

Abstracts of Current Literature*

Anthropology

*INCIDENCE OF DENTAL CARIES AMONG PURE-BLOODED SAMOANS. J. S. RESTARSKI. U. S. Naval Med. Bull. 41:1713-1714. 1943. (See Dental Caries)

Case Analysis and Diagnosis

BITE OPENING: A CEPHALOMETRIC ANALYSIS. M. A. BAHADOR AND L. B. HIGLEY. J.A.D.A. 31:343, March 1944.

The treatment of close bite cases by the bite-plane alone was studied by means of cephalometric roentgenograms. In all twenty cases, the amount of bite opening deemed desirable was achieved; in the majority of these, this was attained through increase in vertical height in the posterior teeth rather than through intrusion of the anterior teeth. There were more cases showing slight retrusion of maxillary incisors and of the mandible than there were those showing no change or protrusion. The views of other writers on the subject are cited and discussed.

WYLIE, San Francisco.

Dental Caries

† AN INDEX OF THE PREVALENCE OF DENTAL CARIES IN SCHOOL CHILDREN. JOHN W. KNUTSON. Pub. Health Rep. 59:253-263. 1944.

The data utilized for this study were collected by the U. S. Public Health Service from studies on the age-specific prevalence of dental caries in school children of several communities. "The relationship between the percentage of children of a specific age with one or more carious permanent teeth (y) and the average number of carious permanent teeth per child (x) of that age can be satisfactorily described by the equation $97 - y = 97 (0.524)^x$ ". The application of the equation to the problem of collecting prevalence data on dental caries is discussed. In particular it is shown that satisfactory estimates of the average number of carious (DMF) permanent teeth per child in a community may be obtained by determining the proportion of children by single years of age who have one or more DMF permanent teeth."

† ANTHROPOLOGICAL STUDIES IN DENTAL CARIES. MEYER KLATSKY AND JACK S. KATELL. J. Dent. Research 22:267-274. 1943.

The incidence of dental caries was investigated in 4,000 skulls and 38,300 teeth from various peoples of diverse periods. Although not all the teeth examined of primitive peoples were free from decay, the more primitive groups tended to have a lower incidence of caries than the more modern and civilized peoples. From anatomic studies of the masticatory apparatus it was found that the jaw bones of the primitive groups were better developed and the teeth achieved greater attrition than those of the more modern groups. An inverse relationship was found between masticatory function and the incidence of dental caries. It is concluded that "lack of dental function is an important factor in the causation of caries among modern peoples."

* The abstracts of current literature are prepared without comment or interpretation by the editorial staff of THE ANGLE ORTHODONTIST from the following sources: Journal of the American Dental Association, American Journal of Orthodontics and Oral Surgery, Journal of Dental Research, Journal of Dental Education, Journal of the Canadian Dental Association, British Dental Journal, Dental Record (British), Child Development Abstracts and Bibliography, American Journal of Diseases of Children (Abstract section), and other American and foreign periodicals from which abstracts are occasionally submitted. The abstracts represent a comprehensive though not a complete index of material and dental literature of interest to the specialty of Orthodontics.

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- *A STUDY OF THE OCCURRENCE AND TREATMENT OF DENTAL CARIES AMONG SCHOOL CHILDREN AGED 6-18 IN THE UNITED STATES. PETER J. BREKHUS, IRVINE MCQUARRIE, ALBERT L. MIDGLEY, EDGAR W. SWANSON AND GEORGE W. WILSON. J. Am. Dental Assoc. 31:322-326. 1944.

This is a report of a subcommittee of the Committee on Dental Research of the American College of Dentists to study plans for national dental health care. The problem presented by the present situation and a suggested program for its solution are summarized.

- *INCIDENCE OF DENTAL CARIES AMONG PURE-BLOODED SAMOANS. J. S. RESTARSKI. U. S. Naval Med. Bull. 41:1713-1714. 1943.

A survey of the incidence of dental caries was made on 1,970 full-blooded Samoans, aged 2 to 21 years, in Tutuila and 3 islands of the Manua group. The data revealed a higher caries incidence in the groups near the naval station as compared to the groups in outlying sections. No explanation is given. It is noted that the Samoans are using imported tinned goods in proportion to their economic circumstances. A number of children showed crowded maxillary and mandibular incisors. This finding was not apparent in higher age groups.

- *INGESTION OF FLUORIDE AND DENTAL CARIES. QUANTITATIVE RELATIONS BASED ON FOOD AND WATER REQUIREMENTS OF CHILDREN ONE TO TWELVE YEARS OLD. F. J. MCCLURE. Am. J. Dis. Child. 66:362-369. 1943.

From a synthesis of data reported in the literature the author concludes that "an estimated quantity of water-borne fluorine equal to approximately 0.5 to 1 mg. of fluorine daily present in the average diet from the first to the eighth year of life appears to be instrumental in reducing caries to a great degree." Summary estimates of daily intake, by children 1 to 12 years of age, of fluorine from food and from drinking water (drinking water containing 1 part per million of fluorine and dry substance of food containing 0.1 to 1 part per million of fluorine) are set up.

- DIET AND THE TEETH. KENNETH A. EASLICK. Amer. J. of Orthodont. and Oral Surg. 30:40, January 1944.

This paper was delivered as a radio address to the public. It shows clearly how sugar has crept into the usual family diet and its result in the form of dental decay. A low sugar diet is recommended to stop progressive caries.

LEWIS, Dayton.

- *POST-WAR IMPLICATIONS OF FLUORINE AND DENTAL HEALTH. EPIDEMIOLOGICAL IMPLICATIONS. H. TRENDLEY DEAN. Am. J. Pub. Health 34:133-143, 1944.

The author reviews and synthesizes some of the published data obtained in studies conducted in various cities on the relationship between incidence of caries and the fluorine content of drinking water. "From the standpoint of control measures the basic finding of this study is the relationship between fluoride domestic waters in the 0.0-1.0 p.p.m. concentration range and the prevalence of dental caries. There seemingly is little if any advantage to be gained in further caries reduction by using a water higher than about 1 p.p.m. And, as this concentration is sufficiently low to eliminate the complicating problem of dental fluorosis the question of markedly reducing the dental caries incidence through low fluorination of the domestic water supply warrants thoughtful consideration." It is pointed out, however, that much more investigative work is necessary before a recommendation can be given for the general application of a program of control measures through the medium of the water supply system of a community.

- PRACTICAL FLUORINE THERAPY IN DENTAL CARIES CONTROL. CHARLES B. BRANSON. J.A.D.A. 31:71, January 1944.

The use of fluorine has great promise of effective control of dental caries, although its mechanism is still poorly understood. There are serious objections to adding fluorine to public water supplies; a medium of supply which is more nearly Nature's own is by means of "edible bone"; Man is the only animal which does not include bone in its diet;

the presence of the calcium with the naturally occurring fluorine in bone vitiates the toxicity of the latter element.

WYLIE, San Francisco.

***STUDIES ON THE INCIDENCE OF DENTAL DEFECTS IN CHILDREN. III. GINGIVITIS. MARCU BRUCKER.**

J. Dent. Research 22:309-314. 1943.

A study was made on the incidence of caries and gingivitis in 1,634 public school pupils, from various socio-economic levels and nationalities, in Newark, N.J. No correlation was found between the incidence of caries and that of gingivitis. Active caries were found in 70 per cent of the pupils and gingivitis in 8.7 per cent.

***STUDIES ON THE INCIDENCE AND CAUSE OF DENTAL DEFECT IN CHILDREN. IV. MALOCCLUSION. MARCU BRUCKER.**

J. Dent. Research 22:315-322. 1943.

The subjects of this study were 1,668 white school children (863 boys and 805 girls), aged 5 to 15 years, in Newark, N.J. The average numbers of cavities per child were found to be: with true malocclusion, boys—4.3, girls—4.3; with malocclusion of the transitional dentition, boys—4.1, girls—4.2; with no malocclusion, boys—2.4, girls—2.9. The non-Jewish children with malocclusion showed a definitely higher incidence of caries than did Jewish boys or girls afflicted with the condition, whether of the deciduous, permanent or transitional dentition.

***STUDIES ON THE INCIDENCE AND CAUSE OF DENTAL DEFECTS IN CHILDREN. VI. PITS AND FISSURES. MARCU BRUCKER.**

J. Dent. Research 23:89-99. 1944.

STUDIES ON THE INCIDENCE AND CAUSE OF DENTAL DEFECTS IN CHILDREN. VII. FISSURES AND CARIES. Idem.

J. Dent. Research 23:101-103. 1944.

From clinical studies, field observations and statistical studies on the incidence of caries in the first permanent molars of large groups of white and Negro children the author was unable to find any direct relation between the presence of defective fissures and caries.

†THE CARIES-FLUORINE HYPOTHESIS AND A SUGGESTED STUDY TO TEST ITS APPLICATION. DAVID BERNARD.

Pub. Health Rep. 58:857, June 4, 1943.

All of the early studies on fluorine were concerned with toxic doses and the resultant mottling of the enamel. The chief practical problem to be solved after these observations was the elimination of fluorine from the public drinking water. As these studies progressed, the relationship of a low incidence of caries to the presence of a small amount of fluorine in the drinking water became evident, and this discovery opened up a field of tremendous importance to those in public health work who are trying to solve the problem of dental caries. With investigations to date indicating the apparent safety of small doses, such as 1 part per million of fluorine in water, further experimentation, with this threshold dose or less, is warranted in order to test the efficacy and practicability of using this element universally, under strict control, to reduce the incidence and ravages of dental caries.

SANFORD, Chicago.

***THE USE OF FLUORINE IN THE PREVENTION OF DENTAL CARIES. II. EFFECT OF SODIUM FLUORIDE APPLICATIONS. B. G. BIBBY.**

J. Am. Dent. Assoc. 31:317-321. 1944.

In experiments on 80 children over a period of 2 years, 6 topical applications of a 1/1,000 sodium fluoride solution in one quadrant of the mouth reduced dental caries by about one-third in that quadrant as compared to the corresponding quadrants in the same mouth. At the termination of the study, the treated quadrants showed an increase of 173 definite and questionable cavities and the untreated quadrants 239.

Dental Hygiene and Public Health

†A PHYSICIAN LOOKS AT SCHOOL DENTAL PROGRAMS. GEORGE M. WHEATLEY.

Am. J. Pub. Health 33:120, February 1943.

The author reviews experiences with the development of an economical school dental program among 6,410 children in eight schools for the 1937-1938 school year (Astoria

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School Health Study). The school principals sent a letter to the parents of each child advising that the child have a dental examination. The private dentists serving this area agreed to give a dental examination to any child coming to their offices accompanied by a parent. Five thousand, six hundred and eighty-one pupils (88 per cent of the total) were examined. Twenty-one per cent of the number examined needed no treatment. Parents of 1,859 children (29 per cent of the total) took no action. Twelve per cent did not consult a dentist, and 17 per cent did not obtain the recommended treatment. Private dentists examined two thirds of the school children registered, supplied almost three quarters of the treatment services and were responsible for 82 per cent of the patients' completing treatment. The younger the child, the less successful was this plan. Only 56 per cent of the kindergarten group reached a dentist, whereas at least 90 per cent of the pupils above the fourth grade received dental examinations. Another study is quoted which indicates that this record can be improved by means of a personal interview with those parents who do not respond to a written note. This supplementary interview, with a dental hygienist or some school health worker, is probably necessary in the younger age groups.

The author believes that dental examinations of school children should be done in the dentist's office rather than in the school, since 80 per cent to 90 per cent will require treatment, which is usually given in the dentist's office. This plan does not increase the school health budget, utilizes the dentists of the community in the school program, trains the pupils to seek treatment facilities in the community and impresses them with the idea that payment for dental care is worth while.

PLATT, Gouverneur, N.Y.

*A SURVEY OF NEEDS AND SERVICES AVAILABLE FOR PROTECTIVE DENTISTRY FOR THE INDIGENT CHILDREN AND YOUTH IN THE U.S.A. ALAN E. TRELOAR. J. Am. Dent. Assoc. 31:326-334. 1944.

This is a supplement to the report by Brekhuis et al. (see Abstract 248) An estimated cost of \$40,297,984 per year for the country as a whole to provide protective dentistry for the indigent child population, 6 to 18 years of age, was obtained from the following sources of data: the United States Census of 1940, the number of registered dentists in each state for the year 1940 and a number of studies (not mentioned by title or author) on the incidence of dental caries in the age group 6 to 18 years in the United States. The figure of 1 carious tooth per child per year, at the cost of \$4.00, is used as a basis for determining the maximum load and cost to be anticipated.

DENTAL PRACTICE AND DENTAL EDUCATION IN THE FUTURE; WITH CONSIDERATION OF SOCIAL AND HEALTH ASPECTS. JOHN OPPIE MCCALL. J.A.D.A. 31:16, January 1944. (See Education, Legislation, Economics)

Dentistry and Dental Relations Education, Legislation, Economics

DENTAL PRACTICE AND DENTAL EDUCATION IN THE FUTURE; WITH CONSIDERATION OF SOCIAL AND HEALTH ASPECTS. JOHN OPPIE MCCALL. J.A.D.A. 31:16, January 1944.

Social changes which may be expected will increase the demands made upon the dental profession; this will necessitate changes in dental practice and education. The author suggests that auxiliary personnel—technicians, hygienists and assistants—be given more to do, with appropriate training and elevation in status, while the dentist devotes his attention to the more biologic side through the delegation of mechanical duties to others. Prevention and education of the public are stressed; he feels that private practice will not be displaced and that specialties will continue in importance. Preventive orthodontics and the treatment of simple malocclusion will be in the sphere of the general dentist.

WYLIE, San Francisco.

Etiology

*EFFECT OF OCCLUSION ON UNCONTROLLED EXTRACTION OF FIRST PERMANENT MOLARS. J. A. SALZMANN. J. Am. Dent. Assoc. 30:1681-1690. 1943.

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This study is based on an examination of more than 10,000 vocational school pupils, 15 to 19 years of age, in New York City, who had lost 1 to 4 of their first permanent molars. The following changes were noted. There is a modification in the distribution of dental caries. A distal shift of the maxillary first and second bicuspidis is followed by loss of interproximal contact points with insufficient separation of teeth to allow food debris to be freely removed. There is frequently an elevation of continuous eruption of the opposing teeth resulting in loss of interproximal contact points in the maxillary teeth. Various types of malocclusion resulting from loss of first molars depend upon whether the loss is unilateral or bilateral, upon biting relationships and other local factors.

FREQUENCY OF ALLERGY IN ORTHODONTIC PATIENTS. W. J. STRAUB. J.A.D.A. 31:334, March 1944.

104 orthodontic patients were studied by means of medical examinations, family and personal histories and mouth examinations. Children with a positive or questionable history of allergy were given scratch and intradermal tests. Half were allergic or borderline; 61% of those with chronic nasal allergy had contracted maxillary arches with protraction of the anterior teeth and retraction of the mandible or mandibular teeth. 17% of the allergic patients had a gingivitis which could be identified as allergic. An allergic tendency must be taken into account as an influencing agent in the growth of the face, and correction of these conditions improves the prognosis for orthodontic success. An extensive bibliography is included.

WYLIE, San Francisco.

Growth and Development

†EFFECT OF MANGANESE ON CALCIFICATION IN THE GROWING RAT. CHARLOTTE CHORNOCK, N. B. GUERRANT AND R. ADAMS DUTCHER. J. Nutrition 23:445, May 1942.

Chornock, Guerrant and Dutcher in their studies with rats, noted that high manganese intake retarded growth and caused pronounced interference with phosphorus retention, more than that of calcium. Low intakes of manganese did not retard growth and showed little or no effect on bone calcification with either a normal or a rachitogenic diet.

ROBERT C. FREDEEN, Kansas City, Mo.

†SERUM PHOSPHATASE VALUES IN CHILDREN SHOWING RETARDATION IN OSSEOUS DEVELOPMENT AND LOW METABOLIC RATES. A. MORGAN HILL AND JEROME E. WEBBER. J. Pediat. 22: 325, March 1943.

The authors believe that more reliance can be placed on values for serum phosphatase as an aid in establishing the diagnosis of hypothyroid states than on values for serum cholesterol and for excretion of creatine. Twenty of 23 children with delayed osseous development and low basal metabolic rates had phosphatase levels of 5 to 6 Bodansky units or less. The range for 14 of 16 normal controls was 5 to 9.7 units, and the normal figure given by Bodansky is 7.5. It is admitted that the test is not 100 per cent diagnostic but must be used in correlation with observation of clinical signs and symptoms, determinations of the basal metabolic rate, roentgen studies of bones and determinations of cholesterol.

STETTENBENZ, Buffalo.

*THE PHASE OF DEVELOPMENT CONCERNED WITH ERUPTING THE PERMANENT TEETH. M. HELLMAN. Am. J. Orthodont. and Oral Surg., Orthodont. Sect. 29:507-526, 1943.

In an examination of the nature of eruption of the permanent teeth in different racial groups between the ages of 5 and 13 years, the author noticed certain characteristic peculiarities of eruption. The Zulus, the most primitive group studied, erupted their teeth earlier and faster than any of the other groups. The process of erupting the permanent teeth is not continuous but is divided by an interval of rest with two active periods. The period of rest was found to be shorter in females than in males and also varied with the racial group. It is shortest in the retarded groups and longest in the accelerated groups. It occurred earliest among the Chinese and whites. It was also found that if orthodontic

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treatment is started between or during the interval of rest the eruption of the later teeth is considerably delayed.

Nutrition and Metabolism

- †EFFECT OF MANGANESE ON CALCIFICATION IN THE GROWING RAT. CHARLOTTE SHORNOCK, N. B. GUERRANT AND R. ADAMS DUTCHER. *J. Nutrition* 23:445, May 1942. (See Growth and Development)

Pathology

- †BENEFICIAL EFFECT OF SMALLPOX VACCINE ON RECURRENT APHTHOUS ULCERS OF MOUTH AND TONGUE. ARTHUR W. GRACE. *Arch. Dermat. & Syph.* 48:151, August 1943.

The author repeatedly inoculated 2 patients with aphthous ulcers of mouth and tongue with smallpox vaccine on the assumption that the condition is probably caused by a virus akin to that of herpes simplex, a disease which, when recurrent, is frequently controlled by such treatment. Both patients showed great improvement.

JACKSON, Iowa City.

- FREQUENCY OF ALLERGY IN ORTHODONTIC PATIENTS. W. J. STRAUB. *J.A.D.A.* 31:334, March 1944 (See Etiology)

- †SPINA BIFIDA AND CRANIUM BIFIDUM. FRANC D. INGRAHAM AND H. WILLIAM SCOTT, JR. *New England J. Med.* 229:108, July 15, 1943.

The Arnold-Chiari malformation is a congenital anomaly of the hindbrain characterized by downward elongation of the cerebellum and brain stem into the cervical portion of the bony spinal canal.

Twenty consecutive cases of Arnold-Chiari malformation that came under observation at the Children's Hospital from 1929 to 1943 were examined. Nineteen of these were studied at autopsy as well as clinically. All the patients were infants between 2 days and 18 months of age. Meningocele, with or without hydrocephalus, was the reason for hospitalization in each instance.

The majority of the patients had associated microgyria and craniola cunia.

GENGENBACH, Denver.

- *STUDIES ON THE INCIDENCE OF DENTAL DEFECTS IN CHILDREN. III. GINGIVITIS. MARCU BRUCKER. *J. D. Res.* 22:309-314. 1943. (See Dental Caries)

Speech

- *THE PLACE OF ELEMENTS TEACHING IN SPEECH DEVELOPMENT: IS THE CART BEFORE THE HORSE? M. E. NUMBERS. *Volta Rev.* 44:261-265. 1942.

The author believes that the method of speech teaching which consists in teaching first the consonants and vowels as separate elements, often as mere positions of the vocal organs, and insisting that pupils master these individual sounds before combining them into syllables, is based upon a limited or inadequate knowledge of the processes involved in speech production. The method ignores the important fact that a vital portion of the speech mechanism lies below the larynx level. Pupils called upon to combine the elements into words and phrases are required to bring into play an entire set of muscles which have not entered into the training process. A syllable method of speech teaching is advocated in which the elements are associated from the beginning in the relationships in which they appear in normal speech. The elements, or individual sounds, are thus not ignored but rather taught as vital parts of an integrated whole. (PA, 17:436)

Treatment and Retention

- PROBLEM IN ANCHORAGE IN THE TREATMENT OF MALOCCLUSION. J. COPE SHELLEN, D.D.S., Kansas City, Mo. *J.A.D.A.* February 1944.

The principle objectives in the treatment of malocclusion are "1: A pleasing and nice

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arrangement of the teeth. 2: A denture in normal occlusion and functionally efficient and stable enough to withstand the test of time. 3: A face that is within the limits of harmony and balance." Anchorage is resistance to force and basically all anchorage depends upon bone which is subject to change due to the slightest stimulation, thus true anchorage is not available within the mouth.

Most Class II and bimaxillary protrusion cases present forward tipping of the buccal teeth and labial inclination of the anterior teeth. The use of Class II elastics before these inclinations have been corrected and the anterior teeth have been positioned produces results which are neither aesthetically pleasing nor is the denture stable.

General principles of anchorage applicable in almost every case to be treated are, the building up of anchorage in areas where greatest resistance is desired, breaking down of resistance in areas where movement is desired and the utilization for the shortest possible time of those motivating forces which may cause anchorage to break down.

The use of extra oral anchorage is a valuable aid as a means of augmenting anchorage, the author customarily using occipital anchorage on the maxillary arch in combination with Class III elastics. The second molars should be seriously considered as an additional source of anchorage and also in relation to the other teeth.

BLACK, Berkeley.

TREATMENT OF A CASE USING THE JOHNSON TWIN-ARCH TECHNIQUE. WILBUR J. PREZZANO.

Amer. J. of Orthodont. and Oral Surg. 30:21, January 1944.

. Use of the twin-arch appliance for the treatment of a Class II, Div. 2 malocclusion is outlined by the author. Models and x-rays are shown before and after treatment.