FACE FACTS

A Clinical Study of Dento-Facial Deformities

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A SUPERFICIAL survey of the existing varieties of man probably favors the acceptance of *the principle of endless deviation*, but it is worthy of note that recent advances in the science of anthropology continue to support the doctrine of "*the fundamental unity of the human species*."

"Race," says Topinard, "in the present state of things is an abstract conception, a notion of continuity in discontinuity, of unity in diversity. It is the rehabilitation of a real but direct unattainable thing."

Using the word *race* in this sense, Ripley maintains that "there are three ideal racial types in Europe—the continent of all others wherein social phenomena have attained their highest and most complex development." The present varieties of man in Europe have sprung from these three types, known as the *Teutonic*, *Alpine* and *Mediterranean* (Fig. 13).

THE THREE EUROPEAN RACIAL TYPES

RACE	HEAD	FACE	HAIR	EYES	STATURE	NOSE
1. Teutonic	Long	Long	Very Light	Blue	Tall	Narrow; aquiline.
2. Alpine (Celtic)	Round	Broad	Light Chestnut	Hazel Gray	Medium Stocky	Variable; rather broad, heavy.
3. Mediterranean	Long	Long	Dark brown or black	Dark	Medium Slender	Rather broad.

"They are not radically distinct seeds which, once planted in the several parts of Europe, have there taken root; and, each preserving its peculiarities intact, have spread from those centers outward until they have suddenly run up against one another along a racial frontier. Such was the old-fashioned view of the races, in the days before the theory of evolution had remodelled our ways of thinking—when human races were held to be distinct creations of a divine will. We conceive of it all quite differently. These types for us are all necessarily offshoots from the same trunk. The problem is far more complex to us for this reason. It is doubly dynamic. Upbuilding and demolition are taking place at the same time. By our constitution of racial types we seek to simplify the matter—for a moment to lose sight of all the destructive forces, and from obscure tendencies to derive ideal results. We picture an anthropological goal which might have been attained had the life conditions only been less complicated."

IV. ABNORMAL FACIAL TYPES

Sundry normal variations of the head have already been briefly described. All of the facial features thus referred to are equally subject to *abnormal varia-*

Teutonic type (Norway). Pure blond.

Alpine type (Austria). Blue eyes, brown hair. Index 88.

Mediterranean type (Palermo, Sicily). Pure brunet. Index 77.

Fig. 13.—The three European racial types. (After Ripley.)

tions of form and structure. The most obvious examples of maldevelopment of the head are the *microcephalous* and *hydrocephalous* crania of idiocy (Fig. 14) The eyes, ears, nose, teeth and jaws are frequently deformed in such cases; asymmetry is so common that it becomes the rule.

In his work on "*Plastic Surgery*," Kolle adopts the following classification for deformities of the auricle, eyelids and nose:

Auricle.—Microtia, Macrotia, Polyotia and Malposition of the auricle.

Eye-lids.—Ectropion, Epicanthus, Ptosis and Ankyloblepharon.

Nose.—Superior, middle or inferior third deficiency; Superior or inferior half deficiency; Total anterior deficiency; Lobular, interlobular and subseptal deficiency; Alar deficiency (unilateral and bilateral).

But the principal purpose of these papers is to analyze some of the more minute details of certain types of dento-facial deformities which are entirely

Fig. 14.—Microcephalic and hydrocephalic heads; female 28 years, male 8 years old. (After Krukenberg.)

ignored by investigators lacking orthodontic training, and which are frequently underestimated even by orthodontists.

A common anomaly of facial expression, due usually to malposition of the incisor teeth, is shown in Fig. 15. Of course there are many variations of this form of abnormality, differing in degrees from that of very slight malposition of the teeth and barely recognizable *abnormal function of the lips*, to that of extreme malposition of the teeth and *material malformation of the lips*. Not infrequently the adjacent alveolar process is involved, for it is obvious that a crowded dental arch necessarily implies an arrest of development in the supporting structures.

On the other hand, the malocclusion of the teeth may be of a type where the deviations from normality are more symmetrical, therefore less evident externally. Fig. 16 represents a profile of this type with *normal lip function*, though the form and relations of the lower lip and mentolabial sulcus to the other features

Fig. 15.—Shows abnormal function of the lips, due to malposition of the incisors; male 10 years old.

Fig. 16.—Shows malrelation of the lower lip to the upper, and abnormal mentolabial sulcus, due to distal relation of the lower arch; male 14 years old.

Fig. 17.—Deformity due to malposition of the mandible; the distoclusion of the lower arch is merely a symptom; male 11 years old. Compare the chin with that of Fig. 16.

Fig. 18.—Shows malformation of the lips; note especially the extreme deficiency of the upper lip; female 13 years old.

are decidedly abnormal. This is due to a distal, or posterior, *malposition of the entire lower dental arch on its osseous base*, i.e., the mandible or lower jaw.

Deformities belonging to this group also vary considerably, passing by almost imperceptible gradations into that extreme type of facial malformation wherein the ascending rami of the mandible are too short, resulting in a posterior *malposition of the mandible* (Fig. 17). Such deviations will be considered in detail in subsequent chapters. For the present, the writer merely wishes to emphasize the normal function of the lips in this type, though it is combined with malrelation of the lips, a decidedly abnormal mentolabial sulcus and extreme deficiency of the mentum, or chin.

Fig. 18 presents still another type of deformity where, besides abnormal function, we have a marked *malformation of the lips*. Note the extreme deficiency in the length of the upper lip, due, in all probability, to prolonged abnormal function. Such extreme arrest of development is quite common, and if treatment is postponed beyond the developmental period its correction is exceedingly doubtful, if not impossible. The alert diagnostician is ever vigilant and strives constantly to prevent postponement in such cases.

A more comprehensive analysis of the various facial deformities due to abnormalities of dentition, emphasizes the necessity of a thorough understanding of the *anomalies of dentition*. It becomes desirable, therefore, to give an outline of them before proceeding to a critical study of their *pathology, facial types and prognosis*.

V. ABNORMAL DENTITION

The denture of man is a complex mechanism composed of many parts. Unfortunately, it frequently presents abnormalities and malformations which seriously affect the efficiency of the teeth, as well as the harmony of facial expression, the functions of breathing, and of articulate speech. Anomalies of form, of number and of eruption of the teeth are quite common, and complications due to abnormalities of the nasal tract and accessory sinuses, anomalies of the temporo-mandibular articulation, maldevelopment of the tongue and general facial musculature are not infrequent.

But there are *four fundamental deviations from normality* which conjoin in a wide variety of ways in malocclusions of the teeth, so that most writers now recognize their basic significance. These four conditions are: *malposition of the teeth, malrelation of the dental arches, malformations of the jaws and their processes, and malposition of the mandible*.

In describing the normal variations of dentition the writer called attention to the normal variations of alinement of the teeth (Broca). This arrangement of the teeth in the form of two parabolic curves within the alveolar processes of the jaws is called *alinement*. When a tooth deviates from the ideal line of its respective arch it is said to be in *malposition, or malalinement* (Fig. 19). Normal position of each individual tooth is a very fundamental property; it conditions its normal function.

When the lower teeth of an individual are brought into normal contact with the upper, it will be found that the inclined planes of their occluding cusps adjust themselves very accurately. This ideal relationship between antagonists

Fig. 19.—From casts of two upper dental arches showing alinement and malalinement.

Fig. 20.—Occlusion and malocclusion, buccal aspect.

Fig. 21.—Nonocclusion, front view.

Fig. 22.—Occlusion of the permanent teeth of man, buccal aspect. (After Turner.)

Fig. 23.—Occlusion of the permanent teeth of man, lingual aspect. (After Turner.)

is termed *occlusion*. When a tooth is in malposition and hence, on closure, comes into abnormal contact with antagonists, we term it *malocclusion* (Fig. 20).

Occasionally, teeth are in such extreme malposition that, on closure, they fail to come into contact. We term this *nonocclusion* (Fig. 21). There are ten primary forms of malposition of the teeth and a multitude of possible combinations. The ten primary forms are as follows:

Labioversion—when an anterior tooth is labial to normal.

Linguoversion—when a tooth is lingual to normal.

Buccoversion—when a posterior tooth is buccal to normal.

Mesioversion—when a tooth is mesial to normal.

Distoversion—when a tooth is distal to normal.

Torsoversion—when a tooth is rotated.

Supraversion—when a tooth erupts beyond the plane of occlusion.

Infraversion—when a tooth fails to reach the occlusal plane.

Transversion—when two or more teeth are transposed.

Perversion—when a tooth is impacted and cannot erupt.

The various combinations of these ten primary forms of malposition are best expressed by combining the appropriate prefixes with the ending *version*, e.g., *torso- mesio- infraversion*, etc.

The harmonious arrangement of the teeth in the form of two arcades or graceful curves (an upper and lower, each with its right and left sides), demands a fine adjustment of the individual members of each arch if a symmetrical, well balanced ensemble is to be established. But when the teeth of man assume the normal, the resultant denture exhibits a symmetry that is truly wonderful (Figs. 22 and 23).

Bearing in mind that we are here dealing with *bilateral symmetry*, we can readily understand how all of the upper teeth, or all of the lower, could be in more or less perfect alignment in their respective arches, and yet, on closure, fail to come into normal occlusion. In other words, either arch (even though it retain a normal form) may be so displaced in its entirety upon its osseous base, that normal contact with antagonists is impossible. Figs. 24 and 25 are diagrammatic of such deviations. When the lower arch is mesial in its relation to the upper on both sides, and neither jaw is sufficiently malformed to warrant special designation, we term it a *bilateral mesiocclusion*. If it is in mesial malrelation on one side only, we term it a *unilateral mesiocclusion*. When the lower arch is distal in its relation to the upper on both sides, and neither jaw is sufficiently malformed to warrant special mention, we term it a *bilateral distocclusion*. If it is in distal malrelation on one side only, we term it a *unilateral distocclusion*.

The bony structures of the jaws beyond the teeth are at times so malformed that the malocclusions of the superimposed teeth are purely symptomatic of the deformity. In fact, *malformations of the jaws* are the most serious conditions we have to deal with; at times we meet with such extreme deformity that its correction lies outside the domain of orthodontics. I contend that when a case presents a pronounced malformation of one or both jaws, it is the very

acme of unreasonableness to ignore it. And our terminology should be such that the spoken word would convey to the mind of the listener a fairly adequate idea of the conditions under consideration.

Now it is obvious that malformations of the jaws may express themselves in several ways, i.e., as overdevelopments, or as arrests of development. Hence the term *macrognathia* and *micrognathia*. Clefts of the palate and curvature of

Fig. 24.—Diagram *A* illustrates normal arch relationship. In Diagram *B*, the parallelogram *a, b, c, d*, illustrates arch malrelation in bilateral mesiocclusion, and *b, y*, their relation in bilateral distocclusion.

the mandible are occasionally met with. Arrest of development in the rami of the mandible, and abnormal variations in its articular fossæ (which are not stereotyped or unchangeable), may cause *malpositions of the mandible* (Federspiel).

Fortunately, in a large percentage of cases, these more serious deviations from normality are entirely absent, or they are in the early stages of develop-

Fig. 25.—Diagrams illustrating arch malrelations in unilateral distocclusion and unilateral mesiocclusion.

ment and still amenable to treatment. But the following outline of dento-facial deformities is based upon the pathological manifestations briefly described above. For a more comprehensive argument in its favor the reader is referred to the writer's article on "The Classification of Dento-Facial Deformities" (*Interna-*

tional Journal of Orthodontia—Vol. 1, No. 6) and to the subsequent chapters in this series.

OUTLINE OF DENTO-FACIAL DEFORMITIES

Neutroclusion.—Simple and Complex.

Distocclusion.—Bilateral and Unilateral.

Mesiocclusion.—Bilateral and Unilateral.

Maxillary Malformations.—Macrognathia, Micrognathia, Clefts of the palate.

Mandibular Malformations.—Macrognathia, Micrognathia, Curvature of the body.

Mandibular Malpositions.—Retroversion, Anteversion.

Tumors of the Maxillae.—Fibroma, Carcinoma, Sarcoma, etc.

Mandibular Ankylosis.

Polygnathia.

Agnathia.

(To be continued)

COMPROMISE TREATMENT, OR CONSERVATIVE ORTHODONTIA*

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AFTER looking over articles published in the journals and books by eminent authors, and thinking of different subjects suitable for this paper, I could find nothing that treated upon what I have designated "Compromise Treatment." We find writings quite frequently upon types of cases upon which I use my so-called compromise, but they are all to be treated by a method that I do not always favor. Especially in those cases among our younger patients.

We read about moving the teeth back to their proper position, or back to where they should be normally, but nothing about bringing the teeth into approximal contact when a tooth is missing, which may be either congenital, or acquired by extraction.

When thinking of our teachings, we can think of only those cases coming under general plans of treatment, but, as we practice our chosen specialty, we find that there is a class of cases that can often be more properly treated in a more conservative manner. I find there are different conditions in different localities, especially as there are a great many general practitioners who do not seem to observe or know the orthodontic principles.

Where I advocate "Compromise Treatment, or Conservative Orthodontia" is in such cases as come under our care with missing teeth, and when patients apply to us for treatment during the growth of the bones of the face and jaws.

I do not think that all cases with missing teeth should be treated by the

*Read before the Sixth Annual Meeting of the Alumni Society of the Dewey School of Orthodontia, Kansas City, Mo., February, 1916.