committee raises the question of whether even broader exploration into more general

metabolic factors may not be indicated. The Committee would appreciate a serious inquiry into the broader opportunities of dental research for submission to the Committee at its hearings next year."

I know of no greater opportunity for leadership by dental educators and for exploration by dental scientists than in the problems of the handicapped child. The conquest of many infectious diseases, the newer knowledge of nutrition, the broad ramifications of stress physiology, the rise of psychosomatic medicine, and the emphasis on preventive care have all served to change the profile of pediatric practice and to focus increasing attention upon the congenitally handicapped and the chronically ill child. Dental science has much to offer and should contribute actively toward the solution of these problems.

There is another reason why congenital anomalies of the head compel our attention. McQuarrie[28] in his lectures on the "Experiments of Nature" points out that the experiments which nature makes upon our fellow creatures are often unique in that they cannot be duplicated in the laboratory or reproduced at will in the clinic. Such experiments of nature, properly considered, permit acquisition of new and useful knowledge applicable far beyond the patients and the anomalies studied. Advances may be anticipated from the study of these experiments that concern organ, tissue, or cellular function, physiologic inter-relationships and the nature of pathologic processes.

So it is with cleft lip and palate. Nature's experiment has provided us with a picture window open to some of its hidden and unrevealed processes. Our opportunity is akin to that of Beaumont whose studies of digestive processes were made possible by an accidently produced gastric fistula in his patient, Alexis St. Martin.

For all of these reasons, the study of congenital anomalies is intriguing and worthwhile.

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