BOOK REVIEWS

FARROW, RAYMOND, AND FORREST, DUNCAN, *The Surgery of Childhood for Nurses* (2nd ed.). London, England: E & S Livingstone, Ltd., 1964. Pp. 283. $7.00.

This text was written by an orthopedic surgeon and a pediatric surgeon. In the preface to the first edition in April of 1956, one of the authors states, "I have attempted at all times to direct the nurse's attention to the fundamental features of those surgical conditions of childhood with which she will most commonly have to deal".... "I have laid greater stress on pre-operative and post-operative care rather than on diagnosis, for it is in these respects that the nurse's responsibility is most directly applied." Further, the authors state in their preface, "It is essential that the nurse whose care is imperative for the ultimate success of any surgical operation should have a clearer understanding of *why* a particular procedure is undertaken." The authors have written precisely and have accomplished that which they have prescribed for themselves. In an "extract from the introduction to the first edition," the authors introduce the reader to the child as a patient. Their sage advice clearly establishes their empathy, understanding, sympathy, and genuine concern for infants and children. Thus, they qualify themselves to be authoritative and to proceed to discuss the surgical problems in infants and children.

The book is divided into 16 chapters. The first two chapters are devoted to a review of the effects of inflammation, infection, and injuries upon the human organism. The third chapter entitled "Tumors and Malformation Tumors" is a very concise review of the terminology of oncology with mention of some of the malformations of the skin and how they might be treated. The fourth chapter, entitled "Neonatal Surgery," is brief but is one of the most valuable sections in the volume for the nursing student. The remaining 12 chapters are devoted to each organ system and highlight some of the surgical problems encountered in the various organ systems.

There are 146 photographs or diagrams. The selection of photographs and narrative descriptions are good. A drawing of a tree branch that has been broken with small buds protruding from other branches leaves no doubt in the reader's mind as to what is a greenstick fracture. This subtle teaching in simple terms by the authors, without degrading their readers, is apparent from this diagram.

It has been stated by some surgeons that, "One could teach practically all there is to know about surgery from one case of appendicitis." The authors of this text undoubtedly believe in this concept and have devoted an entire chapter to the appendix.

Because each organ system receives impartial review without overemphasis of any particular special interests of either author, the nurse is in an excellent position to gain an insight into almost all common surgical problems of infants and children.

This is an excellent primer for nurses and the authors have accomplished their aims with clear statements, easy reading, pictorial succintness, and thoughtful direction for the primary goal, which is the introduction of surgery of infants and childhood to nurses. If a criticism were to be offered, and it is difficult to criticize this delightful volume, it would be related to the fact that no bibliography has been provided for the reader. As this is a text for students, the more inquisitive student might be rewarded by the authors by providing a bibliography of textbooks and articles which undoubtedly assisted the authors in writing this text.

RICHARD L. SLEETER, M.D.

Crippled Children's Division
University of Oregon Medical School
745 S. W. Gaines Road
Portland, Oregon 97201

WOOD, NANCY E., *Delayed Speech and Language Development.* Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1964. Pp. 142. $4.95.

Children with cleft lip and palate, according to research and clinical observation, often show a delay in speech and language development. Although this text is not designed to provide information about such children, its data on language development, causal factors of delay, methods of evaluation, and therapeutic procedures will be stimulating to any one of the many specialists concerned with the study and training of cleft palate children.

The layman may ask why both the words *speech* and *language* are used to describe the communication disorders. Dr. Wood makes it clear that language is an organized system of linguistic symbols used in communication; its development depends upon the organism's abilities to receive, integrate, and express these symbols. Speech is the immediate behavior which provides oral expression for language. It is a behavior learned because the child is born into a culture in which the articulation of sounds and the production of voice furnishes the systematic basis of communication. A particular child may have trouble mastering the production of articulated sounds, but his reception of language and his formulation of language structure and selection of vocabulary will be commensurate with his age level. Another child may speak with adequate clarity but show disorders in structure, paucity of language, confusion in understanding, or limited integration of our language symbols.

After presenting an orderly resume of the maturation of speech, Dr.

Wood describes possible causations of delay: central nervous system involvement, aphasia, dysarthria, dyspraxia, mental retardation, emotional disturbance, hearing loss, speech deprivation, and immaturity. The reviewer wishes she had also mentioned the congenital deformities of the areas directly concerned with the production of speech sounds. Her chapter on evaluation includes practical directions on taking case histories and making observations of behavior. She delineates carefully the specific areas of testing. Although her examples concern children with pronounced limitations of receptive, integrative, and expressive language the procedures are like those which may be used with cleft palate children in an effort for comprehensive assessment. She emphasizes that evaluation is a continuing process in observational therapy. In some detail, she discusses therapeutic sessions, facilities and equipment, parent conferences, and record keeping, continually reaffirming her belief that each child must be approached as a unique individual.

The style of writing is lively and concise. The references to supplementary readings, so often doomed to oblivion in bare footnotes, are incorporated in the text and are so well developed that the reader wants to set out on a whole course of reference reading.

This is not a beginning text; the reader must bring with him background data on child development, previous experience in speech correction, and a knowledge of the problems which cause language delay, but the book does unify the facets of diagnostic and therapeutic approaches. The student would need more details on specific procedures.

Many professional persons concerned with the cleft palate child need to become aware of the likelihood of language and speech delay. This child's first attempts to imitate may not be recognizable to parents and will receive no reward. He will also have little satisfaction from listening to himself. The mechanism which he must use to articulate may have been operated on with some recency, so that he is disinclined to use it in the vigorous babbling and verbal play common to most children. He may suffer also from unsuspected hearing loss, which, even if intermittent, will interfere with the imitation which is so necessary during his first three or four years. As he grows older, speaking may seem associated with actual punishment, since it may be rejected or criticized by his peer group. This child may therefore be penalized on language oriented intelligence tests. To label him as mentally retarded because of his language delay and continuing language limitations will be a misdiagnosis and will certainly do him a great disservice.

Familiarity with the data presented in this book can contribute to our diagnostic and therapeutic skills.

ELISE S. HAHN, PH.D.

Kennedy Child Study Foundation
1339 20th Street
Santa Monicao, California

FISHBEIN, MORRIS (Ed.), *Second International Conference on Congenital Malformations.* New York, New York: The International Medical Congress, Ltd., 1964. Pp. 442.

The text of the conference is divided into eight major sections which includes papers on cytogenetics, cell genetics, gene variations in proteins, gene action in relation to differentiation and development, developmental mechanisms, extrinsic factors in congenital malformations of man, epidemiologic studies, and management of human congenital defects.

To attempt to evaluate each of the 34 major papers presented at the conference is beyond the scope of this review. Each section stands as a guidepost for the direction that research on congenital malformations has taken and points the way for continued investigation in each area.

The scientific papers are not presented in a pedantic manner, yet each has its introductory portion organized in such a way that those engaged in similar investigations will not be offended, while those foreign to the subject or only aware of certain general principles are led into the details of each study by a consideration of the broad aspects of the problem and more intimately by a brief review of preceding reports which raised the question under investigation. This feature of the text is most appropriate, for it conveys not only the multidisciplinary aspects of the conference, but also the ever widening horizon surrounding the whole problem of congenital malformations.

Of particular value are the panel discussions following each major section. These not only bring together the repertoire of ideas of the preceding papers, but also focus attention on salient features which deserve more detailed study.

The text also conveys a sense of individual responsibility. One quickly realizes that the scientist of today who is worth his salt must be well acquainted with the major concepts and principles of biochemistry, genetics, development, cytology, microbiology, immunology, physiology, pathology, and evolution. Concentrating our efforts in one specialty, as most of us do, it would be unrealistic to attempt to keep equally abreast of the details in all the associated areas. A conference such as this allows one to reflect on what is known in his particular field and to cull, synthesize, and integrate the findings of others to his own special problems.

The first seven sections of the conference clearly reflect the rapid advances and varied directions that genetic research has taken during what may be arbitrarily considered the past decade. These advances have resulted in the wedding of biochemistry and genetics. The genetic basis and chemical basis of development have become even more intertwined than the double helix of DNA.

The conference begins with a series of papers on cytogenetics. The constancy of the chromosome number considered in relation to autosomes may be contrasted to the latitude permitted in the number of sex chromo-

somes an individual may possess, e.g., the fertile XXX and XXXX female. Variation in sex chromosome complement raises questions concerning dosage compensation. Why is the male possessed with a single set of sex linked genes on the X chromosome while the female carries a double set? This question is partially answered by the Lyon hypothesis. Dr. Lyon's findings are discussed and supported by several investigations which also suggest that one of the X chromosomes in the female becomes genetically inactive at some time during development and is genetically inactive in all descending cells.

The studies of chromosome mosaicism in man allows one to speculate whether 'we are all mosaics, but some of us are more mosaic than others!'.

The portions of the text related to protein synthesis and enzyme formation emphasize the biochemical aspects of genetics and present a broad view of many of the current investigations and problems in these areas. Correlations between the studies on micro-organisms and man are made. Control mechanisms other than DNA and RNA and the regulator functions of genes as they relate to the developmental process are explored.

These studies lead into more detailed investigations of enzyme function at various developmental times and in various tissues and open the whole field of isozyme mechanisms. The tetrameric combination of polypeptides in lactate dehydrogenese, as shown in the developmental studies of chick and mouse tissues, are of particular interest. In the chick the first isozyme to be defined during development is isozyme-1, while in the mouse it is isozyme-5.

The section on developmental mechanisms considers the role of cellular inclusions and expands the functional role of the cell membrane. This session also presents a very complete survey of congenital disorders in the mouse which Dr. Gruneberg demonstrated can be detected very early in single morphological deviations. The interaction of embryonic tissues and the concept of induction in the timing of certain developmental sequences is considered in terms of penetration by a macromolecular agent rather than cellular contact.

The results of the thalidomide tragedy and its ramifications opened discussions on the many extrinsic factors responsible for congenital malformations. The criteria for determining the teratogenicity of an agent deserve particular attention since 'extrapolation from experimental teratology to man is unwarranted unless supported by evidence in man' (Fraser).

The seventh session of the conference is devoted to epidemiologic studies and is particularly pertinent for those working at the clinical level. The gathering of accurate and detailed histories and pedigrees from many sources will more clearly define many of the parameters of human congenital malformations.

Of additional interest to the clinician is the review of the genetics of

the more common congenital malformations and the associated studies which are directed toward a better definition of their etiology.

The final section is devoted to the management of human congenital defects and presents both the psychosocial aspects and the expanding role of the genetic counselor. The ever-widening scope of research allows the genetic counselor to approach his difficult task with less and less empiricism and permits a more complete explanation of genetic risk.

The Conference, by bringing together the knowledge of many disciplines, provides a significant contribution to our understanding of the complex problem of congenital malformations.

HOWARD ADUSS, D.D.S.

Cleft Palate Center
University of Illinois
Chicago, Illinois 60612

CACHO, F., *Malformaciones Congenitas de Labio y Paladar y su Tratamiento* (Congenital Malformations of the Cleft Lip and Palate and Their Treatment). Mexico: Edicions Medicas del Hospital Infantile, 1954. Pp. 206.

This book was the result of a review of 1,425 cleft lip and palate patients in Mexico. It briefly describes the embryology of the face and the anatomy and physiology and etiology of the defect. Numerous photographs illustrate the degree of variation of cleft lip and palate. Preoperative considerations are given to facial morphology, radiology and anesthesiology, and feeding techniques. Surgical techniques, dental treatment, and otorhinopharyngeal procedures are outlined. The psychological aspects and the speech and language development of the cleft palate patient are discussed.

This book is a good introduction to cleft palate problems that exist in Mexico (primarily Central Mexico). The clinical photographs and illustrations are representative of the types of orofacial anomalies seen clinically, and the techniques described are representative of procedures followed during the 1950s throughout Mexico.

ROBERT F. SLOAN, D.D.S.

U. C. L. A. School of Dentistry
Los Angeles, California, 90024

ABSTRACTS

Gylling, U., and Soivio, A., Submucous cleft palates. Surgical treatment and results. *Acta chir. Scand., 129,* 282–287, 1965.

Between 1949 and 1965, 1,315 patients with cleft palate have been treated. Seventy-seven of these (5.8%) were submucous. Forty-three were males and 34 females. The average age at operation was 8.4 years, the youngest at two, the oldest at 35. The diagnosis was based on the speech disorder with open nasality (rhinolalia aperta), intraoral examination, and lateral still roentgen films made according to the method developed by Calnan. Twenty-five of 77 patients had bifid uvula, in 30 the palate was considered normal in length and in 47 short in length. The mobility was good in 62 and poor in 15. A family history was present in 15 of 77. Of these patients, 60.5% (46/77) had had speech training but this failed to produce the desired result. Seventy-six of the 77 cases were operated on, of which 65 were operated with retro-positioning according to Veau-Kilner (V-Y). In nine cases, a velopharyngoplasty was performed, eight of which were upper based pharyngeal

flaps and one lower based flap. In two of these cases, this was done in combination with the palatoplasty. One case was operated with pharyngoplasty according to Hynes. A secondary operation was performed on 11.8% (9/46). The anatomical results were considered good. The functional results regarding speech were studied by phoniatritions (an M.D. in speech pathology). Normal speech was obtained in 41 of the cases (54%). Sixty-seven (88%) were in the satisfactory group, which included patients whose speech improved considerably postoperatively but were not normal. Poor results were obtained in nine of 76 cases (12%). Surgery did not produce any improvement but did not cause any deterioration of the speech. They consider that early operation before 10 years of age produces better results with normal speech in 64%. In the group of seven operated on at the age of two, the speech was normal in all cases. (Nordin)

Fogh-Andersen, P., Rare clefts of the face. *Acta chir. Scand., 129,* 275–281, 1965.

In a consecutive series of 3,988 cases of facial clefts during 30 years, 41 cases were seen with atypical clefts. Fifteen of these were median cleft lip, three oblique facial and 12 transverse facial clefts, three atypical cleft palates, eight clefts of the nose, and seven clefts of scalp. Four of the patients had combined rare clefts and six had associated cleft lip or palate of the ordinary type. Heredity is very unusual in these clefts as compared with patients with typical clefts of the lip and palate, who have a positive history of clefts, indicating heredity in nearly 40%. Only one case of chromosome anomaly in the rare clefts was seen. Some exogenous factors, not yet substantiated, are most likely to be responsible in the majority of the cases. In most of the rare clefts, similar surgical principles as used in usual clefts of the lip and palate can be used, but in some with severe defects, additional tissue is needed in the form of pedicle flaps or free grafting. Some of the rare clefts also present other defects and have considerably higher mortality than typical clefts of lip and palate. Of the 48 cases reported, six died in the hospital before any attempt of surgery. The main reason for this greater mortality and poorer prognosis is the associated malformations. Thirty-five of 48 cases presented one or more additional deformity. (Nordin)

Breine, U., Johanson, B., and Rockert, H., Human autogenous bone grafts. II. Studies of the fate of grafts to the hard palate in clefts by using tetracycline ultra-violet fluorescence technique and x-ray microscopy. *Acta chir. Scand., 129,* 250–256, 1965.

The authors have studied bone grafts in 25 cases of clefts in the alveolar process and palate. The bone graft was autogenous cancellous bone from the tibia. The operation was performed at the age of 5 to 14 months. Biopsies were taken 5 to 9 months after the operation. Control material was obtained from autopsy in the same age group; they had no signs of metabolic disturbances affecting the skeleton. The bone graft was studied using ultra-violet fluorescence analysis after tetracycline administration. These analyses showed that fluorescent band occurred in the entire specimen in every case indicating good vitality in the transplants. After several dosages of tetracycline, an even and rapid mineralization could be demonstrated. They also studied the bone graft specimens using x-ray microscopy. This showed a varying mineralized pattern demonstrating a good metabolic turnover, which did not differ from comparable areas in the control material. The authors considered analysis in ultra-violet light a very suitable method for clinical work in cases where

use of radioactive isotopes is not wanted. (Nordin)

Rintala, A., Blood loss in cleft palate surgery. *Acta chir. Scand., 129,* 288–291, 1965.

The blood loss in cleft palate surgery was measured in 136 patients. The operation was performed under ether anaesthesia and according to the modified method of Veau-Wardill-Kilner (V-Y). The operative field was infiltrated with ½% lidocain (Xylocain) with 10 mcg/cc of opinephrine or ½% Citanest plus 4 mcg/cc epinephrine or ½% Xylocain plus 5 mcg/cc norepinephrine, ½% Xylocain plus 0.2 i.u./cc Octapressin. The entire quantity of blood loss was collected by suction into a measuring glass. The method employed enables measurement of the bleeding with an accuracy of 5 ml, which was considered adequate. The average bleeding in cases with Xylocain with epinephrine was an average 15 ml, with norepinephrine 40, with Octapressin 70, Citanest with epinephrine 20. The percentage of bleeding of the total blood volume was 1.5, 4, 7, and 2%, respectively. Norepinephrine and Octapressine proved to be vasopressors of a weaker effect in this series. The number of patients in the Octapressine group was 11 compared with 27 in the Xylocain and norepinephrine group, 64 in the Xylocain and epinephrine group, and 34 in the Citanest and epinephrine group. With higher weight, more advanced age bleeding was slightly increased. Haemoglobin content, blood transfusions, and sex did not considerably affect the amounts of bleeding. All cases healed without complications. (Nordin)

Schrudde, J. Primary osteoplasty for clefts of the lip, palate and jaw. *Brit. J. plastic Surg., 18,* 183–187, 1965.

A brief review of the development of primary bone grafting in cleft palate repair in Germany and Scandinavia is given. The author still prefers his method of alveolar grafting in which a bed for the graft is prepared from local nasal and buccal flaps, and rib bone struts and chips bridge the defect. He has, however, abandoned the use of pre- and postoperative orthodontic treatment and finds that the upper jaw still develops in a very favorable manner. He has been impressed with the results of Johanson's technique in which the entire hard palate cleft is closed with cancellous tibial bone but feels that the two-stage lip operation and the more difficult bone donor site are added complications. His present technique of following primary alveolar bone grafting is therefore to close the remaining palate at 14 to 16 months and incorporate a bridging strut of rib bone across the gap. He hopes thereby to prevent later collapse of the maxillary segments. The mucosal flaps retain their neurovascular supply from the posterior palatine foramen and provide an excellent bed for the grafts. Antibiotic cover for neither the primary nor the secondary bone graft is provided and no loss of bone from infection has occurred.

Grimm, G., Meinhold, G., Suttner, J., and Halle, S., Comparing investigations of speech results after different pharyngoplasties in cleft patients. *Deutsche Zahn Mund Kieferheilkunde,* 1963.

After a short discussion about the causes of velopharyngeal insufficiency, not only hypoplasia of palate, but also dysplasia of pharynx, epipharynx, and septum nasi, the authors give an account of their methods of palate closure. They are following the principles of Schwekendieck (that is, early closure of the soft palate expecting good speech results, and late closure of the hard palate in an effort to obtain normal jaw development). Hypoplasia of the pharynx and especially defects of the palate are being treated with

pharyngoplasties according to Schönborn-Rosenthal, Sanvenero-Rosselli, or Hynes. The speech results of those patients were checked and analyzed, not only in respect to nasality, but mainly articulation characterized by nasal emission, particularly the plosives. The pressure waves in the nasal airways were measured according to F. Dubeck. The functional and anatomic aspects of speech are discussed and by comparing the sound-statistics the authors have clearly better results with the cranial-hinged pharynx flap (Sanvenero-Rosselli). On the other hand, the Hynes-plasty shows better results than the procedures which employ caudal hinged flaps (Schönborn-Rosenthal). (Schmid)

Millard, D. R., Jr., The island flap in cleft palate surgery. *Surg. Gyn. Obst., 116,* 297–300, 1963.

The author restates the cardinal principles of cleft palate surgery, that is, lateral closure of the cleft with sufficient length of soft palate to provide efficient velopharyngeal closure. Lateral closure may be effected in many ways but adequate length can only be obtained in short palates by transverse division of the aponeurotic and nasal mucosal layers at the posterior border of the hard palate. If the oral layer is closed over this gap without lining, a raw surface is left on the nasal side and this will lead to scarring, contracture, and some loss of the length achieved. This secondary contracture may be eliminated by filling the gap with an elliptical anterior island of mucoperiosteum nourished by the greater palatine vessels which are dissected from the routine Veau flap. (Author)

Hage, J., Early results with Millard's island flap in primary closure and lengthening of cleft soft palates. *Overgedrukt uit Arch. chir. Neerlandicum, 16,* 125–133, 1964.

The author reviews his early results in a series of cleft palate patients in whom he employed the Millard island flap as part of the lengthening procedure at the primary operation to close the cleft. Ten cases have been treated in this way and the author felt that the length achieved was sufficiently impressive to warrant publication of his early results. The cases have been assessed radiologically by lateral tomograms showing the soft tissues and by the position of radiopaque markers placed at the anterior and posterior margins of the island flap during the operation. The results immediately following operation and again at three months indicate that permanent lengthening is being achieved. By using one island flap, an increase of 1 cm. is easily obtained while in some cases two flaps have been used, one behind the other with a net gain of 1.5 cms. (Author)

Millard, D. R., Jr., Wide and/or short cleft palate. *Plastic reconst. Surg., 29,* 40–57, 1962.

The fundamental problem in the repair of the very wide and/or short cleft palate is the primary deficiency of soft tissue. After reviewing the literature dealing with the repair of this type of cleft palate, the author describes the use of superiorly based pharyngeal flap to augment the width of one layer of the soft palate. To provide additional tissue to both layers he has employed two vertically opposed pharyngeal flaps and also one pharyngeal flap combined with a turned back flap of vomerine mucosa. Adequate length of palate can be achieved by a pushback procedure incorporating division of the aponeurotic and nasal mucosal layers at the posterior border of the hard palate. Permanent lengthening can be maintained only if nasal lining is provided to the raw area resulting from this procedure. A mucoperiosteal island flap cut from the tip of the Veau flap and based on the greater palatine vessels has been used to fill this gap in nasal lining and maintains the length achieved by the pushback. (Author)

Rusconi, L., Azzolini, A., Maccaferri, A., and Marenzi, M., Il trattamento delle labiopalatoschisi (The treatment of the cleft lip and palate). Torino: Edizioni Minerva Medica, 1963. Pp. 317.

After exposing the most significant aspects of the functional anatomy of the lip and palate, the various lesions of soft and bony tissues observed in patients with cleft lip and palate are described. The importance of regional hypoplasia, mainly at the time of surgical repair, is stressed. Median stratigraphic examinations of the skull are found to be particularly helpful, since they allow a precise evaluation of the hypoplasia of the vomer, which, in extended cases, assumes a very elongated sickle-shaped appearance. The different repairing procedures in unilateral cleft lip are analyzed in detail, and the results of a large personal experience are reported. The criteria followed by the authors in the treatment of cleft palate are thoroughly described. Much room is devoted to the causes of postoperative velopharyngeal insufficiency, to the mechanisms induced by the organism in the attempt to reduce velopharyngeal inadequacy, and to the criteria to which the plastic surgeon applies orthophonic interventions (pharyngoplasty, lengthening of the palate, velopharyngoplasty). Stress is laid on the importance of stratigraphy in phonation as a necessary preliminary step in each orthophonic intervention. Special attention is given to description of the method of velopharyngeal synechia with unilateral and bilateral higher hinge, according to Sanvenero Rosselli, which is preferred to that with a lower hinge because of unquestionable advantages. A large section is devoted to the various orthophonic prostheses, and especially to the treatment and prevention of maxillary deformities. The orthognathodontic treatment is considered from the preoperative and postoperative standpoints. The most current and effective procedures are illustrated and discussed, thus giving to the problem an unquestionable personal contribution with many favorable results. The last chapter deals with the phoniatric problem (dyslalia from cleft palate). The criteria followed to evaluate the extent of the various forms of mechanical dyslalia are illustrated, and the most suitable indications for a good phonetic education for the patient operated for cleft palate are suggested. The monograph, which is the result of an intelligent cooperation among specialists in different fields (plastic surgery, orthodontics, pediatrics, phoniatrics), is supplemented with a rich, iconographic material and with a thorough and detailed French, English, German, and Spanish summary. The valuable suggestions and the safe, therapeutical approaches contained here will guarantee a world-wide diffusion of the work, and will be, in addition, a precious guide to all physicians interested in the complex therapeutical problem of cleft lip and palate still controversed and disputed. (Francesconi)

Hama, K., Morphological study of the craniofacial skeleton within a profile in cleft lip and palate. *J. Osaka Univ., dent. School, 4,* 41–67, 1964.

The purposes of this study were to obtain the patterns of skeletal deformities in cleft palate adult males and to examine the effects of palatal surgery on the growth of the maxilla and mandible. Cephalometric roentgenograms obtained from 55 adult cleft palate patients were compared with that of the control normal group. Some of the results were a) that operated cleft lip and palate cases showed more superior and posterior location in the maxilla and mandible, and b) that palatal surgery performed on patients over four years of age did not inhibit growth of the maxilla and mandible. (Machida)

Hirano, M., Phonetical studies on cleft palate speech. *Jibi Rinsho, 56,* 124–168, 1963.

The purposes of this study were to know some acoustical characteristics of cleft palate speech. In one part of the study sonagrams of the 67 Japanese monosyllables were analyzed in a group of 10 cleft palate speakers, aged between 11 years and 27 years old. Characteristic findings in vowels were strenthening of the fundamental tone and removal of the first formant to a higher frequency range. Many abnormal patterns were observed in every component of consonants. Patterns of substitutional or distorted sounds were often found in speech heard as normal. Sound pressures in the nasal cavity during speech were also measured with a proble tube microphone. The main results were a) that the order of the pressure in vowels was, from the highest, /i/, /u/, /e/, /o/, and /a/ and b) that the differences of the pressure in consonants were not significant. (Machida)

Takayori, A., Studies on speech articulation test and time of operation in cleft palate. *J. Osaka Univ. dent. Soc., 9,* 1–26, 1964.

The methods to evaluate the speech ability of cleft palate cases were discussed first. The main purpose of this study was to decide the adequate time of palatal surgery from the point of rehabilitation of abnormal speech. Ninety-five cleft palate cases operated under 15 years of age were examined. The subjects were divided into five groups according to the age at which the operation was performed. Investigations were on a) articulation of nonsense syllables, b) the amount of nasal air leakage during phonation of 67 Japanese monosyllables, and c) the ratio of nasal/oral air leakage at the time of soft blowing. It was confirmed from the results that the speech rehabilitation was most excellent in the operated group of one- to three-year-olds, and was effective in the operated group of four- to six-year-olds. (Machida)

Schwekendiek, W., Der Zeitplan bei der Behandlung der Lippen-Kiefer-gaumenspalten (The best age to give surgical treatment to cleft lip and palate cases). *Laryngologie-Rhinologie-Otologie, 43,* 246–253, 1964.

Early operation on patients with a cleft lip satisfies the wishes of the parents. There are, however, good reasons for postponing the operation (growth of the jaws, symmetrical profile of the growing midface). The best age for the primary operation for all cleft lip and palate cases is considered to be seven to eight months. In total clefts the primary soft palate plasty is performed before the closure of the lip and nasal floor defect. The soft palate repair is undertaken at the age of eight months, even in complete cleft palates. This permits the development of speech without affecting the growth of the jaw. The results relating to cosmetic appearance, development of the jaw and speech have been good. In total clefts, orthodontic treatment and speech therapy are followed by closure of the defect in the hard palate, if possible, after the development of the jaw is complete. Corrective operations should be performed as late as possible, about the age of 16 to 17 years. (Schmid)

Lapa, F. S., Crescimento e desenvolvimento nas fissuras labio-palatinas (Growth and development in cleft lips and palates). *Boletin Sociedad Paul. Ortod, 5,* 7–16, 1964.

Initially the author tries to describe what is growth and development. He presents the existing concepts in relation to the growth of the maxillae and the variations of the environmental conditions in which the growth proceeds, giving examples and arriving at the following con-

clusions: a) It is not known why the bone grows, but we know that, at birth, a growth potential exists for the individual. b) The growth of the maxillae has great repercussions on the facial skeleton. c) Adverse conditions during the growth phase can influence the growth at any age, inhibiting, impeding, or changing its ori entation. d) Even though it is believe that a stimulus cannot cause the maxilla t surpass the physiological and genetic limit of its growth, in cleft lip and palate, ex amples exist in which we do not know t what point this is true. (Spina)

REGISTRY OF CURRENT RESEARCH PROGRAMS

The Registry will be maintained in subsequent issues of the *Journal.* Currently, the major source of information is the Bio-Sciences Information Exchange; however, other sources are invited to contribute. Descriptions of research programs to be listed with the Registry should be sent to the Editor.

Items are: Name of project; supporting agency; name of principal investigator with degrees; academic rank, institution, and address; and summary of project.

The effects of palatal coverage by dental appliances on speech (Veterns Administration). *Keith R. Marcroft,* D.D.S., Dental Service, Veterans Administration Hospital, 4801 Linwood Boulevard, Kansas City, Missouri.

Summary: The purpose of this study is to determine the effect on speech of covering the palate with clasp retained acrylic resin overlays of various thicknesses and contours. Twenty individuals with natural dentitions and normal speech will be subjects. Half of the subjects will be in the 20 to 30 year age bracket and half will be in the 40 to 50 year bracket, with each group evenly divided as to sex. The objectives of the project include: a) to determine whether varying the thickness of the palatal overlays in specific areas produces characteristic speech changes, b) to compare palatograms of key speech sounds made on the natural palate with those made on the acrylic overlays by the same individual, c) to observe to what extent and how rapidly a subject is able to adapt to the palatal appliance and return to normal speech, and d) to compare tongue-palatal contact for key sounds, by means of palatograms, before and after compensation has occurred. Each subject will read a test paragraph and be asked to pronounce certain key words. These will be tape recorded. After covering the palate with the overlay, the subject will again tape record the test paragraph and key words. This speech test will be repeated each time the contour of the overlay is changed by adding thickness to various areas. A team of three speech pathologists will individually evaluate each recording, and note changes from the normal speech pattern for each subject under the varying conditions. Objective speech data will be obtained with respect to specific sounds and frequencies affected from an octave band analysis and graphic level record in order to determine adjustment and compensation times.

The cytology, histochemistry, and biochemistry of odontogenesis (NIH). *William Lefkowitz,* D.D.S., Department of Oral Histology, University of Kansas City, School of Dentistry, Kansas City, Missouri.

Summary: Having developed a reproducible method for observing palatal closure in rat explants, the influence of teratogenic agents will be undertaken. The first problem will be hyposia. Measurements for the normal closure of dissolved oxygen in the medium will be made with a continuous recording apparatus during the culture period. Alterations in oxygen content of the air chamber will provide various concentrations of dissolved oxygen in the medium for experimentation in the

in vitro system. The distribution of glycogen in developing toothbuds, oral mucosae, skin and area of fusion of the palate is under investigation. A similar study in fetal material of the same ages will be done for protein-bound sulphydryl and keratin. Further effort to establish a continuous culture of odontogenic epithelium will be made using roller drum and mono-layer techniques.

Research program on dynamics of speech articulation (NIH). *Franklin S. Cooper,* Haskins Laboratories, 305 East 43rd Street, New York, New York.

Summary: The purpose of the project is to investigate the detailed articulation of speech sounds. Electromyographic and other physiological measures are made of the movements of the articulating organs, and these records are correlated with acoustic records of the generated phoneme strings. This description is intended to serve as a norm for the evaluation of various pathological types of speech, such as cleft palate production. This work has broad applications, as well, in general oral physiology, the design of speech recognition systems, and the study of speech perception.

Measurement of cleft palate nasality (NIH). *Donald T. Counihan,* Ph.D., Department of Communication Disorders, University of Oklahoma Medical Center, Oklahoma City, Oklahoma.

Summary: It is the purpose of this investigation to evaluate the relationship between a) simultaneously-derived physical measurements of total and nasal sound intensity and b) subjective judgments of perceived nasality in the speech of a representative clinical sample of adults with congenital cleft palate. The sound pressure level measurements are to be made by means of dual-channel tape recording system, one microphone of which is modified by the addition of a nasal probe-tube, and an associated graphic level recorder. Subjective judgments are to be made on the recorded speech samples as played both forward and backward. It is felt that analysis of the relationship between the physical measures and the subjective measures made on the speech samples as played both forward and backward will not only add to the sum knowledge regarding the dynamics of cleft palate nasality, but will also augment directly the efforts of the surgeon, the prosthodontist, and the speech therapist in the clinical management of the cleft condition.

Cleft lip and palate birth certificate study (Division of Dental Public Health and Resources). *John C. Greene,* D.M.D., Epidemiology Program, Dental Health Center, DPR, San Francisco 18, California.

Summary: The objective of this project is to obtain epidemiological information useful in developing prospective and retrospective studies which may contribute to our eventual understanding of the causes of cleft lip and cleft palate. The study is based on 3.5 million live birth certificates from the States of California, Hawaii, Pennsylvania, and Wisconsin for the period 1956–1960. From these certificates, approximately 4,500 cases of cleft lip or palate and 18,000 controls have been selected and are being subjected to extensive analysis. (Reference: Greene, J. C., Epidemiologic study of cleft lip and cleft palate in four states. *J. Amer. dent. Assn., 68,* 387–404, 1964.)

Excessive intake of vitamins and congenital anomalies (NIH). *Sidney Q. Cohlan,* M.D., New York University Medical Center, 550 First Avenue, New York 16, New York.

Summary: a) Hypervitaminosis A and placental lysosome activity: We have been able to measure the release of lysosome ac-

tivity in the control rat placenta beginning on the 14th day of gestation. A gradient increase in the 15th and 16th day control placenta has been observed. Administration of teratogenic doses of vitamin A in the pregnant rat from the 11th to 16th day of gestation results in a statistically significant elevation in placental lysosome activity in the 16-day vitamin A placenta as compared to its control. The relationship between lysosome activity and hypervitaminosis A teratogenesis is being explored. b) Vincoleukoblastine sulfate: A 10% incidence of reproducible congenital abnormalities in the pregnant rat has been observed following intraperitoneal injection of vincoleukoblastine sulfate. This alkaloid of Vinca rosea is known to arrest tumor cell mitosis in metaphase. The effect on cell mitosis in the placenta and fetus and its relationship to teratogenesis is being studied. c) Transplacental tetracycline: A preliminary experiment in which the offspring of tetracycline pregnant rats were exchanged at birth with control offspring revealed a questionable inhibition of growth rate in the tetracycline treated offspring as compared to exchanged and ordinary controls. Further controlled studies are in progress.

Effects of viruses and nucleic acids on early development (Biological and Medical Sciences). *Ralph B. L. Gwatkin,* Ph.D., King Ranch Laboratory of Reproductive Physiology, School of Veterinary Medicine, University of Pennsylvania, Philadelphia 4, Pennsylvania.

Summary: The work already in progress in our laboratory on mammalian ova and early embryos will be extended to explore the sensitivity of mouse ova to viruses and to determine whether, in such totipotent cells, foreign ribonucleic acid (RNA) can be used to induce profound physiological changes, and foreign deoxyribnucleic acid (DNA) to bring about genetic transformation. a) The virus studies will include an evaluation of the role of the zona pellucida as a possible barrier to infection, a survey of the virus spectrum of mouse ova, and an examination of the possible teratogenic consequences of mild or latent virus infections. b) The nucleic acid studies will aim at assessing the effect of highly polymerized deoxyribonucleic acid and of messenger ribonucleic acid, prepared from the tissues of one inbred mouse strain on the ova of another mouse strain, differing in eye color, alleles at the H-2 (histocompatability) locus, and virus resistance.

Developmental anomalies and genetic constitution (NIH). *Katharine P. Hummel,* Ph.D., The Jackson Laboratory, Bar Harbor, Maine 04609.

Summary: This research includes studies of the inheritance, expression, effects of genetic and maternal environment on expression, linkage, and embryological studies of several mutations in the mouse. These mutations all yield information on problems of genetic and environmental interaction in mammalian development processes. The mutations include: Disorganization (*Ds*), which is unique in the variety of abnormalities in tissues derived from all germ layers; situs inversus viscerum (*iv*), in which asymmetrical abdominal and thoracic viscera and associated blood vessels are transposed left to right; eye blebs (*eb*), in which hemorrhagic blebs occurring during development result in defects of eye, kidney, and foot; sparse hair mutation, a recessive, in which gonads of neither sex contain ova; pituitary cysts, a developmental anomaly in mice of the Marsh strains, in which pharyngeal-type glands appear to be trapped between intermediate and neural lobes of the pituitary, resulting in cysts that may obliterate large areas of the two pituitary lobes; and also other mutants that may arise and seem to be of particular interest.

Epidemiologic and experimental study of congenital defects (NIH). *Theodore H. Ingalls,* M.D., Department of Public Health and Preventive Medicine, University of Pennsylvania, Philadelphia 4, Pennsylvania.

Summary: The broad problem of congenital malformations has been approached by epidemiologic methods. Six pilot studies were completed in 1962 to determine those specific malformations which are promptly identified, well reported, and which warrant preventive effort. A second study of 100 cases of cleft palate in patients attending selected cleft palate clinics in Allentown and Philadelphia has been completed, the data processed and a report prepared and submitted to the *American Journal of Diseases of Children* for publication. Investigation of forms and procedures used in Pennsylvania for the reporting of births of normal and deformed babies is presently under way. Objectives are to ascertain the accuracy of reporting and kinds of malformations successfully recognized at birth; to evaluate the meaning of associated defects insofar as these associations may give some insight into the time and manner of origin; to test whether any advancement has occurred in the accuracy of reporting congenital deformities, after the occurrence of thalidomide embryopathy in Europe; and finally to designate improvements which could be made in the format of birth certificates presently used in Pennsylvania.

Autoradiographic studies on human chromosomes (NIH). *Stanley L. Inhorn,* M.D., Departments of Preventive Medicine and Pathology, University of Wisconsin, 171 Bascom Hall, Madison 6, Wisconsin.

Summary: Continuous late labeling of cells employing tritiated thymidine will be used as a means of further identifying the individual chromosomes of man. Autoradiography will be applied to analysis of chromosomes responsible for certain congenital anomalies where the precise identification by ordinary means is difficult or impossible. The method will also be applied to studies already under way on chromosomal abnormalities in spontaneously aborted fetal and placental material. Cells will be analyzed and photographed before and after application of nuclear-track emulsion. This method has the advantage in that all labeled chromosome segments must have synthesized DNA after addition of the thymidine, whereas unlabeled ones must have done so before. Another advantage is that the morphology of labeled chromosomes can be studied in the first photographs without interference by silver grains. Statistical methods of evaluation will be used in interpreting the results obtained in the study of sex chromosome and autosomal causes of multiple anomalies and spontaneous abortion.

Induced head abnormalities by dietary deficiencies (NIH). *Russell D. Coleman,* D.D.S., Department of Anatomy, School of Dentistry, University of California Medical Center, San Francisco 22, California.

Summary: Our purpose is to complete the teratogenic experiments presently under study for publication and to investigate the application of radioactive isotope methods (S^{35}) to reactions of mesenchymal connective tissue within the lateral palatine processes during normal and abnormal palatal development in the rat. The administration of tracer doses of S^{35} to pregnant female rats at appropriate gestational ages may serve to: a) provide a method to study the mechanism of palatal closure in the caudal and rostral zones of the normal developing rat palate for comparison with previous histologic analysis, and b) indicate the presence or absence of sulphomucopolysaccharides in the lateral palatine processes during various stages of

normal palatal development and comparison of uptake in cleft palate fetuses. It has recently been suggested that the aggregation of sulphomucopolysaccharides in the lateral palatine processes may provide the necessary force to change the shape and/or position of the lateral palatine processes during normal palatal development in mice. This concept will be investigated in normal rat lateral palatine processes and the results compared with the findings for cleft palate defects in the rat.

Evaluation of new experimental methods of teratogenesis (NIH). *Robert L. Brent,* M.D., Jefferson Medical College, 1025 Walnut Street, Philadelphia 7, Pennsylvania.

Summary: Our purpose is to study the physiologic alterations produced by uterine vascular clamping in the pregnant rat that result in fetal growth retardation, fetal death, and fetal malformation. With this in mind our aim is a) to continue to study the changes in physiologic and biochemical environment produced by the clamping technique, b) to continue with the study of modifying effects of temperature control on the results of clamping, c) to study modifying effects of biochemical agents on the effects of uterine clamping, d) to determine the relative importance of changes in the embryo, uterus, and/or placenta following the clamping procedure, and e) to study the synergistic and/or antagonistic effects of other drugs when combined with the clamping technique. The additional aims of the program are to evaluate the teratogenic mechanism of action of rabbit anti-rat-kidney antibody, to attempt to induce malformations with other antibodies and with kidney antibody in other species, to study the effect of induced *autoimmune* nephrosis on sterility and congenital malformations, to study the effect of antibody against tissue culture lines of placenta and kidney cells, and to describe the changing antigenic components of embryonic tissue from early gestation to the neonatal period in the rat.

Prenatal influences on fetal development (NIH). *F. J. Kendrick,* D.D.S., Ph.D., Laboratory of Biochemistry, National Institute of Dental Research, National Institutes of Health, Bethesda, Maryland.

Summary: Further determination of amniotic fluid pressure and volume, and their response to teratogens.

Growth of bones in nonfunctional sites (NIH). *Kalevi Koski,* Institute of Dentistry, University of Turku, Turku, Finland.

Summary: The aim of the project is a) to study the growth potential, mode of growth, and internal structure of fetal, neonatal, and early postnatal mandible and other facial bones of the rat and the hamster, including the functionally different parts of the bones, when grown as iso- or homologous transplants in nonfunctional sites, under various experimental conditions, and b) to study the growth potential, mode of growth, and internal structure of human fetal bones when grown as heterologous transplants in rats, hamsters, and rabbits, in nonfunctional sites, under various experimental conditions.

The effect of prenatal factors on fetal development and other conditions influencing oral diseases (NIH). *C. T. G. King,* Laboratory of Biochemistry, National Institute of Dental Research, National Institutes of Health, Bethesda, Maryland.

Summary: The purpose of this program is to study the effect of thalidomide, other narcotics, and stressor agents administered during gestation on congenital malformations in experimental animals. The effect

of nonspecific, specific stressor agents and tracer substances in the diet during development and gestation on the caries susceptibility of the offspring is being investigated.

Disease of hereditary and developmental origin (The John A. Hartford Foundation). *Norman Kretchmer,* Ph.D., M.D., Department of Pediatrics, Stanford University Medical Center, Palo Alto, California.

Summary: The objective of the proposed study is to obtain information useful in the understanding, identification, and treatment of hereditary and developmental disorders through a coordinated clinical and laboratory investigative effort. A laboratory investigative effort will be directed to experimentation relevant to a) diarrheas of genetic origin, b) fetal metabolism, c) hereditary anemias, d) neurohormones and the convulsive state, e) conjugating mechanisms, f) disorders of carbohydrate metabolism, g) teratology, and h) connective tissue disorders.

Congenital malformations in northern New England (NIH). *Brian MacMahon,* M.D., Department of Epidemiology, Harvard University School of Public Health, 55 Shattuck Street, Boston 15, Massachusetts.

Summary: Two areas in Northern New England have been selected on the basis of presumably high and presumably low levels of background radioactivity as inferred from geologic information. Direct measurements of background radioactivity are being made in these two areas. Births to residents of these two areas over a ten-year period number some 80,000. Records of these births are being sought in maternity hospitals and the records reviewed for evidence of congenital malformations. Rates of congenital malformation will be compared in the high and low background radioactivity areas.

ANNOUNCEMENTS

Regarding 1966 in Mexico City....

a) April 14, 15, and 16 at the Maria Isabel (headquarters) and at the Del Prado.

b) Planning for the meeting continues under the leadership of Dr. Elise Hahn and Mr. Robert Sloan. Inquiries regarding the program or local arrangements should be sent to Dr. Hahn or Mr. Sloan, respectively.

c) Since Mexico City is considered foreign travel by the National Institutes of Health, Dr. McWilliams has made inquiry to NIDR regarding whether a 'blanket clearance' might be made for attendance by research grant personnel. She has been advised that blanket clearance is not considered an appropriate action and that principal investigators should request this foreign travel in their application for fiscal year 1966 funds or, presumably, at any time (if application for 1966 funds has been made).

Time and Place for Future ACPA Meetings

1966—April 14, 15, and 16....Mexico City at the Maria Isabel (convention headquarters) and at the Del Prado
1967—April 13, 14, and 15.....Chicago at the Palmer House
1968—April 25, 26, and 27.....Miami Beach, Florida
1969—April 17, 18, and 19.....Houston, Texas

American Medical Association (Clinical Convention), November 27–30, 1966, Las Vegas
American Association of Plastic Surgeons, May 4–7, 1966, Cleveland
American Dental Association, November 8–11, 1965, Las Vegas
American Pediatric Society, April 21–28, 1966, Atlantic City
American Speech and Hearing Association, October 30–November 2, 1965, Chicago
International Association for Dental Research, March 24–27, 1966, Miami Beach
International Congress of Pediatrics, November 7–13, 1965, Tokyo
National Society for Crippled Children and Adults, November 20–23, 1965, Chicago
American Association for the Advancement of Science, December 26–30, 1965, Berkeley
American Otological Society, April 18–19, 1965, San Juan

Comments with regard to changes, corrections, or additions to the 'Classification of Cleft Lip and Cleft Palate' will be welcomed by the Nomenclature Committee of the Association. Kindly send all correspondence to Dr. William R. Harkins, Fulton Building, Osceola Mill, Pennsylvania.

Inquiries and applications for membership to the Association should be sent to the membership chairman, Dr. Gene R. Powers, Speech and Hearing Clinic, University of Connecticut, Storrs, Connecticut 06268.

Dr. Benjamin Spock, noted author and pediatrician, narrates a new film entitled 'For Children, Because We Care', just released by the Public Health Service, Division of Dental Public Health and Resources in Washington, D. C. The film, a thirteen-minute color production, discusses the effectiveness and safety of fluoridation in the prevention of dental caries (tooth decay) among children. It is available to community groups interested in fluoridation facts. Prints may be obtained free of charge for television or group showings through local and state health departments.

Graduate Fellowships in Cleft Palate Therapy and Rehabilitation, supported by the United States Public Health Service, are available to qualified applicants. All applicants must be U. S. citizens. Clinical training is offered at the Lancaster Cleft Palate Clinic, Lancaster, Pennsylvania. Graduate work in a basic science in connection with the clinical training is encouraged. The annual stipend is $5,000 with annual increments and dependency allowances and is tax free. Address all inquiries to: Chairman, Committee on Traineeships and Fellowships, University of Pennsylvania, School of Dentistry, 4001 Spruce Street, Philadelphia 4, Pennsylvania.

Erratum

The word *not* is omitted in the last sentence of the first paragraph on page 258 of the paper by Lubker and Moll in the July 1965 *Cleft Palate Journal.* That sentence should read: It should be noted that the purposes of this study are methodological; the study was not designed primarily to obtain specific data on the air flow characteristics of speech. The editors apologize to the authors for the error.

INDEX TO VOLUME 2, 1965

AUTHOR INDEX

TITLE INDEX

COMMITTEES OF THE ASSOCIATION
1964–1965

Budget
Kenneth R. Bzoch. Ph.D. (Chairman)
Hughlett L. Morris, Ph.D.
Mohammad Mazaheri, D.D.S.
Charlotte G. Wells, Ph.D.

By-Laws
Asa J. Berlin, Ph.D. (Chairman)
Betty Jane McWilliams, Ph.D.
William H. Olin, D.D.S.
Richard B. Stark, M.D.

Honors and Awards
William R. Laney, D.M.D. (Chairman)
Eugene T. McDonald, Ed.D.
Samuel Pruzansky, D.D.S.
D. Ralph Millard, Jr., M.D.
George F. Crikelair, M.D.
Margaret C. Byrne, Ph.D.

Ethics and Professional Affairs
Herbert Koepp-Baker, Ph.D. (Chairman)
Richard C. Webster, M.D.
Donald M. Glover, M.D.
Stephen P. Forrest, D.D.S.

International Relations
Michael L. Lewin, M.D. (Chairman)
Lester M. Cramer, D.M.D., M.D.
Malcolm C. Johnston, D.D.S.
Benjamin B. Cantor, D.D.S.
Thomas D. Rees, M.D.
George H. Shames, Ph.D.
Mildred F. Berry, Ph.D.
David B. Coursin, M.D.

International Congress, 1969
Betty Jane McWilliams, Ph.D. (Chairman)
Sheldon W. Rosenstein, D.D.S.
Thomas R. Broadbent, M.D.
Donald W. Warren, D.D.S., Ph.D.
Michael L. Lewin, M.D.
Clark D. Starr, Ph.D.

Local Arrangements
Robert F. Sloan, B.A. (Chairman)
Fernando Monasterio, M.D. (Guest Co-Chairman)
Norman R. A. Alley, D.D.S.
Raymond O. Brauer, M.D.
Kenneth R. Bzoch, Ph.D.
Sanford Glanz, M.D.
Elise S. Hahn, Ph.D.
Morton S. Rosen, D.D.S.

Long Range Planning
Peter Randall, M.D. (Chairman)
Mohammad Mazaheri, D.D.S.
Elise S. Hahn, Ph.D.
Kenneth R. Bzoch, Ph.D.
Betty Jane McWilliams, Ph.D.
Hughlett L. Morris, Ph.D.
Ross H. Musgrave, M.D.
Charlotte G. Wells, Ph.D.

Membership
Gene R. Powers, Ph.D. (Chairman)
Edward F. Lis, M.D.
Galen W. Quinn, D.D.S.
H. Cameron Metz, Jr., D.D.S.
Verner V. Lindgren, M.D.
Ralph L. Shelton, Jr., Ph.D.

Nomenclature
Nicholas G. Georgiade, M.D. (Chairman)
Bertram S. Kraus, Ph.D.
William R. Harkins, D.D.S.
Kenneth R. Bzoch, Ph.D.

Nominating
Ross H. Musgrave, M.D. (Chairman)
Duane C. Spriestersbach, Ph.D.
Howard Aduss, D.D.S.
James C. Shanks, Ph.D.
Mohammad Mazaheri, D.D.S.

Program
Elise S. Hahn, Ph.D. (Chairman)
A. R. Serrano, M.D. (Guest Co-Chairman)
Ernest H. Hixon, D.D.S.
Lester M. Cramer, D.M.D., M.D.
Joanne D. Subtelny, Ph.D.
Charles R. Elliott, Ph.D.
Sidney I. Silverman, D.D.S.
Robert F. Sloan, B.A.
John W. Curtin, M.D.

Public Relations
Walter J. Benavent, M.D. (Chairman)
A. R. Serrano, M.D. (Guest Co-Chairman)
Ernest H. Hixon, D.D.S.
Richard C. Schultz, M.D.
Kenneth R. Lutz, Ph.D.

Time and Place
Francis W. Masters, M.D. (Chairman)
Harry Z. Roch, D.D.S.
Donald T. Counihan, Ph.D.
Eugene Gottlieb, M.D.
Doris P. Bradley, Ph.D.

AMERICAN CLEFT PALATE ASSOCIATION

Information for Applying for Membership

The Association was organized in 1940 with the following objectives:

1. To encourage scientific research in the causes of cleft lip and palate.
2. To promote the science and art of rehabilitation of persons with cleft palate and associated deformities.
3. To encourage cooperation among, and stimulation of, those specialists interested in the rehabilitation of cleft palate persons.
4. To stimulate public interest in, and support of, the rehabilitation of cleft palate persons.

The Association publishes the *Cleft Palate Journal* quarterly. The Association's Annual Meeting includes sessions devoted to the presentation of papers in medicine, dentistry, speech, and related areas concerning the problems in individuals with cleft lips and palates.

To be qualified as a member of the Association, the applicant must be in good standing in the professional organization representing his major or clinical orientation. He must be accredited in his professional field, and he must have displayed an interest in the rehabilitation of cleft palate persons. The above statement has been interpreted to mean that those applicants trained in Speech Pathology and Audiology must hold at least basic certification from the American Speech and Hearing Association at the time of the application.

The person shown as sponsor on the application must be a member of the Association and must write a letter attesting to the fact that the applicant is eligible for membership.

Send applications or requests for further information to:

KENNETH R. BZOCH, PH.D.
American Cleft Palate Association
Department of Communicative Disorders
University of Florida
Gainesville, Florida 32601