

The YEAR BOOK of

Dentistry

1977

Editors

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Publishers' Note

With the publication of the preceding volume, Dr. Sidney B. Finn relinquished his editorship of the **YEAR BOOK OF DENTISTRY**, a position he held for 10 years. Doctor Finn was a meticulous editor and a valued adviser during these years and the publishers thank him for his outstanding cooperation.

We have been fortunate to secure the services of Dr. Dale F. Redig, who now has the responsibility for Doctor Finn's editorial areas of pedodontics, caries and the development of dentition and occlusion. Doctor Redig accepted the editorship with enthusiasm and we are certain that the reader will appreciate his skill in selecting and commenting on the journal articles in his areas.

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The material covered in this volume represents literature reviewed up to October, 1976.

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Questions for Clinicians

1. What were the two main advantages cited in the use of intravenous anesthesia for pediatric dentistry in a hospital? (p. 321)
2. Why are etching techniques less effective when used on primary teeth as compared to permanent teeth? (p. 97)
3. What finding regarding Class II molar relationships is noted when deciduous molar relationships are studied epidemiologically in preschool children? (p. 39)
4. In the study of the merits of stainless steel crowns versus amalgam restorations in primary teeth, what advantage is cited for the use of stainless steel crowns? (p. 104)
5. Immunization against *Streptococcus mutans* in children with erupted primary teeth is now possible. True or false? (p. 243)
6. A clinical evaluation of pit and fissure sealants on young adults disclosed two main points of interest. What were they? (p. 114)
7. The use of role modeling is suggested as a behavior management technique. Why is it believed to be effective? (p. 95)
8. What are the three behavior patterns associated with anxiety that are cited in the study of heart rate and physical activity of children during dental treatment? (p. 101)
9. What postoperative advantages can be anticipated by the use of corticosteroids (such as dexamethasone)? (p. 356)
10. What side effects might be experienced by a patient placed on anti-inflammatory drugs such as indomethacin? (p. 357)
11. Which tooth has the more favorable prognosis when subjected to trauma sufficient to produce a root fracture, developing teeth with embryonal tissue still present at the apex or a fully developed tooth? (p. 108)

12. Hyperbaric oxygen therapy may accelerate the rate of healing in osteotomy cases; however, is such treatment readily available in most treatment centers today? (p. 348)
13. Based on available research, is autogenous root transplantation a practical treatment plan? (p. 395)
14. The oral pathologist is readily able to orient the specimen in question under the microscope to the anatomical area from which it was taken and advise the surgeon where an inadequate margin is should such a finding be noted. True or false? (p. 183)
15. Where might you elect to use a needle biopsy? (p. 338)
16. Most dental schools do not serve as a center of information on implant cases. These procedures have been promoted primarily by a few individual practitioners. True or false? (p. 398)
17. You suspect that a lesion on the oral mucosa of one of your patients is malignant. What steps should you now take? (p. 137)
18. Why is it advisable to protect the cavity walls of each tooth from saliva while multiple tooth preparations are being preformed? (p. 305)
19. Is herpes labialis usually caused by a virus or an allergy? (p. 162)
20. In examining a patient you notice a flat, red, painless lesion about 2 mm in diameter in the floor of the mouth near the midline. It had not been observed at the patient's last visit 6 months ago. What would you suspect and what diagnostic procedure would you recommend? (p. 179)
21. A 60-year-old patient who is leaving for a 6-month vacation on the beaches of Florida complains of having had "chapped lips" during previous exposure to the sun. What would you advise as a protective agent to be applied to the lips? (p. 193)
22. Which of the following are more critical in increasing the risk of mercury poisoning of dentists: (1) the number of amalgam restorations placed per week, (2) whether hand or mechanical trituration is used or (3) the type of floor covering used in the office suite? (p. 405)
23. Is periodontosis, the disease of otherwise healthy ado-

- lescents characterized by loss of alveolar bone around permanent teeth, a result of poor oral hygiene, bacterial infection or an inherited genetic defect? (p. 201)
24. A 55-year-old patient with a fixed prosthesis replacing 2 maxillary molars and with all other teeth in a good state of repair and no periodontal disease is going to receive intensive irradiation for a carcinoma of the maxillary sinus. What treatment would you institute before, during and after the irradiation? (p. 141)
 25. What is the best material to use for a temporary restoration that will adapt to and seal the cavity margin? (p. 289)
 26. What is the best present method for finishing composite restorations? (p. 271)
 27. Are pit and fissure sealants being used extensively by practicing dentists? (p. 113)
 28. What properties of composite resins make them less desirable as the material of choice for Class II restorations? (p. 270)
 29. Is there a correlation between serum vitamin E levels and periodontal disease? (p. 209)
 30. What long-term effects might the use of electrosurgery have on the periodontium when it is used for gingival troughing? (p. 216)
 31. What periodontal surgical procedures should be considered in treating an area that has an irregular path of bone loss where interproximal pockets are more extensive than those on the facial or lingual aspect of the teeth? (p. 214)
 32. What percentage of teenagers, surveyed in a recent study, were aware of the relationship between plaque and dental disease? (p. 413)
 33. How effective are casting alloys with reduced gold content for use in crowns? (p. 250)
 34. Is the open-mouth technique for impression procedures more desirable than closed-mouth impression techniques? (p. 383)
 35. Does the use of porcelain artificial teeth against acrylic resin teeth reduce the wear of the teeth on the occlusion surfaces? (p. 386)
 36. Do patients have a preferred vertical dimension of occlusion? (p. 376)

37. Is calcium hydroxide a satisfactory lining base for filling materials like composites and amalgam? (p. 253)
38. Should full-coverage crowns be terminated at a supra-gingival level of the tooth? (p. 211)
39. Do artificial denture cleansers affect the physical or chemical composition, or both, of the denture materials? (p. 258)
40. Which is the most reliable elastic material used in impression procedures for crown restoration? (p. 263)
41. What is the latest information about the role of finger-sucking in malocclusion? (pp. 35-37)
42. What are the possible effects of an injury that drives a primary incisor into the alveolar process? (p. 32)
43. What are the main types of temporomandibular pain-dysfunction and the symptoms and treatment for each? (p. 29)
44. What is the role of the lip and chin muscles in orthodontic diagnosis and treatment planning? (pp. 13 and 69)
45. How available is orthodontic service in the United States? Are orthodontists busy? How much orthodontics is being done by dentists other than orthodontists? (p. 75)
46. What are the advantages of early extractions and mixed-dentition treatment? (pp. 59 and 60)
47. What are the best ways to manage impacted canines? (pp. 67, 68, and 93)
48. What is the current state of the field of orthognathic surgery? (p. 79)

Oral Physiology

Mentalis and Orbicularis Oris Activity in Children with Incompetent Lips: Electromyographic and Cephalometric Study. The influence of perioral musculature on tooth position has been widely discussed but no definite answers are known. Manne Gustafsson and Johan Ahlgren¹ (Univ. of Lund) analyzed the activity of the orbicularis oris and mentalis muscles in patients with incompetent lips and correlated the activities with dentofacial morphology. The study included 20 patients with malocclusion who had not had orthodontic treatment; 10 had competent lips and 10, incompetent lips. The former patients could bring the lips into contact without discernible muscle contraction in the mentalis area.

In both groups, a completely relaxed lip position with no electromyographic (EMG) activity was recorded. Patients with incompetent lips had much greater EMG activity with the lips closed (Fig 1, A). A great range of variation in perioral activity was seen in these patients. Swallowing had a higher level of activity in the upper lip and mentalis muscles in the group with incompetent lips (Fig 1, B). Lip-mentalis activity during chewing differed significantly between groups (Fig 1, C). Cephalometric analysis showed a greater distance incision inferius to the line nasion-supramentale in patients with incompetent lips and increased angles for the mandibular plane to the nasion-sellaline and to the nasal plane, indicating a greater lower anterior facial height. The anteroposterior relation between the jaws was greater in patients with incompetent lips. The angle between the nasion-sellaline and the mandibular plane was positively correlated with mentalis and orbicularis oris activity. Various degrees of positive correlation were found between the anteroposterior skeletal pattern angle (ANB angle) and muscle activity.

(1) Acta Odontol. Scand. 33:355-363, 1975.

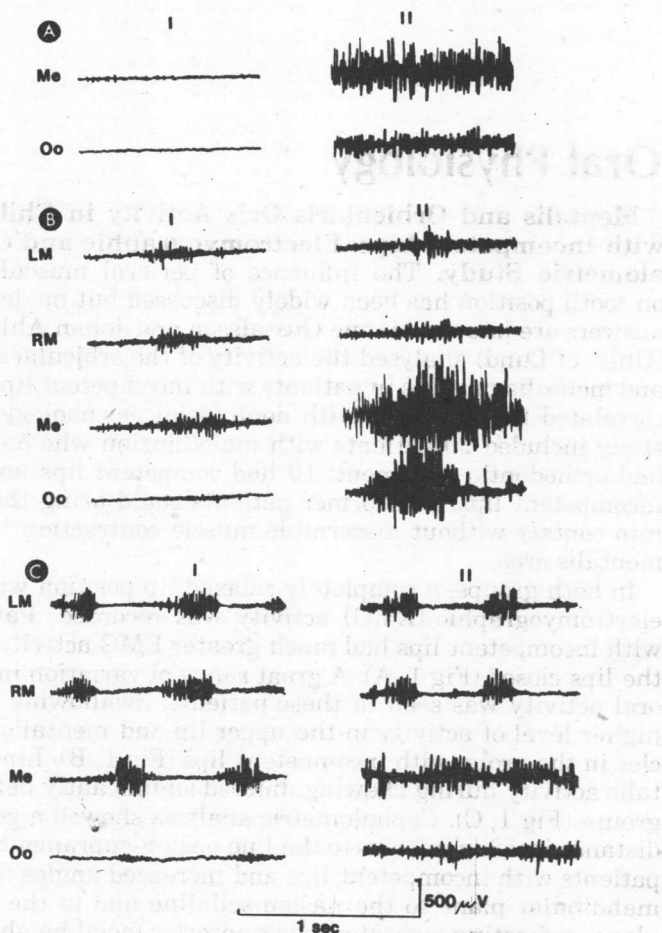


Fig 1.—Electromyograms during lip closure (A), deglutition (B) and mastication (C). *I*, competent lips; *II*, incompetent lips; *Me*, mentalis muscle; *Oo*, orbicularis oris muscle; *LM*, left masseter muscle; *RM*, right masseter muscle. (Courtesy of Gustafsson, M., and Ahlgren, J.: *Acta Odontol. Scand.* 33:355–363, 1975.)

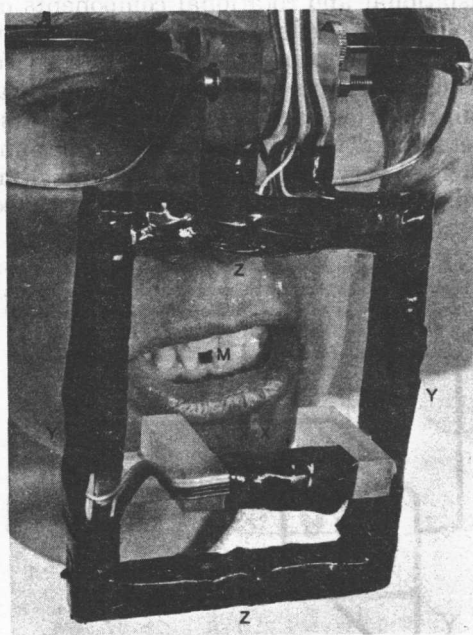
Lip closure, mastication and swallowing show greater activity in subjects with lip incompetence. These subjects have a greater lower anterior facial height, a high mandibular plane angle, a postnormal skeletal jaw relation and increased lower incisor proclination than those with normal

lip position. Treatment of subjects with incompetent lips should be done by influencing vertical and horizontal growth of the jaws, especially the mandible. Every effort should be made to avoid posterior rotation of the lower jaw as a response to treatment.

► [Finally several research workers are quantifying and relating muscle function to the craniofacial skeletal pattern and clinical treatment. Among the foremost laboratories in the world in this research is that of Ahlgren in Sweden. Ahlgren is not only a good muscle physiologist but a clever clinician. Those who have access to the Scandinavian journal *Acta Odontologica Scandinavica* will profit from reading the article in its complete and original form. — R.E.M.] ◀

Measurement of Jaw Movement: Part I. J. Lemmer, A. Lewin and L. B. van Rensburg² (Univ. of the Witwaters-

Fig 2.—Plastic frame, bearing three pairs of Hall-effect transducers at X, Y and Z axes, is suspended in front of the mouth by eyeglass frame. A small magnet (*M*) is cemented between the lower incisor teeth, with its polar axis orientated anteroposteriorly. (Courtesy of Lemmer, J., et al.: *J. Prosthet. Dent.* 36:211–218, August, 1976.)



(2) *J. Prosthet. Dent.* 36:211–218, August, 1976.

rand, Johannesburg) describe a new method of recording movements of a point on the mandible, which seems a valuable addition to the investigation of jaw movements.

The apparatus consists of a small magnet cemented labially between the lower central incisor teeth and three pairs of transducers mounted on a plastic frame, which is suspended from a pair of spectacles (Fig 2). A schematic illustration of the orientation established by the pairs of transducers is shown in Figure 3. The transducer outputs are fed into an electronic apparatus comprising circuitry for linearizing and amplifying the signals, which is connected to a flatbed recorder (Fig 4) that can automatically plot displacements on one axis against those on another. The apparatus is calibrated by correlating measured movements of the magnetic point on the three axes with the voltages put out by the corresponding transducer pairs or with measured deflections drawn by the flatbed recorder.

The translational and rotational components of the displacements are inseparable on this apparatus and the movements of the magnetic point on the mandible therefore cannot be described fully from the data obtained. The apparatus must be calibrated for each subject but this does not seriously detract from its value. It has proved to be simple to use and has provided very valuable research and clinical information during several months of use. Unrestricted exercise

Fig 3.—Schematic representation of a cranium and mandible showing how three planes of orientation are established by the positions of the three pairs of Hall transducers on X, Y and Z axes in relation to the reference magnet (M). (Courtesy of Lemmer, J., et al.: *J. Prosthet. Dent.* 36:211–218, August, 1976.)

