

Poly-Disciplinary Class 1 Biomorpha-Esthetic Occlusal Reconstruction: An Abbreviated Case Report

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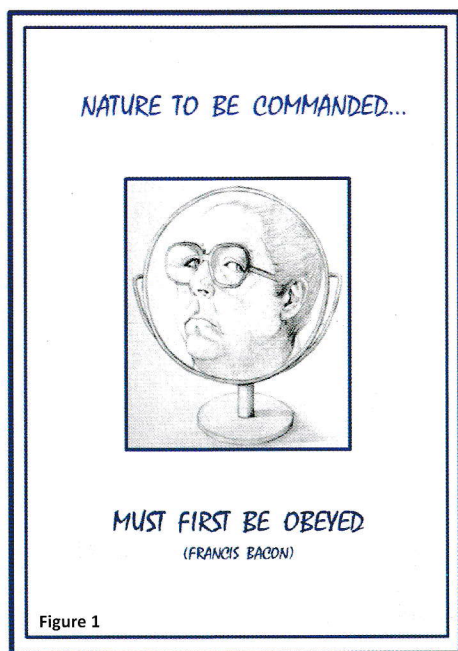
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PREFACE:

If we are to achieve excellent clinical results, the prosthesis we fabricate, must be unique, just like the individual who will wear it. There are no hard and fast rules for fabricating restorations that have a truly natural appearance. Knowledge, skill, judgment, experience, and the ability to relate to others must combine synergistically to produce the optimum outcome. To this end, the clinician and the dental technician, along-with any involved sub-specialties, must scrupulously collect all the relevant clinical data, in concert with the realistic expectations of the patient, so that they can work together to create a uniquely custom-designed perio-prosthetic end-result. Not needs to commanded but must first be obeyed (Figure: 1).



Introduction:

The ability to create a harmonious occlusal relation may tax the ingenuity of the most experienced and careful dentist. The profession of dentistry cannot exempt any dentist from the moral imperative of diagnostic and technical competence, especially in the study of occlusion and occlusal reconstruction.

Diagnostic and technical competence in this area has been, for generation of dentists, frustrating and illusive.

Dentists for the most part adopt some aspect of one of several techniques with reference to functional occlusal relationships and then seem to apply them ad hoc without significant knowledge of the physical, mechanical, anatomic, physiologic interrelationships that exist both theoretically and clinically. But the technique chosen, while important, are not what is really critical. It is significantly more important for the dentist ---whatever the treatment---to use the maximum degree of proficiency in his or her work, and to apply imagination, visualization and creative thinking in seeking to overcome the patients' oral problems. The case described below is an excellent example of the last statement.

Case Description:

The patient, while generally quite affable, nonetheless stated during consultation that vehemently opposes "foreign material to be implanted in my body". He signed a statement to that effect, which was then duly entered in his medical records. Given the presenting clinical conditions, biomorpha-esthetic oral rehabilitation presented some interesting challenges as Shown in Figures 2-6.

A

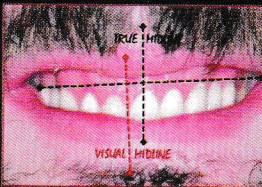
CLASS I MALOCCLUSION : BIOMORPHAESTHETIC POLYDISCIPLINARY OCCLUSAL RECONSTRUCTION W/ DVD RESTORED

THE PRESENTING FACIES

THE REST POSITION IS BOTH THE BEGINNING AND END OF FUNCTION. THE FIRST REQUIREMENT OF AN OCCLUSION IS THAT IT ALLOWS A REST POSITION ENTIRELY FREE OF TOOTH CONTACT, THE SECOND IS THAT IT ALLOWS A CONTACT-FREE SPEAKING SPACE. IN THE ABSENCE OF PRE-OCCLUSAL DEFLECTIONS, WHICH CAUSE ASYNCHRONOUS CONTRACTURAL PATTERNS, THE MANDIBLE BECOMES CAPABLE OF BRINGING THE TEETH TOGETHER, AS WELL AS BOTH CONDYLES, INTO EXACTLY THE SAME CENTRICITY EVERY TIME OCCLUSION TAKES PLACE. THIS IS THE STABLE OCCLUSAL RELATIONSHIP WE ARE TRYING TO ESTABLISH. INITIALLY, MUSCULAR NEUTRALITY MUST BE INSTITUTED TO AVOID THE PERNICIOUS EFFECTS OF



CUMULATIVE DENTARTICULAR PATHOSIS. AS ASYNCHRONOUS CONTRACTURAL PATTERNS ARE ELIMINATED, AS MUSCULAR FEEDBACK BECOMES CONSTANT AND AS JAW POSITION BECOMES REPRODUCIBLE AT WILL, A STABLE MAXILLOMANDIBULAR RELATIONSHIP IS ULTIMATELY ESTABLISHED. WHEN ANY PATIENT REQUIRES EXTENSIVE RESTORATIVE TREATMENT, IT IS THE TEETH AND JOINTS THAT WILL HAVE SUFFERED THE MOST DELETERIOUS EFFECTS OF OCCLUSOCONDYAR STRIFE. HOWEVER, THE MUSCULATURE, BY VIRTUE OF ITS GREATER CAPACITY FOR REGENERATION FOLLOWING ABUSE—REMAINS AS THE LAST POSSIBLE RESERVOIR OF WHAT ONCE WAS NORMAL FUNCTION, IF IT CAN BE GUIDED BACK TO RECOVERY.


NOTE IN PARTICULAR: 1) EXCESSIVE GINGIVAL DISPLAY, 2) CANTED MAXILLA, 3) MIDLINE DISCREPANCY.

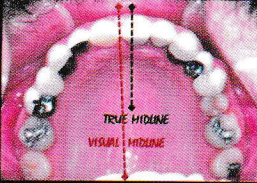
Figure 2

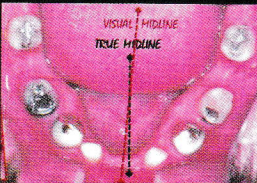
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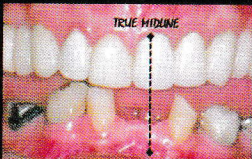


NOTE THE OBVIOUSLY DIVERGENT MAXILLARY AND MANDIBULAR GINGIVAL LINES, AND THE SIGNIFICANT DVD LOSS.





OBSERVE THE DISPARATE MANDIBULAR GINGIVAL ARCHITECTURE, AS WELL AS THE MIDLINE DEVIATIONS, THE MANDIBULAR FIRST MOLARS ARE RETAINED DECIDUOUS TEETH.


THE 'REST' POSITION IS BRACED BY THE TONGUE.

Figure 3

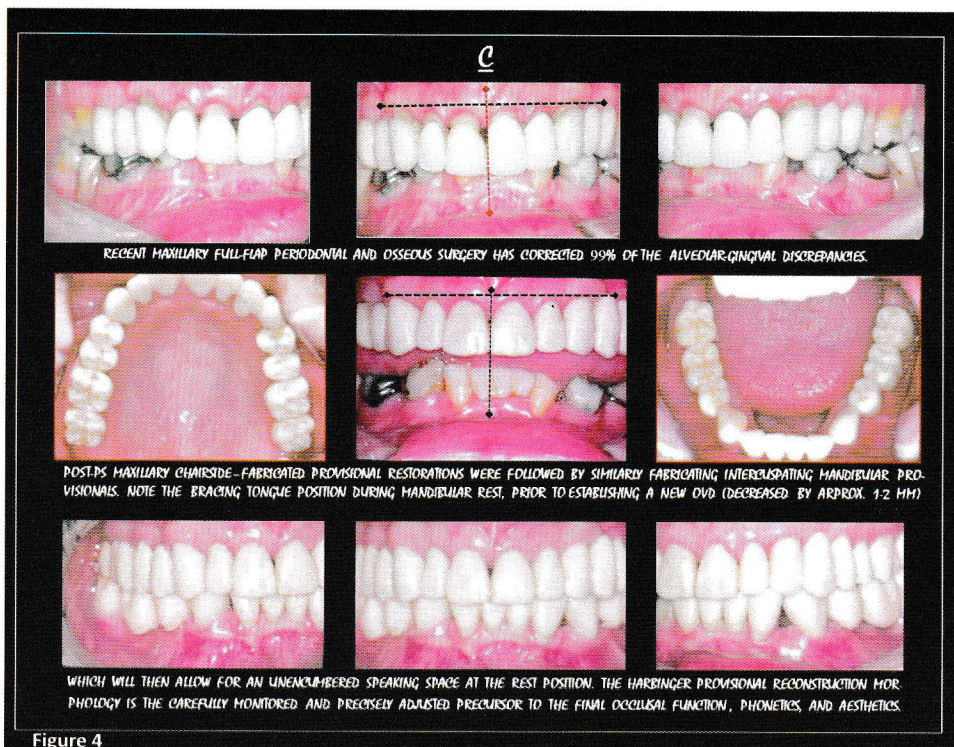


Figure 4

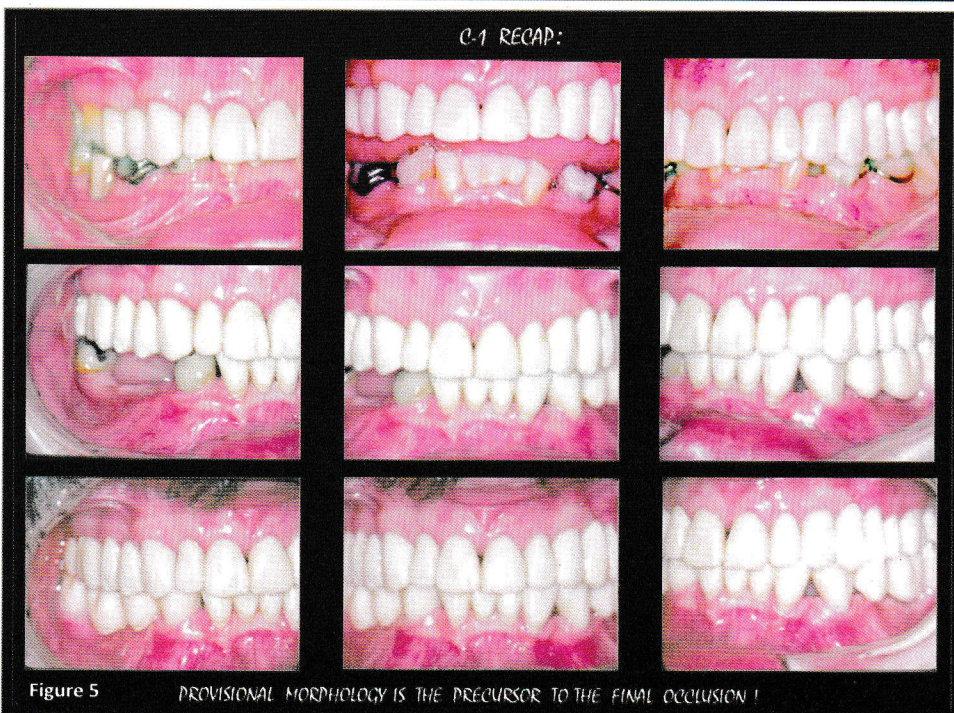
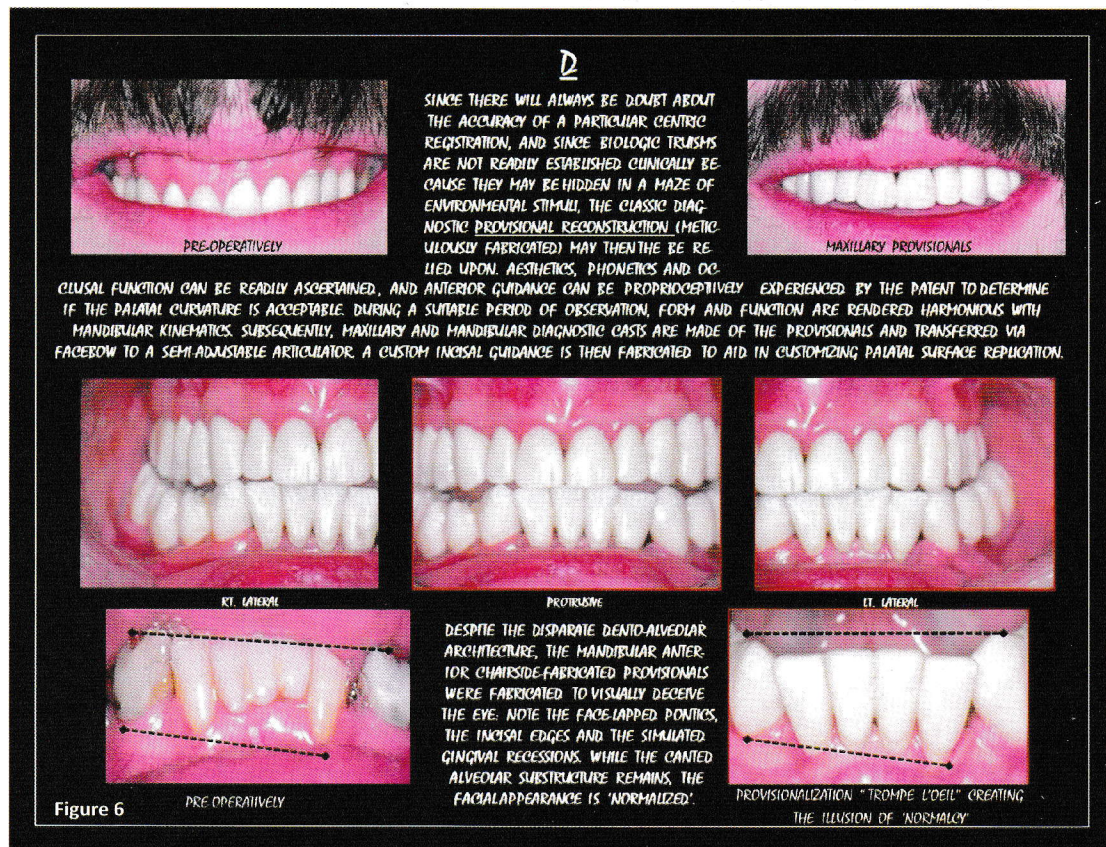


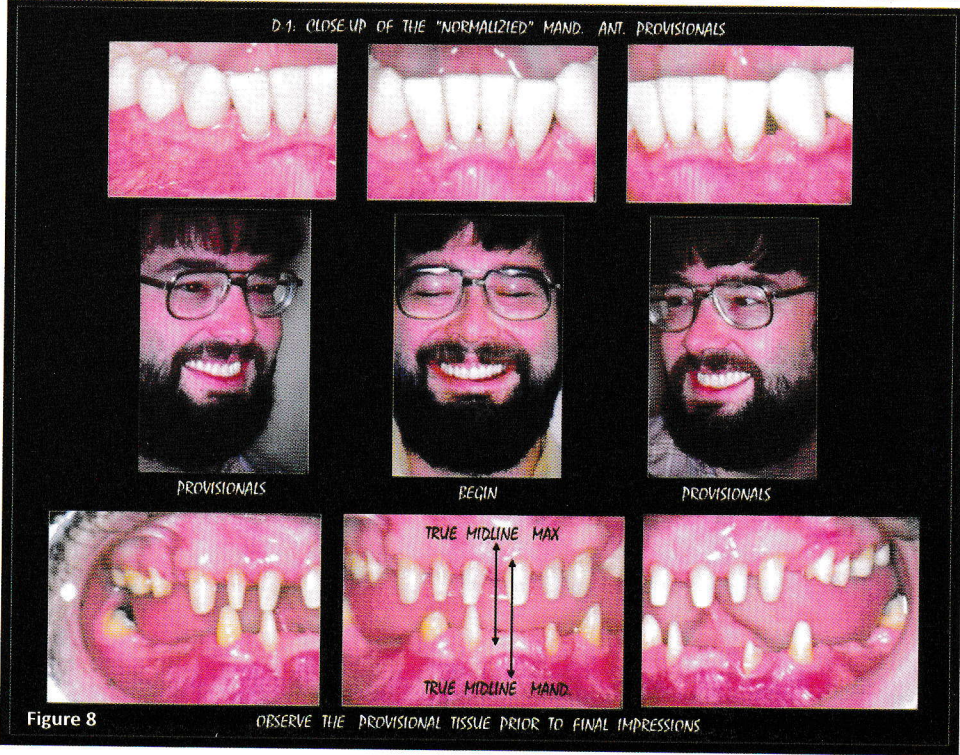
Figure 5



Appropriateness, Precision and Accuracy of Clinical Procedures:

In a survey technicians reported that their biggest complaint was the use of quadrant or sectional impression, especially the 3-in-1 triple bite trays. Most laboratory indicated that dentist produced casts and dies were of marginal quality at best. Laboratories are usually instructed to "fake the margin". Less than 7% of the laboratory technicians reported that their clients used semi-adjustable or

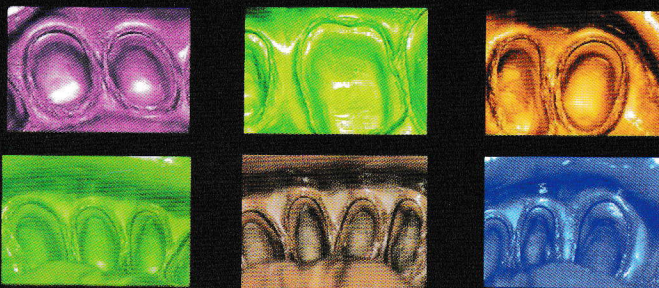
adjustable articulators. More than 88% of casts were mounted on a hinge-type instrument, and a common frustration was the dentists inability to provide an accurate inter-occlusal record; impressions dental laboratories received did not have clearly visible margins around the entire preparation periphery. Apparently dentistry still has not gotten the message that a consequential procedure performed this often need to be more predictably precise. (Figures 7-11)



D-2

THE FINAL IMPRESSION THAT'S REALLY FINAL!

The material and its color isn't what makes impressions...Dentists do!



A perfect impression pays homage to perfect tissue! Tissue mirrors technique. If the impression does not have 360 deg. of marginal accuracy, it is faulty and must be repeated. Casts should not need to be trimmed to define preparation margins.

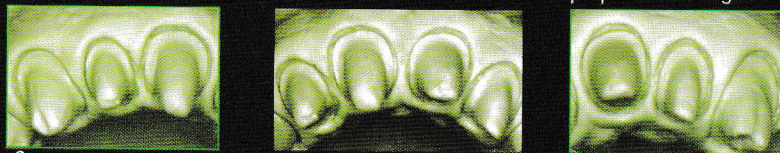
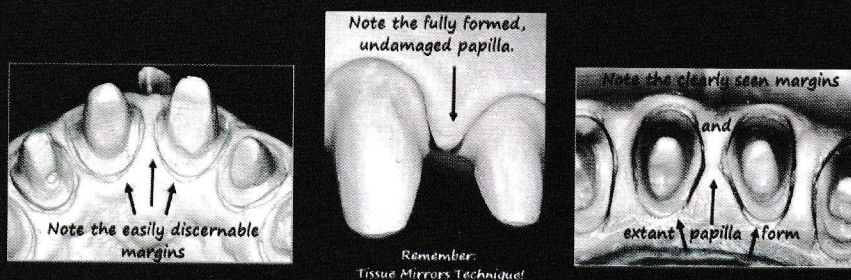


Figure 9

D-3: EVALUATING "MODEL MORPHOLOGY"

The untrimmed ("non de-fleshed") cast reflects tissue integrity, optical truth, marginal accuracy and emergence profile.



Universally, what are the biggest complaints from dental laboratories?

1. Insufficient reduction
2. Poor bite registrations
3. Faulty impressions
4. Quadrant 'articulators'

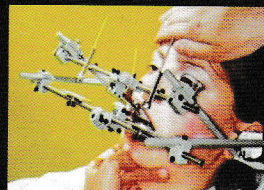
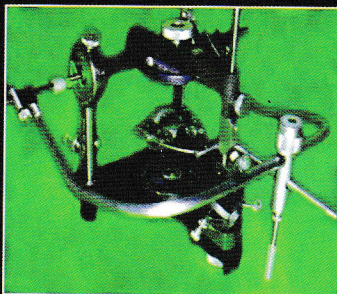
AND THE **BIGGEST COMPLAINT ?**

NO MORPHOLOGIC GUIDANCE FROM THE DENTIST !

Figure 10

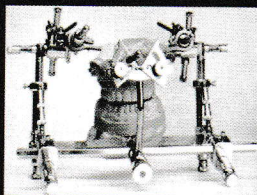
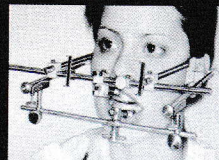
E CENTRIC REGISTRATION ??? NO, **BIOCENTRIC** REGISTRATION !

NOTE: YOU CAN DO FULL MOUTH REHABILITATION ON A SEMI-ADJUSTABLE ARTICULATOR AS LONG AS YOU HAVE A FULLY-ADJUSTABLE BRAIN !



REGISTRATION DEVICES AND ARTICULATORS
DON'T COME WITH PRECONCEPTIONS....

DENTISTS DO !!



IDEALISM TEMPERED WITH PRACTICALITY !

Figure 11

Bio-centric Relation Occlusion (BCRO):

Dr. Jerome Schweitzer very rightly in said "There is no concept of occlusion which is not based on a greater or lesser degree upon conjecture. Dentistry is not an exact science. We cannot place the theoretical into the practical without error. Our own fallibility as practitioners, compounded with the variables of tissue and inexact usage of materials, makes oral implementation of rigid mechanical instrumentation ludicrous".

The normal physiologic centric relation (CR) position may be described as stable, comfortable, functional cranio-mandibular relationship in which the condyles are in intimate contact with the thinnest central bearing area of their respective discs against the posterior inclines of the articular eminences at any vertical position of the mandible. The CR position has been found clinically to be the best location for the maximum inter-cuspatation (MI) of the teeth. (Figures 12-13)

E-3



Rigid hinge axis location is the revenge of left-brained forced mechanics upon the right-brained search for physiologic harmony. Reproducibility is not necessarily indicative of physiologic desirability or correctness.



The historical philosophy of a fixed centric relationship is a direct outgrowth of an out-dated, static representation of the mandible as a solitary entity incapable of any re-orientation.



Prosthodontics evolved in a mechanical era wherein biologic factors were poorly understood. It ignored the fact that the mandible **does not** follow solid body mechanical principles.

The benefit of using gnathologic CR records and Arcon articulators in restorative treatment (or in orthodontics) has NOT been substantiated by scientific evidence.

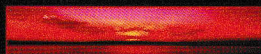


Figure 12



Figure 13

BCRO, therefore, is the morphologic position of the mandible in CR when the posterior teeth are intercusped in occlusion. All forces acting upon the TMJ's and periodontium are reciprocated. There is equilibrium and balance in the ligaments, muscles, teeth and joints. It is the result of the absence of centric and eccentric pre-maturities during unstrained jaw closure. BCRO is stable, comfortable and repeatable.

Manipulation to purportedly desirable "Hinge Axis" may be the iatrogenic creation of an internal derangement, which only proves the triumph of quackery over science. It makes the oral implementation of rigid mechanical instrumentation blatantly ludicrous.

Several studies in the past have shown that manipulating the mandible into a terminal hinge position is a man-made procedure which does not conform to normal function in oral physiology. The physiology of oral manipulation with its effect of causing occlusal changes in patients is further evidence against this non-physiologic position, and the condyles return immediately to their normal passive positions in the mandibular fossae.

The attachment of the condyles to various bones of the capsule prevents this pathologic retrusion from remaining permanent. However, even a slight, chronic, pathosis-producing occlusion can defeat the sought-after elimination of problems such as muscle spasms, sensitive necks of teeth, periodontal conditions, headaches, bruxism, and the like. An ideally equilibrated salutary occlusion can eliminate these problems, provided they are, indeed, caused by a pathologic occlusion.

The "ABCs" of Occlusal Morphology:

A Dynamic Alphabet:

Occlusal "hieroglyphics" ... that is, the occlusal markings ...are certainly no random and meaningless

scribbles. It happens to be a real organic language in which the essential principles of tooth design and function are inscribed. We can succeed in deciphering the so called "hieroglyphics" if we first take pains to learn its dynamic alphabet and then master the elements therein (*D.M. Shaw, English Anthropologist. Int J Orthod Oral Surg & Radiol 1924; Vol 10; Jan-Dec Issue*).

Posterior teeth are not prehensile teeth. Tooth-to-tooth closure should confer a stability based on axially directed forces only. In the posterior region, this is best developed by crafting sub-summit ("Rim of the crater") tripod contact between the cusp tip and the parabolic inclined planes and ridges of the opposing fossa. In this occlusal design, delicate punctate contacts are located on the perimeter of the cusp tip as it projects into, or is suspended above (but does not contact), the bottom of the opposing fossa.

Ingress and egress of the cusp with respect to their coupled fossae should be free of interferences as allowed by developmental (ie, working) grooves and sulci as well as ridge and inter-proximal embrasure form. Convex, parabolic cuspal surfaces are nature's design, and permit the most efficient function.

In the anterior region, the group-type contact which occurs during any movement should include at least two matched pairs and should permit a smooth protrusive movement from the inter-cuspal position to the (posteriorly discluding) edge-to-edge position of the incisors. Anterior teeth are particularly sensitive proprioceptively and hence serve to direct (and contain) mandibular movement. Laterally, the canines are ideally suited to compel the disclusion of all other teeth. Thus, the primary function of the anterior teeth (as they specifically relate to the occlusion) is to prevent the collectivization of the posterior teeth. In short, "Group Function" ultimately begets "Group Destruction". (Figures 14-15)

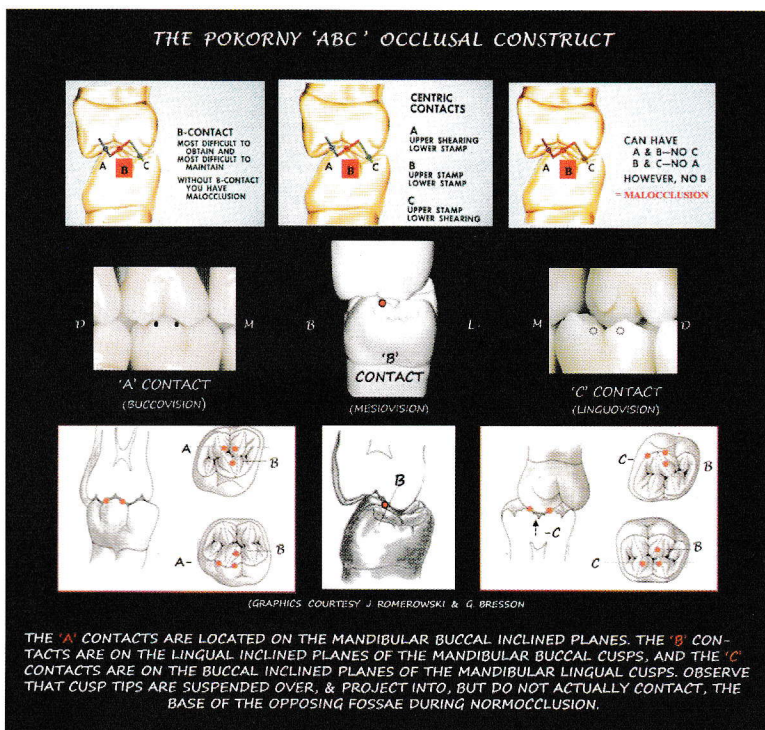


Figure 14: Frontal three years summation photo (before, after, and facies) of final treatment.

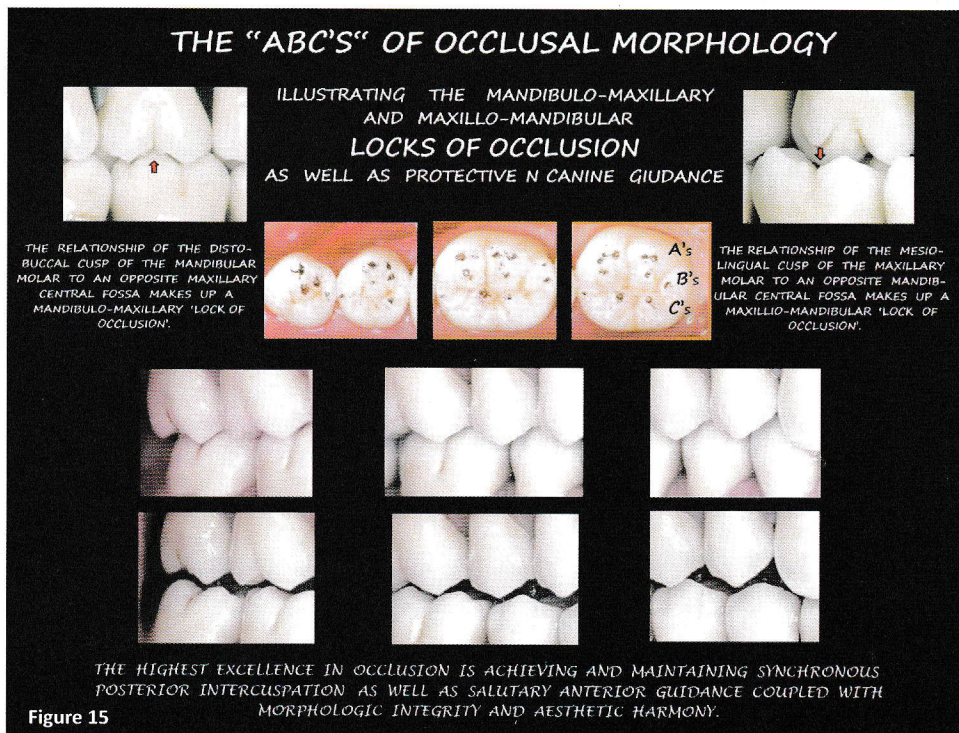


Figure 15

The various clinical and laboratory depictions of the patient's conditions before and after the perio-prosthetic bio-morph-aesthetic occlusal rehabilitation can be seen in Figure 16.

exercise in futility which will ultimately lead to multiple restoration replacement, abortive occlusal relationships, and certain bio-morphic demise. Our work is the embodiment of our will. Quality is never

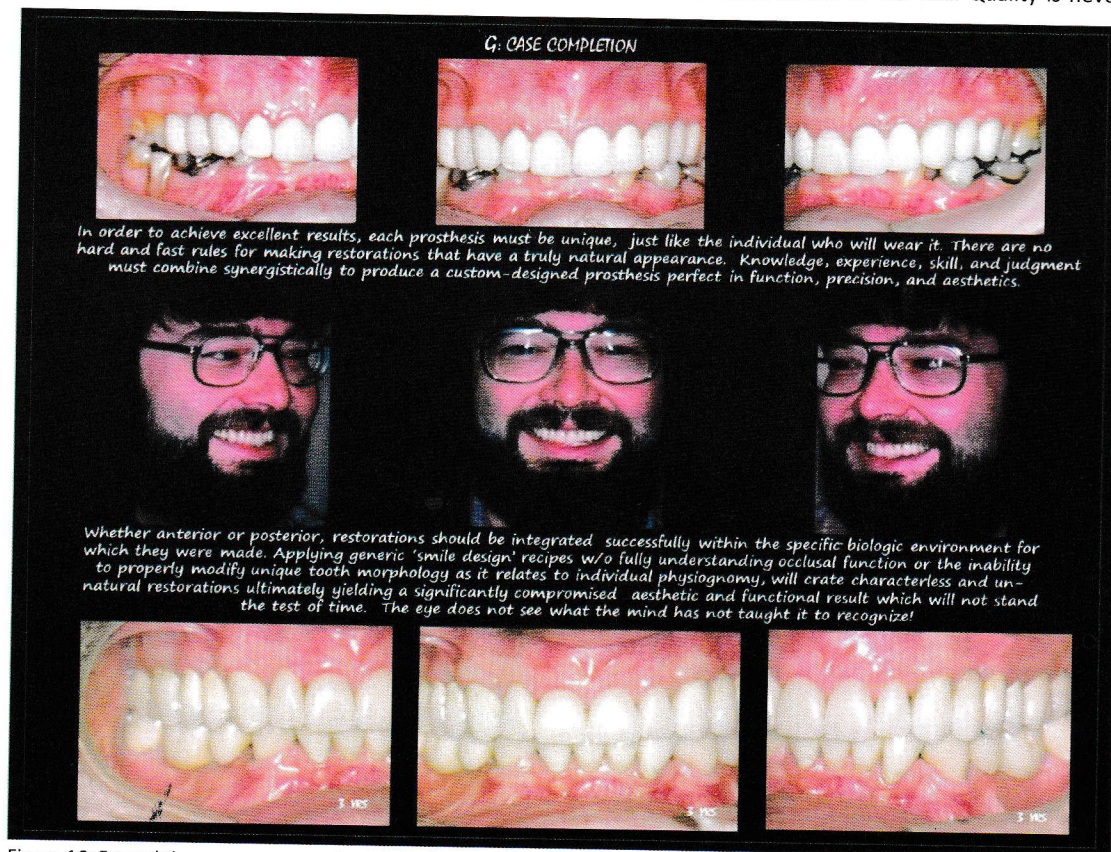


Figure 16: Frontal three years summation photo (before, after, and facies) of final treatment.

Conclusion:

The creation of a restoration that ends to destroy itself in a futile effort to prolong faltering function, or that mindlessly placates the unschooled esthetic demands of the patient is hardly justifiable. It is an

an accident. It is always the result of intelligent effort. There must be a constant will to produce a superior result.