

## The Carlson Bridge® Revolution

Carlson RS\*

Department of Dentistry, Carlson Bridge Technologies, Inc. Pvt Ltd, Hawaii, USA

Volume 2 Issue 3- 2019

Received Date: 22 June 2019

Accepted Date: 05 July 2019

Published Date: 11 July 2019

### 1. Brief Dental History

In a brief historical review of dentistry, we know that attempts to attach or replace teeth to the natural dental structures of a human have been made from the Ages of Egyptian Pharos—fixed bridge work. Examples of human teeth with gold wires round about them wired to other teeth in the jaw give us an idea of the restorative attempt of Ancients.

Paul Revere, famous American patriot silversmith, practiced dentistry in the 1770s. Dr. Revere wired walrus ivory teeth about natural teeth in his patients replacing the missing ones. One such person who received his tooth replacement services was his good friend Joseph Warren. Warren was killed in the Battle of Bunker Hill and later identified by Revere's recognizing the wiring he had used for Warren replacing two missing teeth. In one sense Revere was the first person to practice forensic dentistry in the United States in 1776, unwittingly.

In America the first dental school began in 1840 in Baltimore MD ushering in more formalized training than the previous eclectic journeyman approach.

Fixed dental bridgework in the new American Republic were rare but accomplished with skilled hands by thin sheets of gold "swaged" over the support tooth to another with a false tooth between. The basic concept of "swaging" can be understood by viewing **Figure 1**. One might think of swaging as capping today.

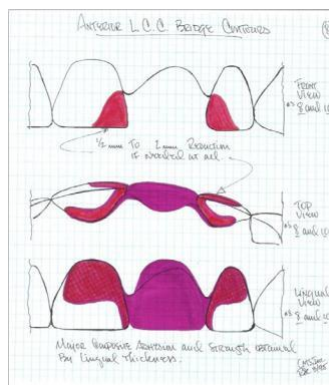


Figure 1

### 2. Swaged Dental Gold Crowns

From Figure 1 we may discern that the process of "capping or crowning" the dental organ was without reduction, that is, the thin gold sheet was adapted to the tooth's anatomy and worked to a tight fit about the tooth. Once removed it could then be soldered to a false tooth, "pontic," and another swaged crown making a three-tooth replacement for the one missing. The fixed

bridge completed it could then be placed over the support teeth and cemented with calcite liquid glue if you will. (See **Figure 2. and 2.1**)

Not until the introduction of electricity in dental medicine and the electric dental drill in particular did the calculated tooth reduction designs emerge as seen in **Figure 3**. (The Dental Cosmos, Marcus L. Ward, DDS, Ann Arbor, Mich., December 1919, Vol. LXI, No. 12).



Figure 2

\*Corresponding Author (s): Ronald S. Carlson, Department of Dentistry, Carlson Bridge Technologies, Inc. Pvt Ltd, Hawaii, USA, E-mail:- dds Carlson@hawaiiintel.net

Citation: Carlson RS, The Carlson Bridge® Revolution. Journal of Clinical and Medical Images. 2019; 2(2): 1-5.

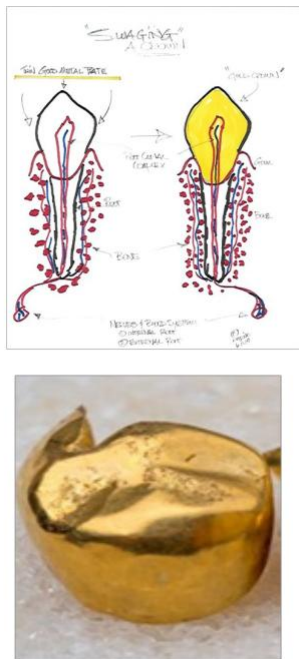


Figure 2.1: Swaged Gold Crown

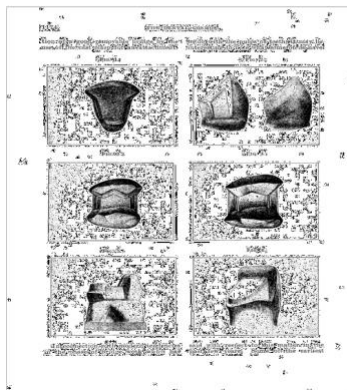


Figure 3

Controversy existed then, 1919, as well as now as to the effectiveness of and advisability of radical removal of exterior enamel from teeth to be capped (crowned) or used for the purposes of support teeth for fixed bridges—abutments. I quote Dr. Ward from the paper cited above at page 1173:

“It makes little difference whether we are to consider crowns as abutments for fixed or removable bridges—for, in the aggregate, the same objections and commendations apply to both....I shall endeavor to attract your attention to the three following changes that are being made in the practice (today)...and shall defer a lengthy discussion on the merits and demerit so fixed and removable work:

- 1) Reduction in the number of full crowns used.
- 2) As a result of this a much smaller number of teeth are devitalized.
- 3) Cements which are antiseptic care used for the retention of crowns and bridges.”

### 3. The Cast Gold Dental Crown

Taggart’s lost wax technique replaced “swaging crowns” by introducing the “cast crown” to the artisan dental surgeon. Both the dental electric drill and “preparations” seen in Figure 3 fulfilled the design of capping of teeth with a cast crown more precisely, but at the expense of tissue loss in preparation that what Ward DDS defended as not “mutilation.” In most sectors of the profession protests emerged condemning practitioners who modified tooth anatomy as depicted in Figure 3 as “tooth mutilation,” even Ward noted it in his 1919 paper.

The essayist is of this later generation, 1965 to 1969, just prior to the “Ceramco Crown” generation of the 1970s, and learned very well the art of fine preparation of no more than 1/2mm to 1mm in depth, 3/4 crowns, 7/8th crowns, 3/5th crowns, inlay-only crowns, pin-ledge preparations, etc.

After swaging became a lost art, the dental organ became fair game for the various shapes devised to “protect the individual tooth” or use it, and another, as means of replacing one or more missing teeth in a fixed bridge. Figure 4 shows a schematic of a dental organ and its major component parts but cannot convey the “vitality” of the real dental organ, odonton.

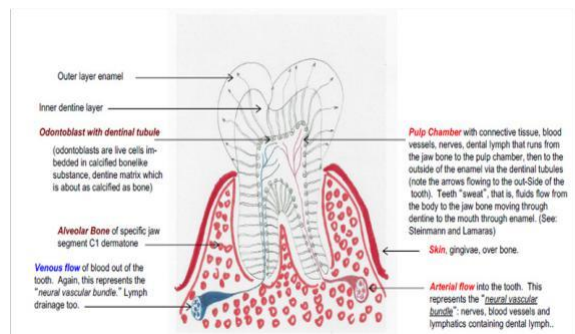


Figure 4: Basic Living Tooth Anatomy

The generation of the cast gold inlay, crown, abutment, continues but is overshadowed by the **full reduction crown** which was first glamorized by the “porcelain capping” craze of the seventies known as the “Hollywood Smile” popularized by the L. D. Pan-key Mann Institute.

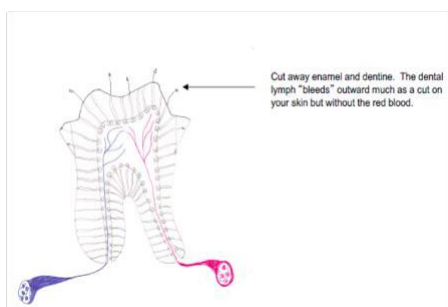
Historically we are taking you through the:

- 1) “**age of non-cutting**” crowns and bridges (1800s), through the
- 2) “**age of cutting**” crowns and bridges (1900s), to the
- 3) “**age of non-cutting adhesion**” crowns and bridges (2000s). We have gone full cycle.

From the early 20th Century armed with the electric drill and the lost wax technique of casting crowns we moved from non-cutting of teeth to moderately cutting them. Figures 5 and 6 show the

“subtle mutilation” advance and accepted in the profession. The concept of “tooth preparation” had taken hold in dental education and is still the standard of choice today, June 11, 2019. However, the quest for a full reduction crown not showing yellow gold had been the secret “holygrail concept;” and, if developed would revolutionize the “restorative” approach take for all teeth, anterior and posterior, in use for single or multiple crowns used for tooth replacement fixed bridges.

Examples of the cast gold abutment crown are shown in **Figure 7**, **8**., and **9**. The tooth reduction is relatively small compared to the Ceramco Crown. **Figure 7** shows a side view on a human skull model, gold bridge in place. If you look above the cast gold crowns of the lower you will see the *Carlson Bridge* ®. Note that the teeth with the all composite bridge have not been reduced, mutilated.



Basic Living Tooth Anatomy

**Figure 5:** When your dentist suggests a “Crown” for your tooth he does the following:cuts away a major portion of healthy enamel and dentine leaving a stub as shown in this slide. This procedure leads to 30 to 50% more root canals than normal restorative procedures such as the RestorativeCrown, not shaving away all the enamel or dentine.



Basic Living Tooth Anatomy

**Figure 6:** After the tooth is reduced, shaved to a stub, impressions of the stub are made and a “temporary crown” is placed covering the “prepared tooth.” About one weeklater the tooth is numbered again and the “gold crown” or “por-celain to metalcrown” is attached to the stub with cement. As noted earlier, the trauma veryoften leads toirreversible gangrenous pulpitis necessitating a root canal.



**Figure 7:** all gold bridge



**Figure 8:** inside bridge



**Figure 9:** tooth cutting

#### 4. The Ceramco Crown Era

Shortly after the author graduated from Michigan Dental School, 1969, Dentsply International presented to the profession the Ce-ramco Crown—a full reduction crown with porcelain fused to metal more adherent than any other system for dentists. It had been considered the *Rolls Royce* of our profession until the turn of the 21st Century with the introduction of the press able ce-ramic crown made of porcelain glass, concoctions of all kinds to this date. There are the Emaxcrowns, Empress 2 crowns, Lucite/ Zircon crowns, on and on we go—stronger, harder, more abra-sive to opposing teeth than the Ceramco Crown by factors of 10 or more.

In **Figures 10**, **11**, and **12** we demonstrate a Ceramco Crown three tooth fixed bridge. First view, 10., is on the teeth of the human skull model, the second, 11., is the tooth preparation required full reduction bridge, and the last, 12., is the inside of the ceramic fused gold bridge, the Ceramco Bridge.

Common today in the art of dentistry is the abrogation of physiologic principles of “conservation of matter”—avoiding biophysiological shock. In **Figures 13** and **14** we see the progress of stripping away the outer enamel layers of two central incisors in the preparation process to construct porcelain to metal crowns.



**Figure 10:** Ceramco Bridge



Figure 11: tooth mutilation



Figure 12: inside of bridge



Figure 13: Before Mutilation



Figure 14: After Mutilation

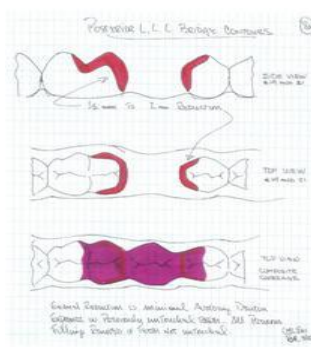


Figure 15 a

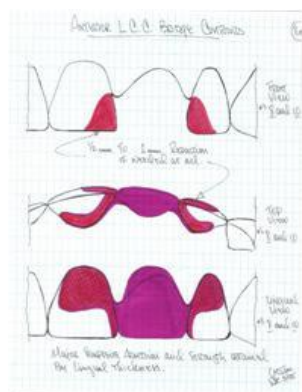


Figure 15 b

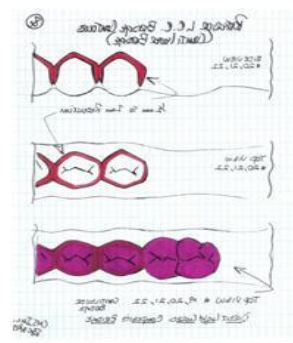


Figure 15 c

In the article about these processes the authors teach, boasting, the idea that one can reduce (take off the enamel) the dental organ in 90 seconds with the “enamel peel” procedures using their burs and techniques. In reality this violent approach affects/ef-fects the pulp-dentine complex death leading to the dreaded in-avoidable Root Canal Therapy by the “Endomortician.” [1-4]

The teeth in **Figure 7** have been selected for “capping.” Modest composites on these teeth are condemned and the burr begins its whirr, removing the entire enamel sheath in this case to the dentine. In **Figure 8** we note that greater than 2mm+ has been removed, easily. If this is not mutilation then we have adopted a rather macabre view of treating dental organs as artisans of den-tistry, dentalsurgery.

It has been reported that treating the dental organ in this fashion leads more frequently to death and a visit to the cult of death Endomortician by about 30— 50%. Intuitively humans in our culture are shocked by the radical visuals seen here after tooth reduction, tooth preparation. [1,2]

### 5. 2 1st Century Carlson Bridge® Renaissance

In the year 1989, September, a fellow asked, “Dr. Carlson...can you do a fixed bridge without cutting teeth?”

I answered predictably “...no, that is not possible!”

An idea, however, entered my mind at that moment... and I then said, “no, but possibly..., but, well... if we were to,...would you be will to try something?”

He said “yes,” and off we went, doing the first all composite free hand bridge later to be known as the CARLSON BRIDGE®.

After several years of clinical research, it became clear that one could safely and predictably install a prefabricated pontic— now known as the **CARLSON BRIDGE® “winged pontic”**— and effec-tively produce a **“non-cutting” adhesivebridge of great strength and durability. The initial diagrams we developed areseen in Figure 9 a, b, c.**

From the diagrams in Figure 15 one can see that the basic concept is to fundamentally:

- 1) use the existing enamel or dentine structure, after *thorough cleansing*, to simply adhere the bridge composite of superior strength flexure thereto,
- 2) to accomplish this directly, *in situ*, and
- 3) to artfully finish the direct composite bridge with shaping, shaving, contouring and sculpting.

We present this essay and workbook to further the **21st Century Carlson Bridge® Renaissance-non-cutting adhesive fixed bridge work**. Currently we have 60 dental practitioners who actively offer this option to their patients throughout the USA.

Dr. Carlson has offered this to his patients successfully for the past 30 years.

Certain guidelines must be followed and understood. One of the fundamental tenants is that there are no such thing as “temporary” or “permanent” fixed bridges in our profession. One must first delete this concept, old phraseologies.

One’s entire Life in the physical world is at best around 100 earth years, and that is what temporary means! The **21st Century Carlson Bridge®** is a long-term tooth replacement system of impeccable characteristics. The advantages are self-evident once one sincerely investigates the process. It is a self-taught system with direct support of Dr. Carlson. He is available for direct advice on specific patients or for group trainings and demonstrations.

## 6. Summation

This process, the Carlson Bridge® “Winged Pontic” tooth replacement system may open doors to new possibilities in the way dentists’ practice. [5-11] Biosynthetic tissue engineering seems to be the leading edge in dentistry today, but only as an adjunct to other technical procedures carried out in the dental office, such as implants, flippers, or traditional porcelain veneer bridges. Res-in composite materials are the closest to dentine and enamel in their strengths witnessed by their flexural modulus, compressive strengths and wear capacities

With this new methodology, it may also be a pleasant experience for the patient who can shorten his or her time in the dental chair and come away with an immediate dental cosmetic enhancement. Additionally, it will not create a financial burden or, require extensive healing time or unnecessary oral discomfort.

It is also beneficial to the dental practitioner since the procedure is shorter in duration, therefore physically less demanding, less complicated in that intricate tooth preparations are unnecessary, and ultimately more rewarding creatively, artistically and remun-

eratively.

As with the new restorative composite systems of direct composite restorations the “Winged Pontic” prefab system offers a choice for the doctor and the patient regarding complex treatment plans and procedures. In this day and age of limited dental health budgets, it is an idea whose time has come.

In senior populations health issues as well as costs are a major consideration in replacement of missing teeth. We have perfected the methodology for a one appointment, minimal time in the chair, direct composite bridge we identify as the **Carlson Bridge® “Winged Pontic” tooth replacement system** for one or more missing teeth.

We present this comprehensive review with the intention of encouraging others to use this non-invasive, artistically satisfying and relatively inexpensive system not only for seniors, special needs people, but in young and middle age people as well.

## References

1. Christensen GJ. Fixed Prosthodontics, Avoiding Pulp Death. Clinical Research Associates Newsletter. 1995;19:1.
2. Christianson G. How to kill a tooth. J Am Dent Assoc. 2005;136:1711-1713.
3. Jokstad A, Gokce M, Hjortsjo C. A systematic review of the scientific documentation of fixed partial dentures made from fiber-reinforced-polymer to replace missing teeth. Int J Prosthodont. 2005; 18: 489-496.
4. Carlson RS. Breakthrough Dental Bridgework: The Bio-Logical Dental Bridge. Dentistry Today. 1999; 18(2): 88-93.
5. Carlson Ronald S. “Dental Artistry,” General Dentistry. The Peer-Reviewed Journal of the Academy of General Dentistry. 2003; 5: 4.
6. Carlson RS. Cap it? Or Wrap it?. Dentistry Today. 2009; 28(6): 74-75.
7. Belvedere P, Turner WE. Direct Fiber-Reinforcement Composite Bridges. Dentistry Today. 2002; 21(6): 88-94.
8. Knight JS, Whittaker DA. A new look at chair-side fiber reinforcement of resin composite. Gen Dent. 2003;51(4):334-336.
9. Carlson RS. Immediate Post-Extraction In Situ Direct Lamination Composite Bridge. Dent Today. 2006;25:116-119.
10. vanHeumen CC, Kreulen CM, Bronkhorst EM, Lesaffre E, Creugers NH. Fiber-reinforced dental composites in beam testing. Dent Mater. 2008;24(11):1435-43.
11. Bayne SC. Dental Biomaterials: Where are We and Where Are We Going?. J Dent Ed. 2005; 69(5):571-585.