SOME PROBLEMS OF THE ORTHODONTISTS*

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THE world moves. Science is progressing in these days, not by inches and feet, but by leaps and bounds. Not only has the world witnessed during the past three years the most wonderful advancement in the horrible methods of warfare, but also in the multitude of life-saving agencies. These include, among others, the wonders of modern surgery; the many activities of the Red Cross and Ambulance Corps; the preventive measures of vaccination and inoculation, and a fuller knowledge of hygienic living. Nor must we neglect to mention the remarkable results of the Dental Research Committee, the mouth hygiene movement, and last but not least, the strides taken in orthodontic circles. But the end is not yet. Greater evils require greater remedies and preventive measures.

The medical and dental examination of school children for the past few years has proved the crying need of the medical and dental clinics, toothbrush drills, and "mouth hygiene" weeks. And yet, above and beyond it all is the prophetic dawning of a greater life-saving movement. It is the glimpse of a day when the orthodontist, the physician, the psychologist and the social worker will labor hand in hand for the suppression of crime, and the elimination from our midst of the feeble-minded, delinquent and otherwise abnormal and inefficient people. The intimate relation of mind and body, of brain and face, bring the orthodontist and psychologist face to face with the same problem. Let this problem be our theme for a few minutes.

Reports of dental clinics being carried on in the public schools of several hundred cities of the United States, and also in institutions and among the industries, prove that irregularities of the teeth, and malformation of the jaws and face, are so prevalent that urgent measures should at once be adopted to correct these great evils.

Dr. Lischer, in his book "Orthodontics" says, "It has been estimated that fully fifty per cent of the children of every community are afflicted by some form of malocclusion of the teeth." There are fully 20,000,000 children marching to school every day in the United States. If it is true as Dr. Lischer says, that fifty per cent of these children are afflicted with some sort of malocclusion, it would then appear that about 10,000,000 children are this very day awaiting your services in the United States.

"Well, what of it?" you say. Just this. Malocclusion causes, first, overlapping teeth, and hence their rapid decay; second, insufficient mastication, causing malnutrition, lowered vitality, and retarded development, along with the train of ills which follow; third, restricted arches, which means also restricted nasal cavities, and lack of proper development of the internal face and base of

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the brain. These and other results of malocclusion are quite enough to partly account for the many cases of deficient children and adults in this country.

Just how these physical defects affect the mentality and morality of a human being is a very interesting study, especially when combined with the study of psychology.

The human mind is necessarily influenced more or less by the brain and nervous system. Anything, therefore, which limits or retards the growth or proper function of the brain, limits and retards the free, natural and normal growth and function of the mind.

Would it not be true then that in cases of malocclusion in which are found the misshapen, undeveloped or restricted arches, we will find that the inner face and base of the brain are also affected? If so, when the brain case is not properly grown and expanded, not only the brain but the mind also has not developed as Nature intended it should.

Does this mean then that abnormal and inefficient children are growing into delinquent adults? Yes, even worse, for some students of psychology tell us that some of them are developing into criminals as well. A study of the faces of hundreds of thousands of criminals, feeble-minded, delinquent, abnormal and otherwise inefficient people prove that undeveloped and malformed jaws are one cause of many such pitiful cases.

To be sure, we must remember that we have the much talked of "heredity" and "environment" to reckon with. But after all is said, has it not been proved that when science has baffled the habits of Nature in heredity, and sociology has changed the environment, there is so remarkable a change in the growth and life of a child that it appears to be little less than a miracle?

As an example of what science can do in improving the mentality of a child by removing irritating causes near the base of the brain, I refer you to the many cases of adenoids which have been successfully removed. True it is that in a majority of cases, the inefficient child who *was* dull and listless at school became bright, active and otherwise normal after the adenoids had been removed.

We do not claim that undeveloped faces and jaws are the sole cause of inefficiency and lowered mentality. Are they not, however, probably the cause of a sufficient proportion of such cases that it will more than repay the orthodontist for his time and effort in making a somewhat careful study of psychology in connection with his practical work?

Dr. A. C. Fones of Bridgeport, Connecticut, has said, "Unequal brain development means an abnormal brain, and an abnormal brain means abnormal thought and action." Through the handicapping influences of undeveloped brain cases there follows the undeveloped mind. Because of this many children who *might* be leaders in politics, business, industry, science, art and religion are denied the opportunity of normal development. Dr. Higgason in *Oral Hygiene*, July, 1916, says, "A child is a bundle of possibilities and often, wrapped therein are the undeveloped talents of a genius."

Because of all these facts we rejoice that some research work is being done

in the study of the ductless glands of the body; for it may be that the study of the pituitary bodies occupying a small space at the base of the brain case, will bring to us a much-needed remedy. Although it is difficult to find much information in print on the function of these small bodies, yet the little we do read arouses our interest and increases our desire for a wider knowledge.

In the August, 1917, number of *Oral Hygiene* an article by Dr. W. Claude Adams of Portland, Oregon, gives us a thought or two on the mysterious function of the ductless glands. He says, "If anything happens to one it affects the others; and the loss or degeneracy of any one of the ductless glands robs the body of a necessary function." Another time he says, "The thyroid and pituitary are antagonistic, the thyroid diminishes, and the pituitary augments blood pressure."

He quotes Dr. Josefson of Stockholm and others who maintain that dentition and the growth of hair are controlled by these glands. Some claim that the growth of the whole bony framework of the body is governed, and the size of the individual is determined by the pituitary bodies. Dr. Woods Hutchison has said, "We are such stuff as ductless glands are made of."

Have you not read the opinion of some scientists who claim that the pituitary body is the king on the throne, the very seat of life, controlling the mind and nervous system?

Should this be true, would it not be an easy matter to conclude that a lack of proper development about the base of the brain would interrupt the normal growth of this most important part of the human body? If restricted upper arches, restricted nasal cavities, adenoids, etc. (which things are usually found together) so retard the proper development of the lower brain, would this not interfere with the proper function of the pituitary bodies and thus limit the growth of mind and body?

Could it be proved to the public for a certainty that expanding the upper arch and relieving the pressure on the lower brain and enlarging the nasal cavities would restore the proper physical and mental development of the brain, there would be no doubt but that several times as many orthodontists would be required as can be found in any community.

What a pity that ignorance has so blinded the eyes of the public as well as of the dental profession that we can not see that physical defects of the head and face are perhaps the leading cause of a child's state of mentality, and grade of intelligence.

Terman, the psychologist, in his book, "The Measure of Intelligence," says, "With the exception of moral character there is nothing as significant for a child's future as his grade of intelligence. Even health itself is likely to have less influence in determining success in life. Schools, railroads, factories, and the largest commercial concerns may be successfully managed by persons who are physically weak or even sickly. One who has a high grade of intelligence constantly measures opportunities against his own strength or weakness, and adjusts himself to conditions by following those leads which promise most toward the realization of his individual possibilities." Hence, from this we

infer that since physically weak persons may possess a high degree of mentality and win success, the opposite may be true that persons of lowered mentality may fail in attaining it, even though blessed with excellent health. And so we should no longer blame mentally defective workmen for their industrial inefficiency or punish weak-minded children because of their inability to learn. Rather, we should see to it that children of whatever station in life be given every opportunity to grow and develop mentally as well as physically.

Dr. Terman, who has studied the grade of intelligence of school children for some years, says that from one-third to one-half of the children of our public schools fail to progress through the grades at the expected rate; and from ten to fifteen per cent of them are retarded two years or more. Then, too, remember there is an army of feeble-minded children who are not able to attend school, and as many more adults, some of whom become idiotic and criminal. Might it not have been that a certain proportion of these could have been made mentally normal, had the orthodontist been permitted to relieve the disturbing influences at the proper time in life?

As to the close connection between mentality and morality, Dr. Terman says, "Without exception, every study which has been made of the intelligence level of delinquents has furnished convincing testimony as to the close relation existing between mental weakness and moral abnormality. Some of these findings are as follows:

"Of a hundred girls tested at the Ohio Reformatory, 36 per cent were feeble-minded.

"Of a hundred Juvenile Court cases chosen at random in Newark, N. J., nearly 50 per cent were classified as feeble-minded.

"The test of a hundred prisoners at the Massachusetts State Reformatory showed that 25 per cent were feeble-minded.

"Of 1,186 girls tested at the State Industrial School for Girls at Lancaster, Pa., 28 per cent were found to have abnormal intelligence.

"At the State Reformatory, Jeffersonville, Ind., in an unusually thorough psychologic study of 1,000 young adult prisoners, it was found the proportion of feeble-mindedness was not far from 50 per cent.

"But it is needless to multiply statistics. Those given are but samples. Tests are at present being made in most of the progressive prisons, reform schools, and juvenile courts throughout the country, and there is no investigator who denies the fearful role played by mental deficiency in the production of vice, crime and delinquency.

"To be sure, all criminals are not feeble-minded, but all feeble-minded are at least potential criminals. Moral judgment, like business judgment, or any other kind of higher thought process, is a function of intelligence. Morality can not flower and fruit if intelligence remains infantile."

It is said that the cost of vice and crime in the United States is not less than \$500,000,000 per year. This is the cost in cold cash. The cost to society, including the loss of precious lives, as the result of vice and crime can never be estimated. Can we not indulge with confidence in a prophetic vision of the

future when the orthodontist will be called on to save his share of lives, not only from physical wreck and ruin, but from mental and moral degeneracy?

Another problem presents itself to the orthodontist. It is the problem of the education of the public. Could the parents of every child afflicted with malocclusion, realize the effect those conditions must have on his mentality, health and general development, many of them would at once seek the remedy if they knew it was available. Should the orthodontist undertake the education of the hundred million population of the United States he will find the task overwhelming and impossible. Impossible, not only because of the immensity of the task, but also because of his timidity in teaching a gospel which "might make him appear as a salesman recommending his wares."

And so, as in algebra, it is sometimes necessary to introduce into an equation an unknown quantity in order to bring the correct results, just so the orthodontists need another factor to assist them in the education and awakening of the general public.

It is here that I wish to introduce to you the most efficient ally of the orthodontist, the dental hygienist, who may be that needed factor. What she has accomplished in the mouth hygiene movement the past three years may be taken as an index of what she may be capable of doing to advance the cause of orthodontia.

As all may not be familiar with the work of the hygienist, I will say that her one year's training instructs her in present mouth conditions, especially among children, and her efforts are mainly along the line of preventive dentistry. Her careful examination of the mouths of school children brings to light the cases needing regulation. A tactful talk with the child in regard to his crooked teeth, a talk with the teacher, who is usually willing and ready to lend her aid, and a subsequent call on the parents, to whom conditions and remedies are explained, and the hygienist has made a fair start toward bringing the afflicted child to the orthodontist. She keeps in mind these cases which should be under treatment, and as far as tact and propriety will permit, follows up the first visit with other efforts to induce the parents to have their child's case placed in the hands of an orthodontist.

When this is accomplished she may, when necessary, accompany the child to the office or clinic for treatment, and see that the child and parent understand their part in the undertaking.

Thus she becomes a very useful assistant to the orthodontist.

But aside from her individual oversight of each case, she will often have an opportunity to lecture to mothers and teachers, to whom she can present the symptoms and evils of malocclusion as well as the preventive measures. The broad field awaiting her efforts along the line of preventive work can scarcely be comprehended and its great need can not be doubted.

In the June number of *Oral Hygiene*, 1918, is an article on "Irregular Teeth" which is an extract from a lecture to parents given at the Free Public Health Lecture Course of the Forsyth Dental Infirmary, Boston, by Dr. Frank Delabarre. Among other things he said, "Civilization seems to be largely respon-

sible for the prevalent condition of irregular teeth, as it is rare among primitive peoples.

"In America today, probably 75 per cent of the adults have irregular teeth. The observations of specialists reveal a startling contrast. They find that a very large percentage of children who have reached the age of two and a half or three years, when the temporary teeth have all taken their place, have normal development of the face and jaws. There are no figures to state this percentage accurately, but it is safe to say that it is over 80 per cent, and perhaps over 90 per cent. Compare this with the 75 per cent of irregularities among adults, and it is seen at once that there is an age somewhere between, when irregularity starts in a large majority of individuals."

Some one has said,, "Ninety-five per cent of children lose their first teeth before Nature intended they should."

Hence there is no doubt but that dental decay in young children is responsible for a certain proportion of the cases of malocclusion.

Many opportunities will present themselves to the dental hygienist to instruct the public and banish the ignorance of these matters so prevalent today among the masses. The scope of her work has progressed until it has reached the proportion of (1) An assistant to a dentist or orthodontist, (2) A social worker, (3) A teacher's helper, and (4) The school child's friend.

Her purpose is to teach preventive dentistry, and preventive orthodontia; to educate the rising generation, parents and general public in mouth hygiene, and to bring together the little patient needing dental attention and the dentist, as well as the child needing orthodontic treatment and the orthodontist. The useful work of the dental hygienist proves to the dental profession that she has come into the professional circle to stay. I urge all orthodontists and dentists to encourage in every way possible the establishing of schools for dental hygienists in every large city. Her work in the past has accomplished much to promote the success of mouth hygiene, where she has been permitted by the state dental laws to practice. Although the new profession of dental hygienist, bestowing the degree of D. H., may have been an experiment, it has proved to be a successful one which has brought astonishing results.

While the revised laws of five states, viz., Massachusetts, Connecticut, New York, Maine and Iowa, permit the hygienist to clean and polish teeth, yet her greatest aid to the dental profession will be in educating the public to the need of the dentist and orthodontist.

When this is appreciated by the dental profession, the dental laws of other states will doubtless be so amended as to allow the hygienist to practice; and there will be a demand in the schools throughout the land for her services as a teacher of hygiene of the mouth as well as an assistant at the clinics. May this day soon come.