

## **EUROPEAN ORTHODONTOLOGICAL SOCIETY**

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### **SYNOPSIS OF THE PROCEEDINGS**

**of the 10th Annual Congress held at Amsterdam on  
the 9th, 10th and 11th August 1924**

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*President: Dr. J. T. Quintero. Professor of Orthodontia at the Ecole Dentaire. Lyon: Presidential Address.*

This being the 10th Annual Meeting of the Society, it is fitting to cast a glance upon the past history of the Society. It will be noticed that our Society, like the speciality of orthodontia, like dentistry itself and every science, in fact, has passed through various stages in its development: the first stage in dentistry was one of empirical treatment, then came one of mechanical application, and finally of theoretical speculation. The same was true in orthodontia, and is true with our Society, save for the first stage which we have been spared. Now our aim is to lift our speciality above the rank of handicraft and art, and make it a science. The co-operation of all is necessary for this, and we are glad to welcome among us our colleagues from Germany who will help to make our society, not only in name, but also in fact, the European Orthodontological Society.

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A Paper entitled „*The genetic causes of dento-maxillary deformities*” was read by Prof. Dr. Kantorowicz of Bonn:

The scientific orthodontia has tried as her chief problem to divide the great abundance of malformations in groups by laying stress upon characteristics which are enough for the necessities of classification but not for those of etiology, although it shall not be denied that some groups of malformations especially of the Angle system are held together by familiar etiology. More precisely the clear classificatoric character appears in the system of Simon, which declines from the beginning every etiological point of view.

It is a fact that we know but little about the origin of the malformations we are occupied with, which is very strange, the

more so as it may be supposed that every malformation originates in the course of individual evolution or increases from small beginnings to the amount of a malformation. The idea of evolution has not yet sufficiently entered orthodontia. To understand a malformation is to explain or to make clear in which way it originated by deviating from the normal formation. It is one of the most important tasks of scientific orthodontia to ascertain this fact.

The solution of this task is rendered more difficult by the fact that a great series of etiological chains („Causalketten” i. c. connection between cause and effect) exist, each of which can produce pure malformations. On the other hand they are able to mix with one another and produce malformations difficult to understand, the analysis of which demands much of experience and diagnostic clear-sightedness.

Of such etiological chains are to be considered: first — absolute or relative abnormal stresses (Belastungen) which mostly affects, if the solidity of the bone is diminished, therefore mostly in consequence of rachitis. These stresses must be divided in deformities through contraction of muscles (obtuse position of the angle of the lower jaw — bending of the chin and oblique position of the masticatoric plans) and secondly the direct deformity in the front of the jaws which appears already in babies and which leads to open bite.

The second etiological chain is connected with the breathing through the nose rendered more difficult through adenoids, which causes the compression of the upper jaw and is connected with prognathia as well as the distal dislocation of the lower jaw.

The third etiological chain which, as it happens often, is the most important of all, depends upon hindrance of growth, which the jaws suffer by premature removal of teeth during the growth in length of the jaws and which manifests itself in the shortening of the upper or the lower jaw, or only of one half of the jaws.

A further etiological chain is connected with variations of the occlusion of the teeth, as for example the protrusion of the lower incisors in the denture of the baby, and which can produce, during the changing of the teeth, the third class of Angle, whilst its correlate in the upper jaw, the relative protrusion of the incisors, can cause the development of the second Angle class.

The practice of orthodontia has long preceded the scientific knowledge, but it may be expected that by research work in etiology also therapeutics especially in prophylaxis will be found.

*Summary of a Paper by Mr. G. Northcroft of London:*

To summarise briefly those points in the relationship of the teeth with growing normal and abnormal jaws that have been dealt with:

(1). Orthodontia is the branch of dentistry chiefly concerned with growth and development.

(2). Normal must be used to express „average” only, not to imply „ideal”.

(3). Growth and development must be studied on modern biological lines.

(4). The mechanical theory of growth must be abandoned.

(5). The rate of growth is an all-important factor governing the positions of the teeth and the relation of the dental arches.

(6). Prenatal conditions play a very important part in normal growth and development, and the teeth are seen to be affected equally with other structures.

(7). The importance of a fully functional temporary dentition to maintain normal growth and development must be fully recognised.

(8). Irregularities of teeth and malrelationship of the maxillae and mandible are often present in the temporary dentition.

(9). The size of the temporary teeth are correlated to the size of the permanent teeth and the rate of growth of the individual must play an important part in causing normality.

(10). Normality of position is influenced by the age at which the temporary teeth are shed and the permanent teeth erupt. These latter processes are influenced by the rate of growth.

(11). In occlusion, the lingual cusp relationship is more important than that of the buccal cusps.

### Conclusion.

In conclusion I cannot hold out greater encouragement to the enthusiasm of many of my earnest and energetic colleagues, or a surer basis for the faith in the practise of the speciality of orthodontia, than the closing words of J. T. Cunningham's work on „Hormones and Heredity”: „Heredity of constitutional factors are of course of the highest importance, but there exists very good evidence that modifications due to external stimulus do not perish with the individual, but are in some degree handed on to succeeding generations, and that good qualities and

improvement of the race are not exclusively due to mutations which are entirely independent of external stimulus and functional activity. It is important to produce good stock, but it is also necessary to exercise and develop the normal, mental and physical qualities of that stock, not merely for the benefit of the individual, but for the benefit of succeeding generations and to prevent degeneration.

Dr. Murk Jansen, Lecturer in General Orthopedia at the University of Leiden, Holland, read a paper entitled "*Some of the Life-Properties of Bone Substance*", of which the following is a synopsis:

Living bone is plastic. This is seen in the normal mandible of which the horizontal and ascending branches meet in an obtuse angle in the toothless mouth of the very young and the very old, and in an almost right angle when the teeth are present.

If the pressure of muscle action and body weight which acts upon bone, sinks below the normal, the X-Ray picture reveals a diminution of limesalts. This is f. i. observed in unilateral congenital dislocation of the hip. If functional pressure rises much above the normal, the limesalts likewise diminish sooner than the other components of bone substance. Between these two rates of pressure there is an range in which the deposition of limesalts is unhanced. Bone therefore admits of training in resisting pressure, whilst overtraining diminishes the limesalts and enhances plasticity.

Bone is the highest of the tissues of support. By the deposition of limesalts it is differentiated from the lower ones. This differentiation apparently shows greater irritability and fatigability than the previous stages in bone formation.

In growing bone the dissociation of differentiation is more evident still than is preformed bone. In growth cartilages three well defined stages are observed one beside the other, viz.

1o. Cell division; 2o. Cell enlargement; 3o. Differentiation:

Every obnoxious influence that retards growth, causes extra-retardation of differentiation. This is observed in the condition known as „rachitis”. Rachitic bones are, indeed, too small, but the bone-centres in them lay still more behind the normal. The growth discs are too wide: cell division and enlargement do take place: but the enlarged cells wait in vain for differentiation. The bones also bend, although weightbearing remains below the normal. Obnoxious influences thus cause growing bone to draw nearer to a lower tissue of support, since they retard differentiation more than the preceding stages of bonegrowth.

The retardation of growth and the extra-retardation of differentiation, brought about by obnoxious influences, are distributed over the various bones in a measure which is proportional to the rapidity of their (normal) growth, those which grow most rapidly showing the greatest retardation (Law of the vulnerability of fast growing cell groups). By comparing rachitic children with their brothers and sisters, it has become patent that the most diverse injurious agents may cause this retardation. On account of these facts „rachitis” is to be considered as an enfeeblement of the power of growth, as febleness of growth.

In the extra-retardation differentiation behaves in growing bone as a process of more rapid growth than the preceding processes.

If the necessary material, as phosphorus and lime, or light and vitamins, for the construction of bone are withheld from growing beings a retardation of growth and extra-retardation of differentiation is observed as in rachitis. Impressed by this result of modern research most scholars at the present moment tend to assume that rickets always is a condition of dietary deficiency. Rickets, however, has been proved to develop in children without any dietary insufficiency. In case of dietary deficiency the bone-cells are to be considered as normal builders without the required material: in rickety children as enfeebled builders with the required material. The similarity between dietary deficiency and rickets to us produced further evidence for the assumption that rickets is a quantitative change of normal growth.

In the repair of traumatized bone — as is well known — a limeless tissue develops first i. e. a lower tissue of support, which tends to respond to either early or excessive weightbearing, as to a nocive agent with retarded deposition of limesalts.

The three stages in the development of bone, cell-division, cell-enlargement and differentiation, which normally co-operate harmoniously in the production of bone, thus tend to dissociation, differentiation being sooner retrded by injurious agents than the preceding processes. Hence differentiation in growing as in preformed bone responds to obnoxious influences with greater irritability and greater fatigability, which are the mere manifestation of febleness. In growing bone as in preformed bone differentiation appears to be sooner enfeebled than the preceding processes. Differentiation in bone behaves as a process of more rapid growth than the other processes. And this may be the true nature of the tendency of bone to defect

to a tissue of lower order, when under the influence of injurious agents.

Long before in a growing being an obnoxious influence leads to retardation of differentiation of bones, the growth of muscles is diminished. In a growing body the differentiation in bone tissue therefore behaves as a process of less rapid growth than the muscles, but of more rapid growth than cell-division and cell enlargement.

A Paper entitled "*Some biological and physiological considerations of Orthodontia and their relation to some of its mechanical aspects*" was read by Dr. Oren A. Oliver, Professor of Orthodontia of Vanderbilt University. Nashville, Tenn. U. S. A.

Particular reference was made in this paper to the importance of the relationship of mechanical influences on growth and development of the jaws and to the changes produced incidental to the movement of teeth. The practical questions arising out of the consideration of this paper from the view point of the practical orthodontist may be summarised as follows:

1. In what cases should treatment be instituted.
2. How long should treatment be carried out.
3. What type of appliance should be employed.
4. Should treatment be continuous or intermittent.
5. When should treatment be discontinued.
6. What is the status of the so-called working retainer.

The answers to these questions constitute the field of practical orthodontia in its entirety.

A clinical demonstration was given to accompany this essay to refer to many practical points which could not be satisfactorily dealt with in this essay.

The essayist in conclusion wishes to express his appreciation of the collaboration and help he received from his friend Dr. R. C. Derivaux of Nashville Tenn. in the preparation of certain of the topics relating to Biology and Pathology.

Dr. A. K a d n e r of Hamburg read a paper entitled "*Connection of psychological defects with anomalies of the teeth and jaws resulting from the damaging of the glands with interior secretion*".

Synopsis:

The theory of the interior secretion brings a new light in the knowledge of a distinct row of jaw-deformities. To this row

belong those deformities which are connected with psychical defects. Both damages of the body of this manner must make use of the theory of interior secretion as tertium comparationis.

Firstly it must be proved that those deformities, found with these individuals, are undoubtedly pathological, secondly that the blood glands produced this pathological state. The basis of the first point several cases explain the method of researches. The results of these are hindrance or promotion of growth according to the gland which is concerned. Researches into this latter question will be made on the basis of the well known reaction of Abderhalden.

Dr. P. T. Meaney of Portland, Oregon, U. S. A., read a paper (by proxy) entitled "*Intelligent co-operation between the general practitioner of dentistry and the orthodontist in the prevention of irregularities of the teeth*".

The outstanding points of his paper were:

1. The necessity of preserving intact all the surfaces of the crowns of the temporary teeth and the nerves and surfaces of the first permanent molars.

2. The evil effects of the lack of the care of these teeth on the development of the jaws and eruption of the permanent teeth.

3. Reference was also made to the evil effects of irregularities of nasal function on development of the parts of the face and the jaws.

Dr. Viggo Andresen of Copenhagen read a paper entitled "*Malocclusions belonging to Professor Bolk's 'Zukunftsgebiss' as a new class in the orthodontological system*", of which the following is a résumé.

Whilst most of the malocclusions are the result of cultural mistakes — mal-nutrition and mal-function, — many cases are however caused by the progressive reduction of the human set of teeth (combined with progressive increase of the brain).

Two questions arise in cases connected with phylogenetical, progressive reduction, the — so to speak — malpractice of nature in our professional realms: 1) How are we to classify them and 2) how we are to treat them.

Re No. 1. As we find cases belonging to the different classes of Angle's system combined with and complicated by this factor as the etiological basis, there are some reasons of placing this malocclusion in a special class. This opinion is fortified by the

reflects concerning the therapy. The second question can perhaps better be formed as follows: „Are there any indications to imitate the so-called „Zukunftgebiss” by artificial reduction, viz. extraction of the upper lateral incisors and the lower second premolars?”

The answer must be: „If the terminal reduction (Bolk) of the set of human teeth is in accordance with phylogenetical laws it must also be so in relation to orthodontological laws.” It must, however, be mentioned that the liability of the persistence of the second temporary molars and their probable futural transformation into a permanent molar must be taken into consideration. It must further be mentioned that the question regarding extraction of the upper lateral incisors is also a question which has relation to the present and not alone to the futural cosmological ideal of beauty. In cases of asymmetrical reduction, i. e. if only one of the upper incisors or lower 2nd premolars are missing, it may be necessary to increase the spaces for the missing teeth, instead of fulfilling the reduction by extraction.

We are, however, in want of systematic rules for the judgment of indications and contra-indications concerning extraction of certain teeth. Regarding this point the author has tried to find a gnatho-physiognomical index, but although he has procured some very interesting results, he has come to the following conclusion: it will be necessary to elect an committee, who will devise rules for systematic investigations regarding the diagnosis, therapy and prognosis concerning the biological and artificial reduction. A co-operation of all orthodontists is necessary, the cases of the normal „Zukunftgebiss” being relatively rare. According to this rarity the anthropologists have not yet designated this futural human race by a special adjective e. g. *homo supersapiens s. subdentatus Bolk*.

Orthodontology owes a great debt to Prof. Bolk of Amsterdam, who has created a unique collection of skulls, whereupon the thesis of the progressive terminal reduction is based.

Orthodontology has, however, the duty of furthering and utilizing the results of this for us all-important science.

Kolding, Denemarken. Sept. '24.

LIND.