Studying Comprehension in Infants with Cleft Lip and Palate

This letter is in response to the article "Comprehension abilities of one-year old infants with cleft lip and palate" by Long and Dalston published in *The Cleft Palate Journal* (October, 1983). As the authors' note, the study of the communicative abilities of cleft palate infants is central to the determination of appropriate remediation. Because of the importance of the investigation of the emergence of language in this population, several problems that we perceive with the Long and Dalston article require discussion.

The first problem concerns the description of subjects. The authors stated that the subjects had "normal hearing" at the time of the experiment except for the possibility of "mild conductive hearing loss." The status of hearing was determined by using free field presentation of speech and warble tones delivered at undesignated levels. This type of testing cannot eliminate the possibility of mixed, sensorineural, or unilateral losses. Even a mild hearing loss, which the authors acknowledge could have existed, might influence language learning. In their review of the effects of mild conductive hearing loss on language acquisition, Northern & Downs (1978) noted that a deviation of 10 dB could cause reduced language learning ability in children. In addition children who had normal hearing at the time of this experiment may have previously experienced fluctuating hearing levels. There is ample evidence that cleft lip and palate children are especially high risk for fluctuating hearing loss associated with recurrent otitis media (Heller, 1979). Hearing status and history of mild hearing loss are important factors and need to be known and accounted for in the study of language comprehension.

The description of subjects further indicated that developmental levels were determined solely by case history information indicating "no evidence of intellectual or motoric delays." Without some objective measure of development it is difficult to judge, for example, whether differences in results such as the lower comprehension scores for cleft subject 4 and control subjects 16 and 17 (Table 1) represented a specific deficit in comprehension or limitations in cognitive development.

A second and more serious problem concerns the data provided in the article. Table 1 presents the frequency counts of comprehension behavior for each subject. However, the frequency of a response cannot be equated with ability unless certain absolute measures are also provided. These absolute measures should include an indication of the number of stimulus utterances provided to each subject (including the number of utterances with and without gesture) as well as the number of times each subject failed to comprehend.

Another problem concerns the analysis of data leading to the authors' conclusion that deficits in comprehension were not evident at one year of age. In order to measure comprehension in this study the responses of subjects were divided into two categories (Table 1) based upon whether or not the parent accompanied the stimulus utterance with a gesture. This distinction appears artificial because children of this age normally rely upon all situational cues to interpret utterances (Huttenlocher, 1974; Benedict, 1978; Shatz, 1978; Chapman, 1979). Since year old children appear to comprehend primarily at a single word level (Fisher & Corrigan, 1980), it seems natural and necessary for parents to supplement multiword utterances with gesture and/or actions. The decision to separate comprehension skills based upon a dichotomy of ± gestures may have obscured rather than illuminated the children's comprehensive abilities. This may help to explain why there were no significant differences between the groups. Our work (Fox, Lynch and Brookshire, 1978) which compared the performance of cleft palate toddlers with matched controls on well known developmental measures, indicated consistent differences between the groups in all areas tested including comprehension of language.

Finally, it was disappointing that this article did not provide a discussion of factors that may have been associated with obvious intra-subject differences in comprehension. For example, cleft subjects 3, 6 and 9 showed a discrepancy of 14 to 17 points in comprehension while control subjects 11 and 13 had between 27 and 36 points difference in their ability to comprehend with as compared to without gesture. We also wonder why cleft subjects 2 and 5 and control subjects 15 and 19 seemed to comprehend better *without* gesture. This discrepancy might reflect differences in the parent-child styles of communication. Our work has demonstrated that analysis of the utterances and behaviors of both conversational partners (parent and child) contributes significantly to understanding the communication exchange (Lynch and Fox, 1981; Lynch, Brookshire and Fox, In Review). Discussion of individual linguistic differences often provides valuable information about factors that may not be revealed by a statement of statistical significance.

In conclusion we support the importance of the continued study of the language acquisition process of cleft children to which Long and Dalston have contributed. However, we suggest that the results of this study should be evaluated in light of the above problems.

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Dalston and Long Reply

First of all, we would like to thank Joan Lynch, Donna Fox and Bonnie Brookshire for their comments concerning our recent article (Long and Dalston, 1983).

They are quite right in noting that we did not specify the level at which the speech and warble tones were delivered. That level was 20 dB HL. We did not say that the subjects had "'normal hearing.'" What we said was that "Audiometric screening . . . was conducted at the time of testing to eliminate the possibility of all but mild conductive hearing losses" (p. 304). We took certain things for granted and, quite erroneously, did not make our assumptions sufficiently explicit.

1) The audiometric testing was conducted to determine the extent of hearing loss in the speech frequencies. It is true that the possible existence of a high-frequency sensori-neural hearing loss was not specifi-

cally determined. The sole intent was to determine whether, at the time of testing, the children's responses to speech were such that all but a mild hearing loss might be ruled out. The inclusion of the word "conductive" in the phrase "mild, conductive hearing losses" (p. 304) was in deference to the fact that *virtually* all hearing losses in nonsyndromic cleft palate infants are conductive in nature.

2) The phrase "at the time of testing" was specifically included in the last sentence of column 1 on page 304 since test results only indicate the performance of the individual at the time the test is administered. Because conductive hearing losses are known to fluctuate widely, no assumption about previous or future hearing status was intended or implied by us.

In retrospect, it appears that much of the confusion here would have been eliminated had we changed our wording so that the sentence in question read as follows: "Audiometric screening, using free field speech and warble tones presented at 20 dB HL, was conducted to ensure that the subjects had no more than a mild hearing loss in the speech frequencies at the time of testing." This in no way detracts from their very valid statement that "mild" hearing losses may have significant effects upon early language learning.

We wholeheartedly agree with them that "Hearing status and history of mild hearing loss are important factors and need to be known and accounted for in the study of "linguistic development." Unfortunately, such information occasionally is totally omitted from descriptions of cleft palate children selected for inclusion in studies of language performance (e.g., Fox, Lynch and Brookshire, 1978).

They are quite correct in stating that "some objective measure of [intellectual] development" would have been useful in an attempt to determine whether individual differences in comprehension performance among the subjects studied were due to a true difference in comprehension ability or merely reflective of a more generalized cognitive problem. However, considering the standard error of measurement associated with "objective" measures of cognitive development in 12-month-old children, we are not convinced that a tool currently exists that would have helped us make a valid and reliable determination of subtle cognitive delays.

With respect to the specific performance of subjects 4, 16 and 17, it might be mentioned that the gestural communication (Long and Dalston, 1982) and expressive language (unpublished) abilities of these 3 subjects were not significantly different from the other subjects in the study groups. Such evidence *suggests* that these particular subjects *probably* did not have general cognitive delays.

Their concern with the use of frequency counts of comprehension behavior is a very valid one. While we addressed this limitation on p. 306, it definitely warrants further caution. It certainly is inappropriate to consider the performance of two groups as similar when they manifest a comparable number of responses if one of those groups is given many more *chances* to respond. While no *obvious* differences were observed in the number or nature of communicative attempts by the mothers, there could have been *significant* differences which went unnoticed. That is why we stated that "the frequency and complexity of maternal utterances should be explored in future attempts to determine whether one-year-old infants with cleft lip and palate manifest comprehension deficits." (p. 306).

We disagree that separating subject responses into Comprehension With and Without Gestures is "artificial." We agree that "children of this age rely upon all situational cues to interpret utterances." However, when a mother produces an utterance with no associated bodily gesture and the child responds appropriately, it seems reasonable to judge that the child comprehended the utterance without gestural mediation. While it may seem "natural and necessary for parents to supplement multiword utterances with gesture and/or actions," the fact of the matter is that many of the communicative attempts by mothers in both groups did not involve any gestures discernible to judges trained to look for them.

In any case, analysis of the data following collapse of all comprehension responses into one set and analysis of the data follow-

ing removal of all comprehension-without-gesture responses yielded the same results. Within the limitations mentioned in the article there were no significant differences found in the comprehension abilities of the two groups investigated.

We do not discount the differences found by Fox, Lynch and Brookshire (1978), although the validity and reliability of at least two of their three tests have been questioned elsewhere (MacDonald, 1979; Frankenburg, *et al.*, 1979). The problem here is that comparison of our data with theirs is difficult since there is no way of knowing which of their 24 cleft palate youngsters were under 13 months of age. Based upon our findings, we feel it reasonable to state that "while infants with cleft lip and palate may manifest later comprehension deficits, results of the current investigation suggest that these deficits are not evident at one year of age" (p. 306). If they have data to the contrary, it would be very interesting to hear about it.

Again, we would like to thank Drs. Lynch and Fox and Ms. Brookshire for their interest in this project. Healthy interaction and exchange of information and ideas cannot help but ensure that all of us eventually will reach our shared goal of providing optimum treatment to patients in our care.

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Bali Sculpture

As a supplement to the paper: African Mask with Cleft Lip and Palate, Jaroslav Cervenko, The Cleft Palate Journal, Vol. 21, #1, p. 38, the reader may be interested in a wood sculpture from Bali (Indonesia).

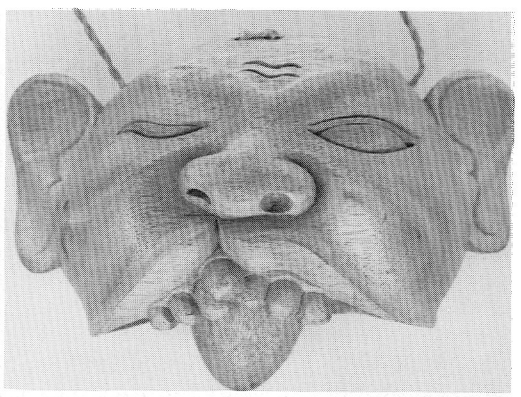

FIGURE 1

It realistically depicts an incomplete cleft lip, together with an ectopic incisor and asymmetry of the nostrils. The large protruding ears are characteristic of most of the masks of Indonesia. The tongue swings freely inside the mouth like a Swiss cow bell. I don't know the incidence of cleft lip and palate among the peoples of Southeast Asia, but it is much higher than in negroid peoples, perhaps even higher than among Caucasians.

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Feeding Management of a Child with a Handicap: A Guide for Professionals

SMITH, M. A. H., CONNOLY, B., MCFADDEN, S., NICROSI, C. R., NUCKOLLS, L. J., RUSSELL, F. F., and WILSON, W. M.

University of Tennessee Center for the Health Sciences, Child Development Center: Memphis, Tennessee, 1982. 85 pp., $3.00.

Interdisciplinary authorship of this slim volume assures the reader variety in an overview of pediatric feeding problems and their nutritional, behavioral, and mechanical management. Patients described include primarily the child who cannot learn to feed himself ("mentally retarded") and the child whose reflexive neuromuscular responses interfere with ingestion as well as with self-feeding skills. The organization of this introductory level information presents the identification, evaluation, and treatment of a variety of patient/environment feeding handicaps and consequent health and developmental hazzards which threaten to diminish biological, intellectual, and behavioral potential of the child. It is disappointing that this information from the specialities of nutrition, physical, and occupational therapy is sequenced without explanation of integrated team care process. For example, the authors describe the standard feeding devices for infants with cleft palates but they do not mention need for special feeding position for those babies.

Through a brief presentation of physical development norms and USDA nutritional standards, the authors set the tone for the remainder of the text. Perhaps because of the brevity, information considered by other sources to be open for discussion has been presented in a factual manner, i.e., cleft palate is a genetic defect. A discussion of reflex and motor development is accompanied by line drawings which depict ten child postures. Tabulated presentation of reflex development (Table IV) provides the reader orderly access to the normal sequence for emergence and inhibition of reflexes by reflex name and description, abnormalities and therapeutic implications. The section on *Drugs and Diet* contains succinct reminders of the impact of one aspect of treatment on another. There is no reference to any natural or augmentative communication system or device through which the treator and the patient can interact; however, reinforcement techniques are briefly discussed.

The charts, tables, glossary, and three case studies may be helpful to some readers who are initially exploring ways to manage specific pediatric feeding handicaps. Paperback/spiral binding construction of this *Guide* does not lend itself to long term endurance.

Jane Scheurle, Ed D.

Review Manual for Speech, Language, and Hearing

NORTHERN, J. L.

W. B. Saunders, Philadelphia: 1982, 480 pp., $16.95.

This book is a study guide for the three volume Speech, Language, and Hearing edited by N. J. Lass, L. V. McReynolds, J. L. Northern, and D. E. Yoder. The parent volumes were written to provide comprehensive information about processes and pathologies of the phenomena listed in the title. The content of at least eight chapters would be useful in a course on cleft palate, craniofacial disorders, and related topics. ACPA members are prominent among the authors of this material.

The review manual outlines each chapter in the parent volumes and provides questions pertinent to each chapter and answers to those questions. No mention is made of involvement of chapter authors in the preparation of the review outlines and questions. Comparison of a few of the chapter guides with the parent chapters shows the guides to follow the chapters well. However there are exceptions. For example, Chapter 20 contains a section concerned with behavioral approaches to the modification of

velopharyngeal closure. The study guide for this section does not reflect the limitations of this treatment form that are acknowledged in the chapter.

The one page preface to this review manual stresses the importance of careful study of the chapters themselves and use of the study guides as aides to the understanding and retention of that which has been read. Individual instructors and students will decide for themselves whether the guides help in the achievement of those goals.

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The Dysarthrias: Physiology.Acoustics.Perception.Management

McNeil, M. R., Rosenbeck, J. C., and Aronson, A. E.
San Diego: College Hill Press, 1984, 253 pages $25.00.

This book is a collection of original studies reporting empirical data on various aspects of the motor speech dysfunction manifest in adult dysarthrics. Each study comprises a chapter, with nine chapters in all. As the title implies, the book covers a range of topics pertinent to study in this area.

A number of the studies attempt to characterize and quantify the speech output associated with particular etiologies and to relate these characteristics to the underlying neurological systems and to motor control in general. Other studies provide physiological and acoustic data which form the basis of the perceptual impressions associated with particular dysarthrias on which speech pathologists so often rely. While almost all chapters conclude with implications or suggestions regarding remediation, two are devoted exclusively to some aspect of clinical management.

Chapter 1 provides a general overview and introduction to the book. It promotes a neurobiologic view of the dysarthrias, one which "emphasizes evolutionary and biologic determinants of speech and its neurologic disorders" (p. 1). This approach encourages an understanding of dysarthria from an historical perspective as well as within a framework of normal motor control in general, and speech motor control in particular.

Chapters 2 and 3 are physiological studies concerned with quantifying some aspect of motor dysfunction that may give rise to the speech disorders associated with particular dysarthrias. Chapter 2 is a detailed study of respiratory function in motor neuron disease and describes the effect of this degenerative process on the respiratory musculature in terms of altered kinematics, vital capacity and the implications for speech production. Chapter 3 examines orofacial tremor in the larger framework of the limb tremors associated with Parkinson's disease and their underlying neural substrates.

Chapters 4–7 are descriptive and/or acoustic/perceptual studies of various aspects of the speech characterizing three classes of dysarthria. Chapter 4 provides a detailed acoustic analysis of the temporal characteristics of selected articulatory behaviors associated with Parkinsonian dysarthria. Chapter 5 assesses the stress patterning of a group of ataxic dysarthrics in terms of their ability to manipulate the appropriate acoustic variables and the associated perceptual consequences. Chapter 6 is a correlational study of the acoustic manifestations associated with the articulatory dysfunction in hypokinetic dysarthria and the resulting perceptual judgments. Chapter 7 examines the relationship between articulation rate and intelligibility in spastic and ataxic dysarthrics.

Chapters 8 and 9 discuss different aspects of the clinical management of dysarthria. Chapter 8 is a study of biofeedback as a clinical tool through the evaluation of several biofeedback models. Chapter 9 reports on the use and effectiveness of palatal lifts as alternatives to surgery for velopharyngeal incompetence secondary to neurological diseases of varying etiologies.

As in any book of this type, not all chapters are of equal quality. There is a certain lack of balance as well. Those interested in the neural substrate of Parkinsonian dysarthria, for example, will find as good as

discussion in Chapter 2 as probably exists, while those seeking the same information on ataxic dysarthria will be disappointed. However, this is not necessarily a shortcoming of this book, per se, but a reflection of our current knowledge of motor speech disorders in relation to the neurology of motor control in general.

Such criticisms aside, the book provides a good deal of valuable information in the areas of physiology, acoustics, perception and management of motor speech disorders. It is recommended for graduate students in speech pathology or anyone interested in the dysarthrias with some background in acoustic phonetics, speech physiology and neurology.

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March of Dimes Birth Defects Series: Clinical and Ethical Considerations, Vol. 19(5), 1983

FINLEY, S. C. FINLEY, W. H., and FLOWERS, C. E.
New York: Alan R. Liss, 1983, 254 pages, $48.00

This publication is a collection of papers presented on one day of the annual meeting of the March of Dimes Birth Defects Foundation held in Birmingham, Alabama in June, 1982. The editors, Drs. Sarah and Wayne Finley and Charles Flowers have done an excellent job if collating and editing the papers presented at this meeting. The format for this phase of the 3 day meeting is reflected in the papers themselves. A series of invited speakers gave state-of-the-art presentations in clinical genetics, cytogenetic, biochemical genetics, teratology and prenatal problems including prenatal diagnosis. The final group of invited papers deals with less scientific aspects of birth defects relating to genetic services and their delivery, and the legal and ethical considerations of dealing with human genetic problems. The final section of the publication are 65 abstracts of submitted papers.

Dr. Feingold leads off this volume with a discussion of problems involved in diagnostic categorization of patients with genetic birth defects, a recurring problem for clinical geneticists. Next, Dr. Yunis deals with the problem of high resolution cytogenetics and the chromosome banding techniques used in recognizing minute structural abnormalities. An excellent schematic representation of chromosome nomenclature and the appropriate band patterns is presented for both the standard 400 band staging and the high resolution 1000 band staging. This technique makes it clear that a number of new chromosomal syndromes will be identified in the future. Next was a paper presented by Dr. Desnick concerned with the recent advances in diagnosis and treatment of a inherited metabolic disease. This is a thorough and lucide review of interest to all human geneticists. Of special interest is discussion of the application of restriction endonuclease analytic techniques to clinical problems in genetics. This material, presented by Dr. Phillips, is an excellent summary of the current status of this exciting new area. Next follows a series of papers on congenital infections as causes of birth defects, problems in dealing with preterm infants, the low birth weight infant and its management, and some short papers on prenatal diagnosis and the problems of newborn screening for metabolic diseases. Two other papers deal with genetic services, their need for regionalization and the fiscal problems connected with their delivery. The final invited papers conclude with the subject of dealing with ethical and legal aspects of human genetics as applied to problems of prenatal diagnosis and fetal therapy. The last paper, presented by Dr. John Fletcher, is extremely well done and pertinent to the problems faced by the clinical geneticist today.

The final series of 65 submitted papers deals with a variety of subjects in human genetics ranging from biochemical and cytogenetic studies to clinical evaluation and ethical-legal considerations. These are all abstracts of oral presentations and are carefully edited and informative.

For those interested in catching up with the current status of human genetics research and the problems attendant with

applying the results obtained from this research, this book represents an excellent summary and updating of those problems and is highly recommended as a general reading source for those interested in human genetics.

David Bixler

Nursing and the Management of Pediatric Communication Disorders

SHANKS, SUSAN J.

College Hill Press, San Diego, Calif, 1983, 261 pp ($19.50)

This text, written for nurses, provides a wealth of information regarding pediatric communication disorders. The book's six chapters encourage nurses to take an active role as a part of the professional team involved with communicatively handicapped children.

The chapter for the school nurse by Dublinski provides an excellent overview of communication disorders and succinct definitions of terms common to communication disorders specialists. Additionally, the appendix covering the Education for all Handicapped Children Act (PL 94-142) is a concise, clearly worded explanation of the act.

The chapter by Meyerson, Williams and Clapper regarding the child with the cleft palate/lip covered neonatal feeding, cleft lip/palate surgery, velopharyngeal function as well as associated problems (speech, hearing, dental). This section would be an excellent reference for not only the nurse, but any professional who may be involved, especially in the early stages, with the family of the cleft lip/palate child.

The development of prespeech and feeding abilities in children is covered in a chapter by Alexander. This chapter covers normal development as well as development in children with neuromotor disorders. Occupational therapists, speech-language pathologists and special educators involved in feeding programming would also find this section informative. The discussion of abnormal motor development was excellent. The following chapter by Mast goes a step further in covering augmentative communication methods. Because of a nurse's continual patient contact, she can provide information to the professional team regarding a patient's communication needs and abilities as well as in assisting the patient to maximize his communication abilities.

Included in the book is a chapter by MacDonald on a conversational approach to language-delayed children that would not only be appropriate for the nurse but beneficial to parents of language-delayed children. Interaction/conversation, the mode, content and use of communication are clearly defined and numerous examples of these aspects of communication make this an invaluable addition to the book.

In summary, this book would not only be appropriate as a textbook in a particular course of study but it would also be an informative library addition to not only practicing nurses but to any other professional (Physicians, Occupational Therapists, Speech Pathologists) involved in the early stages of pediatric communication disorders.

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Factors and Mechanisms Influencing Bone Growth

DIXON, A. D., and SARNAT, B. G. (EDS)

Progress in Clinical and Biological Research (Volume 101)

New York: A. R. Liss, 1982, 680 pages, $96.00

The contents of this 657 page book include the proceedings of an International Conference held at the University of California Center for the Health Sciences, Los Angeles, California, January 5–7, 1982. It is published as Volume 101 of the series, *Progress in Clinical and Biological Research.* The list of contributing authors represents a virtual "who's who" in cranio-facial biology, growth and development, from a variety of clinical and basic science disciplines.

For the most part, the book is composed

of the text of approximately 38 papers presented at the Conference, in addition to summaries of workshops and discussions. An excellent initial overview of bone-influencing growth factors is provided by van Limborgh in his opening address. By providing general categorial descriptions of the various influences converging on the developing craniofacial complex, van Limborgh provides a thorough, conceptual framework for the specific data that follow.

The original scientific papers are grouped according to the general categories of: (1) Bone Growth at the Cellular Level, (2) Embryogenesis and Development of Bone, (3) Postnatal Growth of Bone, and (4) Factors and Mechanisms Influencing Bone Growth. Each is preceded with a "Perspective" paper and concluded with a Discussion, Summary, and Workshop Report.

Session I, as its title implies, examines the topic of bone growth at the cellular level. Emphasis is placed upon the origin of bone and cartilage cell lines, as well as the various factors and mechanisms necessary for determination of pluripotential stem cells to differentiate into osteo- or chondro-cell types. Current research on bone morphogenetic protein (Urist, et al.), and other bone metabolism regulating hormones (Liu, et al; Glowacki and Davidovitch, et al) is among other interesting basic cellular information presented. Stutzmann and Petrovic present a particularly thorough discussion of evidence supporting the existence of a "skeletoblast" stem cell and the factors influencing its line of differentiation.

Session II: Embryogenesis and Development of Bone is introduced by an excellent overview of embryonic tissue interactions which lead to the development of craniofacial mesenchyme (Noden). This concept is further discussed in depth by Hall. The overall emphasis in this section is on bone as a tissue and the ways in which tissue interactions influence the development of bone and cartilage both in conjunction with (Howard, et al) and independent of (Slavkin, et al) exogenous factors. Measurement of bone growth at a histological level is also discussed in papers by Newell-Morris and Sirianni and Diewert. Finally, an interesting model for studying craniofacial development is presented by Ferguson, et al. Elucidation of the embryogenesis of the mammal-like bony secondary palate of the alligator as it develops in its external calcified egg raises intriguing possibilities for the study of mechanisms of abnormalities in palate development.

Session III: Postnatal Growth of Bone is introduced by one of the most comprehensive and informative papers of the entire book. Alexandre Petrovic, a long-time leading contributor to our understanding of craniofacial growth, provides a particularly lucid summary of current growth theories, methodological problems in bone growth research, and his own "servosystem" model of craniofacial growth. The papers to follow address the problem of bone growth from a more clinical perspective.

Investigations into mechanisms of normal and abnormal sutural growth are presented by Babler et al, Watzek et al, and Koskinen-Moffet et al. Theories of mathematical models for the study of craniofacial growth are advanced in papers by Lestrel, Moss et al, and Shaw et al. These tend to underscore the self-imposed limitations of our current over-simplified methods of measuring growth changes. Finally basic research into hormonal control of growth spurts (Harkness), and catchup growth (Hughes) provide new data on these two clinically relevent issues.

Lastly, Session IV: Factors and Mechanisms Influencing Bone Growth examines a potpourri of possible growth modifying factors from experimental and descriptive perspectives in clinical and basic research. These range from neuromuscular function (Hsu, Oyen, Bouvier and Hylander), sensory and autonomic innervation (Singh, et al), electric potential transduction (Roberts et al), and periosteal tension (McLain, et al), to hormonal influences (Nijwiede et al, Oudet and Petroviz, and Poole et al). The interesting and unavoidable conclusion evolving naturally from this review is the complex multifactorial character of the topic addressed in this Conference. This conclusion, summarized by Hoyte in his "Closing Remarks," interestingly seems to bring the proceedings full circle to the sum-

mary of these complexities itemized in the opening address by van Linborgh.

Overall, this book is composed of well-written, well-organized scientific papers by many of the most prominent investigators in the field of bone growth, especially in the craniofacial region. The section summaries, workshop reports and discussions, with a few notable exceptions, tend to be less informative and useful, although they probably do not accurately reflect the true quality of the information exchange which actually took place at the Conference.

The main strength of this volume is in that it provides a useful update of current research from a number of different laboratories involved in bone growth research. It also attempts to bring together investigators from a wide variety of clinical and basic science disciplines, certainly a lofty and worthwhile objective for publications such as this. However, the shortcoming of this approach is that it greatly limits the readership to those with a previous significant level of understanding of the topics at hand. Most of the papers are fairly technical and specific, and given the wide range of topics discussed, it is unlikely that too many casual readers would have a broad enough base of understanding to find the entire text useful or understandable. Nonetheless, for readers involved in bone growth research, clinical or basic, and/or actively involved in treatment of bone growth abnormalities, especially in the craniofacial region, this book is a high-quality publication useful in presenting current trends and recent advances in the field.

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Cleft Lip and/or Palate: Behavioral Effects from Infancy to Adulthood

STARR, PHILIP; PEARMAN, WILLIAMS A.

Peacock, Joyce Laase, Charles C. Thomas, Springfield, Ill., 68 pp, 1983, $21.50

For those among us who are interested in statistical data and attitudinal surveys, this would be a welcome book.

Its purpose is to chart the behavior and adjustment of cleft lip and palate children during several stages of their development. Various measurements are used, e.g. the Missouri Childrens' Behavior Checklist, the Bailey Scale, and measurements developed by the authors.

The latter are well qualified for the tasks they chose. Mr. Starr is former Chief of Social Service and Research at the Cooper Clinic in Lancaster, PA and has done extensive published research on the topic. Mrs. Peacock is doubly informed as former caseworker at the Cooper Clinic and as mother of a cleft lip and palate son. Dr. Pearman is Dean of Humanities and Social Science at Millersville State College, PA.

There are few surprises, i.e. there do not seem to be many dramatic differences between cleft lip and palate children and their non-cleft counterparts. The few observable differences seem familiar to clinicians in the field: the children tend to be somewhat more inhibited with mild expressive intellectual impairment, but with *no* cognitive impairment.

A welcome finding is that the number of hospitalizations of these children does not seem to have an adverse effect on their behavioral development. This finding, of course, is important in reassuring anxious parents.

One of the instructive features of the book is a description of the Cooper Clinic educational approach, specifically the Parents and Adult Patients Volunteer Outreach Program available to parents of newborns. The parents serve an important supportive role and act as liaison between the staff and the patients. Luckily, this program is now available in many craniofacial centers.

The scope of the book is, by definition, limited to the cleft lip and palate population in Lancaster. Working in a craniofacial center in a large metropolitan area, I would have welcomed a consideration of some other factors influencing the adjustment of cleft palate families. For instance, what is the role of socio-economic class, of different cultural and ethnic backgrounds, or the

presence of multiple handicaps? A white middle-class family with two children may view the facial defect very differently from a very deeply religious large Hispanic family.

However, in fairness to the authors, the scope of their investigation is limited to the developmental tasks of the growing child. As such, the authors have succeeded at what they set out to do.

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Clinical Problems in Otitis Media and Innovations In Surgical Otology

PAPARELLA, MICHAEL M. M.D., GOYCOOLEA, MARCOS V. M.D. (EDITORS)
Ear Clinics International *Volume II*, William & Wilkins, Baltimore, Maryland—1982. 207 pp., $36.00

This Volume, edited by Doctors Paparella and Goycoolea, is one of a series of Ear Clinics International. The preface states that "there is no attempt to be uniform or consistent but rather to combine varying opinions from individuals from different cultures and countries." Although it was the author's intent to organize this "clinic" into three sections, the first noted to be "fundamental otitis media concepts," the second "cochlear and audiological concepts," and the third "surgical concepts in otology," the papers were not organized in this fashion but merely randomly placed in a format which resembles a journal, and, for the most part, were not grouped in an organized or logical fashion. Because of this format, there was much repetition of many facts and of various individual approaches to specific problems.

Included in this "clinic" are some excellent, brief reviews and overviews of some common and very complex issues and problems, and some very comprehensive reviews with excellent bibliographies. Many of the papers are concisely expressed, clear, well organized, and authoritative. A few papers were less than authoritative and because of the language differences of the various authors, there were at times segments that used terms unfamiliar to the American physician. Much of what is presented is not new and very basic to the active practitioner of Otolaryngology. It is always interesting to read works of colleagues from other countries and it is comforting to learn that the pursuit of quality medical care is indeed fairly uniform worldwide.

Information available in this book would be much more useful as a reference if it was organized differently, and if one accepts the format of the presentation of these papers, which is very much like actually being at this International Meeting, then we must consider this publication as a useful reference.

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ABSTRACTS

ANDREWS, M. L., TARDY, S. J., and PASTERNAK, L. G., The modification of hypernasality in young children: a programming approach, *Lang., Sp., and Hear. Serv. in Schools, 15:* 37–39, 1984.

This article describes a four phase program for modifying hypernasality in children. In Phase I patients are taught to discriminate between oral and nasal sounds in consonant-vowel and vowel-consonant syllables. Phase II focuses on the spontaneous production of utterances composed entirely of non-nasal phonemes. Both oral and nasal sequences are produced in structured speech in Phase III, and in self-generated sentences in Phase IV. A sample program is included in the Appendix. (Vallino)

Reprints: Moya L. Andrews
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BURK, D., and SADLER, T. W., Morphogenesis of medial facial clefts in mice treated with diazo-oxo-norleucine (DON), *Teratology, 27:* 385–394, 1983.

The authors reviewed agents which have been shown to induce midfacial clefts in mice, then used diazo-oxo-norleucine (DON) to induce midfacial clefts after treatment on day 11 of gestation. Embryos were examined beginning at 4 hours after treatment with particular attention to the median portion of the upper lip where merging must occur. Control animals showed low resorption rates and no malformations. DON produced 72.2% resorptions and 86.5% of the survivors showed malformations including cleft palate, hindlimb polydactyly, and medial facial clefting which varied from minor notching to severe facial defects with the two halves of the upper jaw widely separated. However, there was evidence that all the necessary facial elements were present after DON treatment. Twenty-four hours after treatment there was a persistence of a depression between the medial processes, which themselves seemed smaller than those of controls, and there was an apparent widening of the space between the nasal pits. The main observation was a failure of merging between the two portions of the medial nasal processes, similar to what is seen in

humans in median cleft face syndrome. The cytotoxic effect of DON on the mesenchyme in the midline may cause an abnormal growth pattern leading to loss of tissue volume and interference with the normal growth patterns. The increased distance between the medial nasal processes would result in failure of merging. (Overman)

Reprints: Dr. D. Burk
Department of Anatomy
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University of the Pacific
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San Francisco, CA 94115

CONN, I. G., WIESENFELD, D., FERGUSON, M. M. The anatomy of the facial nerve in relation to CT/sialography of the parotid gland. *Br. J. Radiol., 56:* 901–905, 1983.

CT was used on cadavers to study the relationship of the facial nerve as it passes through the parotid gland behind the mandible. It was found that the nerve could be represented on a CT scan by an arc of radius 8.5 mm, the centre of which is the most posterior point of the ramus of the mandible. This information may be useful in the preoperative assessment of this region. (Stringer)

Reprints: I. G. Conn
Department of Surgery
Stobhill General Hospital
Glasgow, Scotland
G21 3UW

DIEWERT, V. M., and JURILOFF, D. M., Abnormal head posture associated with induction of cleft palate by methylmercury in C57BL/6J mice, *Teratology, 28:* 437–447, 1983.

C57BL/6J mice were treated with methyl mercury (10 mg/kg) on days 10 and 11 of gestation and examined on days 14, 15, or 18. Various morphological parameters were observed, and it was found that among the methyl mercury-treated mice about 50% of those examined on days 15 or 18 showed cleft palate. Both the cleft and non-cleft treated mice had similar reductions in body weight when compared to untreated controls, but there were significant differences in the downward and forward positioning of the head between the cleft and non-cleft treated groups. The authors noted that the induction of cleft palate by methyl mercury by means of selective mandibular growth retardation was not supported. Rather they concluded that the degree of growth retardation is an indicator of the severity of the teratogenic insult. There appears to be a complex interrelationship between the palatal shelves and surrounding facial structures during palate closure. It is suggested that altered tongue posture due to abnormal head positioning and mandiubuler shortening following general growth retardation adversely affect palate closure. (Overman)

Reprints: Dr. V. M. Diewert
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The University of British Columbia
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DOLAN, W. V., Elective Surgery In A Rural Primary Medical Care Program In The Central Amazon Valley, *J.A.M.A. 251:* 498–501, 1984.

The elective surgery program to support the rural primary medical care program in the Central Amazon Valley is described. The specialties of surgery contribute to basic public health and preventive measures, and bring needed curative treatment. The key person in the total health care system is the community health worker (village health aid, barefoot doctor). Difficult cases are sent to the main clinic at Santarem, 36 hours away by boat. Since 1974 surgical teams representing various specialties participate in the program, utilizing a flat bottomed ferry boat, converted to a hospital ship. A typical patient is a child, frequently malnourished, with anemia, parasitosis and often dental caries. "Cleft lip or palate and talipes equinovarus (clubfoot) constitute the most substantial portion of the plastic and the orthopedic work, respectively." "Increased wound breakdown has been noted in patients with cleft palate repairs, undoubtedly reflecting the chronic dental problems, nutritional deficits, and anemia." (Gregg)

Reprints: William V. Dolan, OFM, M.D.
Esperanca Inc.
1911 W. Earll Dr.
Phoenix, AZ 85015

FALK, B., and Magnuson, B., Eustachian Tube Closing Failure, Occurrence in Patients with Cleft Palate and Middle Ear Disease, *Arch. Otolaryngol., 110:* 10–14, 1983.

Eighty four ears in 42 patients with cleft palate and middle ear disease were evaluated in regard to sniff induced evacuation of the middle ear by direct pressure recording and tympanometry. Of diseases ears, 61% showed tubal closing failure and 18% had constantly or intermittently wide open tubes. Negative intratympanic pressure was not equalized by swallowing in most cases. The authors feel that eustachian tube malfunction in cleft palate patients is due to combined closing failure with evacuation of the middle ear by sniffing, and by a secondary opening failure with non-equalization of sniffing induced negative intratympanic pressure. (Gregg)

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FREINKEL, N., LEWIS, N. J., AKAZAWA, S., ROTH, S. I., and GORMAN, L., The Honeybee Syndrome- Implications of the Teratogenicity of Mannose in Rat-Embryo Culture, *N. Eng. J. Med., 310:* 223–230, 1984.

The addition of 1.5 mg/ml d-mannose to culture of rat embryos from the early head-fold stage to the 26-29-somite stage (days 9.5 through 11.5 gestation) caused growth retardation and faulty neural tube closure in about 66% of the embryos. The effect caused by mannose occurred during the first 24 hours of culture, attended by some inhibition of glycolysis, the principal energy pathway available to the embryo at this stage. Added glucose or increased atmospheric oxygen offset the mannose teratogenesis. The most frequent anomalies were neural tube closure failure in the forebrain, and persistantly open anterior neuropore. In addition, general growth retardation, microcephaly, exencephalopathy, fusion of the anterior and posterior neural folds, pericardian edama, and numerous other small abnormalities, were seen. The authors opine that this and other studies highlight the metabolic vulnerabilities present during early organogenesis, before oxidative flexibility is established, and suggest that this may be a model to explain the teratogenicity of many other, seemingly unrelated agents, that might act by altering glycolysis during this vulnerable stage. Although facial clefting, per se, is not an issue here, the research implications of this paper are worthy of note by those interested in craniofacial anomalies. (Gregg)

Reprints: Dr. Norbert Freinkel
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HAMAMOTO, J., MINAKAWA, H., and Ishikawa, T., Two siblings with cleft lip, involving at least one of bilateral case, *J. of Jap. Cleft Palate Assoc., 8:* 196–203, 1983.

Among 126 primary operations of bilateral cleft lip cases, eleven pedigrees had two affected children, involving at least one bilateral cleft lip. Statistical analyses of these patients were as follows: In eight pairs the older sibling had unilateral cleft lip and the younger had bilateral, in one pair the combination was reversed, and in the remaining two both had bilateral cleft lip. In another Japanese study, the numbers of the pairs were more even in the three groups. The sex of the older and younger siblings were; five boy and boy, four boy and girl, one girl and girl, and one girl and boy, and these were nearly the same to another Japanese study. (Machida)

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HAYWARD, J. R., Management of the premaxilla in bilateral clefts. *J. Oral Maxillofac. Surg., 41:* 518–524, 1983.

This paper discusses a popular orthognathic surgical option for management of

the premaxilla in the bilateral orofacial cleft. Developed over long experience with this perplexing problem, the preferred approach abandons early surgical manipulation of the premaxilla in the form of setback or excision. Instead the septal-premaxillary protrusion is "controlled" by the lip repair allowing the retrusive lateral facial components to "catch-up." Then, between the ages of 8 to 14 years integrated surgical and orthodontic correction is instituted. Depending upon the severity of the skeletal disharmony, alveolar cleft bone grafts, or premaxillary osteotomy with bone grafts are used, with or without adjunctive osteotomies of the remaining maxilla or mandible to habilitate facial balance.

The author offers succinct commentary regarding the neonatal problem, subsequent maxillary growth and violations of its potential through manipulative endeavors, variables affecting therapy via the form of lip repair, and the trophic influence of the premaxillary dentition, however distorted. The article is nicely illustrated and referenced. While it is no more a panacea than other modalities of management, it does provide a viable alternative and a noteworthy contribution to the increasing knowledge and armamentarium toward normalization of the bilateral cleft. (Kinnebrew)

Reprints: Dr. J. R. Hayward
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Neguanee, MI 49866

HRUBEC, Z., and ROBINETTE, C. D., The Study of Human Twins in Medical Research, *N. Eng. J. Med., 310:* 435–441, 1983.

A Medical Progress report is presented relating to studies of human twins. Material is organized relating to The Twin Phenomenon, The Determination of Twin Zygosity, The Affects of Chorion Status, Genetic Contribution to Cause of Disease and Metabolism of Medications, The Method of Twin Studies, Twins as Matched Pairs, and Resources for Twin Research. Specifically cleft lip and palate were not discussed, but the authors have presented a table of ratios of monozygotic to dizygotic concordance rates and heritability of various diseases and birth defects, based upon an index designated h^2, that ranges from 0 to 1, and indicates the range of no heritability to full heritability. For both cleft palate and harelip the monozygotic/dizygotic twin concordance rate was 6.4, while the heritability among sibs was 0.81 for cleft palate and 0.72 for harelip. An extensive bibliography accompanies this paper. (Gregg)

Reprints: C. Dennis Robinette, Ph.D.
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KHOURY, M. J., ERICKSON, J. D., and JAMES, L. M., Maternal factors in cleft lip with or without palate: Evidence from interracial crosses in the United States, *Teratology, 27:* 351–357, 1983.

The higher incidence of oral clefts in whites than in blacks is already familiar. Maternal determinants have been demonstrated in experimental animals but not in humans. Therefore, these authors used computerized birth certificate data from the Centers for Disease Control and the National Center for Health Statistics for the 5-year period 1973–1978 to compare CLP rates for infants born to White fathers and mothers, Black fathers and mothers, White fathers and Black mothers, and to Black fathers and White mothers. Information was obtained on oral clefts as a proportion of all reported defects. Offspring of White-White couples had a higher proportion of CLP than those of Black-Black couples. Among the offspring of White-Black couples, those whose mothers were White had higher rates and proportions of CLP than those whose mothers were Black. Statistical analysis confirmed the maternal race effect, and supports the existence of maternal determinants of CLP in humans. (Overman)

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KOUBAYASHI, S., TAIMA, T., MORIKAWA, M., INOSHITA, N., TANNE, K., KITAMURA, T., and SAKUDA, M., Effects of the maxillary protractor on craniofacial growth of patients with complete unilateral cleft-lip and palate as compared with non-cleft mandibular protrusion cases, *J. Jap. Cleft Palate Assoc.*, *8:* 228–239, 1983.

Effects of the maxillary protractor on craniofacial growth of patients with operated complete unilateral cleft lip and palate (UCLP) were investigated. The subjects were three males and four females with operated UCLP, and two males and four females of non-cleft cases with mandibular protrusion and midface undergrowth. The maxillary protractor was used to both UCLP and non-cleft patients. The lateral cephalograms were obtained before treatment, and after normal occlusal relation was acquired or when the protractor was used at least for two years. The control for the UCLP group was a group of orthodontically untreated UCLP patients, and the control for the non-cleft group was obtained from the growth study materials of Department of Orthodontics, Faculty of Dentistry, Osaka University. The following results were obtained.

1. The maxillary protractor was found to be effective for the forward growth of the maxillary complex in both UCLP and non-cleft groups. Its effect, however, was less in the UCLP group than the non-cleft one.
2. The backward rotation of the mandible, which was generally observed in the non-cleft group as the response to the chin cup of the maxillary protractor, was not always found in the UCLP group. (Machida)

Reprints: Dr. KoubayashiDept. Orthodontics
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KUSANAGI, T., Occurrence of cleft palate, palatal slit, and fetal death in mice treated with a glucocorticoid: An embryo transfer experiment, *Teratology*, *27:* 395–400, 1983.

The author treated SWV and C57BL mice with a single dose of 2.5 mg/kg triamcinolone acetonide subcutaneously on day 12 of pregnancy. This treatment resulted in CP in both genotypes, with SWV showing a higher incidence. Palatal slit occurred in some C57BL but in no SMV and fetal mortality was significantly increased in SWV but not in C57BL. Similar teratogen treatment was performed after embryo transfer of blastocyst stages on day 3 to pseudopregnant females. After embryo transfer, it was noted that uterine environment appeared to have a greater influence than genotype in making SWV more sensitive to CP. However, after transfer palatal slit still occurred in C57BL but not in SMV, suggesting a more important role for genotype in this case. It was observed that the effect of triamcinolone acetonide on fetal mortality could not observed after embryo transfer, although there was an increase in the mortality of SWV fetuses after transplant attributed to the effects of the embryo transplant procedure. (Overman)

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KUSANAGI, T., Palatal slit: A new spontaneous defect of the palate of C57BL/6 mice, *Teratology*, *28:* 149–152, 1983.

During a cleft palate study using SWV and C57BL/6 mice, the author encountered a defect involving a failure of fusion of the premaxilla and palatal shelves which did not fit any current classifications of cleft lip and cleft palate. He described the defect as palatal slit, and noted that it occurred in 5.7% of 209 untreated fetuses and in 4.1% of 296 untreated adult C57BL/6 mice. However, the defect did not appear in the SWV mice. Palatal slit could be induced by triamcinolone treatment in the C57BL/6 mice, but the SMV mice responded to triamcinolone treatment with cleft palate only. Statistical analysis indicated that palatal slit is unrelated developmentally to cleft palate. (Overman)

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KUSANAGI, T., Dose-response relations of palatal slit, cleft palate, and fetal mortality in mice treated with a glucocorticoid, *Teratology, 28:* 165–168, 1983.

Palates from mice recovered at term after treatment with triamcinolone acetonide (TAC) on day 12 of pregnancy were examined for the presence of cleft palate or palatal slit. The incidence of palatal slit in C57BL mice increased with the dose of TCA. SWV mice, however, had no palatal slit, even at high doses. In both strains, higher doses of TCA resulted in an increased incidence of cleft palate. The author performed a log-probit transformation for dose-response analysis and concluded that the mechanism for inducing palatal slit is different from the mechanism for inducing cleft palate. He pound also that TCA increases fetal mortality in SMV but not in C57BL, and therefore concluded that the mechanism for inducing resorptions must be different from the mechanism for inducing cleft palate. The mechanism for inducing cleft palate by TCA may be the same in both strains, according to this study. (Overman)

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NAKAMURA, K., Surface area on the nose and upper lip of unilateral cleft lip patient, *J. Jap. Cleft Palate Assoc., 8:* 171–195, 1983.

The surface area of the nose and upper lip in unilateral cleft lip patients was studied. The areas were measured by Huddart's method of adapting a piece of soft resin sheet to the facial plaster cast made by no-pressure impression taken under endotracheal anesthesia immediately before and after the primary lip repair. In both 70 complete and 60 incomplete cleft lip patients, the surface areas of the dorsum nasi and nose on the cleft side were significantly greater than those on the noncleft side. The areas of the nasal ala, lateral part ot the upper lip, philtrum, and skin portion of the upper lip were significantly smaller on the cleft side. The skin portion of the whole lateral upper lip was distinctly smaller on the cleft side than on the noncleft side in complete cleft lip, but not differed in the incomplete cleft. Compared with incomplete cleft lip, the areas of the nasal ala, nose, lateral part to the upper lip, and skin portion of upper lip on both the cleft and noncleft sides, the skin portion of the whole lateral upper lip and philtrum on the cleft side, and the dorsum nasi and nose on the noncleft side were significantly narrower. The dorsum nasi and nose on the cleft side were significantly greater in complete cleft lip. Immediately after surgery, the areas of the nasal ala, nose on the cleft side and the philtrum on the noncleft side were decreased distinctly in complete cleft lip, but that of the nasal ala on noncleft side, lateral part to the upper lip, and skin portion of upper lip on both the cleft and noncleft side, and the philtrum and skin portion of the whole upper lip on the cleft side were increased. In the incomplete cleft lip, however, the areas of the dorsum nasi, nose and skin portion of the whole lateral upper lip on the cleft side decreased distinctly but that of the philtrum on the cleft side increased. The change of the area through the operation was nearly same in both Tennison-Randall's and Millard's method. (Machida)

Reprints: Dr. K. Nakamura
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NAKATSUJI, N., Craniofacial malformation in *Xenopus laevis* tadpoles caused by the exposure of early embryos to ethanol, *Teratology, 28:* 299–305, 1983.

Early *Xenopus laevis* embryos were exposed to 1–2% ethanol until the late neurula stage. The resulting tadpoles showed craniofacial malformations with many similarities to fetal alcohol syndrome, including reduced brain length, reduced body size, and underdevelopment of the anterior end of the body, especially around the mouth. The author concluded that inhibited migration of mesodermal cells to the animal pole very early in development results in a small neural plate, leading ulti-

mately to the defects described. Craniofacial development in *Xenopus laevis* tadpoles represents a useful animal model for the study of ethanol teratogenesis. (Overman)

Reprints: Dr. N. Nakatsuji
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PARKER, R. M., and HENDRICKX, A. G., Craniofacial and central nervous system malformations induced by triamcinolone acetonide in nonhuman primates: II. Craniofacial pathogenesis, *Teratology, 28:* 35–44, 1983.

The authors administered triamcinolone acetonide (TAC) to a series of timed-mated pregnant rhesus monkeys in order to study the pathogenesis of craniofacial malformations induced by the drug. Monkeys received 10 mg/kg TAC on days 23, 25, 27, 29, and 31 of gestation. Age and stage-matched treated and control embryos and fetuses were recovered by hysterotomy and examined for craniofacial defects with particular attention to the cranial base and malformations of the late embryonic and early fetal skull, especially the chondrocranium. Several malformations of the sphenoid bone were observed, including reduced anterior-posterior and transverse dimensions, reduced orbitosphenoid and alisphenoid, abnormal pituitary fossa, and reduced dorsum and tuberculum sellae. There was also a shortening of the posterior cranial base and a decreased cranial base angle. Decreaed ossification and remodeling of the facial bones and abnormal positioning due to the malformations of the sphenoid occurred. It was concluded that the craniofacial malformations seen after TAC treatment are due mainly to alterations in the development of the cranial base. The authors concluded that abnormal development and orientation of the facial bones is secondary to cranial base malformations, and that the syndrome of defects in rhesus monkeys is similar to human malformations and therefore may provide a useful model. (Overman)

Reprints: Dr. R. M. Parker
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RASTATTER, M. P., and HYMAN, M., Effects of selected rhinologic disorders on the perception of nasal resonance in children. *Lang., Sp., and Hear. Serv. in Schools, 15:* 44–50, 1984.

Thirty trained listeners rated the nasal resonance of 28 children with and without rhinologic disorders. A 7-point rating scale was used. Judgments were made under three different speaking conditions: isolated vowels, VCV syllables, and recited sentences. Children with no history of rhinological problems and those with deviated septums were rated as having normal speech regardless of the speaking task. Children with edemic adenoids and allergic rhinitis were judged to have normal resonance during the production of isolated vowels and denasality during vowel-consonant-vowel (VCV) and sentence production. The authors concluded that perceptual judgments of denasality are speaking-task dependent. (Vallino)

Reprints: Dr. Michael P. Rastatter
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SIMMONS, K., Long Term Orotracheal Intubation and Palatal Grooving, Medical News Pages, *J.A.M.A., 251:* 699, 1984.

This is a news type article in the Medical News Section of the JAMA, relating to a presentation by Allen Erenberg, MD, Pediatrics Department, University of Iowa, at the Midwest Society for Pediatric Research, in which palatal groove formation, acquired cleft palate, and defective dentition, were attributed to long term orotracheal intubation. A palatal plate has been devised to prevent the pressure effect of the endotracheal tube upon the developing oral structures. The long term effect of the intubation tubes upon the palate may be permanent, and it is hoped that the palatal plates will help prevent the problem in the future. (Gregg)

Reprints: Allen Erenberg, M.D.
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Iowa City, Iowa

SUGAI, Y., IBUKI, K., MATSUYA, T., MIYAZAKI, T., WADA, T., and IWASAKI, H., Video-fiberscopic examination for velopharyngeal movement: A new field by field analysis using video tape recording procedure, *J. Jap. Cleft Palate Assoc.*, *8:* 217–227, 1983.

A video tape recording system yielding views at 60 fields per second was coupled with a nasopharyngeal fiberscope (NPF) to perform a field by field analysis of velopharyngeal movement. A simultaneous videofiberscopy and video-fluoroscopy was used to determine validity of measurement. Eight normal speaking adults were studied to examine "timing" of the velar closure, maximum velar elevation, and maximum lateral pharyngeal wall movement toward a standard time point which was determined as onset of articulatory release or voicing during successive phoniatric event. The speech samples consisted of /a/, /i/, /u/, /e/, and /o/ in isolated production, and /p/ in /pa/ and /npana/ productions. The results indicate the followings. 1) The proposed procedure provides reliable and valid data about continuous changes of the velar and lateral pharyngeal wall movements and portal dimension. 2) Using NPF measurements, the magnitude of movement could be estimated within a subject, but not across subjects, because of lack of a scale marker. 3) Analysis of timing of velar closure toward a standard time point appears to be useful for evaluating velopharyngeal closing function among various individuals. (Authors Abstract) (Machida)

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TAJIMA, S., The importance of the musculus nasalis and the use of the cleft margin flap in the repair of complete unilateral cleft lip. *J. Max.-fac. Surg.*, *11:* 64–70, 1983.

In this article the author supports his belief that "the deformities of the lip and nose in cleft lip patients are intimately interrelated and that their repair should not be independent", but instead should involve dynamic and interdependent restitution of the different functions of the perioral muscle groups. The nasal repair draws partially upon his previously published technique for dissection and suspension of the alar cartilages (Reverse-U incision for secondary repair of cleft lip nose, Plast. Reconstr. Surg. 60: 256–261, 1977), supported and preceded in the primary repair by release of the nasalis muscle from its insertion at the lateral cleft margin and reorientation across the nasal floor. Two cleft margin flaps are employed. The lateral is a bilobed, alar-based flap, the minor, mucoperiosteal portion of which is interdigitated into a nasal sidewall incision (which releases the alar base for elevation and medial rotation); the major, muscle-containing portion is transferred onto an inferiorly hinged flap from the major side's posterior margin and is inserted into the anterior nasal spine area. The lip repair is a rotation-advancement with a lateral-to-medial triangular flap at the mucocutaneous ridge. Muscular dissection once again focuses upon the musculus nasalis at its maxillary attachment and that of the orbicularis oris to form a sling of the "levator labialis muscle group". The author also describes caudal separation of the septum from the anterior nasal spine to aid columellar centralization. After closure of the lip and nostril sill elements the final step, nasal correction, is undertaken.

The author shows impressive results with up to eight year follow-up in one case. In the discussion the now-questioned caveats of early nasal correction and its potential growth restriction are addressed, and the rationale for simultaneous correction further expanded. Dr. Tajima is to be commended for his timely contribution to combined, labial and nasal management in the primary cleft repair. (Kinnebrew)

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Osaka, Japan 569

TRASLER, D. G., KEMP, D., and TRANSLER, T. A., Increased susceptibility to 6-aminonicotinamide-induced cleft lip of heterozygote dancer mice, *Teratology, 29:* 101–104, 1984.

Based on the observation that spontaneous cleft lip and cleft lip induced by 6-aminonicotinamide (6AN) do not appear to be under the influence of the same genes, the authors designed an experiment to determine whether or not the presence of the Dancer (Dc) gene increases the susceptibility to 6AN-induced cleft lip. Three different strains of mice were used: the C3H strain; the R stock; and the dancer stock containing the Dc mutation on chromosome 19. Heterozygous (Dc/+) or homozygous normal males (+/+) were crossed with C3H strain or R stock females and Dc/+ males were crossed with Dc/+ females. On day 10 of gestation the C3H and the R females were treated with 6AN (19 mg/kg or 28.5 mg/kg body wt.) followed 3 hours later with a protective dose of nicotinamide. 14% of the offspring of Dc/+ males crossed to Dc/+ females had cleft lip. In the other crosses, offspring of males carrying the Dc mutation showed cleft lip at incidences ranges from 25 to 29.4% following 6AN treatment, while the offspring of +/+ males had no cleft lip induced to 6AN. The authors concluded that the presence of the Dc gene significantly increased the susceptibility to 6AN-induced cleft lip, and suggested that the increased susceptibility may be due to subtle face shape differences in the Dc/+ embryo. (Overman)

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TRASLER, D. G., and OHANNESSIAN, L., Ultrastructure of initial nasal process cell fusion in spontaneous and 6-aminonicotinamide-induced mouse embryo cleft lip, *Teratology, 28:* 91–101, 1983.

An ultrastructural comparison was made in the area of fusion of nasal processes in several groups of mice, including A/J and CL/Fr which are predisposed toward cleft lip, C57BL/6 and dancer stock which are not predisposed toward cleft lip, and CL/Fr treated with 6-aminonicotinamide which induced 94% cleft lip in this strain. The objective was to see if there are observable differences in the expected fusion zone in the different groups. Embryos were collected at day 11 and sections from the area where the nasal processes started to fuse were examined. No differences in morphology were seen when comparing A/J and CL/Fr with controls. In 6-AN-treated, when there was no contact between the processes the epithelium was smooth and when there was abnormal contact there were signs of more dying cells and the area of contact was apparently malpositioned. Both the epithelium and the mesenchyme in this area seemed more dense. It was concluded that altered facial geometry in animals with cleft lip led to depressed availability of the epithelium for participation in fusion. (Overman)

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VILLEE, C. A., Birth Defects and Glycolysis, Editorial. *N. Eng. J. Med., 310:* 254–255, 1984.

This editorial is in response to an article, "The Honeybee Syndrome- Implications of Teratogenicity of Mannose in Rat-Embryo Culture", appearing in the same issue of the N. Eng. J. Med. (pp. 223–230), by Freinkel et al. The work by Freinkel et al is amplified, and the editorialist comments, "The demonstration by Freinkel and coworkers that very high levels of glucose or high levels of mannose, galactose, or fructose can cause growth retardation and congenital defects in early rat embryos by interfering with glycolysis reemphasizes the importance of glycolysis to the fetus as a source of ATP and suggests the possibility of similar effects of perfectly 'natural' substances in the development of human birth defects."

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VOSS, R., and FRENG, A., Concomitant transverse growth of the maxillary base and dental arch in experimental submucous mid-palatal clefts. *J. Maxfac. Surg., 11:* 257–262.

This article complements the author's previous study on "growth of the dental arches after ablation of the mid-palatal suture" published in a 1982 issue of the same journal. In the present investigation, to obtain information on correlated growth of the maxillary base and dental arch in submucous midpalatal clefts, such clefts were surgically created in 18 domestic cats. The growth ratios of the dento-maxillary complex were then compared with corresponding parameters in 18 unoperated controls. When fully grown, the operated cats had developed a significant hypoplasia of the maxillary base. Also the upper dental arch in these cats showed a slight reduction in width, but significantly so only in the posterior region. The results obtained seemed to demonstrate a mutual dependence in growth of these two parts of the dentomaxillary complex, but to a limited degree. Whereas the maxillary base was significantly influenced by the altered morphology in the mid-palatal area, the dental arch growth and its final dimension seemed to be more responsive to compensatory mechanisms. (Kinnebrew)

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WEE, E. L., and ZIMMERMAN, E. F., Involvement of GABA in palate morphogenesis and its relation to diazepam teratogenesis in two mouse strains, *Teratology, 28:* 15–22, 1983.

This study dealt with the role of neurotransmitters in palatal shelf reorientation, and was based on the observation that serotonin and acetylcholine both stimulate reorientation of the palatal shelves. It was the authors' hypothesis that γ-aminobutyric acid (GABA) functions as an inhibitory neurotransmitter in palate morphogenesis and that diazepam functions in the induction of cleft palate by acting to potentiate the effects of GABA. Using an embryo culture system, mouse embryos at 14.5 days gestation were cultured for the 2-hr period of palatal shelf rotation. With AJ mice, when the incubation medium contained a low dose of GABA, there were no significant effects. A higher dose of GABA inhibited reorientation, and the effects could be specifically related to GABA since they could be reversed by the GABA antagonist picrotoxin. Diazepam reduced the stimulation of anterior palate reorientation produced by serotonin, and together diazepam and GABA produced a marked inhibition of serotonin stimulation. Results of testing SWV mice, a strain known to be more sensitive to the teratogenic effects of diazepam, showed that reorientation could be inhibited at a lower dose of GABA than was possible with AJ mice. The authors concluded that GABA may function as an inhibitory neurotransmitter in palate reorientation; that diazepam may function by mimicking GABA; and that these events are under genetic control as evidenced by the strain differences in response. (Overman)

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ANNOUNCEMENTS

FIFTH INTERNATIONAL CONGRESS ON CLEFT PALATE AND OTHER CRANIOFACIAL ANOMALIES

The fifth International Congress on Cleft Palate and Other Cranio-Facial Anomalies will be held in MONTE CARLO from the 2nd to 7th of September 1985.

France was chosen as host country by the participants of the 4th Congress in ACAPULCO. It seems to us that our country earned this honor because it was the native land of many pioneers of this surgery, among whom we shall cite Victor VEAU, the true founder of modern therapeutic approaches.

This congress has some remarkable features.

Devoted to only one condition, it was generated by the need felt by practitioners from a large variety of specialties. It represents a means of discussing their works beyond the frame of their respective Societies. It is a real forum where all members of a team can study a problem in which they are deeply involved.

Its periodicity of four years is undoubtedly favorable to help pass judgement on the results of a treatment which has an effect over a period of 15 to 20 years.

There is no permanent organizing structure, so that all the responsibility is incumbent on the elected President. The four previous Congresses, thanks to their hard work, obtained true success, as much for the number of participants as for the quality of the papers presented. We, the organizing committee and myself, will not be sparing in our efforts to make the fifth Congress worthy of previous ones.

Because of this I was led to take some decisions, and I would like to give an explanation for the choice of MONTE CARLO. Some of you, when voting for France, implicitly thought that the Congress would be held in Paris. We had to decide differently for various reasons, some of them economic.

We did not want to yield to the increasing inflation of registration fees observed in recent years, so that our young colleagues might attend this meeting. The cost of renting a Congress center for such a gathering is, as in all major cities, much too expensive in PARIS. We had to find another solution.

As the most convenient time for this congress is Summer, when everyone can free himself from his activities, we tried to find some place on the Riviera. MONTE CARLO offered the best conditions both from a material and financial point of view.

The choice of a little city seemed to us a more favourable site for personal contacts than a great metropolis. The other reasons are touristic ones. MONACO is a privileged site, a peaceful, stable, haven far from the stress and the problems of modern life.

September is the most beautiful month on the Riviera and there is no doubt that the attending friends and their families would like to begin or to prolong their holidays there.

For Europeans, MONACO is at a geometrical point. For the American and world over Colleagues, it is very easy to reach MONTE CARLO by air (Nice International Airport, only one hour's flying from Paris). It goes without saying that for those who would like to stay in Paris, post-congress tours will be organised.

We do hope that the number of participants at the 5th Congress will be great and that many of you will present your work there.

Fuller information will be forthcoming, but from now on we ask everyone to help us in making the date of this important meeting known.

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