

BOOK REVIEWS

BLANK, MARION; ROSE, SUSAN A.; and BERLIN, LAURA J., *The Language of Learning: The Preschool Years*. New York: Grune and Stratton, 208 pages, 1978, \$16.00.

In a general sense, this book focuses on the discourse abilities of pre-school children during interactions with teachers in instructional settings. The authors correctly identify the paucity of information concerning the language of instruction and raise the question of whether or not preschoolers possess the necessary linguistic sophistication to permit competent verbal interactions with teachers. Accordingly, the book was written with two fundamental goals: (1) To develop a model defining the language of effective instruction, (2) To develop a theoretically well-motivated test for pre-school children that will assess their skills in verbal exchange.

The book is organized in the format of a research report. In the first chapter, the problem and experimental questions are identified. A review of pertinent literature and a model of classroom language are provided in the second chapter. The model is based principally upon the work of James Moffett and consists of four levels of discourse, hierarchically arranged as a function of the "distance" between a child's immediate perceptions and the cognitive-linguistic demands placed upon him. The third chapter is devoted to a description of the test of discourse skills. A discussion of the experimental sample comprises Chapter Four, and a review of the performance of this sample of children is available in the fifth chapter. The final chapter offers suggestions for improving both the child's discourse skills and the teacher's verbal interaction with those children who are found to be deficient in language functioning with the test in question.

In this reviewer's judgment, the book has three major strengths. First, the authors have done a commendable job of codifying some rather difficult and elusive concepts into a unified model. Further, they have used this model as a basis for practical assessment and intervention strategies, which is often an onerous task. Second, the book is a very well-written and scholarly document with many fine illustrative examples of key points developed in the text. There are a number of excellent tables and graphs that illustrate clearly the characteristics of the experimental sample and the results of testing. Third, the book is very well documented with references integrated from several disciplines to enrich the discussion.

However, there are also some weaknesses of the book that warrant mention. Generally, these relate to the design of the test, sampling strategy, and scoring of responses. First, the tasks within each of the four levels of discourse, though theoretically homogeneous, are rather heterogeneous in other respects. For example, within the simplest level of discourse assessment (termed "Matching Perception"), the child is required to perform such activities as matching objects to colored drawings, naming objects, and imitating simple sentences. Granted, these demands involve responses or reports to salient perceptual information that currently captures or has just captured the child's attention. However, the factor of short-term memory is uncontrolled. Obviously, the demands on memory are much greater for imitating a sentence than for matching an object to a picture. Similarly, experience, vocabulary, and fund of knowledge remain uncontrolled within each level of testing and could impair the validity of the scores obtained.

A second weakness of the test concerns the sampling strategy used to select experimental subjects. An important question raised by the authors concerns the potential differences in performance that might be observed between children of middle and lower socioeconomic classes on the test of discourse skills. In selecting subjects, the authors permitted the two socioeconomic groups to have quite disparate ethnic backgrounds. The middle-class group was 86% white while the lower class was only 5% white and 77% black. The authors admitted that it was unfortunate to have class and race confounded. In this reviewer's opinion, to confound these two variables is particularly hazardous when studying language because of the well documented linguistic variations between Standard American and Black English. Clearly, differences observed between classes on the test may not have been a function of class at all but rather race and ethnic background. In addition to race, IQ, educational level of the parents, and nature of the family units varied considerably between classes. *A posteriori*, the authors attempted to unconfound the factor of IQ and discovered that most of the variance between socioeconomic classes (though not all) could be accounted for by the differences in IQ.

A final problem relates to the scoring strategy for the test. The authors developed an ordinal level scoring procedure wherein a value of three represents a "fully adequate" response, two an "acceptable" response, one an "ambiguous" response; and zero an "inadequate" response. Arbitrarily, mas-

tery of items within a given level on the test was established as a *mean* score of 1.5. Some statisticians would argue that the use of an arithmetic mean for such ordinal level data is inappropriate and that a more defensible measure of central tendency would be the *median*. In view of the rather critical assumption that a mean value of 1.5 indicates *mastery*, this issue is not trivial.

Despite the potential weaknesses outlined in this review, speech/language pathologists and educators of pre-school children should avail themselves of this book. The assessment procedure undoubtedly has value in identifying some deficiencies in discourse skills. Further, the book cannot help but enlighten professional workers who had previously paid only scant attention to their own levels of discourse while interacting with preschool youngsters. As the authors have properly indicated, this book represents a pioneering effort, and they have but "scratched the surface." In that sense, weaknesses in design are much more tolerable and the provocative nature of the contents makes this book worthwhile reading.

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FLETCHER, SAMUEL, Ph.D., *Diagnosing Speech Disorders From Cleft Palate*, New York: Grune and Stratton, 1978, 222 pp., \$21.00.

Speech disorders characteristic of individuals with velopharyngeal incompetence secondary to congenital cleft palate are approached from several perspectives in *Diagnosing Speech Disorders From Cleft Palate*. A series of research studies are presented in which Dr. Fletcher has examined "jaw position" (ie: vertical and horizontal incisor aperture), polysyllabic diadochokinesis, velopharyngeal valving, tongue position (ie: lingua-pharyngeal aperture, tongue retraction, and tongue fronting), velar retraction difference, degree of original anomaly, speech intelligibility, articulation skills, and TONAR "nasalance" scores in patients both with and without oral clefting. Dr. Fletcher relates his findings to those of other investigations. Finally, the TONAR instrumentation is described from its conception and validation to proposed applications as a biofeedback technique.

From a critical standpoint, one is inclined to react to this text on two levels, first, in terms of its organization and scholarly merit and, second, in terms of a presentation of the author's theoretical orientation. On the first level, this reviewer felt that the book lacked fluency, sometimes reading as a research study and other times as a basic text. Much of the data presented by the author confirmed the results of prior investigations. On an editorial note, the typographical errors throughout

the book were surprisingly high. However, we see this as the responsibility of the publisher, not the author.

This book shines when considering it on the second level, as a presentation of the author's theoretical stance. *Diagnosing Speech Disorders From Cleft Palate* presents the most complete statement available on TONAR, the instrumentation designed by Dr. Fletcher. The indepth descriptions of the validity and reliability studies on TONAR were a highlight of the book.

Reading through these descriptions of TONAR brought to mind methodological questions regarding the described validation procedures. One questions the rationale for the sole use of naive subjects during validation when the author states that "as they became more experienced listeners, the variability of their judgements decreased." In addition, it is felt that it would have been more valid to assess TONAR in terms of its correlation with actual physiological evidence of velopharyngeal incompetence, rather than in regard to its correlation with the original degree of clefting. The latter information may be difficult to determine retrospectively (post-surgically) and may assume more or less significance depending upon the adequacy of the velopharyngeal valving mechanism secondary to the surgical repair. It is also felt that the discussion of TONAR as a biofeedback device would have had greater clinical relevance had it been considered from this perspective.

In conclusion, this book is not, as the title suggests, a diagnostic primer. In light of its rather specific orientation toward the use of TONAR, it is felt that *Diagnosing Speech Disorders From Cleft Palate* will not be fully appreciated if used by the beginning student as a diagnostic textbook. However, this book will be of interest to the more sophisticated student or clinician who wishes to become better acquainted with the development and potential applications of the TONAR instrumentation.

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PATTERSON, THOMAS J.S., *The Patterson Index - 1864 A.D. to 1920 A.D.*, (The McDowell Series of Plastic Surgery Indexes, Volume II), Baltimore: The Williams and Wilkins Company, 609 pp., 1978, \$75.00.

This is the second volume of five which, together, are nearly a total index of the plastic surgical literature of the world from 900 B.C. through 1976. It is the last of the five volumes to be published. No other specialty has anything like it. The complete McDowell Series includes: Volume I, Zeiss Index, 900 B.C. to 1863 A.D.; Volume II, Patterson Index, 1864 A.D. to 1920 A.D.; Volume III, Leuz Index, 1921 A.D. to 1946 A.D.; Volume IV, The

25 Year Index of Plastic and Reconstructive Surgery, 1946 A.D. to 1971 A.D.; Volume V, The Honolulu Index, 1971 A.D. to 1976 A.D. Remarks in this review pertain to these five volumes, as much as to Volume II.

The indexes follow the format of Index Medicus. All articles relating to the broadest concept of plastic surgery are listed under the first author and at least one subject index. There is a List of Subject Headings which is comprehensive and of inestimable help to one seeking possible headings to look under. The format and type style are easy to work with. In short order, with the five volumes, one could read the titles of everything that has been written about the subject they are interested in. Volume II will be particularly interesting to some because it deals with an active period of surgery, the period when much of what we do today had its immediate beginning. Volume II alone contains 32 solid pages of referenced titles under the Subject Headings of cleft lip and cleft palate!

These five volumes should be readily available to all with any depth of interest in the treatment of cleft lip, cleft palate and craniofacial disorders.

W. K. LINDSAY

PERKINS, WILLIAM H., *Human Perspectives in Speech and Language Disorders*. St. Louis, MO: The C. V. Mosby Co., 373 pages, 1978, \$10.95.

Individual people with communication disorders, first-hand accounts, and attractive and informative illustrations with documented case studies are presented in an easy to read volume for the beginning student. The author reviews fourteen speech, voice, and language disorders by means of fourteen representative case studies. He intersperses fundamental technical information in as much depth as possible. Technical vocabulary is italicized and explained in parentheses throughout. Theoretical models are interwoven into the rationale for each diagnosis and therapy case. Each case study cites sufficient detail of the family background, birth history, and observable symptoms for the student reader to become familiar with very realistic pertinent variables.

The chapters are sequenced with one case study for each of the following:

1. Cluttering
2. Mild disorders of language: learning disability, minimal brain damage, mental retardation
3. Severe disorders of language: autism, aphasia, mental retardation
4. Nonstandard language: Black English
5. Aphasia in adults
6. Developmental disorders of articulation
7. Dysarthria in adults
8. Cerebral palsy
9. Cleft palate

10. Vocal abuse
11. Laryngectomy
12. Spastic dysphonia
13. Development of stuttering
14. Chronic stuttering

A professional rationale for language and learning disabilities is covered in Chapter II.

Theoretical aspects of neuro-physiological disorders are covered in chapters VII and VIII. Technical vocabulary of various etiologies and symptoms of vocal and resonance disorders are in Chapters X and XI.

Client quotes of fears, reactions, and personal experiences related to surgery and/or therapy provide interesting testimony.

The text may be used in an introductory speech pathology course. However, a good deal of information and vocabulary is presented. It could also be used as an alternate text in a beginning speech pathology diagnostic course. The author demonstrated his strong commitment to meeting student needs in supplying study guide questions and a bibliography at the end of each chapter and also an accompanying test manual of multiple choice and essay test questions. The text could be informative for other professionals. However, they will have to persevere through the theoretical filling to arrive at the final outcome of each case.

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RIEKE, J. A.; LYNCH, L. L.; and SOLTMAN, S. F., *Teaching Strategies for Language Development*. New York: Grune and Stratton, 1977, 110 pp., \$10.50.

This spiral-bound paperback book presents strategies and procedures designed to aid in the development of language skills in young children. It utilizes an analysis-learning approach to the assessment and treatment of language disorders in children. The strategies and procedures presented are based on experiences gained by the authors in working with young children. It presents their philosophy about assessing and treating the language-disordered child, a discussion of the communication environment of young children, and the sequences of development through which children go in learning to communicate and use language functionally. There is more detailed discussion and description of the strategies or treatment plans which have been devised for each group of behaviors involved in the communication process. They have broken these behaviors down into receptive and expressive sequences. They discuss awareness, discrimination and understanding in the receptive sequence, and vocal/verbal responses, initiating responses, verbal output, articulation, and imita-

tive responses in the expressive. Assessment of communication skills and therapeutic procedures are based on the *Sequenced Inventory of Communication Development* (Hedrick, et al., 1975). Finally, they include several specific case studies with strategies designed for each case. A glossary is provided, and there are tables to clarify the text. The book is designed for speech and language clinicians and classroom teachers of language impaired children.

Both the book and the language development programs are clearly and concisely written. The emphasis on language as a developmental process with certain necessary prerequisite before more advanced behavior can be taught is appealing. Student clinicians should be exposed to such philosophies as are expressed in this book, it is for this reason that the book could appropriately be used as a supplemental text for courses in language disorders in children. At least a portion of the book could serve as a model upon which to base a parent-oriented language development program for pre-school children. Finally the remedial procedures described should be useful to a broad spectrum of clinicians, particularly those in public schools where Individualized Educational Programs are now so necessary.

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Reference

HENDRICK, D. L.; PRATHER, E. M.; and TOBIN, A. R., *Sequenced Inventory of Communication Development*. Seattle and London: University of Washington Press, 1975.

SHEWAN, CYNTHIA, M., *Speech and Language Disorders: Selected Readings*. New York: Harper and Row, 416 pp., 1978, \$7.95.

The author states in her Preface that this book presents a collection of papers intended to select for the beginning student appropriate readings in speech and language pathology meant to broaden the base provided by lectures and a course text.

The introductory chapter is written to the student, justifies the format for the text, and informs him of what is yet to come by way of organization and content.

Each subsequent chapter is organized so as to include sections on overview, characteristics, experimentation, evaluation, and therapy pertinent to one disorder.

Chapter content, therefore, takes on a rather unique appearance since each section is the result of a different authorship. For an editor to follow this organization, one soon learns, requires a delicate balance if the principle of subject continuity is not to be violated. The uniformity of philosophy required by the beginning student in a profession merely compounds this potential hazard. Explan-

atory lectures can be used to offset the eclectic discussion of a pathology. One cannot be so certain, however, that a reader not in a course for which this is a text will fare quite so well.

The papers selected for inclusion are well-regarded and generally familiar to most professionals. Few of the papers, however, are necessarily held to be quite so sacrosanct as their inclusion in a supplementary text might suggest to the uninitiated. In addition, certain selections appear relatively specific for an introductory survey text. In the chapter regarding articulation, for example, the single therapy paper used is a report on the effectiveness of mothers in treating the disorder. Furthermore, treatment for phonation-resonance disorders is with regard to chewing therapy, a not so popular approach for this type of problem.

Yet another observation may be made about Shewan's collection. This relates to the classification system itself which is used to label disorders. Two chapters are of interest in this respect. The first is Chapter Three, which is entitled "Phonation-Resonance Disorders." The second is Chapter Four, which pertains to "Prosodic Disorders." In Chapter Three, overviews of functional and organic voice disorders are presented together with characteristics (only) of functional voice disorders. A quantum leap is then made to assessment and treatment of the velopharyngeal mechanism. The reader would, perhaps, be more attuned to the information implied in the chapter's title if the author had followed the organization of some other recent authors who have treated resonance disorders apart from disorders of phonation.

A corollary comment may be made to the classification of stuttering as a disorder of prosody. Since rhythm is but one prosodic feature and since prosody is more a vocal function, parameters of prosody might better have been contained in the Phonation-Resonance Disorders chapter and Chapter Four simply entitled "Rhythm Disorders." Indeed, since there is little in the literature which treats prosody as a subject, the inclusion of such a paper should have proven valuable in a book written for the purpose of enhancing a text used in a basic professional course.

The two final chapters address themselves to language disorders among children and adults. Recent information concerning the language abilities of learning disabled adolescents is included in the discussion of children's language disorders. The author has performed a rare service to students of speech-language pathology by focusing their attention, through this particular paper, on an often overlooked population and a most necessary body of information.

Examination of the materials included in the discussion of children's language disorders reveals them to be somewhat more cohesive than the materials in other chapters. The same may be said for

the selections pertaining to adult aphasia. The reader must ask certain questions at this point, however, regarding omissions of materials related to childhood language disorders. A paper on the psychological aspects of autism is certainly germane and discussing the cognitive aspects of this disorder provides needed insight for the reader concerned with the autistic child. In order to balance the presentation, however, would not a paper concerned with recent biochemical information on the causes of autism be appropriate? In addition, once the reader is introduced to a single disorder which causes disruption in the normal development of a language system, should papers not then follow which discuss hearing loss, organic brain dysfunction, and mental retardation?

In support of the author, the reader is to appreciate the attempt to demonstrate that certain manifestations of pathology occur across etiologic classifications. Since a book made available to the general public rather than just to members in a specific academic course is read without knowledge of the materials in lectures or in the primary course text, however, an author risks being sketchy and

creating the impression of haphazard organization. Such is the case here. Indeed, there is an inference that, rather than the author believing that the selected readings are appropriate to almost any introductory course, she, instead, has published papers heretofore assigned to her own students so that her students will no longer have to go to the 36 journals for the 36 papers contained in this book. If this is even partially true, then one is best advised to collate the desired papers, attend to the various legalities, and provide the collection to the members of the appropriate course.

Perhaps the best organizational plan for a book of this sort, then, is first to state what material is covered in lectures and to integrate the selected readings at appropriate points along the way as supplements. This book of readings, however, does not appear to stand alone as an addition to a professional library.

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ABSTRACTS

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ABE, M., and OHASHI, Y., Studies of treatment for cleft lip and/or palate, II. Enlarged thymus gland and its change with age, *J Japan. Cleft Palate Assn*, 2, 13-20, 1977.

The thymus gland was studied in 42 cleft lip and cleft palate cases. By radiographic examination thymus enlargement was observed in 76.2% of the cases prior to the cheiloplasty between two to five months of age. In 23 cases who had both closure of the cleft lip and cleft palate, the thymic enlargement was seen in 82.6% before the cheiloplasty but was significantly decreased to 34.8% (P<0.05) before palatoplasty between 11 and 21 months of age. The ratio of the x-ray images of the thymus gland to the thorax measured at the 2nd and the 4th intercostal spaces was 60% or more in the enlarged thymus cases but was less than 50% in non-enlarged cases. About half of the enlarged thymus cases received ACTH injection (5u/day $\times$ 7 days) before the operation and were operated upon safely. (Machida)

ALEXANDER, R. W., Improvement of facial symmetry after operative relief of bony ankylosis of the jaw at the age of 10 years, *Plas. Reconstr. Surg.*, 62, 896-901, 1978.

A patient with distinct facial imbalance secondary to mandibular growth disturbance, which in turn, was secondary to post-traumatic temporomandibular joint ankylosis, was treated by an extensive osteotomy and silicone sheet capping of the mandibular end. Three years post-operatively the previous facial asymmetry had spontaneously corrected itself, and the ankylosis remained corrected. The relevance of this single observation of the timing of repairs in congenital syndromes of mandibular asymmetry remains to be demonstrated. (Cosman)

ALHOPURO, S., Premature fusion of facial sutures with free periosteal grafts: An experimental study with special reference to bone formation with free periosteal grafts from the tibia, the scapula and the calvarium, *Scand. J. Plast. Reconstr. Surg.*, Supplementum 17, 1-68, 1978.

Fusion of the premaxillo-maxillary and fronto-nasal sutures was achieved with free periosteal grafts from the tibia. Free periosteal grafts from the scapula and the calvarium failed to develop such premature fusion despite other experiments which demonstrated no particular difference between free periosteal grafts of diverse sites in so far as bone formation in other locations was concerned. Fusion of the premaxillo-maxillary suture stopped growth in the area and caused a severe growth disturbance of the entire snout. Fusion of the fronto-nasal suture led to deviation of the snout to the operated side. Compensatory changes developed in other sites of the craniofacial skeleton in these animals. Resection of the fused area in the fronto-nasal suture led to subsequent normal growth of the snout. The techniques employed in this study lend themselves to the development of reliable models for craniosynostosis and the surgical methods for its relief. (Cosman)

ANNE, L., and BEKHOR, I., Induction of cleft palates: Effects of triamcinolone acetonide on transcription in isolated nuclei, *Teratology*, 18, 343-352, 1978.

To test the hypothesis that a possible mechanism of action of glucocorticoids in the induction of cleft palate is via inhibition of synthesis of the RNA responsible for normal palate development, a study was designed to measure the concentration of various RNA polymerases in mouse tissues after treatment with triamcinolone acetonide (TAC). Pregnant female A/J mice were treated with 13 mg/kg TAC, a dose which resulted in 90% cleft palate in the offspring. Maternal livers and embryonic maxillary processes from experimental and control animals were excised, the tissues homogenized, and the

nuclei separated. Nuclei were incubated with a specific transcription mixture and assayed for RNA polymerase activity. DNA, protein, and RNA concentrations were also determined. It was observed that TAC induced an increase in RNA synthesis in maternal liver beginning 12 hours after treatment and reaching a peak at 20 hours after treatment. Control embryonic maxillary processes showed an increase in RNA synthesis, but this increase was inhibited with TAC treatment. In the liver, a stimulation in RNA polymerase A accounted for part of the normal increase, but it was demonstrated that the effect of TAC on transcription in the maxillary processes was not due to changes in the concentration of polymerases A and B. The authors concluded that TAC in embryonic maxillary processes may interfere in the process of normal genetic expression. TAC can have a positive or negative effect on the chromatin template, depending on the target tissue. The mechanism of action may be through the binding of TAC-receptor protein complexes to specific acceptor sites, including chromosomal proteins. TAC-included cleft palate may be the result of blockage in the normal differentiation of the maxillary processes. (Overman)

BERKMAN, M.D., Early non-surgical closure of postoperative palatal fistulae, *Plast. Reconstr. Surg.*, 62, 537-541, 1978.

In eleven patients, recently postoperative, with palato-nasal fistulae consequent to breakdown at the closure line, the author employed a vinyl palatal appliance to cover completely the labial buccal palatal surfaces of the teeth, the hard palate, and the portion of the soft palate with the fistula. Retention of the prosthesis was good, and ten of the eleven patients obtained complete closure of their oronasal fistulae in a period of two to three months, after insertion of the appliance. The one patient who did not obtain closure had had extensive palatal necrosis and oronasal fistula formation following combined pharyngeal flap surgery and palatoplasty. Prostheses were fabricated and inserted between 10 days to two weeks after the surgery. The results appear to support the hypothesis that recent postoperative oronasal fistulae can heal by granulation, epithelization, and fibrosis if the airflow and irritants passing through are minimized by appropriate occlusion. (Cosman)

BIDDLE, F. G., Use of dose-response relationships to discriminate between the mechanisms of cleft-palate induction by different teratogens: An argument for discussion, *Teratology*, 18, 247-252, 1978.

The author uses the example of cleft palate induced in two strains of mice by cortisone and by 6-aminonicotinamide (6-AN) to develop an argument for the use of dose-response studies to discriminate between mechanisms of action for different teratogens. It is suggested that evidence for differences in mechanisms of action can be gained in terms of the response to varying doses of teratogens without reliance on other consequences of the teratogen treatment. The method described can be used to enhance studies involving genetic variation, structure and function, and safety evaluation. Using probit analysis of the dose-response data obtained in studies of A/J and SWV strain mice after treatment with 6-AN and with cortisone, the author concludes that the mechanisms by

which the two agents cause cleft palate are different. (Overman)

BIRNBACH, S., Physiologic recording of the soft palate for fabrication of obturator speech prostheses, *J. Prosthet. Dent.*, 39, 539-545, 1978.

This a comprehensive report and technical description of fabrication of prosthetic palatal devices. Where the soft palate has a normal anatomical and clinical appearance but lacks function and mobility, a prosthesis called the palatal lift bar is constructed to elevate the soft palate. This reduces nasal resonance in speech. A technique is described for fashioning the appliance for the incompetent soft palate. (Goldenberg)

BOO-CHAI, K., Blepharophimosis with associated cup-lop ears, *Ann. Plast. Surg.*, 1, 54-57, 1978.

The author reports the combination of the rarely occurring triad of epicanthus inversus, blepharoptosis, and increased intercanthal distance with cup-lop ears in nine cases. These include a father and his four children. (Meijer)

BUSTAMANTE, S. A., and STUMPF, L. C., Fetal hydantoin syndrome in triplets, *Amer. J. Dis. of Child.* 132, 978-979, 1978.

Birth defects associated with phenytoin and phenobarbital ingestion during pregnancy include craniofacial and limb deformities such as large fontanels, craniosynostosis, ocular hypertelorism, depressed nasal bridge, cleft lip and palate, nail and distal phalangeal hypoplasia, and finger-like thumb. These anomalies were found in varying degrees in triplets born to a mother taking these two drugs for an epileptic disorder. This situation offered a unique opportunity to recognize differing manifestations of the hydantoin syndrome in infants that presumably were exposed to the same level of the drugs. These infants were trizygotic. Their clinical manifestations varied widely, suggesting the possibility that genetic background may play a significant role in the susceptibility of the fetus to phenytoin and phenobarbital during pregnancy. (Glaser)

CHONG, J. K., and CRAMER, L. M., Proboscis lateralis: Stages of management with a four year follow-up, *Ann. Plast. Surg.*, 1, 225-228, 1978.

An eight month-old boy is presented with a congenital tubular nostril or proboscis lateralis. The three-stage reconstruction is described with a four-year follow up showing no significant retardation of growth of the reconstructed nose. (Meijer)

CLARREN, S. K., SMITH, D. W., and HANSON, J. W., Helmet treatment for plagiocephaly and congenital muscular torticollis, *J. Pediat.*, 94, 43-46, 1979.

Plagiocephaly usually originates in late fetal life through aberrant constraint of the fetal head and is often associated with sternocleidomastoid torticollis. In some patients the oblique head shape may become a permanent, cosmetic disability. Individually fitted plastic helmets, similar in style to football helmets, have been successfully used to remold the deformed heads of four

infants. Each helmet is designed to fit snugly against the prominent aspects of the infants cranium and to be loose fitting where the head is shallow. As the brain grows, the head is molded to fit the helmet and thus acquires a more usual shape. The treatment has been safe and effective. When torticollis is persistent after the initiation of treatment, rubber straps can be fixed to the outside of the helmet and attached to the side rails of the crib. While the infant sleeps, the straps can be tightened to stretch the shortened sternocleidomastoid muscle. (Glaser)

CRONIN, T. D., and UPTON, J., Lengthening of the short columella associated with bilateral cleft lip. An overview, *Ann. Plast. Surg.*, 1, 75-95, 1978.

Operations for lengthening of the columella are reviewed and classified based on the source of tissue used: from the lip, from the nasal structures, from the ear. The extensive review includes a detailed description of the Cronin technique. The average age for columellar lengthening was six years. A brief note is made of ancillary procedures such as Le Fort I osteotomy and the use of autogenous or foreign implant materials. (Meijer)

D'OTTAVIANO, N., BAROUDI, R., and KEPPKE, E. M., Dental rotation in cleft lip. *Ann. Plast. Surg.*, 1, 407-410, 1978.

The authors describe a surgical procedure for rotation of an incisor adjacent to the cleft in unilateral clefts. This procedure developed out of necessity for the treatment of the rotated incisor in untreated cleft lips and palates in the adult. The procedure consists of creating a "surgical alveolus" adjacent to the abnormally situated tooth which can then be swung and rotated into the new alveolus. This procedure was performed on six patients with good results and no complications in the last five. (Meijer)

EISBACH, K. J., and BARDACH, J., Effect of lip closure on facial growth in the surgically induced cleft rabbit, *Otolaryngology*, 86, 786-803, 1978.

Sixty-two rabbits were divided into four groups: control, control without repair, Millard-type repair, and Bardach-type repair, to determine whether cleft lip repair is influential in facial growth. Clefts were created surgically in the lips of six-week-old rabbits, and the pressure exerted upon the maxillary alveolus was measured periodically until the time they were sacrificed 20 weeks postoperatively. There was definite increase in lip pressure upon the maxillary alveolus in the lip repair group, the pressure increase being highest soon after surgery with a rapid return toward the control level. Complete return to the control level did not occur. There was inhibition in anterior maxillary growth in the control group without repair and even greater inhibition in the two lip repair groups, but there were no significant differences in maxillary width or mandibular length. Correlations indicated that, as the pressure of the lip repair increased, there was decrease in anterior maxillary growth. The authors felt that their data indicated that cleft lip surgery must be considered as having a definite influence upon anterior maxillary growth inhibition and that further studies are indicated to ascertain the effect of cleft palate repair upon facial growth. (Gregg)

ELLIS, R. E., FLACK, F. C., CURLE, H. J., and SELLEY, W. G., A system for the assessment of nasal airflow during speech, *Brit. J. Dis. Commun.*, 13, 31-40, 1976.

The authors describe the use of anemometry in the study of nasal airflow during speech. The method enables clinicians to assess airflow without referring a patient to a central evaluation center. Patients produce various speech items while nasal airflow is monitored via a thermistor inserted into an anesthetic face mask. Airflow and speech are recorded on separate channels of an audio cassette recorder, and the data are forwarded to a laboratory for analysis. Tracings, prepared in the laboratory, furnish a permanent visual record of airflow and sound in temporal synchrony. The device has proven useful in diagnosis and has been introduced experimentally as a feedback aid in treating unwanted nasal airflow. (Ruscello)

ENGDAHL, E., RITSILA, V., and UDDSTROMER, L., Growth potential of cranial suture bone autografts, I. An experimental macroscopic investigation in young rabbits, *Scand. J. Plast. Reconstr. Surg.*, 12, 119-123, 1978.

On 25 rabbit sucklings, a coronal suture bone graft was transplanted into a unilateral premaxillo-maxillary bone and suture defect. The graft was well incorporated into the recipient site, and its structure was remodeled. However, its suture still remained visible. Photographic measurement of snout deviation revealed that longitudinal growth of the grafted suture followed the general growth of the facial skeleton indicating an up to 3-fold increase of growth in comparison with the original cranial growth site for this graft. The validity of using such a graft in craniofacial reconstruction is advanced. (Cosman)

ENGDAHL, E., RITSILA, V., and UDDSTROMER, L., Growth potential of cranial suture bone autograft, II. An experimental microscopic investigation in young rabbits, *Scand. J. Plast. Reconstr. Surg.*, 12, 125-129, 1978.

In 21 rabbit sucklings, a coronal suture bone graft covered by periosteum and dura was transplanted into an experimental unilateral premaxillo-maxillary bone and suture defect and microscopic analysis carried out using triple fluorochrome vital labeling over a period extending from the 3rd to the 36th postoperative day. The grafts were readily incorporated, and in the 2nd postoperative week, longitudinal sutural growth was fully restored when compared to the unoperated control side. Indeed, the growth far exceeded that of the original coronal suture. (Cosman)

ESCOBAR, V., and WEAVER, D. D., Aarskog syndrome, new findings and genetic analysis, *J. Amer. Med. Assn.*, 240, 2638-2641, 1978.

A 28-year-old male who demonstrated findings compatible with facio-digital-genital syndrome but also had severe macrocytic anemia refractory to iron therapy, hepatomegaly of unknown etiology, hemochromatosis and portal cirrhosis, and interstitial lung disease of unknown cause is discussed. No previous reference to the latter findings was found in the literature. The authors concur that the genetic transmission of this syndrome is an X-linked recessive trait and that, in counseling, the

affected person should be informed that the risk of affected offspring is minimal. (Gregg)

FIELD, H. W., JR., METZNER, L., GAROL, J. D., and KOKICH, V. G., The craniofacial skeleton in anencephalic human fetuses. I. Cranial floor, *Teratology*, 17, 57-66, 1978.

A study is described in which craniofacial skeletal development was compared in normal and anencephalic human fetuses. A number of techniques were used in order to analyze the morphologic result of the developmental anomaly in 12 defective fetuses. Several skeletal changes were found and described, the most fundamental being an increased flexure of the cranial floor in the ossified body of the sphenoid and the resulting adaptation of the adjacent structures. The authors concluded that the cranial floor angulation represents the early rudimentary shape existing in normal embryonic and early fetal life prior to the adaptive morphologic alterations produced by the functional matrix of the developing nervous system. (Overman)

FURNAS, D. W., Bayonet osteotome for use in areas difficult of access, *Plast. Reconstr. Surg.*, 62, 626-627, 1978.

An angled bayonet osteotome is described for improved access to the cribiform plate area and pterygomaxillary region in cranial-facial surgery. (Cosman)

GAROL, J. D., FIELDS, H. W., JR., METZNER, L., and KOKICK, V. G., The craniofacial skeleton in anencephalic human fetuses. II. Calvarium, *Teratology*, 17, 67-74, 1978.

The neurocranium of normal and anencephalic human fetuses was analyzed with regard to alterations in the form and relationships of the bony components, comparing specimens showing different degrees of severity of malformation. It was noted that the size, shape, and orientation of the calvarial bones were more severely altered relative to normal as the size of the defect increased. There was dramatic relocation of the interparietal portion of the occipital bone in the most severe form of the defect. The authors concluded that the abnormal development of the brain has a direct effect on the membranous envelope of the neurocranium, the structures of the chondrocranium, and adjacent vertebrae. The degree of maldevelopment was observed to be proportional to the extent of the dorsal cranial defect in anencephaly. (Overman)

GOTO, T., MONTOMURA, T., MIMURA, T., and MIYAZAKI, T., The strength of velopharyngeal closure, *J. Japan. Cleft Palate Assn.*, 22, 21-26, 1977.

This study was undertaken to determine the "strength" of velopharyngeal closure during phonation, blowing, and swallowing. Ten normals and 9 cleft palate cases were studied. The latter were divided into two groups according to fiberoptic findings: group A with complete velopharyngeal closure during blowing and group B with incomplete closure. Strength was measured by a balloon catheter which was inserted transnasally into the nasopharynx and was connected to a transducer. In normals, in hard blowing, the mean strength of closure was 140.6g; in swallowing, 125.1g; in pressure conso-

nants, 77.3g, and in vowels, 56.9g. Cleft palate cases in general showed relative weak velopharyngeal closure; but in group A, the strengths in the functions examined were relatively the same as normals. The authors concluded that the results suggested that velopharyngeal function was different in various actions, even when the velopharynx closed completely, and that cleft palate cases were inferior to normals in velopharyngeal strength even when the velopharynx was closed completely. (Machida)

HARA, M., SAKUDA, M., OZEKI, S., and KITAMURA, T., Two cases of mandibulofacial dysostosis, *J. Osaka Univ. Dent. Sch.*, 22, 288-300, 1977.

Two boys with mandibulofacial dysostosis, one 12 and the other 4½ years old, are reported and their facial growth described. Both cases showed micrognathic mandible and an antegonial notch. Although the older patient received orthodontic treatment, little mandibular growth was recognized during the pubertal growth period. The main findings observed in these and the other 19 cases previously reported in Japan are reviewed. (Machida)

ILIADES, C. E., An atypical case of Treacher Collins syndrome, *Ear, Nose and Throat J.*, 57, 28-34, 1978.

The author presented a case of atypical Treacher Collins syndrome (absence of the classic outward-downward-slanted eyes) in whom there were normal external auditory canals, microtia and micrognathia, stapes footplates of which one was miniature with all of its components suspended from the lenticular process and the other normal in size but with otosclerotic fixation. She was treated by amplification with a hearing aid and augmentation for her micrognathia. (Gregg)

IMAI, J., MATSUYA, T., MIMURA, T., NISHIO, J., IBUKI, K., GOTO, T., MOTOMURA, T., HAMAMURA, Y., and MIYAZAKI, T., A new velopharyngeal fixation technique, *J. Japan. Cleft Palate Assn.*, 2, 40-45, 1977.

A new operation to provide a wide, muscle-containing pharyngeal flap was devised by the authors, who call it a velopharyngeal fixation technique. First, a flap containing tissue over the fascia colli profunda is shifted up from the posterior pharyngeal wall, and the wound is sutured side to side. The mucosa of the posterior end of the uvula is sutured to the mucosa along the raw surface at the base of the flap, and the lateral sides of the flap are sutured to the nasal mucosa of the divided soft palate. The levator palatini muscle is sutured to the lateral pharyngeal muscle at the flap base making a small muscle bundle on each side of the flap. Further, the soft palate muscles on both sides and the muscles in the flap are sutured together. Finally, the palatal mucosa is sutured along the midline. The authors have applied this method to 20 cleft palate cases and the results are described by fiberoptic, aerodynamic, and EMG studies. (Machida)

JACKSON, I. T. and REID, C. D., Nasal reconstruction and lengthening with local flaps, *Brit. J. Plast. Surg.*, 31, 343-348, 1978.

Three cases are described using superiorly based nasolabial flaps turned inward to provide the lining of the reconstructed nose and an island flap of forehead skin for the external cover. Skeletal support is supplied by carti-

lage grafts. The technique's use is suggested mainly in cases where there is tissue deficiency in the central part of the nose and in which lengthening of the nose is required. (Reid)

JANI, R. M., SCHAAF, N. G., An evaluation of facial prostheses, *J. Prosthet. Dent.*, 39, 546-550, 1978.

A survey of a large sample of a hospital population requiring restorative prostheses was made at Roswell Park Memorial Institute. While great strides have been made, results of the recall of patients reveal the need for better color in the materials, better retention of the appliances with adhesives, treatment for pain reaction to the prostheses, and the advisability of psychological counselling. Everyone, man, woman, and child, wants to have a pleasant looking face. The authors are candid in their recommendations regarding the necessity to discover more effective adhesives and better lasting color additives. (Goldenberg)

JONSSON, G., and STENSTROM, S., Maxillary growth after palatal surgery, An experimental study in dogs, *Scand. J. Plast. Reconstr. Surg.*, 12, 131-137, 1978.

Surgical defects in the hard palate of six- to eight-week-old beagle puppies were created by excising the oral mucoperiosteum and bone on either side of a preserved 4 mm. wide strip of midline bone. On one side, the nasal mucoperiosteum was covered with an autogenous full thickness skin graft. On the other side, the raw surface was left open for secondary epithelialization. Animals were killed at 47 to 52 weeks of age and measurements made on the dried skulls. Total maxillary length on the two sides was compared, and there was no evidence of alteration. However, the posterior half of the maxilla was longer in eight animals on the skin-grafted side, whereas the anterior half of the maxilla was longer in seven dogs on the raw surface side. The palatine suture was displaced toward the raw surface side in all dogs. The height of the nose in all dogs was slightly greater on the full thickness grafted side. There was a small but consistent tendency for overall growth to be more pronounced on the side with the skin graft. The authors interpret the findings as being consistent with the hypothesis that reducing the amount of scar tissue by covering raw surfaces with autogenous skin grafts is one way to reduce maxillary growth impairment after palatal surgery. (Cosman)

KAMIISHI, H., OHWADAM, T., and SHIOYA, N., Computerized tomography applied for orbital hypertelorism: A case report, *Brit. J. Plast. Surg.*, 31, 334-336, 1978.

The authors describe the use of computerized tomography in one case and suggest that it is the best technique available because of the simplicity and clarity with which it displays soft tissues and bone both pre-operatively and post-operatively. They recommend its increased use. (Reid)

KAMIYAMA, K., and SHINZATO, M., The survey of dental caries incidence in children with cleft lip and palate, *J. Japan. Cleft Palate Assn.*, 2, 30-36, 1977.

Caries incidence in deciduous teeth of 171 cleft lip and palate patients from one to six years of age was surveyed

in the Tohoku University Dental Hospital. The results were as follows: Until four years of age, the numbers of carious teeth increased markedly, and decay of the teeth extended from one surface to other surfaces. After four years, the numbers of carious teeth plateaued, but decay extended slightly into other healthy surfaces. The incidence of carious teeth increased rapidly in the upper anterior deciduous teeth until the age of two years, while it increased slightly and was lineal with age in the upper and lower posterior teeth. (Machida)

KAPLAN, I. and LABANDTER, H., Long-term follow-up of clefts of the secondary palate repaired by Von Langenbeck's method, *Brit. J. Plast. Surg.*, 31, 353-354, 1978.

Thirty-three cases treated between 1966 and 1972 were investigated. Their ages at the time of examination ranged from four to 14 years. The authors conclude that the technique is simple and safe for the treatment of cleft palates with intact lip and alveolus, causes no facial growth deformity, and gives a reasonable rate of velopharyngeal competence. (Reid)

KEITEL, M. E., Nutritional aspects in the care of the child with cleft lip and palate, *Henry Ford Hosp. Med. J.*, 26, 53-57, 1978.

This is a didactic article stressing the importance of proper nutrition in the care of infants who have clefting in the lip or palate. Pertinent bibliographical references are included. (Gregg)

KELLY, J. R., SORENSON, H. W. and TURNER, E. G., Prosthetic treatment for Pierre Robin syndrome, *J. Prosthet. Dent.*, 39, 554-560, 1978.

A basic prosthetic palatal feeding aid can be fabricated for a child with a cleft of the hard palate complicated by the Pierre Robin condition. The usual careful impression and pouring of the model is done. After processing, two parallel grooves are cut on the right and left sides, and .045 stainless steel tubes are imbedded into the plate and cured with fast-set acrylic. Looped wires to fit into the .045 tubes are then constructed and bent into a U-shape and adjusted for length by sliding into the tubes and crimping. For added strength, it may be necessary to flow some solder at the tube-wire junction. The loop is then bent to rest against the base of the tongue thereby preventing the tongue from slipping back into the pharyngeal space. The wire restraint has been found to be very helpful. An intact airway is maintained in safety. This procedure is encouraging to overwrought parents. (Goldenberg)

KERNAHAN, D. A., Muscle repair in unilateral cleft lip, based on findings on electrical stimulation, *Ann. Plastic Surg.*, 1, 48-53, 1978.

On direct galvanic stimulation of the medial and lateral components of an incomplete cleft lip, the contracture patterns differ from that expected in the anatomical descriptions given by Fara and others. A repair of muscle components of the incomplete cleft lip is described based on this contracture pattern with the skin closed following a double Z-plasty technique. (Meijer)

KITAJIMA, T., The effect of cleft lip repair on the pressure of the lip, *J. Japan. Cleft Palate Assn.*, 2, 1-12, 1977.

The purpose of this study was to determine if the increase of lip pressure after cleft lip surgery was one of the causes of the suppression of maxillary growth. The subjects were 54 unilateral cleft lip cases 3.5 to 5 months old. Lip pressure against the alveolar bone was measured by a pressure transducer with strain gauge just before, just after, and ten months after cleft lip surgery. In most cases, increase in the pressure and the tightness of the lip were noted after the surgery. Lip pressure after surgery varied according to the width and type of cleft lip. Pressure and tightness were increased in most of the complete cleft lip and palate patients but were decreased in several incomplete cleft lips. The rotation-advance-flap operation tended to increase the lip pressure more than did the triangular flap method. The increased pressure and tightness of the lip just after cleft lip repair was decreased 10 months later, and the lips functioned well. From these findings, the author concludes that the period actively affecting maxillary growth was within 10 months after lip repair and that long-term maxillary growth retardation after cheiloplasty might be caused by factors other than lip pressure. (Machida)

KOMATSU, M., URADE, M., AKITA, R., YAMAMOTO, I., and MACHIDA, J., In vivo and in vitro potentiality for fusion of the palatal shelves of mouse embryos treated with glucocorticoid, *Japan. J. Oral Surg.*, 23, 764-770, 1977.

Fusion of the palatal shelves of prednisolone-treated mouse embryos was studied from the 13th to the 16th day of gestation and from the first to the fifth day of culture. The palatal shelves of mouse embryos whose mothers were injected with 2.5 mg of prednisolone on the 10th day of gestation were directed horizontally, and their epithelium was differentiated but mesenchymal tissue was developed insufficiently. When the shelves were tissue-cultured in vitro and placed 1 mm apart as in an embryo, fusion was confirmed in less than 10% of those in prednisolone-added solution, while fusion was achieved in more than 70% of the controls. When cultured in contact, side by side, fusion of both epithelium and mesenchymal tissue was confirmed in more than 74%, even in the prednisolone-added group. Thus the authors concluded that, even in prednisolone-treated mouse embryos, the capacity for epithelial fusion exists and that the cause of non-fusion might be hypoplasia of the shelves resulting from insufficient development of mesenchymal tissue. (Machida)

LEWIS, M. B., Design for unilateral cleft lip repair to prevent a long lip, *Plast. Reconstr. Surg.*, 62, 602-604, 1978.

VECCHIONE, T. R., Design for unilateral cleft lip repair to prevent a long lip, *Ibid.* Brauer, R. O., Reply, *Ibid.*

A series of letters and a reply concerning an article written by Drs. Brauer and Wolf (*Plastic and Reconstructive Surgery*, 61, 190-197, 1978) demonstrate the continuing controversy over the placement of the anatomical points in the repair of the cleft lip deformity. It is apparent that no consensus really exists as to the precise formulation of the defect, the recognition of the high point of the cupid's bow, and the importance of obtaining

equality of its position relative to the normal side in terms of distance beneath the ala. The importance of obtaining symmetry relative to distance from the respective commissure remains controversial. While the neophyte may be impressed by the apparent acceptance of present procedures and techniques, the experienced surgeon is well aware of the uncertainties underlying the accepted strictures as demonstrated in this series of letters. (Cosman)

LORENTE, C. A., and MILLER, S. A., The effect of hypervitaminosis A on rat palatal development, *Teratology*, 18, 277-284, 1978.

In order to determine a possible biochemical basis for the histological and teratological effects of hypervitaminosis A on the developing rat palate, the authors studied the synthesis of DNA, protein, glycoprotein, and sulfated mucopolysaccharide in fetal rat tissues after treatment with retinoic acid or retinyl acetate. Treatment with the vitamin A compounds was by oral intubation of a cottonseed oil suspension on days 12-15 of gestation. Assays were performed on tissues recovered on day 16. Treated fetuses showed increases in the synthesis of DNA and glycoprotein in palate tissue and concomitant decreases in the synthesis of protein. The authors discuss the possible role of interference with the synthesis of DNA and protein in the delayed reorientation of the palatal shelves. A delay of sufficient length would allow development of the head to a stage no longer compatible with palatal fusion. Disruption of the normal sequence and timing of biochemical events can prevent normal histologic development and may lead to abnormal palatogenesis. (Overman)

MAISELS, D. O., The alar base composite graft in cleft lip noses, *Brit. J. Plast. Surg.*, 31, 220-221, 1978.

An alar base wedge is taken in the routine fashion from the unaffected side and is inserted to recontour the ala on the cleft side. The technique is simple and straightforward and has been used to good effect in five patients with cleft lip nasal deformities and in one with hypoplasia of half the nose. (Reid)

MATSUURA, H., HIROSE, I., KOTANI, Y., MIYAZAKI, T., ISHII, T., KOBAYASHI, A., and FUJITA, K., The assessment of the anesthesia for cleft lip and palate surgery, *J. Japan. Cleft Palate Assn.*, 2, 37-42, 1977.

At the Osaka University Dental School Hospital, Japan, during the past 5 and 2/3 years, endotracheal anesthesia has been used for cleft lip plastic surgery carried out at three to four months of age and for cleft palate surgery performed at about 18 months of age. 2105 cases were treated without any serious complications. Premedication was by scopolamine injection. Induction of anesthesia was by injection of thiamylal sodium and succinylcholine chloride into the vein through which infusion had been begun previously when the patient was conscious. An L-shaped endotracheal tube was selected and was fixed on the wire frame separating the dressing from the body. An infant breathing circle was placed on the left of the operation bed, and the anesthetist sat on the right. Anesthetics consisted primarily of penthrane, fluorothane, ether, and various non-

polarizing muscle relaxants. A light anesthetic level was maintained during the operation. Extubation was done after the patient was fully awake. (Machida)

METZNER, L., GAROL, J. D., FIELDS, H. W., JR., and KOKICH, V. G., The craniofacial skeleton in anencephalic human fetuses, III. Facial skeleton, *Teratology*, 17, 75-82, 1978.

Twelve anencephalic human fetuses of varying gestational ages and with defects of varying severity were subjected to cephalometric analysis in order to compare development of the maxillofacial skeletal complex in such fetuses with that found in normal fetuses. A number of facial bones were severely affected in morphology, size, spatial and angular relationships. Morphologically, the zygomatic bone was the most seriously affected facial bone. The authors concluded that a primary defect in neurocranial development initiates adaptive secondary alterations in the remaining contiguous skeletal components of the craniofacial complex. (Overman)

MICHEL, R. G., LEVIN, M. E., PIPKIN, I. H., and BAYLIN, G. J., The syndrome of multiple branchial cleft sinuses and hearing loss, *Ear, Nose, and Throat J.*, 58, 52-61, 1979.

This is a report of a father and son with preauricular pits, unilateral right side cervical fistulae, and bilateral conductive hearing loss. No facial clefting was reported. Tomography demonstrated a malformed incus in the son and abnormal cochleas in both. No surgical or histological confirmation was obtained in either case. The authors compared their findings with other reports from the literature. (Gregg)

MISKINYAR, S. A. C., Congenital mandibulo-maxillary fusion, *Plast. Reconstr. Surg.*, 63, 120-121, 1979.

A single case is presented in which the mandibular alveolar ridge was fused to the maxilla on one side. Mild mandibular hypoplasia, more severe on that side, and persistent anodontia in the area of fusion are reported. X-rays showed both temporomandibular joints to be normal. Direct separation in the neo-natal period was followed by improvement of mouth opening to approximately 90% of normal. (Cosman)

MIYANOSHITA, Y., KATSUKI, T., and TASHIRO, H., Palatalization of dental and alveolar sounds in repaired cleft palate patients, *J. Japan. Cleft Palate Assn.*, 2, 27-33, 1977.

Palatalization of dental and alveolar sounds was studied in 96 cleft palate cases treated surgically in the Department of Oral Surgery, Kyushu University, Japan, from 1972 to 1974. Of these, 11 (11.5%) had palatalization. It was found that the type of cleft, manner of occlusion, and existence of palatal fistula had no causal relation to the palatalization. On the other hand it was revealed that, before palatalization occurred, these patients had substituted velar or glottal, lip and, glottal stop sounds for dental and alveolar sounds. Patients without these substitutions had no palatalization. The authors, therefore, concluded that palatalization was intimately related to previous articulation errors. Palatali-

zation was treated primarily by means of visual and tactile training. In certain cases, an infant denture or Hyne's temporary training plate was effective. (Machida)

MUNRO, I. R., The effect of total maxillary advancement on facial growth, *Plast. Reconstr. Surg.*, 62, 751-762, 1978.

The effect of maxillary advancement on the growing skull in the pig was evaluated in 25 subjects subjected to operations varying from elevation of periosteum, simple osteotomy, and osteotomy immobilized by wire fixation with or without bone grafts and in a group of control animals. Eight months following surgery, when the body weight had increased tenfold and skull size had doubled, the subjects were sacrificed. Five pigs whose maxillae had been advanced 10 mm by bone grafts demonstrated failure to maintain the increase in length, but the overall skull length showed no difference from the control measurements. While the extent of growth in areas adjacent to osteotomy was less than in controls it proved to be the same as in pigs subjected to periosteal elevation only. Local bone growth appeared to be affected by the incision into the periosteum, but other major effects did not appear to be present. The relevance of these findings to children operated upon for maxillary advancement at an early age remains to be established, but this is an important paper whose techniques and conclusions deserve note. (Cosman)

NISHIMURA, Y., and OGINO, Y., Autogenous septal cartilage graft in the correction of cleft lip nasal deformity, *Brit. J. Plastic Surg.*, 31, 222-226, 1978.

In cleft lip nasal deformities the nasal septum is usually affected and displaced. Removal of the affected cartilage in itself helps the deformity and also, in adults, provides a source of autogenous cartilage, which is used as a columellar strut. The operation is usually combined with a revision of the lip using the Millard technique. The authors have used the method for five years with good effect. (Reid)

ONIZUKA, T., AKAGAWA, T., and TOKUNAGA, S., A new method to create a philtrum in secondary cleft lip repairs, *Plast. Reconstr. Surg.*, 62, 842-847, 1978.

The authors add a sixth method of repair to five previously reported and discuss the details of their operative procedure which involves the formation of muscle flaps and the suture of skin to periosteum or mucosa to establish a central dimple. The procedure is certainly deserving of a trial although the photographs presented are less than completely convincing. (Cosman)

PASSY, V., Middle-ear effusions in patients with velopalatal insufficiency, *Ear, Nose, and Throat J.*, 57, 36-41, 1978.

Over a four-year period, Myringotomies were performed upon 120 patients immediately before their lip or palate defect was closed. Ages ranged from three months to two years. Middle ear fluid was found bilaterally in 90 patients and unilaterally in 15. Ventilating tubes were inserted when fluid was found. Of the 120 patients, 19% had had repeated myringotomies with ventilating tubes;

15 needed two myringotomies; five had three myringotomies; and three had four myringotomies. The author feels that, in the age group represented, the diagnosis of fluid in the middle ear otoscopically, audiometrically, and by impedance studies, is unreliable. He concludes that myringotomies with insertion of ventilating drainage tubes, when needed, are a necessity to improve the hearing of these developing children and should be done in every cleft-palate patient. (Gregg)

POWAZEK, M., BILLMEIER, G. J., Assessment of intellectual development after surgery for craniofacial dysostosis, *Amer. J. Dis. of Child.*, 133, 151-153, 1979.

A two-year old girl with Crouzon's disease underwent three craniectomies. At age four, a longitudinal series of psychological tests were undertaken to monitor her intellectual and academic functioning. Eight years after surgery, her intellectual functioning was comparable to that of her unaffected sister and far superior to that of her affected cousins who were from similar home environments. Although the exact contribution of early identification and surgical intervention to the patient's intellectual and academic achievement could not be ascertained, these results suggest that some patients who have early surgical treatment for Crouzon's disease may maintain a consistent and normal rate of intellectual and academic development. (Glaser)

SARNAT, B. G., Differential craniofacial skeletal changes after postnatal experimental surgery in young and adult animals, *Ann. Plastic Surg.*, 1, 131-145, 1978.

A brief review is given of the forms of growth of the skull—cartilaginous, sutural, appositional, and resorptive. In addition, the contents and form of certain skull cavities influence the growth of adjoining bones and sutures. Experimental surgery was performed including extirpation of the mandibular condyle, the frontonasal suture region, the palatine suture region, the nasal septum, orbital contents, extraction of teeth, and additions to orbital contents. Severe facial skeletal changes were seen after septal removal and removal or increase of orbital contents in young animals. Removal of the mandibular condyles led to marked skeletal changes in both the young and adult animals. (Meijer)

SLAVKIN, H. C., Congenital craniofacial malformations: identifying individuals at risk, *Ear, Nose, and Throat J.*, 58, 3-10, 1979.

This paper is a part of a series of invited lectures presented by the author at the meeting of the American Academy of Facial Plastic and Reconstructive Surgery in 1978. Among the topics considered are "The Search for Causation," "Highlights of Congenital Craniofacial Malformations in Man," "Etiologic Issues," "Susceptibility or Resistance to Congenital Craniofacial Malformations," and "Prospectus." A bibliography accompanies the text. This material should be of greatest interest to the individual who is seeking overall background information regarding the problem of congenital craniofacial malformations. (Gregg)

THEODOSIS, D. T., and FRASER, F. C., Early changes in the mouse neuroepithelium preceding exencephaly induced by hypervitaminosis A, *Teratology*, 18, 219-232, 1978.

The pathogenesis of congenital malformations induced by excess vitamin A during pregnancy is not clear. In a study dealing with this problem, the authors examined the neuroepithelium of embryonic rats hours after maternal treatment with vitamin A. Single oral doses of retinal palmitate induced exencephaly in 75% of the offspring of pregnant mice treated at the susceptible stage. Examination of the neuroepithelium by light microscopy eight hours after treatment disclosed changes in morphology including: disorganization of the epithelium, dense intracellular inclusions, and some dead or dying cells in the affected area. When abnormalities of the mesenchymal cells occurred, the cells involved were those underlying a damaged epithelium. As early as four hours post-treatment, electron microscopy demonstrated cellular changes including dilated rough endoplasmic reticulum and nuclear irregularities. By eight hours post-treatment, swollen cells were seen and ribosomes and chromatin were dispersed. The authors concluded that excess vitamin A apparently acts directly upon embryonic cell membrane material and, in this case, changes the membranes of the neuroepithelial cells. The importance of the neuroepithelium functioning as a cohesive unit in neural tube closure was discussed, and it was noted that the death and damage of some of the cells results in the failure of fusion of the neuroepithelium following folding of the neural tube. This early failure of fusion subsequently leads to exencephaly. (Overman)

TONKIN, S. L., PARTRIDGE, J., BEACH, D., AND WHITENEY, S., The pharyngeal effect of partial nasal obstruction, *Pediatrics*, 63, 261-271, 1979.

The case history and cinematoradiographic findings of a baby with partial nasal obstruction are presented. This infant's restriction to nasal air entry led to severe airway obstruction during inspiration because of a forward movement of the posterior pharyngeal wall and backward movement of the tongue and lower jaw which, at the height of inspiration, produced total airway occlusion in the pharynx. These events can be explained by the pressure drop that takes place behind a restriction if air is sucked forcibly through it from an area of normal atmospheric pressure. Studies of postpalatal pressures in adults and infants demonstrate such a drop in pressure during nasal breathing if the nose is partly obstructed. If the adult or infant is able to respond to the diminished nasal airway by mouth breathing, there is no postpalatal pressure drop. It is suggested that partial nasal obstruction in a sleeping, obligatorily nose-breathing infant could result in a sucking back of the tongue over the larynx. This could be the mechanism of the obstructive type of apnea and of the asphyxial type of death that is suggested by autopsies on some "cot death" victims. (Glaser)

TRASLER, D. G., REARDEN, C. A., and RAJCHGOT, H., A selection experiment for distinct types of 6-aminonicotinamide-induced cleft lip in mice, *Teratology*, 18, 49-54, 1978.

The authors describe a genetic test of the hypothesis that the face shape at the time of lip formation is a

component of the multi-factorial system predisposing lateral cleft lip (LCL) in the A/J strain of mice. The test involves the selection from the same heterogeneous stock of two lines of mice with different responses to teratogen treatment, an M line producing median cleft lip (MCL) and an L line producing LCL. Details of the selection experiment involving the interbreeding of four mouse strains are discussed. An M line was successfully selected which responded to teratogen treatment with high frequencies of MCL and low frequencies of LCL. MCL was selected against in the L line, although significantly high frequencies of induced LCL in this line were obtained only in the F₁₅ and F₂₀ generations. Measurements of embryonic face shape indicate a wider inter-pit distance in the M line than in the L line, predisposing the embryos to the specific malformations observed. The authors discuss possible genetic mechanisms to account for the observed responses and conclude that the experiment was successful in selecting for LCL and MCL and that genetic selection was accompanied by predicted changes in face shape, thus providing additional support for the role of embryonic face shape in cleft lip in the mouse. (Overman)

UEDA, N., Mechanism of nasopharyngeal closure studied by pressure change of nasopharyngeal components during various functions, *J. Japan. Cleft Palate Assn.*, 2, 12-29, 1977.

In order to investigate the movements of the nasopharynx, pressures of the soft palate and of the posterior and lateral pharyngeal walls were measured by strain gauges attached to the bulb of a speech aid. Six operated cleft palate cases, eight to 17 years old, were studied during phonation, blowing, and swallowing. Some of the results were as follows: 1) The variation in pressure among the individuals was marked in the soft palate and lateral pharyngeal wall areas while, it was minimal in the posterior wall. 2) The pressure for consonants tended to be higher than for vowels. The pressure of the lateral walls was highest in plosives and decreased in fricatives, vowels, and nasals, in that order. 3) The pressure in hard blowing was higher than that in soft blowing, and the pressure in water swallowing was higher than that in saliva swallowing. 4) Nasopharyngeal pressure in swallowing was much higher than in other functions. 5) The starting point of the pressure wave occurred 325msec before the onset of voice, and the maximum value of the pressure was observed 92msec after the onset. 6) The starting and the maximum points of the pressure in plosive consonants occurred earlier than that in the other sounds, and they were earlier in voiceless plosives than in voiced ones. (Machida)

UEDA, N., Occurrence of glottal stops in fluent speech, *J. Acoustic Soc. of Amer.*, 64, 88-95, 1978.

Glottal stops are sometimes employed by normal speakers instead of pause to serve as boundary markers during continuous speech. The frequency of occurrence of glottal stops in oral reading appears related to the individual speaker's style and to the complexity of reading material more than to any phonological or grammatical factors. Generally, glottal stops preceded content words that had a stressed vowel in the initial word position. The frequent insertion of glottal stops in place of pause results in the listener's perception of irregularity or chopiness in the flow of speech. (Ruscello)

ÜSPAA, V., Combined external ear deformity and hypoplastic mandible: Case Report, *Scand. J. Plast. Reconstr. Surg.*, 12, 165-167, 1978.

One hundred and 38 cases of ear deformities among patients born during the period from 1950 to 1975 were treated in the Finish Red Cross Cleft Center are reported. Sixty-seven cases of protruding ears were noted, and 53 of the 67 were bilateral. About one half of these patients had had a positive family history of ear deformities. The second largest group was composed of 64 cases classified as branchial arch syndrome. Most of the patients had microtia and five had no external ear at all. Most of the cases with branchial arch syndrome were unilateral, but nine bilateral cases were noted. In six of these, there were preauricular appendages on both sides, and microtia was seen in two. In one subject, the external ear was otherwise deformed. A family in which the mother and two sons had bilateral external ear deformity and associated mandibular hypoplasia is described. The ear deformity depicted appears identical to that previously termed "the question mark ear" reported in Plastic and Reconstructive Surgery (Cosman et al., 46, 450-457, 1970). (Cosman)

ÜSPAA, V., Upper extremity deformities associated with the orofacial clefts, *Scand. J. Plast. Reconstr. Surg.*, 12, 157-162, 1978.

Eighty-nine cases of upper extremity deformity were found among the 3225 cleft patients born during the period from 1950 to 1975 and treated in the Finish Red Cross Cleft Center. In clefts of the primary palate, there was a 2% incidence of upper extremity deformity with a 0.8% incidence in cleft lip alone and a 2.6% incidence in the cleft lip—cleft palate group. A 1.6% incidence of upper extremity defect was present in submucous cleft palate patients and those with a branchial arch syndrome showed a 5.2% incidence. The overall average was 2.8% for all patients. Nearly one-third of the 89 patients were dwarfs, with clefts and upper extremity deforming usually of the diastrophic variety. Syndactyly was somewhat more common among the cleft patients than in the average population whereas polydactyly was about as common as in the control group. Ectrodactyly at .4% was more common among cleft patients than either syndactyly or polydactyly, which showed an incidence of .3% and .1% respectively. Among the syndactyly cases were four cases of Apert's syndrome. Nearly three fourths of the 89 patients with upper extremity deformities and clefts had other multiple deformities as well. (Cosman)

VERDI, G. D., and ALPERT, B., Shortening a long face, *Plast. Reconstr. Surg.*, 62, 613-617, 1978.

A case of maxillary alveolar hypoplasia (horse face) is presented with marked improvement following the excision of a band of maxillary bone transversely with upward telescoping of the maxillary alveolar process to shorten the face effectively. (Cosman)

WAKUI, Y., SUGIYAMA, M., SAWA, S., HANADA, K., and FUKUHARA, T., Palatlizer appliance for speech correction in case of cleft palate, *J. Japan. Cleft Palate Assn.*, 2, 34-39, 1977.

A modified speech-aid was used for the treatment of the glottal stop of a 4-year-old girl with cleft palate. The

speech-aid, which the authors called a palatlizer, had a shallow vault, attached easily, and restricted the backward movement of the tongue. Using the palatlizer, the child had a tactile sensation useful for the articulation of k and g. The glottal stops were corrected in five weeks with the use of the prosthesis. (Machida)

WIEMER, D. R., HARDY, S. B. and SPIRA, M., Anatomical findings in median cleft of upper lip, *Plast. Reconstr. Surg.*, 62, 866-869, 1978.

Two cases of incomplete median cleft were repaired and the opportunity taken for a detailed look at their intrinsic anatomy. Continuity of their orbicularis muscle was demonstrated, but it was achieved by fibrotic bands. In both cases there was a vertical subcutaneous fibrous band as well. (Cosman)

WILK, A. L., KING, C. T. G., and PRATT, R. M., Enhancement of chlorcyclizine teratogenicity in the rat by coadministration of calcium chelating agents, *Teratology*, 18, 193-198, 1978.

Chlorcyclizine and norchlorcyclizine are among the benzhydrylpiperazine drugs which have been shown to induce cleft palate and various skeletal malformations in the rat. The cartilage binding of these compounds is known to parallel their teratogenic activity. A study is described which was designed to determine if the binding of chlorcyclizine correlates with its teratogenesis and if alteration in the distribution of calcium, which interferes with binding, affects its teratogenic properties. Pregnant rats were treated with chlorcyclizine HCl or norchlorcyclizine HCl orally or intrauterinely with and without coadministration of calcium chelating agents. The incidence of cleft palate was increased by the addition of the chelating agent to both teratogens. The chelating agents administered alone did not produce cleft palate, leading the authors to conclude that decreased calcium levels following chelation increased the teratogenic potential of benzhydrylpiperazine. It was also determined that the teratogens did not significantly interfere with overall calcium metabolism in the pregnant rat or embryonic tissues. The authors concluded that altered calcium distribution is associated with the induction of cleft palate and skeletal malformations. It is proposed that reduced calcium reflects displacement by chlorcyclizine and that the binding of the drug to glycosaminoglycans of differentiating connective tissues may be casually related to teratogenesis. This binding activity and subsequent degradation of glycosaminoglycans may be the primary bio-

chemical defect responsible for the cleft palate and skeletal malformations. (Overman)

WILK, A. L., KING, C. T. G., and PRATT, R. M., Chlorcyclizine induction of cleft palate in the rat: Degradation of palatal glycosaminoglycans, *Teratology*, 18, 199-210, 1978.

Based on the relationship between the teratogenic properties of chlorcyclizine and its binding to glycosaminoglycans of cartilage, the authors studied the metabolism of the glycosaminoglycans in chlorcyclizine-treated palatal shelves at the sensitive time for cleft-palate induction. Glycosaminoglycans (GAGs) were isolated from control and treated rat palatal shelves in organ culture and analyzed for identification and evidence of structural alteration. Intrauterine labeling was used to demonstrate changes in GAGs after maternal teratogen treatment. Metabolic findings indicated that palatal shelves exposed to norchlorcyclizine contained normal ratios of hyaluronic acid to chondroitin sulfate, but the GAGs were smaller following treatment. Pulse-chase experiments indicated that norchlorcyclizine enhanced GAG degradation but did not affect synthesis. Synthesis of DNA and of protein was not affected at the norchlorcyclizine concentration that enhanced GAG degradation. The authors discuss the possible role of GAG biochemistry in the operation of the intrinsic shelf force and how metabolic disturbances may alter palate formation. This study provides support for the conclusion that the degradation of glycosaminoglycans may be the primary defect responsible for cleft palate induction following treatment with norchlorcyclizine. (Overman)

WILSON, G. N., HIEBER, V. C., and SCHMICKEL, R. D., The association of chromosome 3 duplication and the Cornelia de Lange syndrome, *J. Pediatr.*, 93, 783-788, 1978.

Two unrelated children with features of the Cornelia de Lange syndrome, which may include cleft palate, showed mental retardation, growth retardation, glaucoma, and a similar facies and had duplications corresponding to bands q25→q29 of chromosome three. These patients were compared to others with duplications of chromosome three and to a large series of patients with Cornelia de Lange syndrome. Diseases that sometimes involve characteristic chromosomal changes but have normal chromosomes in other instances are discussed. (Glaser)

A REPRINT OF THE ABSTRACTS FROM THE PROGRAM OF THE COMBINED MEETING OF THE AMERICAN CLEFT PALATE ASSOCIATION AND THE AMERICAN CLEFT PALATE EDUCATIONAL FOUNDATION

February 25–March 1, 1979
San Diego, California

AURICULAR AND JUXTA-AURICULAR MALFORMATIONS: IN ISOLATION AND IN SYNDROMES

1 I. Lumpers, Splitters, Straddlers, and Shufflers

Samuel Pruzansky, D.D.S.

University of Illinois Medical Center, Chicago IL

This presentation reviews the general problem of clarifying syndromes and focuses in particular on hemifacial microsomia and its variant forms. Introduced is the "shuffler" who despairs of excessive splitting, relumps his data and resplits along more logical lines. Affected systems for each patient are coded as comprehensively as possible. The data are analyzed by appropriate statistical methods to determine whether specific clusters of phenotypic characteristics represent subgroups. Detailed pedigrees are obtained to analyze patterns of inheritance and to estimate recurrence risks. On the basis of these data a more rational basis for classification, treatment, and genetic counseling will be provided.

2 II. Description of a Patient Population and Comparison of Subgroups

Beverly R. Rollnick, M.S.
Celia Kaye, M.D., Ph.D.
Pamela Parris, M.S.
Samuel Pruzansky, D.D.S.

Isolated microtia, hemifacial microsomia, Goldenhar's syndrome and oculoauriculovertebral dysplasia, often treated as distinct entities, are increasingly thought to be a single entity. Lack of descriptive and comparative studies has complicated delineation of these disorders and elucidation of associated genetic factors. This study reports on 203 probands reseggregated into eight heuristic classifications. The groups could not be distinguished based on demographic variables and frequency and severity of associated malformations. No difference was found among the diagnostic categories in frequency type or severity of facial cleft.

3 III. Facial Clefts

Beverly R. Rollnick, M.S.
Celia Kaye, M.D., Ph.D.
Samuel Pruzansky, D.D.S.

Family members of three populations of probands were studied to assess the relationship between ear malformations and facial clefts. Two groups of probands had malformations of the auricle with or without facial clefts. One group of probands had isolated facial clefts. A higher than expected frequency of both disorders was found in family members of all of the study groups compared with a control population. While larger samples are mandatory, the data suggest that the field concept hypothesis merits consideration in our thinking on the etiology and pathogenetic mechanisms of craniofacial anomalies.

4 THE IMPORTANCE OF GENETIC EVALUATION AND FOLLOW-UP AS PART OF THE COMPREHENSIVE CARE OF PATIENTS WITH CLEFT LIP AND PALATE: TWO CASE REPORTS

Elsa W. Reich, M.S.
Rody P. Cox, M.D.
Marcia M. Wishnick, Ph.D., M.D.
V. Michael Hogan, M.D.
New York University Medical Center, New York, NY

To illustrate the importance of genetic evaluation and follow-up of patients with cleft lip and palate, two families are described with probable dominant

disorders. In one family a new syndrome consisting of cleft lip and palate, microcephaly and hypospadias is described. In the other there are four members with cleft lip and palate. Both families were initially given low risks of recurrence. Knowledge of accurate recurrence risks is essential for considered family planning.

5 A FAMILY WITH THE POPLITEAL PTERYGIUM SYNDROME

Hermine M. Pashayan, M.D.
Michael B. Lewis, M.D.
Tufts - New England Medical Center, Boston, MA

A family with the popliteal pterygium syndrome is presented. The father was born with a cleft of the palate and lower lip pits. Two of the three offspring showed extensive involvement of the palate, gums and lips with minimal involvement of the lower limbs, genitalia and nails.

6 A HUMAN MODEL FOR THE VARIABLE EXPRESSION OF CLEFT PALATE: VAN DER WOUE SYNDROME

Eugene J. Sidoti, M.D.
Robert J. Shprintzen, Ph.D.
Rosalie B. Goldberg, M.S.
Montefiore Hospital & Medical Center, Bronx, NY

Van der Woude Syndrome (cleft lip/palate with lip pits) is identical to isolated clefts except for the presence of lower lip pits: 46 individuals with this dominant syndrome were identified and the spectrum of clefting amongst them studied. Family members were found with anomalies of the lateral incisors only, history of recurrent serious otitis media only, submucous cleft palate, and a variety of overt clefts. This syndrome is probably more common than previously reported.

7 MOTHER-INFANT INTERACTION: IMPLICATIONS FOR COUNSELING FAMILIES OF NEWBORNS WITH CRANIOFACIAL ANOMALIES

Debra Susan Dorf, M.A.
University of Illinois Medical Center, Chicago IL

Infants with craniofacial anomalies often demonstrate feeding problems which may interfere with mother-infant interaction and subsequent cognitive and linguistic development of the child. Initial counseling of these mothers should be broadened in scope in order to include suggestions for facilitation of mother-child interaction (i.e., increased verbal stimulation) rather than limited to the mechanics of feeding.

8 IMPAIRED WEIGHT GAIN IN CLEFT PALATE INFANTS

Robert L. Ruberg, M.D.
Leonard V. Avedian, M.D.
Ohio State University, Columbus, OH

We examined the weight records of 37 cleft palate children for the first six months of life in an effort to measure the success of parents' initial efforts to learn to feed the cleft palate infant. Our data indicate a fall in the median weight percentile ranking over the first two months of life, but then a rise until at 6 months the rankings are comparable to birth levels.

9 FACTORS ASSOCIATED WITH THE BEHAVIORAL FUNCTIONING OF TWO-YEAR OLDS WITH CLEFT LIP AND/OR PALATE

Philip Starr, M.S.W.
Lancaster Cleft Palate Clinic, Lancaster PA

Twenty-five two year olds with cleft lip and/or palate were matched on the variables of sex, age and socio-economic factors with twenty-five noncleft children. Children with cleft lip and/or palate were rated by their mothers as having more somatic complaints than the noncleft subjects. Positive behavioral functioning of two year olds is associated with being female and having a happily married mother. Importance of marital adjustment will be discussed.

10 PHONOLOGICAL REPERTOIRE OF CLEFT PALATE TODDLERS

Joan I. Lynch, Ed.D.
University of Texas, Houston, TX
Bonnie Brookshire, M.S.
Donna R. Fox, Ph.D.
University of Houston, Houston, TX

This study provides indepth analysis of the phonological development of one cleft palate toddler over a six-month period, as compared with two cleft palate children of comparable age. Analysis revealed certain developmental patterns which may be unique to cleft palate children. The role of parental reinforcement of non English phonemes is explored. Despite the cleft condition, spontaneous modeling led to improved production of phonemes and increased intelligibility.

11 THE SEMANTIC RELATIONS EXPRESSED IN TWO WORD UTTERANCES OF NORMAL AND CLEFT PALATE CHILDREN

Steve W. Dauer, B.S.
Gene R. Powers, Ph.D.
University of Texas at Austin, Austin, TX

The study compared the semantic relations expressed between a group of four cleft palate children and a similar number of normally developing children matched according to MLU and sex. Subjects were in the period of development encompassing the emergence of two word utterances (MLU 1.0-2.0 morphemes). The results revealed significant differences between the groups in the frequency and type-token ratios of utterances within several of the prevalent relation categories and indicated less linguistic variability in the experimental subjects. The nature of the differences and their relation to age, sex, and cleft type are discussed. The results are compared to similar studies of normal and language disordered children.

12 HYPOGLOSSIA CONGENITA LONGITUDINAL STUDY OF TEN CASES

Leslie M. Holve, M.D.
James Duffin, D.D.S.
Yoshio Setoguchi, M.D.
James Mulick, D.D.S.
Saint John's Hospital and Health Center, Santa Monica, CA

Ten cases of hypoglossia congenita have been evaluated and followed longitudinally from three to fourteen years. A single exemplary case is presented. Growth of the craniofacial complex brings many advantages such as increasing mandibular size, decreasing respiratory and feeding problems, and improving speech patterns. The functionality of the tongue in relationship to developing speech needs to be reconsidered in the light of these "experiments of nature." The limb deficiencies should be corrected wherever possible while surgical and prosthetic reconstruction of the oral structures should be thoughtfully considered. Finally these children should be followed patiently with very little aggressive intervention by a sophisticated inter-disciplinary team.

13 TWENTY-FIVE CONSECUTIVE BILATERAL COMPLETE CLEFT LIP/CLEFT PALATE PATIENTS TREATED BY THE SAME LIP OPERATION WITH 13-19 YEAR FOLLOW-UP

W. K. Lindsay, M.D.
Hospital for Sick Children, Toronto, Ontario, Canada

Twenty-five consecutive bilateral complete cleft lip/palate patients were treated with the same primary lip operation, a bilateral lower one-third

triangular flap procedure by the same surgeon. A retrospective 13-19 year follow-up of all cases will be shown. The true value of an operative procedure can only be judged by studying all cases treated in an identical manner.

14 WHAT IS THIS? OR THE FINE POINTS OF DIAGNOSING SPEECH PROBLEMS BY LISTENING TO THE PATIENT

Sally Peterson-Falzone, Ph.D., Moderator
University of Illinois Medical Center, Chicago, IL
Elise Hahn, Ph.D.
California State University, Los Angeles, CA
Robert M. Mason, Ph.D., D.M.D.
University of North Carolina, Chapel Hill, NC
Ralph L. Shelton, Ph.D.
University of Arizona, Tucson, AZ
Judith Trost, Ph.D.
Northwestern University, Chicago, IL
Duane R. Van Demark, Ph.D.
University of Iowa, Iowa City, IA

The purpose of this session is to assist the audience in learning to identify and describe hypernasality, nasal emission, hyponasality, cul-de-sac resonance, alternating hyper- and hyponasality and concurrent laryngeal dysfunction as well as the articulatory deviations which are prevalent in speakers with orofacial malformations. A panel of experienced speech pathologists will offer descriptive commentary on taped speech samples, and members of the audience will be invited to interject questions and commentary.

15 THE HISTORY AND FUTURE OF PARENT GROUPS

Carl Schneiderman, Ph.D.
Washington State University, Pullman, WA
Mary Pannbacker, Ph.D.
Louisiana State University Medical Center, New Orleans, LA

The emergence of parent groups is of recent origin, however the scope and speed of the formation of these groups has been spectacular. Parent groups first developed informally but then became organized formally with established goals and activities. There has also been a shift in parent/professional relationships. Parent groups, past and present, can be credited with significant advances. As parent groups move into the future, certain issues, although not new, must be dealt with.

16 PARENT-CLEFT PALATE CHILDREN INTERVENTION: A CURRICULUM GUIDE FOR BIRTH TO THREE YEARS

Bonnie L. Brookshire, M.A.
University of Houston, Houston, TX
Joan Lynch, Ed.D.
The University of Texas, Houston, TX
Donna R. Fox, Ph.D.
University of Houston, Houston, TX

This session outlines a program the authors have successfully used with cleft palate children, aged birth through three years, and their parents. Objectives and activities for each developmental level are provided for: 1) feeding, 2) speech, 3) language and 4) personal-social development. Commercially available programs of language intervention were modified to provide specific techniques and activities suitable for the various developmental levels. Parent counseling is discussed and examples of parent information handouts presented.

17 INTRODUCTION OF IDENTI-KIT MODEL II FOR ASSESSING JUDGMENTS OF COSMETIC APPEARANCE

Lillian Glass, Ph.D.
Ray E. Stewart, DMD, MS
Los Angeles County Harbor; UCLA Medical Center, Torrance, CA
Clark D. Starr, Ph.D.
University of Minnesota, Minneapolis, MN

The psychosocial dynamics introduced when a person has a facial deformity such as cleft lip has been the subject of extensive speculation with few attempts to quantitatively measure the impact of various factors upon an individual's assessment of attractiveness. The Identi-Kit Model II, widely used by law enforcement agencies was tested for reliability as an instrument for systematically assessing observers' impressions of attractiveness of patients with cleft lip and nasal deviations.

18 CORRELATION OF SELF-IMAGE TO ORAL HYGIENE OF DENTAL PATIENTS WITH CLEFT LIP AND/OR PALATE

Arthur N. Litowitz, D.D.S.

Steven Solow, D.M.D.

Rosario F. Mayro, D.M.D.

University of Pennsylvania School of Dental Medicine, Philadelphia, PA

There is a significantly direct correlation of self-image to oral hygiene based on a survey done among patients of the dental clinic at Children's Hospital of Philadelphia. Self-image was determined by the Tennessee Self-Concept Scale. A modified Greens Index was used to assess oral hygiene.

19 A CINEFLUOROGRAPHIC AND ELECTROMYOGRAPHIC INVESTIGATION OF VELAR POSITIONING IN ALL ORAL SPEECH

Earl J. Seaver III, Ph.D.

Northern Illinois University, DeKalb, IL

David P. Kuehn, Ph.D.

University of Iowa; Iowa City, IA

Simultaneous cinefluorographic and electromyographic analyses were made of changes in velar and tongue positioning and palatal levator, palatoglossus and palatopharyngeus muscle activity. Three male and three female normal speaking subjects produced symmetrical oral CVC syllables embedded in a carrier phrase in a normal manner and at increased rate and effort levels. The results of the simultaneous analyses will be presented and discussed relative to a model of velar control and their implications for continued research.

20 INSTRUMENTAL ANALYSIS OF HYPERNASAL SPEECH

Glen L. Bull, Ph.D.

Milton T. Edgerton, M.D.

Wesley E. McDonald, M.S.

Ralph C. Bralley, Ed.D.

University of Virginia, Charlottesville, VA

A portable, noninvasive instrument developed for clinical assessment of nasal resonance was used to evaluate five normal and five hypernasal (cleft palate) subjects. A real-time visual display of the instantaneous measure, plotted graphically, differentiated production of nasal from non-nasal consonants by normal speakers. The average of these measurements was computed for each test sentence by the instrument and displayed in numeric form. There was a high correlation between the averaged digital measurements and perceptual judgments of nasality by eight certified speech clinicians.

21 A DECISION ANALYTIC APPROACH TO CLEFT PALATE TREATMENT EVALUATION

Jeffrey P. Krischer, Ph.D.

University of Florida College of Medicine, Gainesville, FL

This paper describes the first application of decision analysis to the evaluation of surgery, obturation and speech therapy alternatives in the treatment of velar incompetency. A speech quality index is developed in terms of phonation, resonance and articulation and is shown to compare favorably with clinical judgments. Preliminary results suggest that decision analysis offers considerable promise as a methodology by which to describe and evaluate treatment alternatives. Areas for further research and application are described.

22 RETROSPECTIVE ANALYSIS OF RADIOGRAPHIC INFORMATION IN PREDICTING SECONDARY MANAGEMENT OF SUBJECTS WITH CLEFT PALATE

D. R. Van Demark, Ph.D.

David P. Kuehn, Ph.D.

University of Iowa, Iowa City, IA

Cineradiographic evaluations were done on cleft lip/palate patients over an 18-year period. Velopharyngeal closure was rated on a five-point scale for all evaluations. Remarkable anatomical attributes were also tabulated. Comparisons were made for those subjects who required secondary management versus those who did not. It was found that closure ratings did in fact differentiate between the two subject groups. Anatomical attributes also were predictive in that a substantially larger proportion of subjects requiring secondary management exhibited unusually deep pharynx and/or excessively short palate.

23 THE INFLUENCE OF AGE AND CLEFT TYPE ON ARTICULATION DEVELOPMENT OF CHILDREN WITH CLEFT LIP/PALATE

John E. Riski, Ph.D.

William N. Williams, Ph.D.

Lancaster Cleft Palate Clinic, Lancaster, PA

The articulation development of 108 children born with clefts of the lip and/or palate was analyzed using a repeated measure design to study the effects of age, sex and type of cleft. For those 84 who did not receive pharyngeal flaps age and cleft type were significant variables ($p < .01$). For the remaining 24 children who did receive pharyngeal flaps only age emerged as a significant factor. There was no significant interaction between the factors.

24 PALATAL-GLOSSAL REHABILITATION USING A PALATAL TRAINING AID OR VISUAL SPEECH AID

W. G. Selley, F.D.S.

F. C. Flack, Ph.D.

R. E. Ellis, M. Phil.

University of Exeter, Exeter, England

Two intraoral aids have been developed to produce tactile and visual feedback of soft palate movements in repaired, cleft-palate or non-cleft-palate patients. The technique has been used successfully in centers in the U.K., in addition to the Authors', to develop soft palate movements, to bring these under voluntary control and to improve co-ordination of the palato-glossal-pharyngeal complex. Results have been monitored by nasal anemometry in addition to subjective assessments.

25 CLEFT PALATE INTENSIVE SPEECH THERAPY CAMP

Peter Americo, M.S.

West Virginia Rehabilitation Center, Institute, WV

Barbara I. Moidel, M.A.

West Virginia University Medical Center, Morgantown, WV

A three-week pilot program co-sponsored by three state agencies provided intensive speech therapy in a camp-like atmosphere. Time devoted to individual articulation-voice and group language therapy exceeded the amount that many enrollees receive in one year through the school system. Total management included a thorough speech, voice and language evaluation, audiometric testing, dental screening, otolaryngological evaluation and physical examination. Recommendations for future remedial procedures were formulated. Results indicated successful goal achievement.

26 SPEECH RESULTS OF CLEFT PALATE SURGERY—A REVIEW

Mary Pannbacker, Ph.D.

Louisiana State University Medical Center, New Orleans, LA

There is extreme variability in the reported speech results following palatal surgery; the reported percentage of cleft palate individuals with normal speech following surgery ranges from 0 to 90 percent. The purpose of this paper is to present a review of the literature about speech results in relationship to several variables and a discussion of some methodological considerations to be made in doing such research.

27 THE INFLUENCE OF DELAYED PALATE CLOSURE ON ARTICULATION AMONG SPANISH SPEAKING CHILDREN WITHOUT SPEECH THERAPY

E. Shamasko, M.A.

L. Ramirez, M.A.

E. Allen, Ph.D.

J. Fisher, M.D.

University of California, San Diego, San Diego, CA

The establishment of the Field Surgery Program in Mexico afforded opportunity to examine articulation performance among 12 children with congenital palatal insufficiency whose surgery was delayed beyond the 6th year. Our findings to date have allowed us to describe the speech abnormalities characteristic of Spanish-speaking patients with palate dysfunction. Not unexpectedly, the influence of surgery initially performed between the 6th and 18th year of life on articulation is severely compromised, particularly when follow-up therapy cannot be provided.

28 SURVEY OF PROBLEMS ASSOCIATED WITH HARD PALATE FISTULAE IN PRESCHOOL CHILDREN

Clyde R. Willis, Ph.D.
Western Michigan University, Kalamazoo, MI
Ralph Blocksma, M.D.
Butterworth Hospital, Grand Rapids, MI

The parents of twenty-five children whose surgery schedule called for velar palatoplasty at approximately eighteen months and closure of the hard palate at four to five years were surveyed to determine the type and extent of problems they associated with the open hard palate. The results indicate that only minor problems of feeding and speech are associated with the hard palate fistula by the parents.

29 BIOMECHANICS OF INTRUDING A FREE-FLOATING PREMAXILLA

Curtis Sapp, D.D.S.
Manual A. Torres-Diaz, D.D.S.
Ravindra Nanda, B.D.S., M.D.S., Ph.D.
University of Connecticut School of Dental Medicine, Farmington, CT

Orthodontic treatment of free-floating premaxillas is difficult, particularly when intrusion is required. This proposed poster session will describe and illustrate the biomechanic principles necessary for intrusion. Provide an easily fabricated and adjustable appliance to accomplish intrusion of the maxillary anterior segment. Furthermore, the side effects of such an appliance and how to combat these will be described. Before and after records of patients treated in this manner will also be provided.

30 A NEW SPLINT FOR USE IN SURGICAL ADVANCEMENTS OF THE MAXILLA IN CLEFT PATIENTS

Michael W. Lehnert, D.D.S.
University of Minnesota School of Dentistry, Minneapolis, MN

Skeletal relapse associated with the surgically repositioned maxilla in cleft patients has long been a problem. A new splint designed for use in the surgically advanced maxilla will minimize skeletal relapse seen during the immediate post-operative fixation and healing phases. The discussion will include review of relapse, design and fabrication of the splint and follow-up on cases in which it was used.

31 REHABILITATION OF FACIAL DEFORMITY BY CORRECTIVE CRANIO-FACIAL SURGERY

Mutaz B. Habal, M.D.
Jack S. Maniscalco, M.D.
University of South Florida College of Medicine, Tampa, FL

Recent advances in the understanding of the basic anatomy and physiology of the bony facial structures had paved the way for our cranio-facial team to help reconstruct and correct major cranio-facial deformities that were termed incorrectable by previous standards. The rehabilitation program focuses on patient selection and long term follow-up for the evaluation of the results. The emphasis on the major complications and their avoidance should not be neglected.

32 TECHNICAL INNOVATIONS TO FACILITATE THE TONGUE-LIP ADHESION FOR PIERRE ROBIN ANOMALAD

Robert W. Parsons, M.D.
David J. Smith, Jr., M.D.
Indiana University Medical Center, Indianapolis, IN

Surgery is facilitated by (1) control of the tongue with a transversal placed traction suture just anterior to the circumvallate papillae; (2) creating the raw surface on the tongue by a transverse incision at its junction with floor of mouth just above the sublingual ducts, releasing it to come well forward; (3) placing the glossopepy suture just above the epiglottis by retrograde insertion with Keith needles. Technical details are fully illustrated.

33 EPIDEMIOLOGIC SURVEY OF DENTAL AND MEDICAL HEALTH CHARACTERISTICS OF ONE HUNDRED CHILDREN WITH CLEFT LIP AND/OR PALATE

Frances Greenberg, D.M.D.
Steven Klein, M.D.

Rosario F. Mayro, D.M.D.
Arthur N. Litowitz, D.M.D.
University of Pennsylvania, Philadelphia, PA

Pre-defined categories of evaluation were designated and a computerized format for the documentation of dental and medical information was formulated. In comparison with the non-cleft control group, the cleft patients did not exhibit any significant difference in caries index. Significant differences were noted in the areas of oral hygiene, heights and associated medical anomaly.

34 ANODONTIA—UNUSUAL VARIATION OF PIERRE ROBIN SYNDROME

Libby Radus, Ph.D.
Quincy Gilliam, D.D.S.
Glenn H. Shepard, M.D.
Peninsula Craniofacial Anomalies Clinic, Newport News, VA

A study is presented of a white male, 4-1, with diagnosis of congenital micrognathia, microglossia, and other anomalies. Controversy is centered around determination of true nature of problem. Radiographs were taken and birth history studied. Partial anodontia was revealed by Panorex films but they, together with birth history, raised additional question of this being an unusual variation of Pierre Robin syndrome. Prenatal history is explored for etiology.

35 CASE REPORT: A RARE VARIATION OF AN UNCOMMON CLEFT

Sharon Romm, M.D.
Ronald B. Berggren, M.D.
Ohio State University, Columbus, OH

A patient with the unusual combination of an apparent median cleft lip and right cleft nasal deformity is presented. The combination is not easily subsumed under present day classification systems. The attempt at classification of this combination of defects and their possible embryologic origins are discussed. The method of repair is described.

36 HYPOTELORISM NASOMAXILLARY HYPOPLASIA AND CLEFT LIP AND PALATE IN A PATIENT WITH NORMOCEPHALY AND NORMAL INTELLIGENCE

Hermine M. Pashayan, M.D.
Michael B. Lewis, M.D.
Tufts - New England Medical Center, Boston, MA

A patient with hypotelorism, nasomaxillary hypoplasia and cleft lip and palate is presented. The absence of an associated intracranial abnormality, mental retardation and/or a seizure disorder places this patient in a separate category from those described by DeMyer et al. Her intelligence is above normal but at four years of age, she is having psychological problems and difficulties interacting with her peers. The difficulties in the overall management and providing accurate genetic counseling to the parents are discussed.

37 EXPERIMENTS ON THE EFFECTS OF ORAL RESPIRATION ON CRANIOFACIAL DEVELOPMENT

Egil P. Harvold, D.D.S., Ph.D., LL.D.
Britta Tomer, D.D.S.
Karen Vargervik, D.D.S.
University of California, San Francisco, CA

Obstruction of the nasal airway is a common disorder among normal children and also frequently associated with birth defects of the craniofacial region.

Primate experiments designed to assess the effect of oral respiration on the craniofacial growth patterns have been conducted. The findings showed significant changes in the muscles of the pharynx, tongue, lips and neck as well as morphological changes in the maxilla, mandible and the dentition.

38 INFLUENCES OF AIRWAY RESTRICTIONS ON FACIAL MORPHOLOGY

George Chierici, D.D.S.
University of California, San Francisco, CA

Prognosis in craniofacial anomalies can be improved by identification of secondary distortions and dysfunction which complicates the clinical assessment. The recruitment of orofacial muscles for oral respiration has an impact on the shape and posture of the tongue and mandible, and the shape of the maxilla and palate. This has been demonstrated experimentally. Application

of this information in evaluation of clinical cases with deviant morphology particularly associated with malformations, suggests alternatives in timing and sequence of treatment and should lead to the application of preventive measures.

39 EXPERIMENTAL AND CLINICAL STUDIES OF MAXILLARY PROTRACTION TO CORRECT MIDFACIAL DEFICIENCIES

Ravinda Nanda, B.D.S., M.D.S., Ph.D.

University of Connecticut School of Dental Medicine, Farmington, CT

Extraoral forces were used on experimental animals and a modified force system was used on patients to successfully bring the midfacial complex in the anterior direction. Post-experimental and post-treatment period of one week to 3 years showed that the results are stable. With further modification, the appliance system has great potential for use in the correction of midfacial dysplasias.

40 RECENT CONCEPTS OF CRANIAL AND FACIAL SUTURE RELEASE IN THE PREVENTION OF FACIAL DEFORMITY

Kenneth E. Salyer, M.D.

Children's Medical Center, Dallas, TX

The recent concept of early interceptive and prophylactic correction of craniofacial anomalies has been discussed by many surgeons (Tessier, 1976; Munro, 1977; Whitaker, 1977; and McCarthy, 1977). Hoffman (1976) has described his concept of a lateral canthal advancement of the supra-orbital margin which was suggested to him by Munro's utilization of Tessier's technique in adult patients. Hoffman modified this approach for correction of coronal synostosis, advancing the supra-orbital margin and creating an artificial suture at the base of the skull.

It is only within the past few years that it has been appreciated that patients with coronal synostosis may also have premature fusion of their facial sutures such as the fronto-sphenoidal and fronto-ethmoidal sutures. As a result, the surgical treatment of craniofacial stenosis should now include the release of the cranial base, fronto-orbito-sphenoidal and fronto-ethmoidal sutures.

41 SECONDARY REPAIR OF DENTAL ARCH DEFORMITIES IN CLEFT PALATE PATIENTS UTILIZING ORTHODONTIC TREATMENT AND SEGMENTAL OSTEOTOMIES

Michael W. Lehnert, D.D.S.

Daniel E. Waite, D.D.S., M.S.

Richard R. Bevis, D.D.S., Ph.D.

University of Minnesota, Minneapolis, MN

Cleft palate patients have malocclusion of individual arches as well as interarch malrelationships. Orthodontic manipulations of teeth in cleft patients frequently relapse. Segmental osteotomies have proven to be stable and are necessary to gain arch form, contour and create a more normal interarch relationship. This paper will discuss the stability of surgical expansion and segmental repositioning in cleft patients with and without bone grafting.

42 SOFT TISSUE NOSE AND LIP CHANGES ASSOCIATED WITH SURGICAL ADVANCEMENT OF THE CLEFT MAXILLA

Michael W. Lehnert, D.D.S.

University of Minnesota, Minneapolis, MN

In the surgical correction of dental facial deformities, optimum harmony between skeletal and soft tissue components is our goal.

Little is known or written on the soft tissue nose and lip changes observed in surgical advancement of the maxilla. This paper will report the results of detailed analysis of 20 cases with adequate follow up. Also attention will be directed at the stability of these advancements as well as review a new splint for use in these cases.

43 SECONDARY CLEFT REPAIR COMBINED WITH LE FORT I AND SEGMENTAL OSTEOTOMIES

H. Tideman, D.D.S., M.D.

P. J. W. Stoelinga, D.D.S., M.D.

Municipal Hospital, Arnhem, The Netherlands

Our procedure is a modification of Henderson & Jackson (1975) in that the oro-nasal fistula closure is combined with Le Fort I osteotomy. In addition we perform a segmental osteotomy of the buccal segment with additional advancement to close or minimize the gap.

44 PREDICTION OF VELOPHARYNGEAL FUNCTION FOLLOWING TOTAL MAXILLARY ADVANCEMENT

S. A. Schendel, D.D.S.

M. L. Oeschlaeger, Ph.D.

L. M. Wolford, D.D.S.

B. N. Epker, D.D.S., Ph.D.

John Peter Smith Hospital, Fort Worth, TX

Postoperative velopharyngeal incompetence is a possible consequence following surgical advancement of the total maxilla. From a thorough analysis of the changes in velopharyngeal anatomy with maxillary advancement and speech determination a pharyngeal need ratio average was established. A normal ratio in this study was .68-.84. A ratio greater than one was associated with velopharyngeal incompetence. A preoperative method for predicting postoperative velopharyngeal function from lateral cephalometric radiographs is proposed.

45 VELOPHARYNGEAL FUNCTION FOLLOWING MAXILLARY ADVANCEMENT

Joseph G. McCarthy, M.D.

Peter J. Coccaro, D.D.S.

Martin Schwartz, Ph.D.

Donald Wood-Smith, M.D.

John Marquis Converse, M.D.

New York University Medical Center, New York, NY

A prospective study of 40 patients, who underwent maxillary advancement, included preoperative and serial postoperative cephalometric analysis, aerodynamic evaluation of velopharyngeal orifice area and Templin-Darley articulation testing. The group was sub-divided into those with (11) and those without (29) a cleft palate. Distinct anatomical differences in the velopharyngeal area between the cleft palate and craniofacial dysostosis group was detected. Consequently the cleft palate group is more at risk for the development of postoperative velopharyngeal incompetence. No patient developed hypernasality after maxillary advancement. On cephalometric analysis there was a definite postoperative change in the posture and position of the velum; nasopharyngeal volume was also increased. Hyponasality was eliminated in 4 patients with Crouzon's disorders.

46 CHANGES IN VELOPHARYNGEAL VALVING PATTERN FOLLOWING MAXILLARY ADVANCEMENT

Robert J. Shprintzen, Ph.D.

Montefiore Hospital & Medical Center, Bronx, New York, NY

Recent reports have suggested the possibility of changes in velopharyngeal valving following maxillary advancement. These reports did not utilize the more advanced methods for directly observing the velopharyngeal sphinctor. In this study, 12 patients who underwent maxillary advancement were studied preoperatively and at least six months postoperatively with multi-view videofluoroscopy and nasopharyngoscopy changes in velopharyngeal valving were observed for three patients. These changes appear to be related to anatomical rather than physiological adjustment.

47 CRANIOFACIAL SURGERY: PSYCHOLOGICAL EVALUATIONS AND IMPRESSIONS

Edward Clifford, Ph.D.

Duke University Medical Center, Durham, NC

Psychological reactions of craniofacial patients and their parents were examined prior and subsequent to major craniofacial surgery. Patients had high expectations of surgery and expressed dissatisfaction with facial appearance. Post-surgically, satisfaction with the head and face increased. Craniofacial mothers, in contrast to cleft palate mothers, rated their children more negatively, expressed less satisfaction with aspects of the child's functioning, and were less happy in their marriages.

48 PANEL ON GENETICS AND CLEFTING

(Planned by Libby Welson, M.D.)

Molecular Biology of the Gene Cellular Biology of the Chromosomes

Mechanisms of Human Inheritance

Genetics of Cleft Lip and Palate

Craniofacial Disorders as Part of Other Syndromes

Diagnostic Techniques for Identification of Defects and Counseling of Patients

Treatment and Prevention of Genetic Disease—Present and Future

Ethical Issues in Treatment and Prevention of Genetic Disease

David Bixter, D.D.S., Ph.D.

Indiana University Schools of Dentistry and Medicine, Indianapolis, IN
 Michael Kaback, M.D.
 David Rimoin, M.D., Ph.D.
 Ray Stewart, D.M.D., M.S.
Los Angeles County Harbor/UCLA Medical Center, Torrance, CA
 Kenneth Lyons Jones, M.D.
UCSD School of Medicine, San Diego, CA
 Allan Ebbin, M.D., M.P.H.
 Harold Slavkin, D.D.S., Ph.D.
USC Medical Center, Los Angeles, CA

Funds to support this panel presentation have been provided by the National Institutes of Health (NIDR) and the National Foundation.

49 TOTS—DIAGNOSTIC CLASSROOM FOR PARENTS AND THEIR CLEFT PALATE CHILDREN

Robert W. Blakeley, Ph.D.
 Daryl E. Anderson, Ph.D.
 Christie P. Barkost, M.S.
The University of Oregon Health Sciences Center, Portland, O

A classroom program (TOTS) was initiated to work with parents and preschool children with repaired cleft lip and palate. Seven children and their mothers attended daily sessions for five weeks. Goals for parents included didactic information and parenting techniques. For children, goals included interdisciplinary team evaluations including developmental, speech, language and hearing assessments. Results indicated parents were largely uninformed and gained a better understanding of themselves and their child following the class. The classroom also provided a forum for making appropriate referrals and better clarity of prognosis.

50 A ROLE FOR PARENTS—ASSISTING THE CLEFT HABILITATION PROCESS

JoAnn Schmidt, B.A.
 Sheri Hansen, B.A.
 John Schmidt, B.S.
 Patrick Hansen, B.A.
Cleft Parent Guild Crippled Children's Society, Los Angeles, CA

This paper reviews things which parent groups have been doing for some time and explores in detail a new area where parents are beginning to make a contribution. This developing role for parents can best be described as "lay counseling." The paper describes the "Parent Contact" program developed with professional assistance by one parent group; and includes explanations of the specific functions, and limits, of the parent counselors and describes the training program itself.

51 THE ROLE OF AN OCCUPATIONAL THERAPIST AS A MEMBER OF THE CRANIOFACIAL TEAM

Elizabeth Wyckoff, B.S.
Rancho Los Amigos Hospital, Downey, CA

As a member of the Craniofacial Team, the Occupational Therapist evaluates infants, children, and adults in performance of developmental skills appropriate to each age group. These assessments demonstrate developmental delays and learning difficulties in many of our patients. At times these disorders seem related to sensory integrative dysfunction. Individualized treatment programs are prescribed following identification of these problems. Close coordination is maintained with schools and pre-vocational screening is offered as necessary.

52 LARYNGEAL FUNCTION IN ECTODERMAL DYSPLASIA

Sally Peterson-Falzone, Ph.D.
The University of Illinois Medical Center, Chicago, IL
 Karen Landahl, M.S.
 Philip Lieberman, Ph.D.
Brown University, Providence, RI

Speech samples from 16 patients with ectodermal dysplasia and 8 patients with the syndrome of ectodermal dysplasia-ectrodactyly-cleft palate (EEC) were subjected to traditional spectrographic and computer-generated line spectrum analysis. The results will be presented together with limited laryngoscopic findings in an attempt to explain the aberrant voice quality heard in these patients.

53 RESONANCE, ARTICULATION, SWALLOWING, DENTOFACIAL MORPHOLOGY, AND HEARING CHARACTERISTICS OF ACHONDROPLASTIC DWARFS

Lilliam Glass, Ph.D.
 Donna Eteson, D.M.D.
 Ray E. Stewart, D.M.D.
 David L. Rimoin, M.D., Ph.D.
Los Angeles County Harbor/UCLA Medical Center, Torrance, CA

Achondroplasia is an Autosomal Dominant form of rhizomelic dwarfism characterized by short stature and craniofacial anomalies (midfacial hypoplasia, shortened cranial base, maxillary hypoplasia, and relative prognathism). These morphological alterations are frequently accompanied by various speech characteristics which have not been systematically documented in the literature. This study attempts to systematically document resonance, articulation, swallowing, and hearing characteristics of 22 achondroplastic dwarfs.

54 PALATAL AND ARTICULATION TRAINING IN PATIENTS WITH VELOPHARYNGEAL CLOSURE PROBLEMS

Ralph L. Shelton, Ph.D.
University of Arizona, Tucson, AZ
 Dennis M. Ruscello, Ph.D.
West Virginia University, Morgantown, WV

A series of patients with velopharyngeal closure deficits and in some cases articulatory placement errors were seen for training. The treatments involved palatal feedback training or articulation training or both. In the majority of patients palatal feedback procedures were not effective in improving velopharyngeal function for speech, however, improvements in articulation were attained even though closure had not improved. The implications of the findings and suggestions for future research will be discussed.

55 A STUDY OF THE RELATIONSHIPS AMONG SPEECH JUDGMENTS MADE BY SPEECH CLINICIANS, PARENTS AND PATIENTS WITH CLEFT PALATES

Wendy Dawson, M.A.
 Sandra Skaar, B.S.
 Clark Starr, Ph.D.
 Karlind Moller, Ph.D.
University of Minnesota School of Dentistry, Minneapolis, MN

Speech judgments were obtained from clinic speech pathologists, public school clinicians, patients' parents and the patients themselves. Analysis of the relationships revealed moderate to high agreement between clinic and public school speech clinicians, moderate to low agreement between these clinicians and parents or patients, and low to high agreement between parents and patients. Speech clinicians in the clinic tended to judge patients as more nasal and more intelligible than other observer groups.

56 MESIO-DISTAL DIAMETER OF DECIDUOUS AND PERMANENT TEETH IN CLEFT PATIENTS AS COMPARED TO NORMAL

Mohammad Mazaheri, D.D.S., M.Sc.
Lancaster Cleft Palate Clinic, Lancaster, PA

The question has been raised whether the teeth in the cleft and adjacent to the cleft are abnormal in size. To answer this, the mesiodistal crown diameter of the deciduous and permanent teeth of patients with three types of clefts—unilateral cleft lip and palate, bilateral cleft lip and palate, and cleft of the palate only—was measured and compared to normative data. The result of our findings will be presented in this paper.

57 ORTHOPAEDIC ADVANCE OF CLEFT MAXILLARY SEGMENT

Ralph A. Latham, B.D.S., Ph.D.
University of Western Ontario, London, Ontario, Canada

An intra-oral appliance has been developed to exploit the antero-posterior adjustment potential of the maxillary sutures in the unilateral cleft lip and palate infant. Malalignment of the alveolar segments and depression of the nasal alar base was successfully treated in two infants. The pin-retained appliance appeared to advance the cleft maxilla bodily as much as 7 mm in 10 days.

58 APPLIANCES FOR THE CORRECTION OF POSTERIOR CROSSBITE

Rosario F. Mayro, D.M.D.

Steven Solow, D.M.D.

Arthur N. Litowitz, D.M.D.

University of Pennsylvania School of Dental Medicine, Philadelphia, PA

Posterior cross-bites in the primary, transitional, and permanent dentition occurs in both cleft and non-cleft patient population. Maxillary expansion appliances, both fixed and removable, of various designs have been reported in the literature. Our poster clinic will demonstrate different types of appliances in treated cases which may be useful in posterior cross-bite correction. Esthetic and functional considerations in fixed and removable maxillary expansion appliances will be demonstrated (in both cleft and non-cleft patients).

59 MODIFICATION OF UNFAVORABLE GROWTH PATTERNS IN REPAIRED COMPLETE UNILATERAL CLEFTS

Karin Vargervik, D.D.S.

University of California, San Francisco, CA

Sixteen children with unilateral clefts were studied. Cephalometric analysis was used to assess morphological changes occurring during orthodontic treatment and to evaluate differences between treated subjects and untreated control subjects. Distortions which in part can be attributed to surgery were studied.

The findings show that the following areas are affected by appropriate orthodontic intervention: position of the cleft maxillary segment, tongue position, mandibular shape, relative proportions of maxillary and mandibular alveolar processes, maxillary anterior alveolar process, and eruption path of permanent teeth.

60 FACIAL RECONSTRUCTION FOLLOWING MAXILLECTOMY: APPLICATION OF MICROVASCULAR TECHNIQUES

Berish Strauch, M.D.

Leonard Sharzer, M.D.

Montefiore Hospital & Medical Center, Bronx, NY

This report describes a 46-year-old male who had reconstruction of the palate with a microvascular free flap from the dorsum of the foot following maxillectomy. The soft palate had been left intact, but the hard palate removed following squamous cell carcinoma. The velopharyngeal sphincter closed during speech, but speech was severely hypernasal because of the palatal defect. Following reconstruction with attachment of the flap to the right temporal artery and vein, speech was normal.

61 THE USE OF MICROVASCULAR FREE FLAPS FOR SOFT TISSUE AUGMENTATION OF THE FACE IN CHILDREN WITH HEMIFACIAL MICROSOMIA

Donato LaRossa, M.D.

Linton Whitaker, M.D.

Richard Dabb, M.D.

Emmanuel Mellissinos, M.D.

Children's Hospital of Philadelphia, Philadelphia, PA

A free microvascular flap based on the superior gluteal vessels was transferred to the face in 3 children, aged 4 to 6, with hemifacial microsomia to correct soft tissue deficits. The flap is composed of fascial lata and adjacent fat and muscle, and included skin in one patient. The 0.5 to 0.75 mm. vessels were anastomosed to the facial or superficial temporal vessels. One patient had simultaneous bone reconstruction. The technique permits more accurate and predictable reconstruction despite a prolonged anesthetic. The details of the procedure and evaluation of postoperative results will be presented.

62 FORKED FLAP COLUMELLA LENGTHENING AS PART OF A TWO STAGED INITIAL LIP REPAIR FOR BILATERAL CONGENITAL CLEFT LIP

George H. Gifford, Jr., M.D.

Children's Hospital Medical Center, Boston, MA

A new technique for primary columella lengthening is used in six patients at the first stage of two stage repair of the bilateral cleft lip deformity. Aggressive application of the forked flap method in patients less than three months old has given satisfactory nose lip relationship, and obviated the need for re-entering the lip after five months of age.

63 PRIMARY AND SECONDARY NASAL CORRECTION IN CLEFT LIP PATIENTS

Fernando Ortiz Monasterio, M.D.

Ignacio Trigos, M.D.

University of Mexico, Mexico 7, D.F., Mexico

Our experience in a large number of nasal corrections is presented. Primary alae and columella reshaping was performed intranasally in one group and through cutaneous incision in another. Secondary complete rhinoplasty including osteotomy and septal repositioning done before age 10 and after 15 years are analyzed. Long term results in both age groups are evaluated in terms of psychological improvement, nasal growth, aesthetic result and nasal function.

64 PRIMARY LIP-NOSE CORRECTION BY A MODIFIED TRIANGULAR FLAP TECHNIQUE

Ignacio Trigos, M.D.

Ramiro Alonso, M.D.

University of Mexico, Mexico 7, D.F., Mexico

Primary alae and columella elongation and reshaping by an external incision is made at the same time as lip correction, utilizing a modification to the triangular flap technique. This operation is indicated for wide clefts that are going to be operated by surgeons with limited experience. More than 120 cases have been done in the last two years with good results. The follow-up shows permanent nasal correction with inconspicuous scars.

65 CORRECTION OF THE DOUBLE BUMP DEFORMITY IN THE BILATERAL CLEFT LIP PATIENT

Charles P. Puckett, M.D.

John F. Reinisch, M.D.

Richard S. Werner, M.D.

University of Missouri Medical Center, Columbia, MO

The absence of muscle in the prolabial segment and the lack of attention to obtaining muscle continuity in most bilateral cleft lip repairs frequently results in a characteristic bulge above the vermilion in the lateral lip segments. This double bump deformity can mar the appearance of an otherwise excellent lip repair. Our experience with the late correction of this deformity, by muscle flap repair in a series of ten patients, will be presented.

ASSOCIATION LUNCHEON

Guest Speakers:

Phyllis Evans, M.A.

Escondido School District, Escondido, CA

and

William Evans, Ph.D.

Sea World, San Diego, CA

66 "NASAL IS GOOD WHEN YOU TALK OFF THE TOP OF YOUR HEAD"

67 SELF-CONCEPT OF PRIMARY LEVEL CHILDREN WITH CLEFTS

Kathy Kapp, M.A.

Pamela Parris, M.S.

University of Illinois Medical Center, Chicago, IL

34 children between the ages of 5 and 9 affected with clefts were administered the *Primary Level Self-Concept Inventory* as a screening for several aspects of self-concept relevant to school success.

59% of the cleft children received total self-concept scores below the level the authors suggested as an indicator of an undesirably low self-concept. Examination of the domain scores revealed that 79.4% of the cleft children received an undesirably low score on the *Social Self Domain* which primarily measured peer interaction. Only 45% of the normative group received a score at this level.

68 THE CLEFT PALATE CHILD'S PERCEPTION OF PARENTAL NURTURANCE AND PUNITIVENESS

Edward Clifford, Ph.D.

Miriam Clifford, Ph.D.

Duke University Medical Center, Durham, NC

The child's perception of parental nurturance and punitiveness was assessed with a story completion technique. Perceptions of nurturance and punitive-

ness were related to maternal reports about the cleft palate child's early feeding experiences and to maternal estimates of how often their husbands participated in child-rearing activities. A relationship exists between the child's perceptions and reported maternal satisfaction in feeding and to the reported degree of participation of their fathers in child-care.

69 PERSONALITY PATTERNS OF YOUNG ADULTS WITH PHYSICAL IMPAIRMENT

Dennis C. Harper, Ph.D.
Lynn C. Richman, Ph.D.
University of Iowa, Iowa City, IA

This study compared personality characteristics of young adults with cleft lip and palate to orthopedically impaired young adults and to a normative sample. The results reveal that orthopedically impaired young adults display greater feelings of interpersonal and social alienation than the cleft group. The young adult with a cleft appears relatively well adjusted when compared to the normative sample. The personality inhibition and anxiety characteristics previously identified in elementary age and adolescent cleft studies appears to have been resolved via either compensatory mechanisms or increased self identity.

70 RECENT DEVELOPMENTS IN CT SCANNING OF THE CRANIOFACIAL COMPLEX

Wilma Maue-Dickson, Ph.D.
David Ross Dickson, Ph.D.
University of Miami School of Medicine, Miami, FL

The project to be reported has involved the assessment of image quality and dosimetry in conventional and computed tomographic scans of the craniofacial complex. Most importantly, it has involved the development of new CT hardware and software for high-resolution thin-section (1 mm.) scans as well as special modifications designed specifically for the pediatric population. The results of these new developments will be discussed and examples of the new high-resolution thin-section scans will be shown.

71 IMAGING OF LATERAL PHARYNGEAL WALLS DURING SPEECH: A COMPARISON BETWEEN FRONTAL VIDEOFLUOROSCOPY AND ULTRASOUND USING A TWO-HEADED SCANNER

M. Leon Skolnick, M.D.
Ellen R. Glaser, M.S.
Terrance Matzuk, Ph.D.
Betty Jane McWilliams, Ph.D.
University of Pittsburgh, Pittsburgh, PA

In the hope of reducing radiation exposure during multiview videofluoroscopic examinations of the velopharyngeal sphincter, a study was undertaken to compare the effectiveness of ultrasound and frontal videofluoroscopy for imaging lateral pharyngeal wall movement. Novel ultrasonic instrumentation of our own design, which simultaneously visualizes the medial movement of both lateral pharyngeal walls in the naso and upper oro pharynx in a manner similar to that displayed with frontal videofluoroscopy, was utilized. Subjects with and without velopharyngeal incompetency were studied. The ultrasound and fluoroscopic images were simultaneously recorded with speech on video tape. Our preliminary data, which will be presented in this paper, indicates a high degree of similarity between the images obtained with these two modalities.

72 BILATERAL ULTRASOUND IMAGING OF LATERAL PHARYNGEAL WALL MOTION: TECHNICAL CONSIDERATIONS

Terrance Matzuk, Ph.D.
M. Leon Skolnick, M.D.
Betty Jane McWilliams, Ph.D.
Ellen R. Glaser, M.S.
University of Pittsburgh, Pittsburgh, PA

This paper describes the technical features of a system specifically designed for simultaneously recording movements of the lateral pharyngeal walls as imaged by ultrasound and frontal video fluoroscopy. Two transducers are used: each transducer oscillates and images the left and right side of the neck respectively, and a special purpose computer combines both ultrasound images and the fluoroscopic image electronically into a single, flicker-free television image. Initial clinical results will be presented in a companion paper.

73 PHYSIOLOGICAL DYNAMICS OF THE STRUCTURES INVOLVED IN VELOPHARYNGEAL CLOSURE

Daniel H. Zwitman, Ph.D.
Harvey A. Zarem, M.D.
UCLA School of Medicine, Los Angeles, CA

The physiological relationship between velar, posterior-lateral wall, and lateral wall motion was endoscopically observed in cleft palate patients and normals with significant lateral wall movement. During phonation, the posterior-lateral wall "cups" in cleft palate patients, and lateral wall motion was observed to be a separate sphincteric action. Passavant's pad was not well developed in normals as it was in most cleft palate patients. Velar ascent appears to have an effect on lateral wall excursion.

74 A LONGITUDINAL ANALYSIS OF SPEECH AND AERODYNAMIC PATTERNS PRODUCED BY CHILDREN WITH CLEFT PALATE

Diane M. Bless, Ph.D.
Stanley J. Ewanowski, Ph.D.
David G. Dibbell, M.D.
University of Wisconsin, Madison, WI

This study investigated the development of velopharyngeal closure in children with palatal clefts. Oral pressure, nasal flow and oral flow, and perceptual measures were obtained over a five year period on one hundred subjects during several speaking tasks. Results of this study indicate that velopharyngeal closure in these children is highly variable and non-consistent with predictions found in existing literature. Additionally, aerodynamic measurements were predictive of developing velopharyngeal incompetence prior to any perceptual signs of velopharyngeal incompetence.

75 THE EXETER NASAL ANEMOMETRY SYSTEM

R. E. Ellis, M. Phil.
F. C. Flack, Ph.D.
W. G. Selley, F.D.S., F.C.S.
University of Exeter, Exeter, England

The paper will present details of equipment designed to help the speech therapist examine nasal escape, of air, during speech and provide a permanent record in chart form. Pre and post treatment data will be presented.

76 ADENOID INVOLUTION AND DEVELOPING HYPERNASALITY IN CLEFT PALATE

Robert M. Mason, Ph.D., D.M.D.
Donald W. Warren, D.D.S., Ph.D.
University of North Carolina School of Dentistry, Chapel Hill, NC

The phenomenon of gradual development of hypernasality as a result of adenoidal involution is identified and described in selected patients from a sample of 122. Three types of closure patterns of the velum against the adenoid pad are presented, as based on lateral cephalometric X-ray films taken during phonation. Aerodynamic studies often identify patients who are at risk in maintaining normal resonance balance one year or more prior to acoustic or radiographic signs of velopharyngeal incompetence.

77 THE SUCCESS OF PROPLAST AS A PHARYNGEAL WALL IMPLANT TO CORRECT VPI: LONG TERM RESULTS

Larry M. Wolford, D.D.S.
Mary Oelschlaeger, Ph.D.
George Wessberg, D.D.S.
Bruce N. Epker, D.D.S., Ph.D.
John Peter Smith Hospital, Fort Worth, TX

In the past 3 years, we have used Proplast as a posterior pharyngeal wall implant to correct VPI in 14 select cases ranging in age from 4 to 32 years. Follow-up evaluations of speech, televex, and nasopharyngoscopy demonstrate elimination or significant reduction of VPI in all cases. Cephalometric radiographs show excellent stability of all the implants. This paper will discuss the treatment rationale, surgical technique and post treatment results.

78 TEFLON PHARYNGOPLASTY UNDER DIRECT NASENDOSCOPIC OBSERVATION: A FOLLOW-UP REPORT

Avron I. Danmiller, M.D.

Charles B. Croft, M.D.

Robert J. Shprintzen, Ph.D.

Montefiore Hospital & Medical Center, Bronx, NY

In 1977, Danmiller reported on the use of teflon pharyngoplasty under direct nasendoscopy and local anesthesia. The concept was to place teflon in the precise location of the gap with the patient awake and speaking. *To date, eleven patients have had this procedure.* Nine have had excellent results with the elimination of hypernasality. This is compared to four patients who had injections under general anesthesia without endoscopy. Three had at least some residual hypernasality postoperatively.

79 A MODIFIED DESIGN FOR VELOPHARYNGEAL SPHINCTER RECONSTRUCTION: THE TRANSVERSE VELOPHARYNGEAL FLAP

Antonio M. Carbonelli, M.D.

Katy Hufnagle, M.S.

Peoria School of Medicine; Peoria, IL

A modified dynamic myomucosal velopharyngeal flap for the correction of VPI was conceived based on anatomical and electrophysiological studies previously published by other authors. The transverse orientation of the Kapetansky pharyngeal flap was used as a model for the modified design in conjunction with White's transposition flap concept. The flap was carried out on six patients with excellent results. The design is a split "S" pattern. Using transversely oriented transposition flaps one half of the "S" is taken from the pharyngeal musculature and the other half from the velar musculature. The exposure is provided through an anteriorly based soft palate oromucosal hinge flap.

80 A TENDON TRANSPLANT PHARYNGO-PALATOPLASTY

In Chul Song, M.D.

Alan H. Gold, M.D.

State University-Kings County Hospital Center; Brooklyn, NY

In order to produce valvular action in conjunction with velum elevation and sphincter contraction, a new musculo-tendinous transplant pharyngo-palato-plasty was devised and reported in 1973. The analysis of the results in nine patients having had this operation led to an elimination of muscular portion of transplant. Current technique involves the encircling of palmaris longus tendon around palatopharyngeal region and anchoring each end of tendon to the contralateral side of levator palatini as a dynamic force. The results in five cases have been good.

81 INFLUENCE OF CLEFT PALATE REPAIR ON FACIAL GROWTH: EXPERIMENTAL STUDY IN RABBITS

J. Bardach, M.D.

E. Klausner, M.A.T.

D. Roberts, M.D.

University of Iowa, Iowa City, IA

The present study was conducted in order to test the effects of cleft palate repair when the lip is left unrepaired. Forty-five rabbits divided into three groups were used in this study. At the 20th week of the experiment skull measurements were taken after the rabbits were sacrificed. Statistical analysis indicated that there are significant differences in anterior-posterior and transversal growth between the group in which cleft palate was repaired and two control groups. Inhibition of maxillary growth resulted in severe malocclusion.

82 SIMULATED VY PALATOPLASTIES IN BEAGLES: FURTHER FINDINGS ON MYOFIBROBLAST MEDIATED CONTRACTION, NEUROVASCULAR INTERRUPTION, ABSENCE OF MAXILLARY ANKYLOSIS, AND DIMINUTION OF MAXILLARY GROWTH

C. R. Kremenak, D.D.S., M.S.

T. Wada, D.D.S., Ph.D.

C. A. Squier, Ph.D.

J. M. Morris, B.A.

J. W. Mathews, B.S.

W. H. Olin, Jr., D.D.S.

University of Iowa, Iowa City, IA

Fifty-three non-cleft beagle pups were used to test hypotheses about post-surgical palatal wound contraction, maxillary ankylosis, and neurovascular bundle severance. Seven tests of varying, partial, VY simulations were performed and craniofacial growth was monitored to maturity. Contraction during healing of lateral denuded areas was followed by circa 45% diminutions of growth in arch width. Groups having extensive pterygoid dissections showed no maxillary ankylosis. Pups with bundle severance lost flaps, but all groups showed normal increases in anteroposterior dimensions.

83 ARCH FORM AND DENTAL OCCLUSION IN UNILATERAL CLEFT LIP AND PALATE

Mohammed Mazaheri, D.D.S., M.Sc.

Robert L. Harding, D.D.S., M.D.

Lancaster Cleft Palate Clinic, Lancaster, PA

Patients with complete unilateral cleft lip and palate, from birth to four years of age were randomly selected from the longitudinal growth files of the Lancaster Cleft Palate Clinic. Prior to lip surgery, the arch forms were grouped into four categories. This paper will present the results of the changes in arch relationship after lip and palate surgery, and after the full eruption of deciduous teeth. In general, it would appear that substantial improvements in arch form and occlusion occur spontaneously following the temporary lags in maxillary arch development which seem to result from the surgical intervention.

84 A LONGITUDINAL CEPHALOMETRIC STUDY ON UNILATERAL CLEFT LIP AND PALATE SUBJECTS

Samir E. Bishara, D.D.S., M.S.

Donald L. Sierk, D.D.S., M.S.

Kao-shing Huang, Ph.D.

University of Iowa, Iowa City, IA

Nine male and nine female subjects with surgically repaired unilateral cleft lip and palate were compared to 20 male and 15 female non-cleft individuals. Different cephalometric parameters describing the maxillary complex and the cranial base were statistically analyzed *longitudinally* and cross sectionally. Linear incremental data comparisons indicated statistically significant differences in the *growth profile* and *mean vector analysis* of several parameters describing the maxillary complex.

85 GENERATION CYCLE OF MESENCHYMAL CELLS OF PALATAL PROCESSES OF FETUSES FROM VITAMIN A TREATED RATS

Manual A. Torres-Diaz, D.D.S., M.D.Sc.

Ravindra Nanda, B.D.S., M.D.S., Ph.D.

University of Connecticut School of Dental Medicine, Farmington, CT

The cell cycle of mesenchymal cells in the palatal processes of fetuses from hypervitaminosis A treated mothers was studied. Pregnant Wistar albino rats received 50,000 I.U. of vitamin A on days 9-11 of gestation and an IP injection of 250 uCi/Kg of body weight of ³HTdr at day 15 of gestation. Fetus heads were recovered at hourly intervals for 24 hours and prepared for autoradiography. Graphs representing percent labelled mitosis and percent labelled cells were constructed and compared to normal values. A decreased cell proliferation was found apparently as a result of a disturbance in the S to M transition.

86 IMMUNOGENETIC STUDIES OF THE HLA COMPLEX IN PATIENTS WITH CRANIOFACIAL ANOMALIES

Joseph G. McCarthy, M.D.

John Marquis Converse, M.D.

Felix T. Rapaport, M.D.

New York University Medical Center, New York, NY

The HLA complex was evaluated in 140 family units, in which one or more offspring was afflicted with a craniofacial anomaly. The present immunological study included serological (SD) and cellular (LD) analysis of the genetic transmission of HLA products from parents to offspring. MLC non-reactivity between one (or both) parents and some of the offspring was demonstrated in 41 families as a consequence of the sharing of LD alleles by each pair of parents. The latter finding points to the possibility of an interactive role of the human sixth chromosome in the genesis of developmental anomalies.

87 ANIMAL MODELS FOR CLEFT PALATE SURGERY: IMPLICATIONS FOR MIDDLE EAR PATHOLOGY

M. I. Siegel, Ph.D.
D. Phillips, B.A.
K. Kimes, B.A.
W. J. Doyle, Ph.D.
E. Cantekin, Ph.D.
C. Bluestone, M.D.
University of Pittsburgh, Pittsburgh, PA

Cleft palate infants suffer from chronic otitis media with effusion. Subsequent to cleft repair only 50% improve. An animal model of otitis media is a necessary prerequisite to improving surgical techniques. A rhesus monkey model has been developed. Preliminary findings indicate that altered eustachian tube function associated with surgically produced clefts, result in otitis media with effusion. With this model we are now able to evaluate various surgical means to improve tubal functions.

88 EUSTACHIAN TUBE HYPOPLASIA IN CLEFT PALATE PATIENTS

Robert J. Shprintzen, Ph.D.
Charles H. Croft, M.D.
Montefiore Hospital & Medical Center, Bronx, NY

Recent evidence suggests that middle ear fluid is not properly drained in cleft palate subjects because of malformation of the Eustachian tube cartilage based on fetal head dissection (Dickson, et al., 1976). This investigation reports that nasendoscopic study of the Eustachian tube orifice in 80 normal, 300 repaired cleft palate, 40 submucous cleft, and 30 occult submucous cleft subjects. Eustachian tube hypoplasia occurred in nearly 100 percent of the cleft population, but in only 2 percent of the normals.

89 AUDIOLOGIC AND OTOLOGIC FINDINGS IN PIERRE ROBIN ANOMALAD

Herbert Gould, Ph.D.
David Caldarelli, M.D.
Pamela Parris, M.S.
Lynn Toney, M.A.
University of Illinois Medical Center, Chicago, IL

Hearing loss, active and static middle ear disorders have been described in Pierre Robin anomalad by several authors. Previous investigations, with one exception, reported otologic and audiologic status only as incidental to other findings in this and other so-called "first arch" syndromes. This paper will report audiologic and otologic history in 20 cases of Pierre Robin as compared to a matched group of non-syndrome cleft palate children.

90 OCULAR ABNORMALITIES IN THE PIERRE ROBIN ANOMALAD

Judith A. Le Duc, M.A.
Charles M. Vygantas, M.D.
University of Illinois Medical Center, Chicago, IL

Several authors have reported on the frequency and type of ocular lesions in the Pierre Robin Anomalad and have suggested that this population is indeed at risk for ophthalmopathy. Nineteen of our Robin patients were examined ophthalmologically. Results ranged from no ocular pathology to mild esotropia to retinal detachment. Discussion will focus on the significance of these findings in the Robin Anomalad, the risk for further ophthalmopathy and the necessity for ophthalmological screening on a regular basis.

91 OCULOCUTANEOUS HYPOPIGMENTATION ASSOCIATED WITH APERT'S SYNDROME

Sheila Margolis, M.D.
Irwin Siegel, M.D.
Goodwin Breinin, M.D.
J. G. McCarthy, M.D.
J. M. Converse, M.D.

Andrew Choy, M.D.
New York University Medical Center, New York, NY

A new association of albinism with Apert's Syndrome (acrocephalosyndactyly) is described. Of nine cases presented, with the syndrome, five show associated hypopigmentation of hair, skin and eyes. Findings appear to indicate that genetic factors become active at a common point in gestation resulting in a specific polymorphic phenotypic expression.

92 LONGITUDINAL CEPHALOMETRIC ORBITAL MEASUREMENTS IN NORMAL SUBJECTS

Peter J. Coccaro, D.D.S.
Joseph G. McCarthy, M.D.
John Marquis Converse, M.D.
Barry Grayson, D.D.S.
New York University Medical Center, New York, NY

Normative longitudinal data for intra- and inter-orbital dimensions in 80 subjects without any known craniofacial anomalies were obtained from posterior-anterior cephalometric films taken over a period of years from ages 7 to 17. The purpose of this study was to establish cephalometric values for orbital measurements that would be useful in the diagnosis and treatment planning of subjects with orbital hypertelorism. To the best of our knowledge such information utilizing cephalometrics is not available.

93 SKELETAL CHARACTERISTICS OF PATIENTS WITH CRANIOFACIAL DYSOSTOSIS

Alena R. Kochman, M.D.
Peter J. Coccaro, D.D.S.
Joseph G. McCarthy, M.D.
John Marquis Converse, M.D.
New York University Medical Center, New York, NY

A large series of patients with craniofacial dysostosis was reviewed and studied with cephalometry. The results were analyzed and found to be helpful in diagnosing the following syndromes: Crouzon's disease, Apert's syndrome and Pfeiffer's syndrome.

94 SUBMUCOUS CLEFT PALATE: THE USE OF THE PHARYNGEAL FLAP IN THE TREATMENT OF HYPERNASALITY

Dennis J. Hurwitz, M.D.
Leon Skolnick, M.D.
Betty Jane McWilliams, Ph.D.
William S. Garrett, Jr., M.D.
Ellen R. Glaser, M.S.
University of Pittsburgh, Pittsburgh, PA

This study will report on the use of the superiorly based pharyngeal flap as the sole physical management of velopharyngeal insufficiency secondary to a submucous cleft palate (SMCP) in 22 patients. Resonance, voice quality and audiologic status were studied pre- and postoperatively. In addition, the applications of multiview videofluoroscopy as used in 8 patients for the detection of the SMCP will be discussed.

95 NASAL OBSTRUCTION AS A COMPLICATION OF PHARYNGEAL FLAP SURGERY

J. Bradley Thurston, M.D.
James C. Shanks, Ph.D.
James E. Bennett, M.D.
Robert W. Parsons, M.D.
Indiana University Medical Center, Indianapolis, IN

Significant nasal obstruction was unexpectedly discovered in ten of eighty-five patients who had pharyngeal flaps during 1972-1976. None voiced spontaneous complaints, although obstruction was total in seven. There was a positive correlation between obstruction and the preoperative diagnosis of repaired cleft palate. Division of the flap resulted in relief of signs and symptoms of obstruction without the need for additional surgery.

AMERICAN CLEFT PALATE EDUCATIONAL FOUNDATION PROGRAM OF STUDY SESSIONS

1 FACIAL GROWTH AND ORTHODONTIC TREATMENT IN CLEFT PALATE

R. Bruce Ross, D.D.S., M.Sc.

Facial growth is abnormal in children with cleft lip and palate, which creates unusual problems for the orthodontist. This session will provide a rationale of long-term orthodontic treatment related in particular to appropriate timing of orthodontic and surgical-orthodontic procedures.

2 CLINICAL PROCEDURES FOR ASSESSING CLEFT PALATE SPEECH AND REMEDIATION

Duane R. Van Demark, Ph.D.

Basic clinical procedures will be discussed in relation to the diagnostic evaluation of the speech of individuals with cleft palate. Emphasis will be placed on the evaluation of young children and how that evaluation can be helpful in the development of a remediation program.

3 SURGICAL TREATMENT OF VELOPHARYNGEAL INCOMPETENCE

V. Michael Hogan, M.D.

The course will present a brief review of surgical procedures for velopharyngeal incompetence with emphasis on the Lateral Port Control (L.P.C.) Pharyngeal Flap. Complication of this procedure and management will be discussed in detail.

4 PEDIATRIC GENETIC CONCERNS ABOUT CLEFT LIP AND PALATE AND RELATED DISORDERS

Leslie M. Holve, M.D.

This course is designed to acquaint other team professionals with the myriad of pediatric problems (child and family) that will interfere and potentially diminish the expected outcome of comprehensive longitudinal team care. The genetic factors and impact on the child and his family will be reviewed and discussed. Slides and lecture materials will be used to illustrate the topic.

5 TREATMENT APPROACHES IN PIERRE ROBIN ANOMALAD

Peter Randall, M.D.

This course will cover a brief history of the anomalad and the development of treatment plans. Problems, complications and advised precautions will be discussed. Present treatment plans and possible consequences will be presented.

6 TREATMENT OF MANDIBULAR MALFORMATIONS

Egil P. Harvold, D.D.S., Ph.D.

Karin Vargervik, D.D.S.

This course will cover: Treatment principles for birth defects of the jaws. Examination, differential diagnosis and classification of mandibular malformations requiring different treatment designs. Treatment design and techniques will be discussed and illustrated by case reports.

7 DIAGNOSTIC TECHNIQUES IN ASSESSING THE SPEECH MECHANISM

M. Leon Skolnick, M.D.

Radiographic techniques for studying the movements of the nasopharyngeal sphincter during speech to determine the presence or absence of velopharyngeal incompetence will be discussed. Specific topics include: Normal gross and roentgen anatomy, radiographic imaging techniques emphasizing multiview videofluoroscopy, interpretation and video tapes, and clinical application. Video tapes of a variety of nasal and non-nasal patients will be shown.

8 TEAMS, DOCTORS AND FAMILIES: "DOES YOUR TEAM REALLY WORK?"

Ronald P. Strauss, D.D.S., M.S.

Hillary Broder, M.S.

A group discussion will be led to consider team interaction especially status and hierarchies as they affect team members and families. Consideration will be given to who makes decisions about surgery and what factors are considered in the process. Parent, patient and team member perceptions of facial deformities will be explored. This will be an interactive forum in which instructors will present data and lead discussions of course participants' experiences and understandings.

9 CURRENT APPROACHES IN CRANIOFACIAL SURGERY

Linton A. Whitaker, M.D.

Emphasis will be on recent thoughts concerning classification and diagnosis; aspects of treatment in infancy and problem areas.

10 WHAT TO LOOK FOR IN THE ORAL EXAMINATION

Robert M. Mason, Ph.D., D.M.D.

This presentation will review principles for orofacial examination, and will focus on the special considerations involved in evaluating and describing oropharyngeal morphology in patients with craniofacial anomalies.

11 SECONDARY SURGERY FOR CLEFT PALATE AND RELATED PROBLEMS

Donald I. Kapetansky, M.D.

The various indications for secondary surgery for cleft palate and related problems will be discussed. Separation of surgical problems from problems amenable to medical therapy will be stressed. Surgical technique will be demonstrated. The post operative treatment is an essential part of the therapy program.

12 GROWTH AND DEVELOPMENT OF THE FACIAL COMPLEX

Ross E. Long, Jr., D.D.S., M.S.

Contemporary theories of facial growth and development will be reviewed in light of existing basic and clinical research data. Based on the various theories explanations of growth trends seen clinically will be attempted. Special emphasis will be placed on repaired and unrepaired cleft palate growth as well as on other major craniofacial anomalies. The teaching level will be geared to understanding by a multidisciplinary group.

13 EARLY INTERVENTION IN CLEFT PALATE SPEECH

Betty Jane Philips, Ed.D.

This presentation will focus on methods and procedures for evaluation and management of the preschool child who has communication problems related to velopharyngeal incompetence. The role of the parent, a key person in implementation of an effective program, will be discussed as will procedures for parent participation in evaluation and stimulation of communication skills.

14 FROM CLEFT PALATE CENTERS TO CRANIOFACIAL CENTERS—WHITHER PROGRESS?

Samuel Pruzansky, D.D.S.

Hughlett L. Morris, Ph.D.

Betty Jane McWilliams, Ph.D.

The first Center for Craniofacial Anomalies was established by the Board of Trustees of the University of Illinois in 1968 incorporating the Cleft Palate Center and Training Program previously organized in 1949. In many ways

this change was logical and natural for us. The question is, "should this change be emulated by all cleft palate centers?" The problems that face administrators in attempting such changeover merit discussion and analysis in an effort to project future directions.

15 OTOLOGIC CONSIDERATIONS IN CLEFT PALATE AND CRANIOFACIAL ABNORMALITIES

Sylvan E. Stool, M.D.

Otologic abnormalities are frequently found in patients with craniofacial abnormalities. They may be primary as part of the abnormality or secondary to structural defects. Early recognition and aggressive therapy may decrease the sequela of these defects.

16 SURGERY FOR SECONDARY CLEFT LIP DEFORMITIES AND SECONDARY CLEFT LIP AND NASAL DEFORMITIES

William C. Trier, M.D.

The study course will include the analysis, treatment planning and techniques for reconstruction of secondary cleft lip and cleft lip nasal deformities.

17 CORRECTION OF DENTOFACIAL DEFORMITIES

David J. Hall, D.D.S.

Timothy A. Turvey, D.D.S.

Accurate diagnosis and treatment planning of patients with dentofacial and craniofacial deformities is critical if satisfactory results are expected. During this study session analysis of facial form and function will be discussed. Case reports will be used to illustrate the importance of proper diagnosis and sequencing of treatment.

18 PROSTHODONTIC CONSIDERATIONS IN REHABILITATION OF THE ORAL FACIAL REGION

George J. Chierici, D.D.S.

Clinical consideration of biologic principles underlying prosthodontic treatment in orofacial anomalies. Discrimination among factors contributing to abnormal structure and dysfunctions influencing treatment will be discussed.

SCIENTIFIC EXHIBITORS

E 1 BIOMECHANICS OF INTRUDING A FREE-FLOATING PREMAXILLA

Ravindra Nanda, M.D.S., Ph.D.

Curtis Sapp, D.D.S.

Manual A. Torres-Diaz, D.D.S., M.D.Sc.

University of Connecticut Health Center

Department of Orthodontics, Room L-7063

Farmington Avenue

Farmington, Connecticut 06032

E 2 BONE GRAFTING IN THE TREATMENT OF ALVEOLAR CLEFTS. A REVIEW OF TECHNIQUE, STABILITY AND TOOTH ERUPTION IN 160 CASES.

Michael W. Lehnert, D.D.S.

Daniel E. Waite, D.D.S., M.S.

University of Minnesota School of Dentistry

7-174 HSA

515 Delaware Street

Minneapolis, Minnesota 55455

E 3 CLEFT PARENT GUILD OF LOS ANGELES

JoAnn Schmidt, B.A.

2311 W. 229th Street

Torrance, California 90501

E 4 CURRENT RESEARCH INTO ORAL-PHARYNGEAL MALFUNCTION

F. C. Flack, Ph.D.

R. E. Ellis, M. Phil.

W. G. Selley, F.D.S.

Medical Physics Group

Department of Physics

University of Exeter

Stocker Road

Exeter EX4 401, Devon, England

E 5 EVALUATION OF THE VELOPHARYNGEAL PORTAL BY TOWNE VIEW VIDEORADIOGRAPHY

Arthur Brown, M.D.

Marilyn Cohen, B.A.

Michael Jones, R.T.

Donato LaRossa, M.D.

Facial Reconstruction Center

Children's Hospital of Philadelphia

Civic Center Blvd.

Philadelphia, Pennsylvania 19104

E 6 "HEADWAY"—THE INTERNATIONAL CRANIOFACIAL MORPHANALYSIS PROJECT

Dr. G. P. Rabey

The International Centre for Morphanalysis

Department of Anatomy

The Medical School

The University

Manchester, England

E 7 INSTRUMENTATION FOR ANALYSIS OF HYPERNASAL SPEECH

Glen L. Bull, Ph.D.

Milton T. Edgerton, M.D.

Wesley E. McDonald, M.S.

Ralph C. Bralley, Ed.D.

The University of Virginia

109 Cabell Hall

Charlottesville, Virginia 22903

E 8 SPEECH AND LANGUAGE STIMULATION FOR THE CLEFT PALATE CHILD

Julia Hobbs, M.A.

Barbara Moore, M.A.

11600 Wilshire Blvd., #210

Los Angeles, California 90025

E 9 THE SURGICAL CORRECTION OF DENTOFACIAL DEFORMITIES

Larry M. Wolford, D.D.S.

Steven A. Schendel, D.D.S.

Bruce N. Epker, D.D.S.

Leonard C. Fish, D.D.S., M.S.

John Peter Smith Hospital

1500 South Main Street

Fort Worth, Texas 76104

E 10 TABLE CLINIC AND DEMONSTRATION: FEEDING TECHNIQUES FOR THE CLEFT PALATE INFANT; A MATTER OF LIFE-FEEDING A BABY WITH CLEFT; PROSTHODONTIC REMEDIATION AND ACQUIRED PALATAL INCOMPETENCY.

Leslie M. Holve, M.D.

Irving G. Gault, D.D.S.

Richard C. Grossman, D.D.S.
St. John's Hospital and Health Ctr.
1328 - 22nd Street
Santa Monica, California 90404

**E 11 TREATMENT OF SOME ANOMALIES OF
THE CRANIUM, FACE, JAWS, AND
DENTITION**

Galen W. Quinn, D.D.S., M.S.
Division of Orthodontics
Division of Plastic & Maxillo-Facial Surgery
Duke University Medical Center
Durham, North Carolina 27710

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West Washington Square
Philadelphia, Pennsylvania 19105

ANNOUNCEMENTS

UNIVERSITY OF IOWA COURSE SURGICAL TECHNIQUES IN CLEFT LIP AND PALATE AND ASSOCIATED MAXILLOFACIAL DEFORMITIES

The annual course in surgical techniques in cleft lip and palate and associated maxillofacial deformities will be held at the University of Iowa from September 17-21, 1979. The faculty will include a plastic surgeon, an otolaryngologist, an orthodontist, a maxillofacial prosthodontist, a speech pathologist, a pediatrician, a psychologist, and a social worker. All listed specialists are members of the Center for Congenital Maxillo-facial Anomalies at the University of Iowa. Guest speakers will be two plastic surgeons from other centers. They are Dr. V. Michael Hogan, Associate Professor of Surgery, New York University Medical School; Director of the Cleft Palate Program, Institute of Reconstructive Plastic Surgery, and Dr. Kenneth E. Salyer, Director of Cranio-Facial Surgery in Children's Medical Center in Dallas; Attending Surgeon, Baylor University Medical Center; and former Professor and Chairman, Division of Plastic Surgery, University of Texas, Southwestern Medical School.

The emphasis will be placed upon current surgical techniques used in primary cleft lip and palate repair and in correcting secondary maxillofacial deformities associated with cleft lip and palate. Special attention will be paid to the correction of cleft related nasal deformities and to the operations correcting velopharyngeal incompetence. Operations on the facial skeleton to correct secondary maxillofacial deformities will be presented. Didactic presentations will be supported by demonstrations in the operating room, both live and videotaped.

Enrollment will be limited. Tuition is \$500. The tuition for residents is \$250.

For further information contact: Janusz Bardach, M.D., Division of Plastic and Reconstructive Surgery of the Head and Neck, Department of Otolaryngology and Maxillofacial Surgery, University of Iowa Hospitals, Iowa City, IA 52242.

INTERNATIONAL SYMPOSIUM ON LATE RESULTS IN THE TREATMENT OF CLEFT LIP AND PALATE WITH COORDINATED TEAM APPROACH AUGUST 23-24, 1979 IN BERN, SWITZERLAND

A symposium on "Late Results of Cleft Lip and Palate Patients with Coordinated Team Approach" will be held in Bern, Switzerland, August 23-24, 1979 at Childrens Hospital, Inselspital Bern. Accomodations will be available a short distance from the hospital.

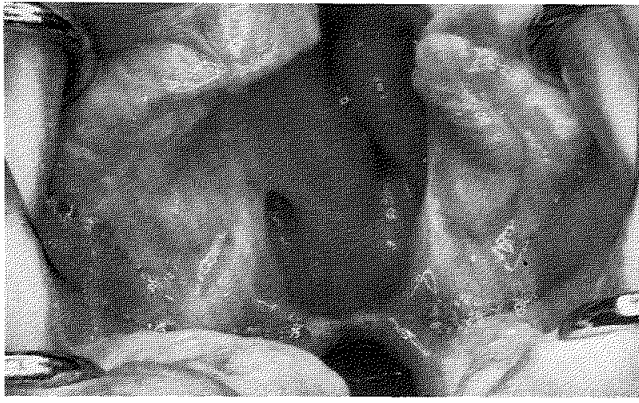
All participants in the symposium will receive two interesting and informative days. It is also expected that many who will attend the symposium would like to contribute to discussions and presentations. The registration fee for the symposium has not yet been set, but you will be contacted again after your preliminary registration has been received.

For more information, contact: Professor Marcel Bettex, M.D., Universitat Bern, Kinderchirurgische Klinik, 3010 Bern, Switzerland.

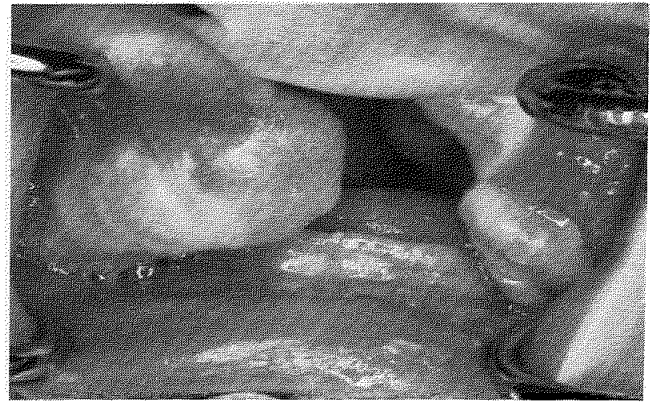
CORRECTION

Hotz, M. M., Gnoinski, W. M., Nussbaumer, H., and Kistler, E. Early Maxillary Orthopedics in CLP Cases: Guidelines for Surgery, *The Cleft Palate Journal*, 15, 405-411, 1978.

The photographs in Figure 2 were incorrectly placed. The illustrations on the following page are in the correct order. Please substitute this copy for page 407 in your copy of the October, 1978 issue of the *Cleft Palate Journal*.



A



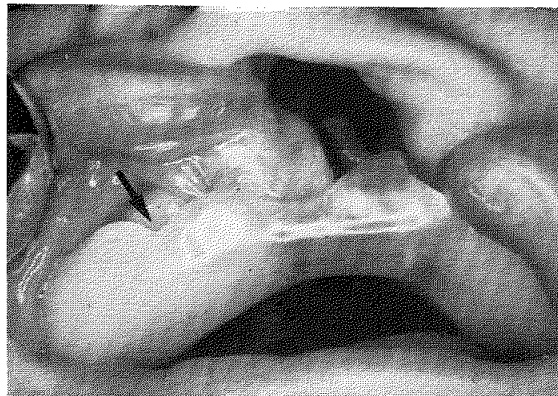
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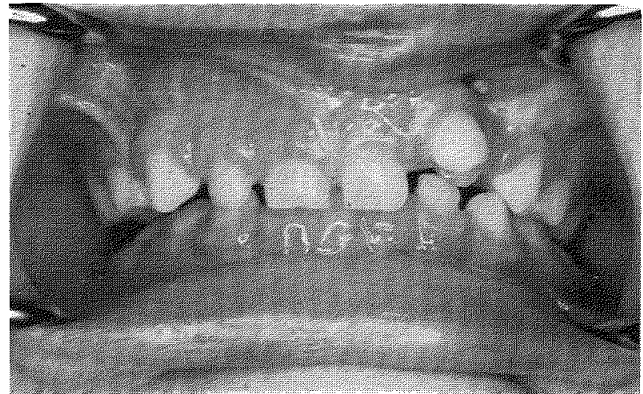
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G

FIGURE 2. Patient P.R.: Complete UCLP

a/b Palate and occlusion at birth

c/d Palate and occlusion at 4 1/2 months of age.

e Mesial movement of the major segment. The frenum, formerly located in the incision of the palate at arrow, has spontaneously moved out of it: effect of growth guidance.

f/g Palate and occlusion at 18 months of age, before soft palate closure.

CLEFT PALATE JOURNAL IS NOW ON MICROFILM

Volumes 1 through 13, 1964-1976, of the Cleft Palate Journal are now available on microfilm. For information, please write to: Waverly Press, Inc., 428 E. Preston Street, Baltimore, MD 21202.

CLINICAL MANAGEMENT OF THE CLEFT PALATE PATIENT (0.7 CEU) OCTOBER 19, 1979

This interdisciplinary course, to be given at Lakeview Inn, Morgantown, West Virginia, is designed for all individuals involved in the treatment of patients with cleft palates. The West Virginia University Cleft Palate Team will present the basic aspects of Pediatrics, Genetic Counselling, Otolaryngology, Speech Pathology, Radiology, Pediatric Dentistry, Orthodontics, and Maxillofacial Prosthodontics as it relates to treatment of the patient with velopharyngeal insufficiency.

Special emphasis will be placed on the plastic surgical techniques of primary palatal closure and secondary palatal procedures by Janusz Bardach, M.D., Chairman of the Division of Plastic and Reconstructive Surgery of the Head and Neck, University of Iowa. Presiding: Edwin V. Kluth, D.D.S.; Lecturers: Janusz Bardach, M.D., W.V.U. Cleft Palate Team. Fee: \$40.00 apply before September 28, 1979. (Luncheon included)

Please contact Director of Continuing Education, School of Dentistry, West Virginia University, Morgantown, WV 26506, telephone 304-293-3549.

NINTH ANNUAL WORKSHOP OF MICHIGAN SPEECH PATHOLOGISTS TO BE HELD OCTOBER 13, 1979

Michigan Speech Pathologists in Clinical Practice announces its Ninth Annual Workshop. The featured guest speaker will be F. Paul Pearsall, Ph.D., presenting on "Coping With A Communication Disorder; Effect on Client, Family and Speech/Language Pathologist." The workshop will be held on October 13, 1979, from 8:30 a.m. to 4:00 p.m. at Mercy Center, 28600 Eleven Mile Road, Farmington Hills, Michigan.

For more information, contact Enid M. Settano, Chairperson, Visiting Nurse Association Northern Rehabilitation Office, 47 W. 7 Mile Road, Detroit, Michigan, 48203, (891-5570).