american academy of gold foil operators

Gold Leaf

February, 2021

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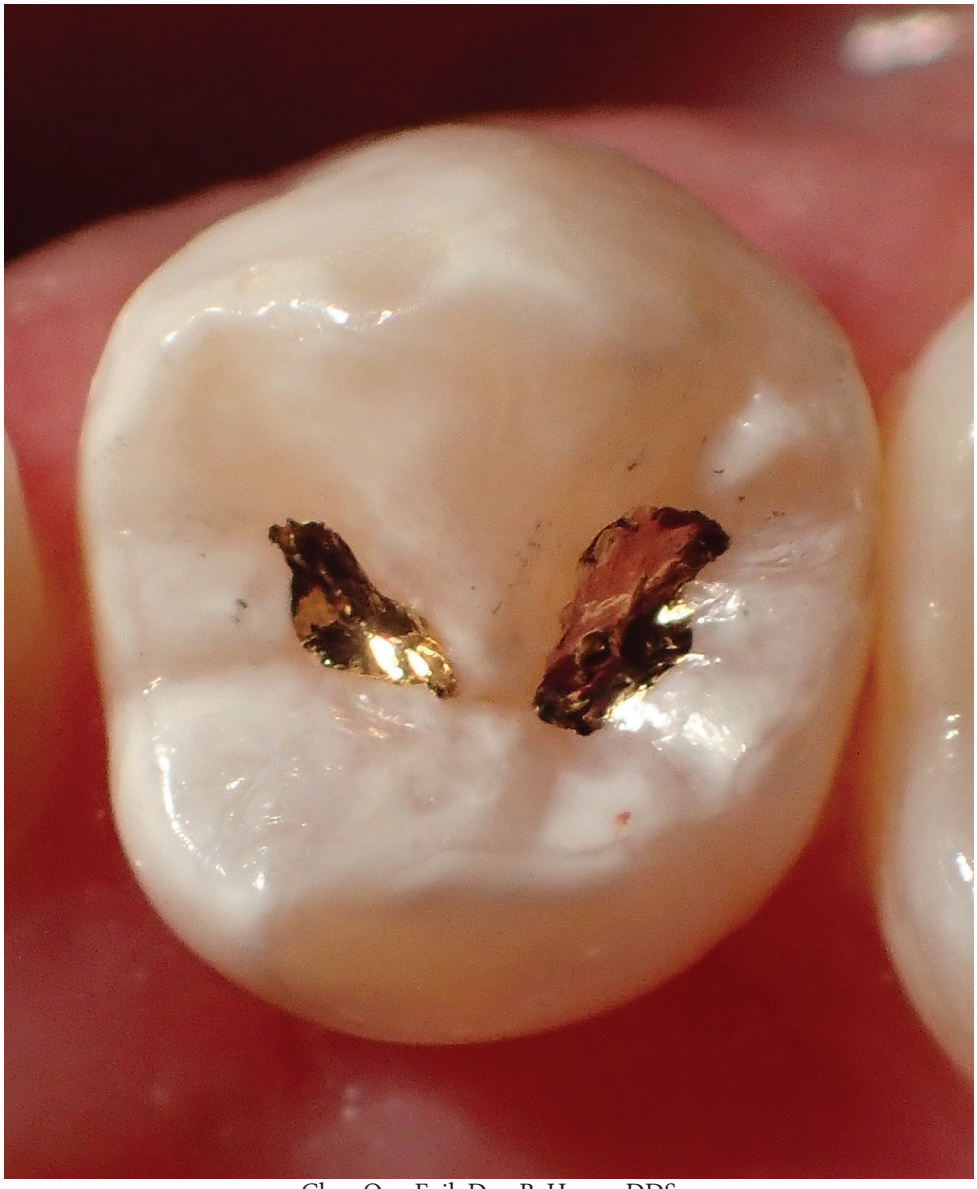
In This Issue



Class One Foil, Dan B. Henry, DDS

AAGFO Gold Leaf President's Message

Greetings from the beautifully painted Blue Ridge Mountains of Western North Carolina. As I write this, the deciduous tree leaves are changing from their summer shades of green to the brilliant reds, oranges, and yellows, announcing the harvest season. It reminds me that despite the worldly turmoil we all get so caught up in, we also have an abundance of true blessings for which we ought to be thankful.

This Spring, while our state's practices were limited to treating dental emergencies only for almost two months, I remained home with my three children to help with their schoolwork part of the week. Putting the proverbial teachers' shoe on my own foot has humbled me a little. I became much more appreciative for our teachers at all levels, elementary through high school, college, dental school, and my mentors now. I am much more understanding of what teachers go through, how their pupils may not care to learn about the topic at hand, how little many of them are compensated, how infrequently their students (and the students' parents) show gratitude or appreciation for instilling the lessons in the minds of the students. Many teachers, I became aware, are truly masters of their craft, much like the membership of our Academy.

Now that we are at least back to working a relatively normal schedule, I am a more grateful person. Rather than thinking, "I have to go to work tomorrow," I say with gratitude, "I get to go to work tomorrow!" I am more thankful for my wonderful team and my patients. I realized how much I missed the little conversations we had during and between appointments. Although the pandemic resulted in more free time to harass the fish with my flies, I realized fishing several times a week gets just a little old. I really came to appreciate the great balance of practice, family, and life I have enjoyed; and that relationships on a daily basis with my family, friends, work team, and my patients are more a source of my personal happiness than I'd ever realized before.

Our Academy is strong in the sense that we have some passionate people in our membership and serving on our executive council. Although the executive council should have changed guard in September at the annual meeting, we collectively decided to serve for two terms. Despite Dr. Tim Carlson's efforts to plan the 2020 meeting in Indianapolis, IN, and Dr. Thorburn's efforts to plan the 2021 meeting in Vancouver, BC, they simply were not to be. Another big thank you to Dr. Carlson, as he continues to make plans for our annual meeting there in 2022. I would like to acknowledge our councilors for their dedication to this Academy. They had to decide whether to carry on with, or cancel this year's meeting, all while trying to meet the needs and expectations of their own families, patients, employees and practices during a year like 2020. There were no readily available answers this year and I am very sorry if our decisions inconvenienced any of our membership. I must say, though, I am very proud of this executive council. They all showed tremendous character and have accomplished a lot of hard work despite the rough seas.

Dr. Barry Evans handed over the duties of Treasurer to Dr. Eric Morrison before our last Executive Council meeting. Dr. Evans served our Academy as Treasurer from 2010 to 2020. Regarding his tenure as Treasurer, Dr. Evans said, "It has been an honor to serve the Academy. I have so much respect for the Academy and its members. It represents the highest ethics in Dentistry." On behalf of the Academy, I would like to thank him for his hard work and dedication to the Academy and acknowledge what an excellent service he provided during his tenure. I have a tremendous amount of faith in Dr. Morrison's abilities to serve our Academy with the same honor, dignity, and attention to detail as Dr. Evans has, and we are greatly indebted to Dr. Morrison for stepping up to serve the Academy as our new Treasurer.

Dr. Scott Barrett is the recipient of our 2019 Distinguished Member Award and continues to serve as our web master. Dr. Barrett admits he cannot remember how long he has managed our website but, he is confident it has been for at least 10 years. On behalf of Dr. Barrett, I invite all members to visit our website and verify/update their contact information to help Dr. Barrett and our Academy to maintain an accurate roster. Thank you, Dr. Barrett for your dedication to excellence and this Academy, you certainly are a Distinguished Member.

The Council has continued to meet and carry on the business of the Academy virtually with Zoom meetings. Thanks to Dr. David Thorburn, we have continued to strive towards making hand instruments available to new members despite the Denmat Hartzell factory shutting down. We issued several student awards despite the cancellation of many formal graduation ceremonies. Dan Henry also deserves our appreciation for continuing this newsletter, "The Gold Leaf," and he loves photography of our foil cases to publish. We have continued to plan to have a meeting next year (2022), optimistic the vaccines will open the world to travel, larger gatherings, and clinical dental meetings. Regardless, the show must go on, and we owe a big thank you to Dr. Tim Carlson for continuing to plan the October 19-23, 2022 Annual Session in Indianapolis, IN, where I look forward to seeing you all next fall. Lastly, we need new membership with staying power, and I encourage you all to invite a dentist friend who might be looking for a great Academy to join.

Respectfully,

Robbie Bridgeman, DDS
AAGFO President

Editors Message

As you can surmise from the picture heading this message; 2020 was a compromised year for everyone's plans! I think everyone is glad to see an end to a very frustrating and less productive year for all. I feel the new curse phrase should be "What the 2020!"

On a more serious note, I sincerely hope everyone survived the year safe, remaining healthy and that hopefully 2021 will allow everyone to return to some normalcy in their lives. No doubt the events of 2020 will have long lasting effects on everyone's lives and practices.

Looking with a "glass is half full" attitude 2021 should be better; that is if we all look at the lessons learned to live better, safer and with more gusto! Hopefully, the blessings learned from 2020 will be a recentering of everyone to what is important in our lives; family, friends and what we bring to the table for our profession.

The one thing I have come to understand is that we as dentists may not have much, but we do have each other. After all, those relationships are what truly matters and how we care for this profession is directly tied to how we care for each other.

Saying it in another way, the AAGFO may be few, but what we hold is truth and how we reflect this to the greater world is important and does have an impact.

With this in mind: I have dedicated this issue of the GL to service and new ideas to hopefully cause some outside our family to stop and have a look at what we have to offer.

I hope everyone enjoys this edition of the Gold Leaf.

Dan Henry DDS

The following article written by Dr. Bruce Epperly a Cape Cod author, pastor, and professor, and dental patient.

It is a patient's view for coming to the dentist during these stressful times. In addition, there is good advice on keeping our spiritual and emotional wellbeing in order. A good short read to help one deal with all the stress with the times. It is best to also remember; "They that stand high have many blasts to shake them; and if they fall, they dash themselves to pieces." {Richard III 1.3}

Spiritual and Emotional Health in a Time of Pandemic

Recently, I had the opportunity to make two dental visits. For several days, I had a tooth ache and made an appointment, which led to root canal procedure. Now, very few people wake up saying, "Hallelujah, I'm off to the dentist!" But this time, it was like going to Fort Knox. I had to call upon arrival, answer several questions, have my temperature taken, and keep my distance from the other patient in the waiting room. We made sure our masks were tight until we were escorted to our masked dentists and their assistants. Although I have gotten used to COVID-19 practices, the experience – not just the root canal! – was stressful for me and I suspect to the dental team as well. We want to reach out, be friendly, and see smiles, not just in the dentist's chair!

The COVID-19 pandemic has turned our personal, professional, educational, relational, and spiritual worlds upside down. What we could not imagine on March 1, 2020 has become a daily reality. Our worlds have become physically constricted and our personal and professional contacts often limited to phone calls, Zoom meetings, email, or incredibly careful interpersonal interchanges. Vacation plans have been changed and we are spending more time at home. We balance our professional lives with care for children and grandchildren and worry that schools will suspend classes and we will have to return to juggling homeschooling and professional life.

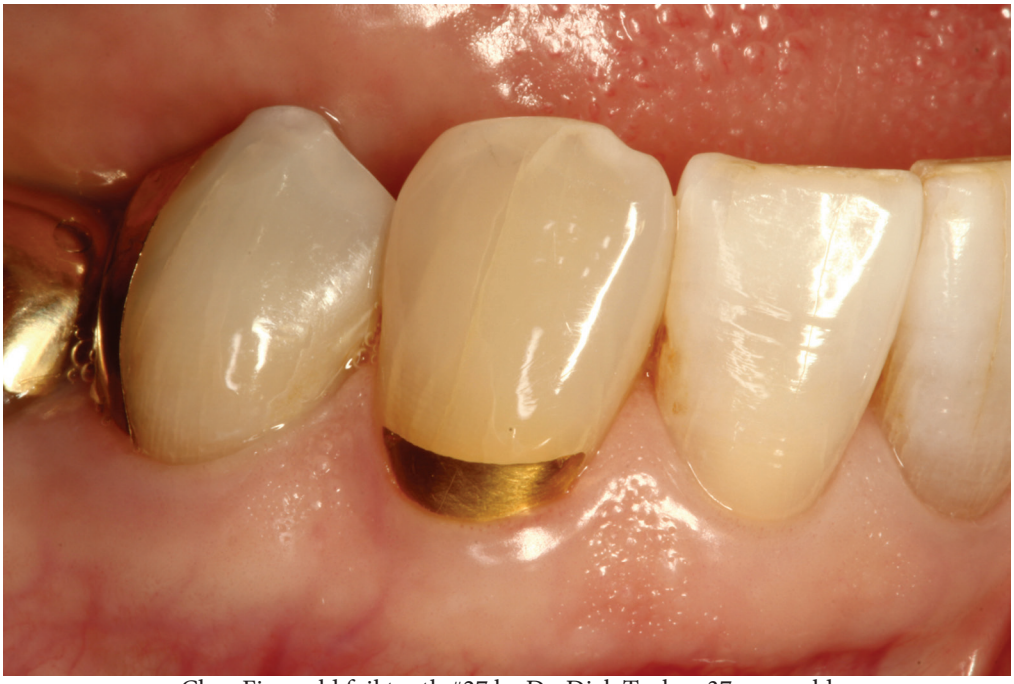
Professional life can be stressful. But more so these days. As dental professionals, committed to preventative care, we need to care for our own wellbeing so that we do not succumb to the physical, emotional, spiritual, and relational stresses of COVID. We need practices of spiritual and emotional wellbeing analogous to our counsel to our patients – brush, floss, and rinse.

The Sufi mystic Rumi asserted that there were a hundred ways to kneel and kiss the ground. There are surely an equal number of pathways toward spiritual and emotional health. Let me suggest a few practices that have been helpful in my personal and professional life:

1) Take time for stillness, whether it be a simple meditative practice, spiritually and emotionally edifying reading, or personal prayer.
2) Take your emotional and spiritual temperature on a regular basis. Repeatedly ask, "How am I doing? Am I calm or agitated? Do I feel close or distant from friends or family?" (Seek help from a professional if you find yourself overly stressed or depressed by life circumstances.)
3) Exercise regularly, appropriate to your physical condition. When we move our bodies, our spirits move as well. Old patterns are challenged, and solutions emerge.
4) Reach out to family and friends for companionship and support.
5) Immerse yourself in beauty, bringing a wider perspective on life and recognizing that there is more to life than the pandemic.

Above all, be kind to yourself and others. Recognize that we are all under stress and give each other – and ourselves – a little grace. We are connected. We have resources to respond to the pandemic. We will get through.

Bruce Epperly



Class Five gold foil tooth #27 by Dr. Dick Tucker, 37 years old

Myths and Facts about COVID-19 Vaccines

Updated Feb. 3, 2021, from the U.S. CDC Web Site.

Can a COVID-19 vaccine make me sick with COVID-19?

No. None of the authorized and recommended COVID-19 vaccines or COVID-19 vaccines currently in development in the United States contain the live virus that causes COVID-19. This means that a COVID-19 vaccine cannot make you sick with COVID-19.

There are several different types of vaccines in development. All of them teach our immune systems how to recognize and fight the virus that causes COVID-19. Sometimes this process can cause symptoms, such as fever. These symptoms are normal and are a sign that the body is building protection against the virus that causes COVID-19. Learn more about how COVID-19 vaccines work.

It typically takes a few weeks for the body to build immunity (protection against the virus that causes COVID-19) after vaccination. That means it's possible a person could be infected with the virus that causes COVID-19 just before or just after vaccination and still get sick. This is because the vaccine has not had enough time to provide protection.

After getting a COVID-19 vaccine, will I test positive for COVID-19 on a viral test?

No. Neither the recently authorized and recommended vaccines nor the other COVID-19 vaccines currently in clinical trials in the United States can cause you to test positive on viral tests, which are used to see if you have a current infection.

If your body develops an immune response—the goal of vaccination—there is a possibility you may test positive on some antibody tests. Antibody tests indicate you had a previous infection and that you may have some level of protection against the virus. Experts are currently looking at how COVID-19 vaccination may affect antibody testing results.

If I have already had COVID-19 and recovered, do I still need to get vaccinated with a COVID-19 vaccine?

Yes. Due to the severe health risks associated with COVID-19 and the fact that re-infection with COVID-19 is possible, vaccine should be offered to you regardless of whether you already had COVID-19 infection. CDC is providing recommen-

Continued from page 5.

dations to federal, state, and local governments about who should be vaccinated first.

At this time, experts do not know how long someone is protected from getting sick again after recovering from COVID-19. The immunity someone gains from having an infection, called natural immunity, varies from person to person. Some early evidence suggests natural immunity may not last very long.

We won't know how long immunity produced by vaccination lasts until we have more data on how well the vaccines work.

Both natural immunity and vaccine-induced immunity are important aspects of COVID-19 that experts are trying to learn more about, and CDC will keep the public informed as new evidence becomes available.

Will a COVID-19 vaccination protect me from getting sick with COVID-19?

Yes. COVID-19 vaccination works by teaching your immune system how to recognize and fight the virus that causes COVID-19, and this protects you from getting sick with COVID-19.

Being protected from getting sick is important because even though many people with COVID-19 have only a mild illness, others may get a severe illness, have long-term health effects, or even die. There is no way to know how COVID-19 will affect you, even if you don't have an increased risk of developing severe complications. Learn more about how COVID-19 vaccines work.

Will a COVID-19 vaccine alter my DNA?

No. COVID-19 mRNA vaccines do not change or interact with your DNA in any way.

Messenger RNA vaccines—also called mRNA vaccines—are the first COVID-19 vaccines authorized for use in the United States. mRNA vaccines teach our cells how to make a protein that triggers an immune response. The mRNA from a COVID-19 vaccine never enters the nucleus of the cell, which is where our DNA is kept. This means the mRNA cannot affect or interact with our DNA in any way. Instead, COVID-19 mRNA vaccines work with the body's natural defenses to safely develop immunity to disease. Learn more about how COVID-19 mRNA vaccines work.

At the end of the process, our bodies have learned how to protect against future infection. That immune response and making antibodies is what protects us from getting infected if the real virus enters our bodies.

Is it safe for me to get a COVID-19 vaccine if I would like to have a baby one day?

Yes. People who want to get pregnant in the future may receive the COVID-19 vaccine.

Based on current knowledge, experts believe that COVID-19 vaccines are unlikely to pose a risk to a person trying to become pregnant in the short or long term. Scientists study every vaccine carefully for side effects immediately and for years afterward. The COVID-19 vaccines are being studied carefully now and will continue to be studied for many years, similar to other vaccines.

The COVID-19 vaccine, like other vaccines, works by training our bodies to develop antibodies to fight against the virus that causes COVID-19, to prevent future illness. There is currently no evidence that antibodies formed from COVID-19 vaccination cause any problems with pregnancy, including the development of the placenta. In addition, there is no evidence suggesting that fertility problems are a side effect of ANY vaccine. People who are trying to become pregnant now or who plan to try in the future may receive the COVID-19 vaccine when it becomes available to them.

The EC had a Zoom meeting to discuss future meetings. They are as follows:

Future meeting dates we have set include:

2022, October 19-23
Indianapolis, Indiana

2023 Greifswald, Germany
(June?)

2024 Debating Baltimore vs. LA

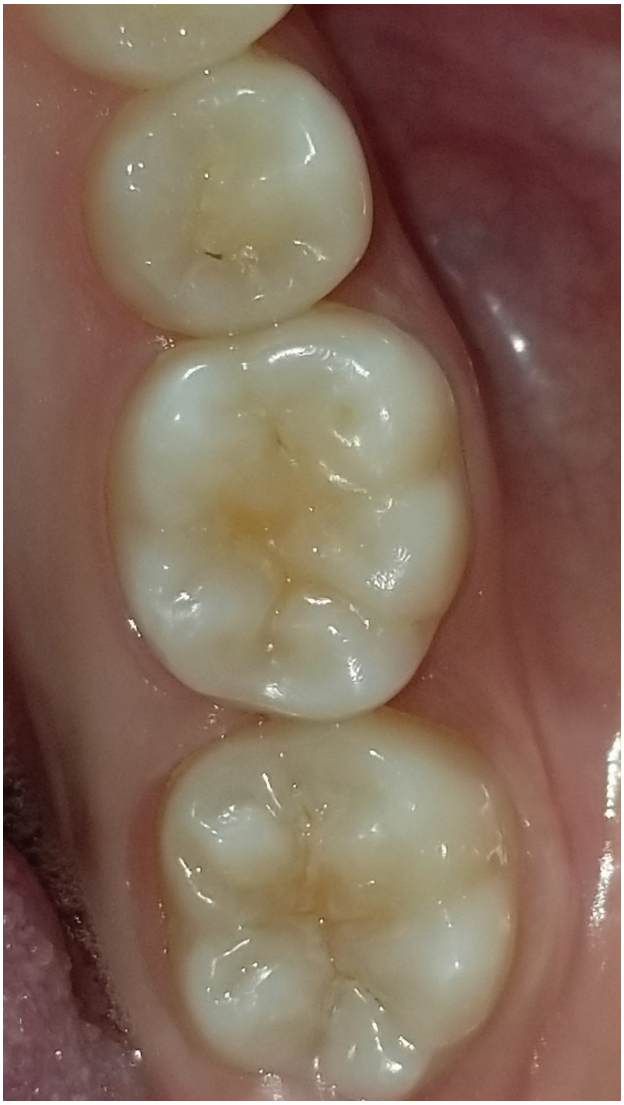
The Academy is doing well. Membership is remaining about the same with a few changes within the leadership;

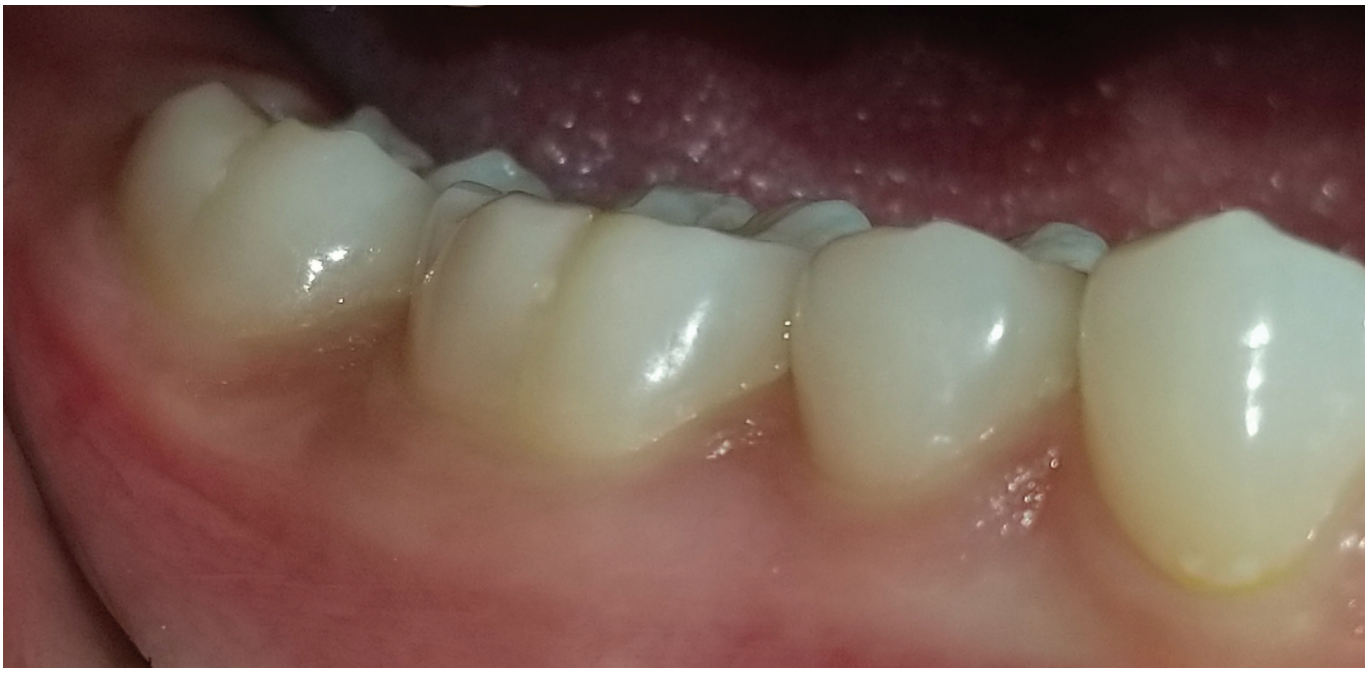
Robert H. Bridgeman, Pres.
Dick Tucker, Pres. elect
Eric Morrison, Secretary / Treasurer
David Thorburn, VP
David Bridgeman '20 Councilor
Richard Brinker '21 Councilor
Margaret Webb '22 Councilor

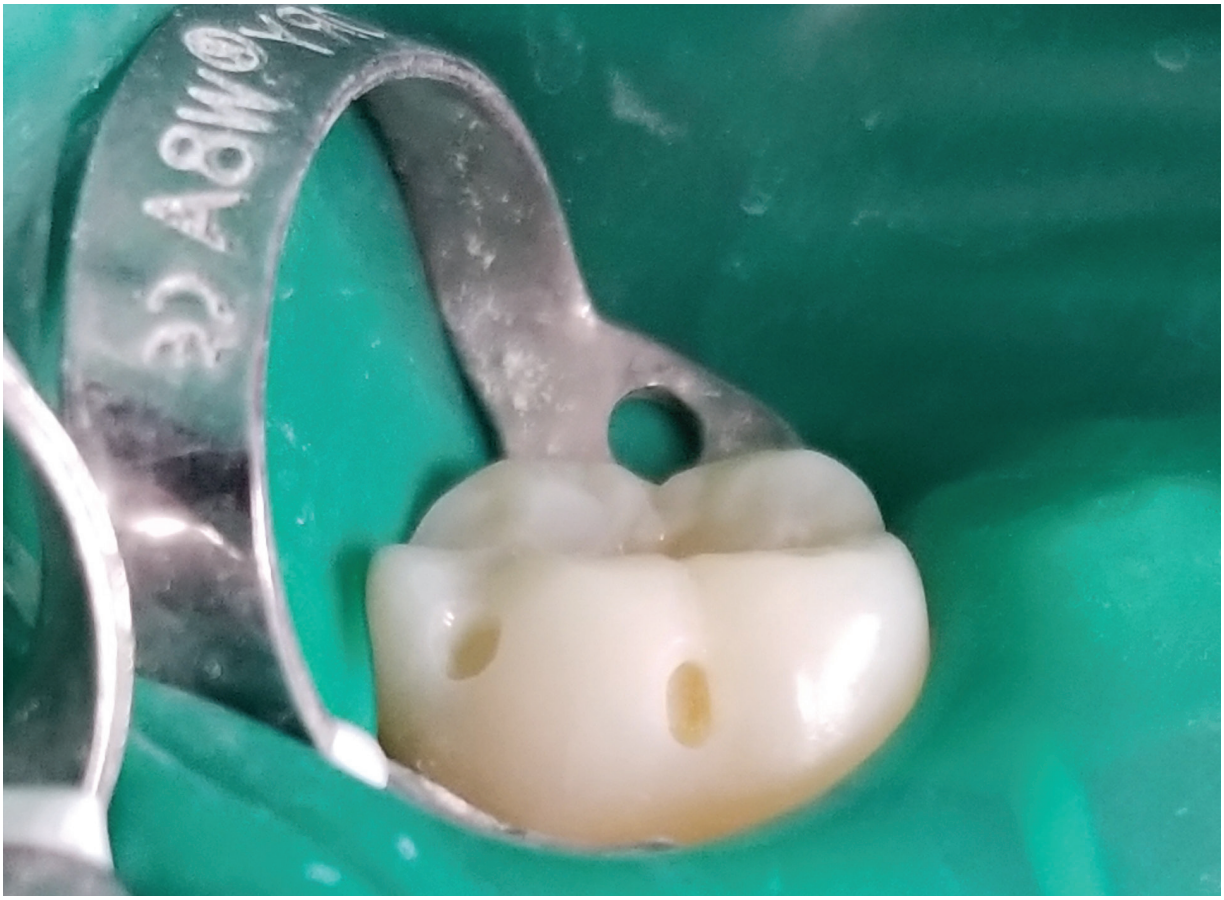
The EC is still in discussion about developing a source for gold foil instruments. They are trying to develop a source to obtain an official AAGFO pkg of instruments needed to be able to place gold foil within an active dental practice. More details to come as things develop.

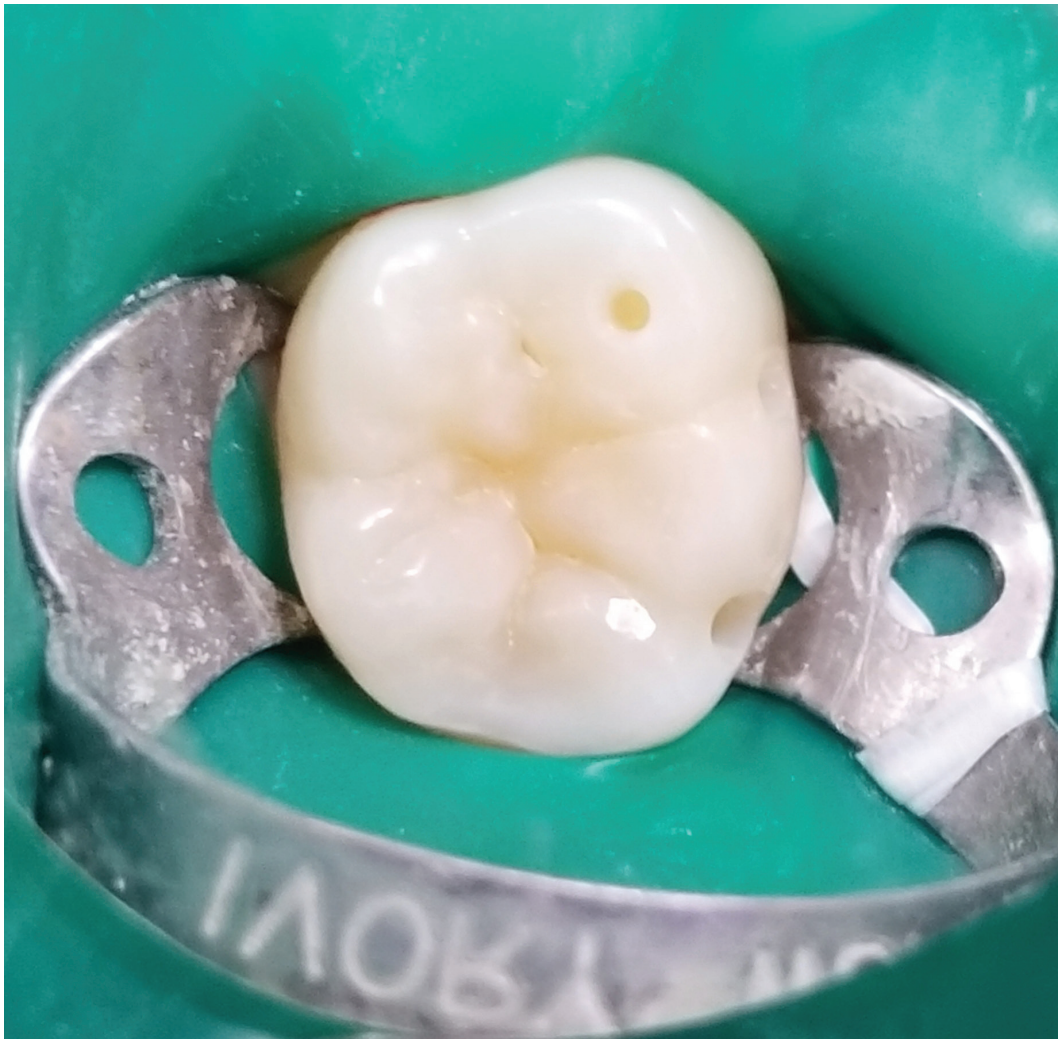
For now it is recommended that any dentist interested in learning to do gold foil contact the Academy via our website (AAGFO) for information on attending an annual meeting for further information on techniques and instrumentation.

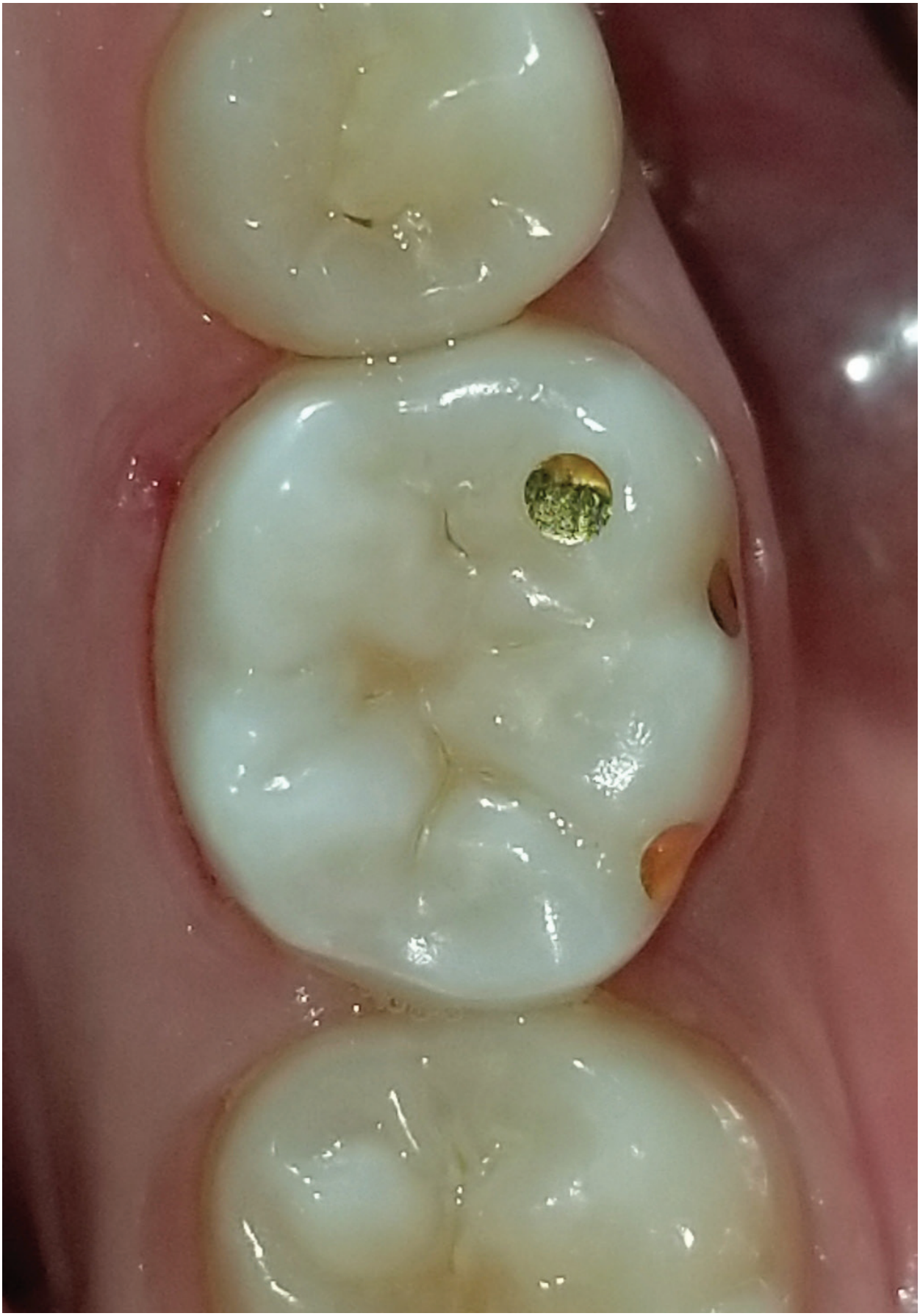
This is a foil case completed by Dr. Eric Morrison Chevy Chase, Maryland

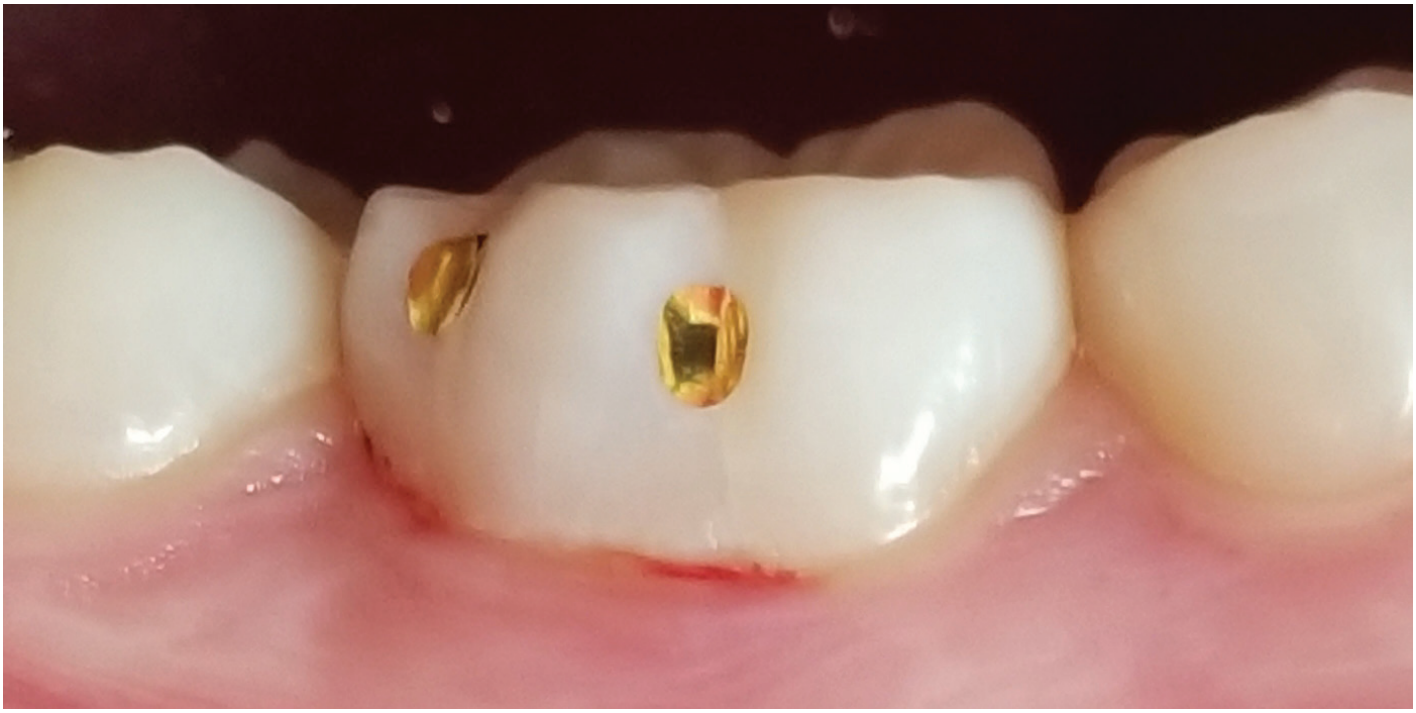


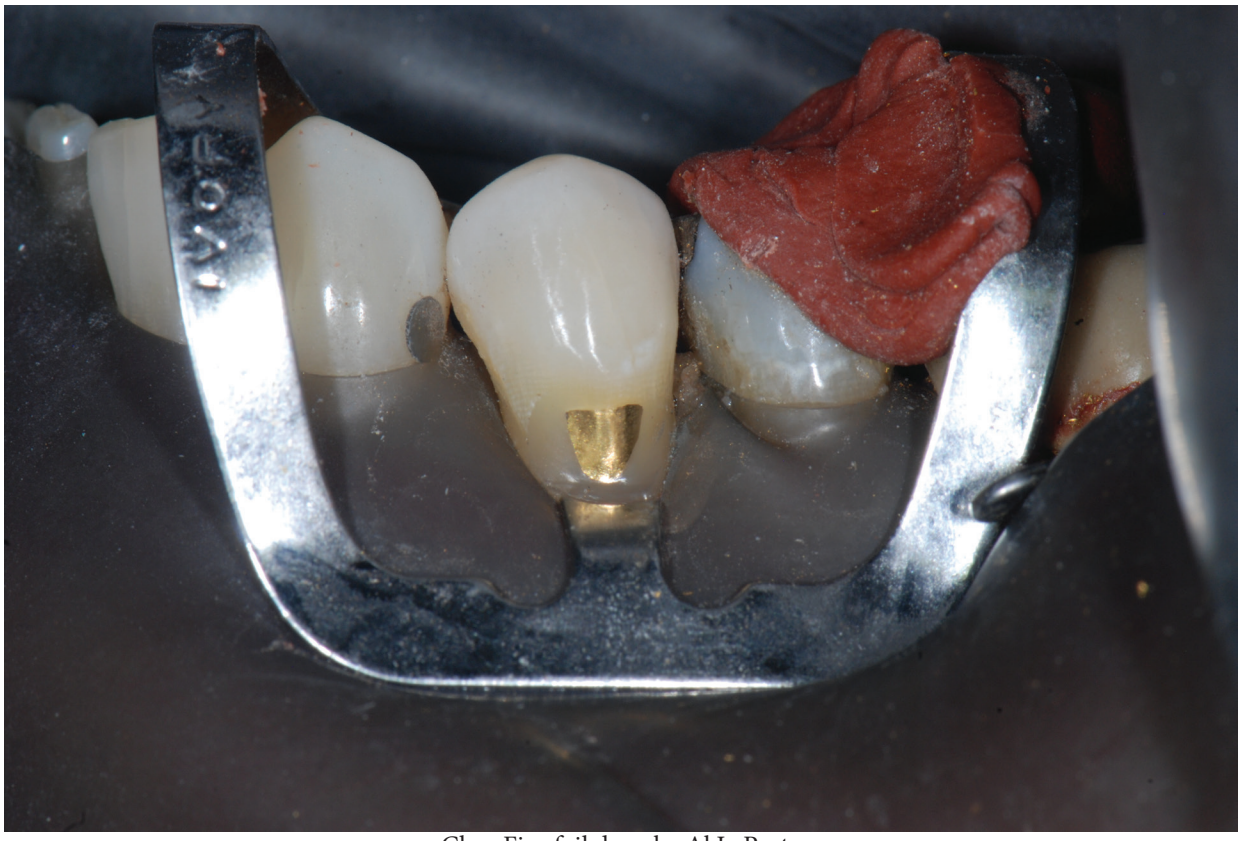




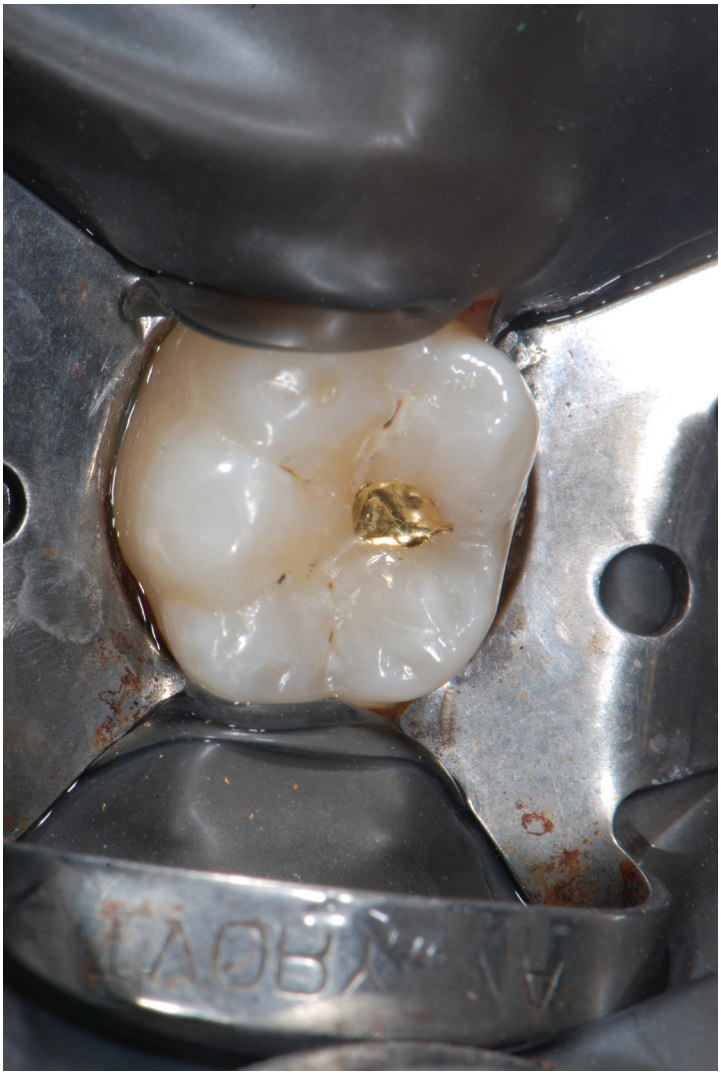








Class Five foil done by Al LaPorta



Class One foil done by Al LaPorta

Shots from Morgantown

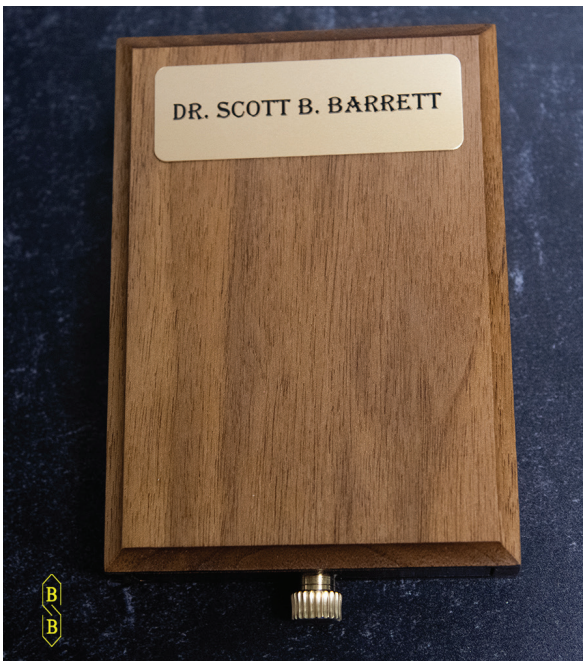
These are the gold foil boxes that Dr. Scott Barrett is making for sale.

The boxes are $175 shipping included. The drawer pull is custom-made from 1/4" brass on my Rose Engine. The drawer is also held in place with embedded neo-dymium magnets in the drawer bottom and the box case. The bottom is engraved with a warning, "Bottom - Do Not Open".

If anyone is interested, payment is tendered only after delivery and approval. If the box is not acceptable, return it within 10 days and everyone is happy.

You can place an order at:

Scott B. Barrett, D.M.D.
| 1500 Shermer Rd. 202W
| Northbrook, IL 60062
| Tel: 847.480.0310
| Fax: 847.232.7490
| Email: Dr@Bdental.net



A Clinical Presentation of The Direct Gold /Composite Sandwich Restoration

Clinical Relevance:

Studies indicate the failure of posterior composite restorations, where bonding to dentin is required, continues to be an issue. {1,2,3,4,16,17} The results are leading to the need to replace and or repair existing restorations earlier than has been the experience using traditional restorative materials. {16,17} The central problems arise from leakage and subsequent breakdown of the bond at the gingival and subgingival dentinal margins for class 2 and class 5 procedures. {3,4,5,8} Due primarily to bonding properties associated with the organic and water composition of dentin being at 50% as compared to 12% for enamel, dentin bonding characteristics are not ideal for long term durability. {1,2,3,4,5,6,7,8,14,15)

The clinical use of gold foil to seal dentin margins in class 2 and class 5 gingival prep areas has proven to be one of the most predictable restorative techniques with a long history of success. (8,9,10,15,16)

The properties of gold foil lend itself to being an ideal material to both create a seal and maintain that seal over time in the gingival and subgingival environments encountered in class 2 and class 5 restorations. (12,13,14,15,18) These properties include (1) a marginal fit approaching 1 micron, (2) a coefficient of expansion close to tooth structure, (3) no corrosion, (4) an oligodynamic effect. The first three are important, however add to this the oligodynamic effect of interfering with cell membrane transport and one has a material with a disinfecting property when placed in areas where pathogenic organisms can lead to margin failure. (12,13,16,17,18)

Summary:

This paper will describe a clinical restorative technique to address the limitations of dentin bonding in the class 2 composite dental restoration. It is a procedure that combines the proven long-term application of gold foil with the cosmetic aspects of composite resin by removing the need to bond to dentin in the proximal box where leakage and breakdown occur at an accelerated rate due to dentin bonding issues. In addition, this is a clinical presentation and will not engage in debate about the use of available direct gold options or the use of different composites / bonding techniques. It is simply a first look at the possibility for combining two proven materials and techniques utilizing the long-term sealing ability of gold foil and the long-term enamel bonding ability of composite for the benefit of our patients.

Introduction /observations:

Approximately 8 years ago, while completing class 2 foils in my private practice, there was an emergency patient who needed immediate care. The interruption necessitated the need to "temporize" the two class 2 foils that were approximately at mid-completion. {Figure 1} The proximal boxes in both foils hadbeen completed. Both proximal boxes were filled with E-Z Gold {Lloyd Baum Dental Center} to the level of the occlusal floor in the preparation. E-Z Gold is the Author's choice for bulk fill when doing a gold foil. Due to ease of use and faster build up E-Z Gold is the gold of choice within a busy private dental practice where gold foil is routinely placed. The E-Z Gold is veneered with #4 gold foil when the restoration is to be completed with direct gold.

In this case, to temporize the restorations, the foil was micro etched with 50-micron aluminum oxide then completed utilizing a total etch {Ultra-Etch by Ultradent} and resin bonding {3M Universal Scotchbond} material to the remaining tooth structure and the micro-etched foil. A posterior composite {3M Silux Plus} was used at that time to complete the restoration. (Figure 2) The patient was to return for removal of the composite and completion of the foil later. However, the patient did not return for 6 months at which time the restoration was evaluated and found to be doing well clinically. The decision was made not to replace the composite. The restoration is now 6-8 years in function. No clinical photos exist.

Following the original restoration and upon discussions with Dr Clyde Roggenkamp of Loma Linda Ca., It was discovered that Dr. Lloyd Baum had conceived of the idea for combining foil and composite and had discussed this with his friend Dr. Giancarlo Gallo, an Italian *dentist*. Thanks to Dr Roggenkamp, the correspondence from 1992-1997 between Dr Lloyd Baum of Loma Linda University and Dr Giancarlo Gallo of Alba, Italy was forwarded for review. Their discussion centered around the concept of utilizing a sandwich technique combining gold foil and composite resin for the class 5 restoration. Their designs can be seen in the hand drawings from their correspondence in Figure A-1, pp 16. {reprinted with permission from Dr. Roggenkamp}

Combining what was learned from Dr Baum and Dr Gallo, a refinement of the technique was developed to be applied to a class 2 foil restoration. The refinements included micro etching the gold and remaining prep with 50-micron aluminum oxide then applying Metaltite by Tokuyama to the gold via manufactures directions. METALTITE® contains MTU-6, a thiouracil

monomer, which "enhances a tenacious chemical bond between resins and precious metals". {manufacturer statement} (Fig 3) In addition, it was concluded to place E-Z Gold into the proximal box of the class 2 prep to the level of the occlusal floor of the prep to create the contact in gold for the final restoration. {Fig 1}

The author's reasoning for the procedure was to enhance the longevity of posterior composite class 2 restorations by utilizing the properties of E-Z Gold for stabilization of the proximal area and the adjacent contact over time. The result is a restoration that combines the use of E-Z Gold in the proximal box to facilitate longevity with the aesthetic appeal of composite where effective bonding to enamel is time proven. This restorative combination takes into consideration concerns that the patient, the operator, or both might have with the cosmetic appearance of gold in areas where it can be seen during normal function. Also, it is hoped that this paper could begin to re-assert the value of utilizing direct gold to enhance the "bondodontic" explosion within dentistry and prioritize restorative outcomes and longevity in selecting restorative options.

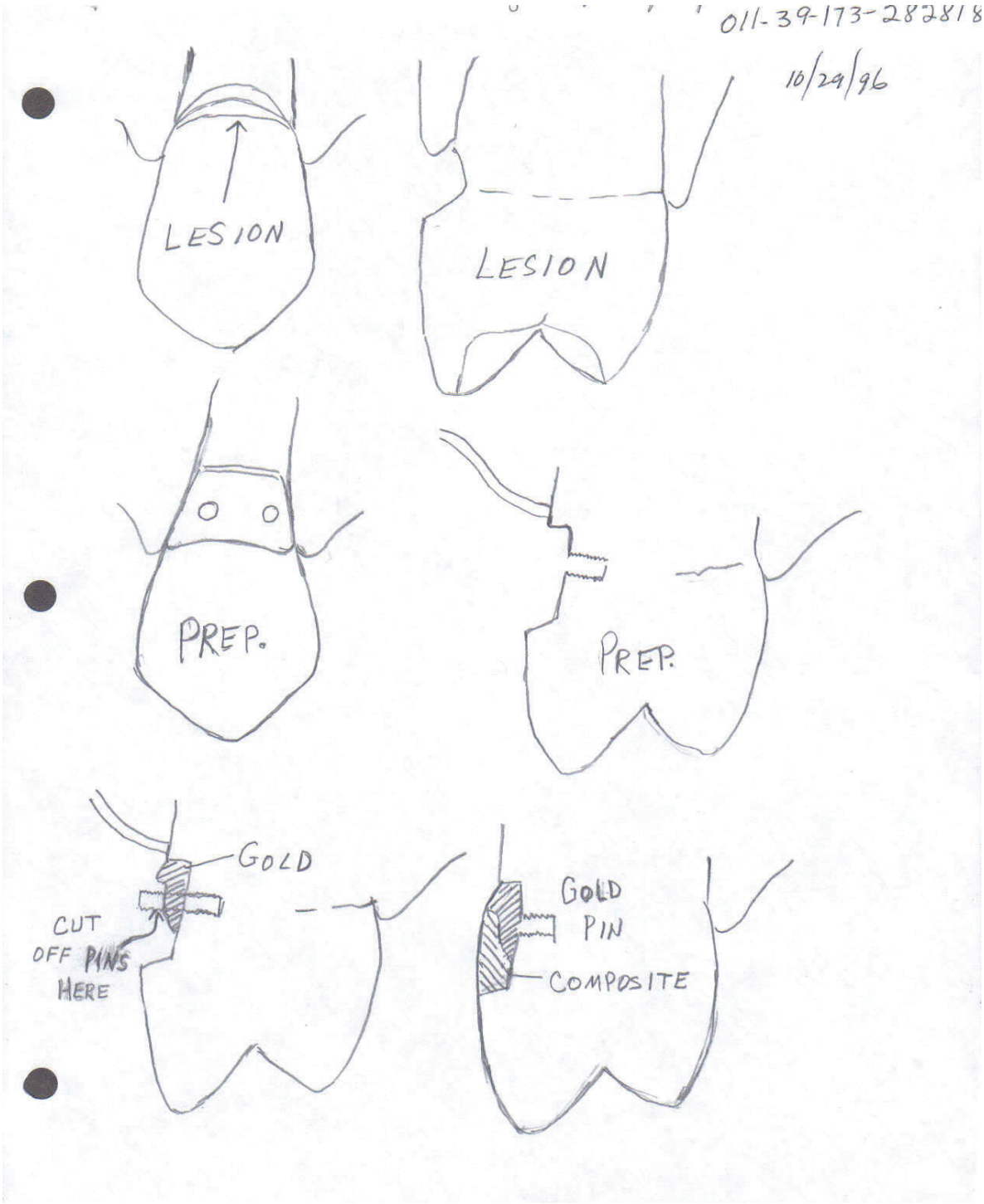


Fig A-1. Original drawings from correspondence between Dr Lloyd Baum of Loma Linda University and Dr Giancarlo Gallo of Alba, Italy.

Clinical Cases:

Three cases are presented 1. A class 2 Do and MO in a Maxillary second bicuspid. (Figures 1,2,3,4) 2. A class 2 DO tooth #13. (Figures 5-16) 3. A class two DO tooth #4. (Figures 17-30)

Clinical procedures

Clinical case 1: Class 2 in Tooth #4, DO and MO class 2 foil-composite sandwich. {Fig 1-2}

As stated previously, the class two foil was terminated at the point of completion of the gold placement in the proximal boxes of both class 2 restorations tooth #4 figure 1. The photo shows the completion of E-Z Gold placement in both proximal boxes and the placement of a GI liner proximal to the gold.

Following this the gold was micro etched with 50-micron aluminum oxide, washed and dried, then a total etch with 35% phosphoric acid {Ultra-Etch by Ultradent} then bonded with 3M Universal Scotchbond. Followed by 3M Silux Plus composite to complete the restoration. This was originally intended to be a temporary fix. (Fig 2)

Following reevaluation of the restoration it was decided to continue with the procedure with the modifications of adding Metaltite to increase bond efficiency between gold and composite resin plus filling the proximal box with E-Z Gold to insure no dentin bonding and to make the contact in gold. * All personal observations are from the author's private practice.

Clinical case 2: Class 2 DO #13 foil/composite sandwich. {Figures 5-13}

The procedure consists of removing all caries then filling voids created with GI {3M ESPE Fil Quick Aplicap}. This is followed by preparing a classic class 2 preparation for placing gold foil or amalgam under rubber dam. (Fig 5-13)

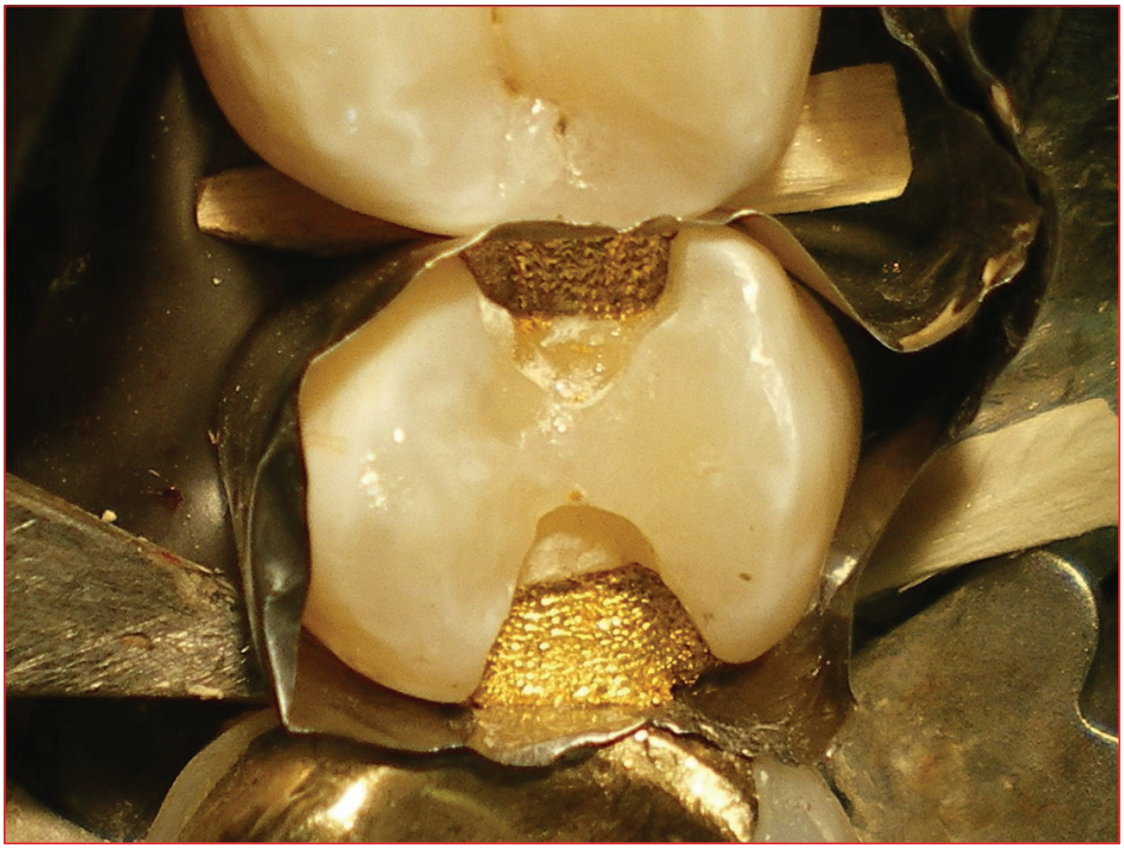


Fig 1. Two Class 2 foils in tooth #4 {2012}.

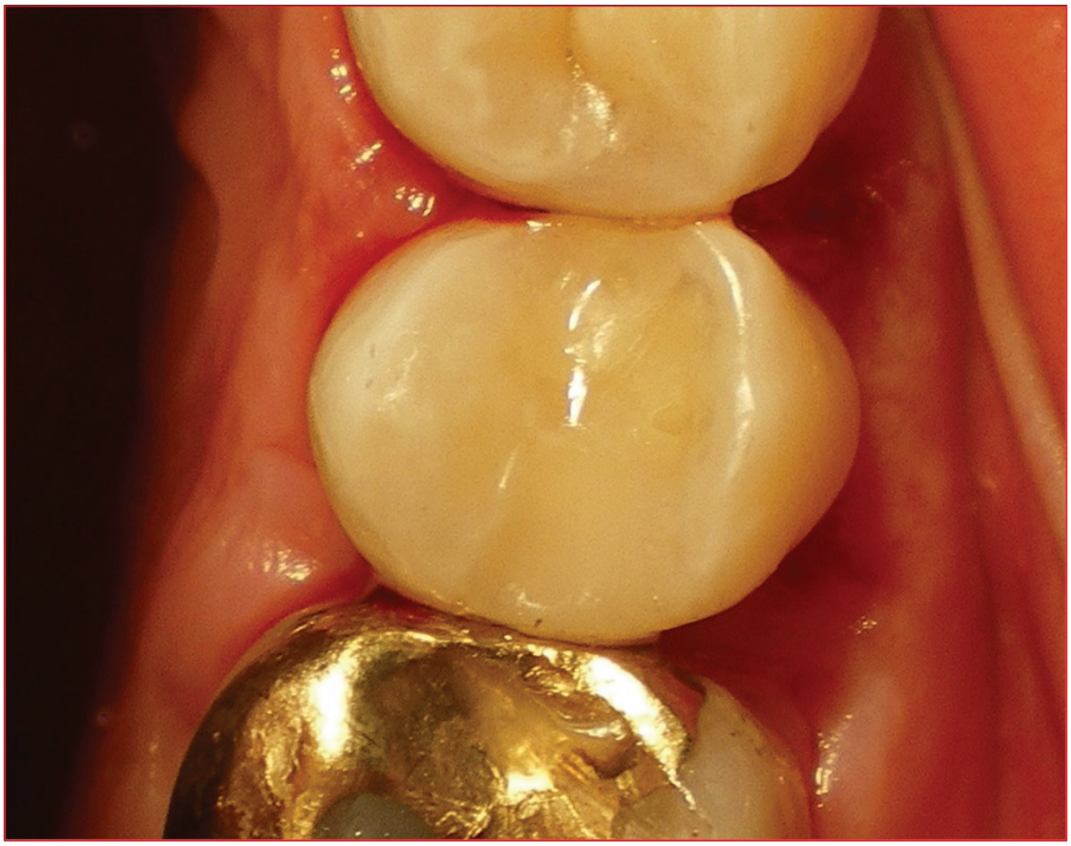


Fig 2. Final restoration of foil and composite in tooth #4 {2012}

Fig 3. Metaltite by Tokuyama Dental America, Inc.

The initial penetration into tooth #13 was with a 169 bur {Brasseler} to determine the extent of the carious lesion. (Fig 5) This is fallowed by removal of all caries. Healthy tooth structure is not removed; therefore, Black's rules are not observed at this point. Following the insertion of the GI the preparation is completed to Black's specifications.

Figure 6 shows the placement of remaining glass ionomer for the deep caries destruction and the final prep with E-Z Gold placed in the proximal box. The glass ionomer proximal to the foil acts as a liner and thermal insulator in cases where deep caries penetration into the dentin occurred. {Fig 6}

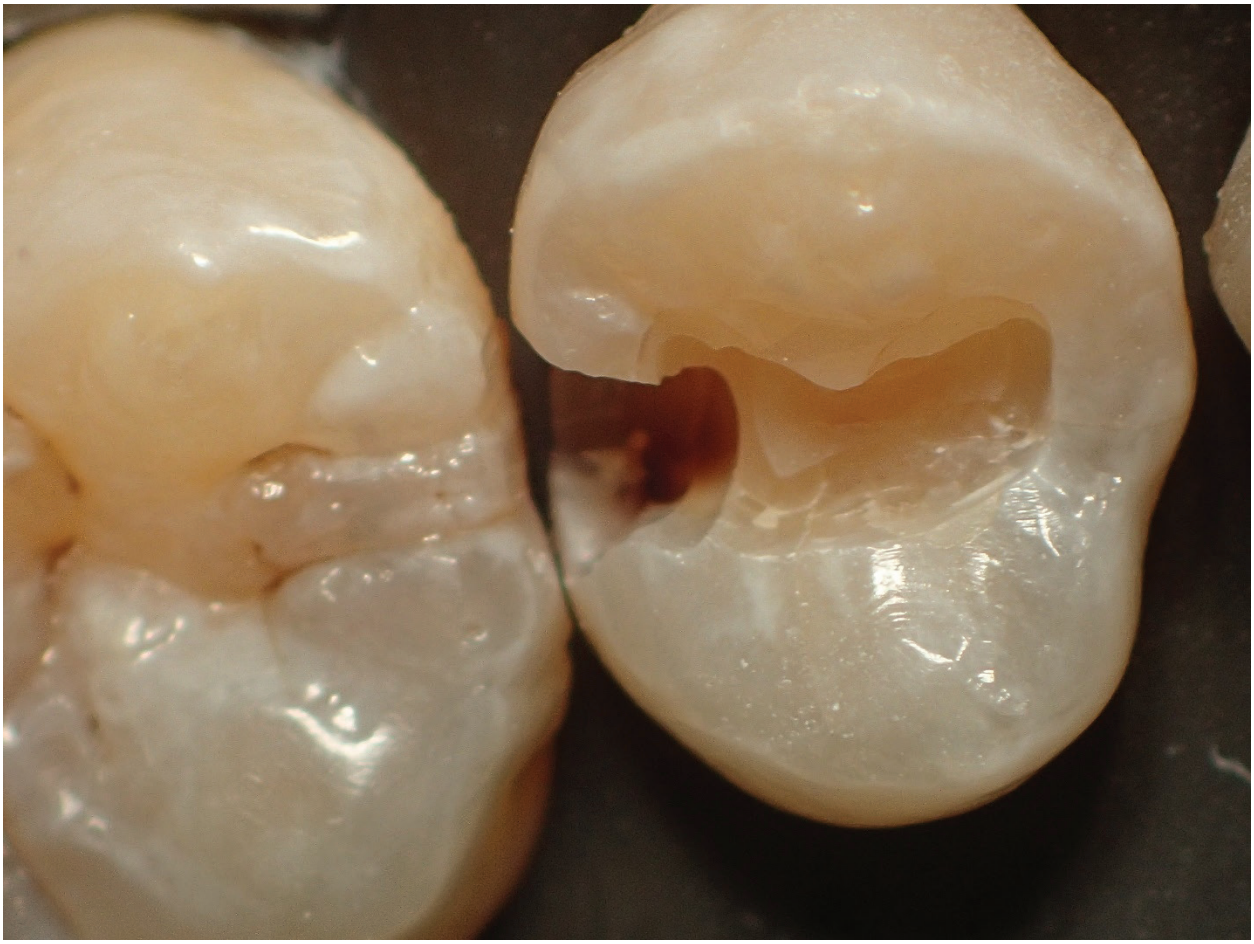


Fig 5. Initial bur penetration into carious lesion distal-proximal on tooth #13.

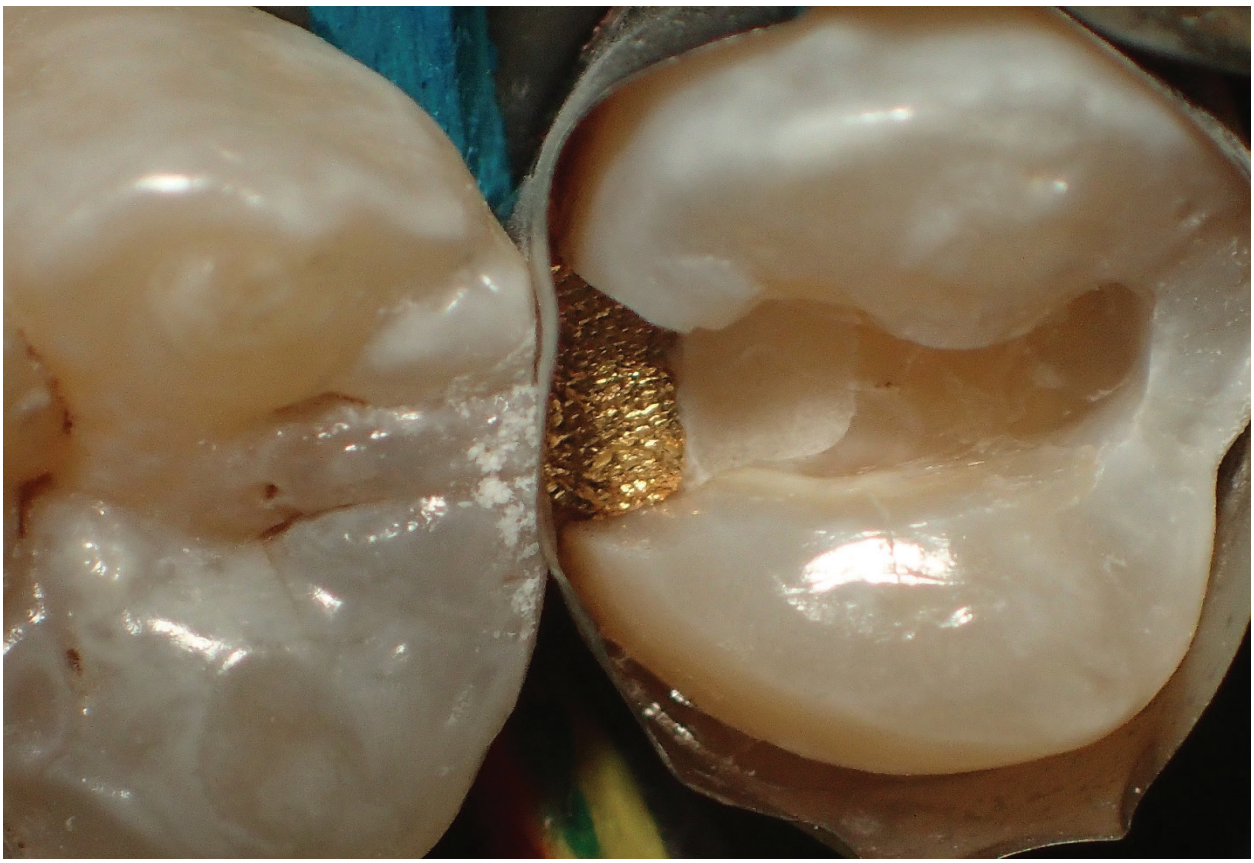


Fig 6. Distal box filled with EZ Gold, also showing the glass ionomer liner located proximally.

A dead-soft Tofflemire matrix band is placed {HO Band}, wedges inserted, and the band is burnished prior to placement of E-Z Gold (Lloyd Baum Dental Center) into the proximal box. In placing class 2 foils the Author normally uses no band {Fig 16 case 3}. However, a brass T band can be used as well, depending on the situation. Following the placement of E-Z Gold to the level of the occlusal floor of the prep, (Fig 6-8) the foil and remaining tooth structure are micro-etched, (Fig 7) utilizing a chairside micro etcher and 50-micron aluminum oxide.

The preparation and gold are then washed and dried to clear the aluminum oxide prior to etching. In addition, the prep is treated with 2% chlorhexidine (Consepsis by Ultradent) for 60 seconds prior to total etch. A total etch with 35% phosphoric Acid for 30 seconds is completed. In this case Ultra-Etch by Ultradent was used.

This was followed by applying Metaltite by Tokuyama via a micro brush to the gold only. (Fig 8) Manufacturer's directions were followed with air drying of one-two layers of Metaltite. Again, the procedure was completed under rubber dam.

Following the treatment of the E-Z Gold with Metaltite, 3M universal bonding was applied to the complete prep and cured. Next 3M Filtek flowable composite was layered into the final preparation and cured in multiple increments until the restoration was completed. {Fig 9-12} A darker or more opaque shade of composite is used in the first layer to mask the color of the gold. In this case Shade A-2.5. (Fig 9) Finishing of the composite was completed using increasingly lighter shades layered and cured. (Fig 9-11} Polishing points and 3M disc and finishing diamonds were used to shape and finish the final restoration. (Fig 12) Figure 13 is a radiograph showing the class 2 foil placement in the gingival 1/2 for the completed foil/composite sandwich restoration in tooth #13. The presence of a GI liner can be visually differentiated beneath the composite as well. There appears to be a small radiolucency within the GI. It is not known if this is an artifact or a small void? Because damage to the foil would likely occur with removal and replaced of the GI, it is decided to watch over time.

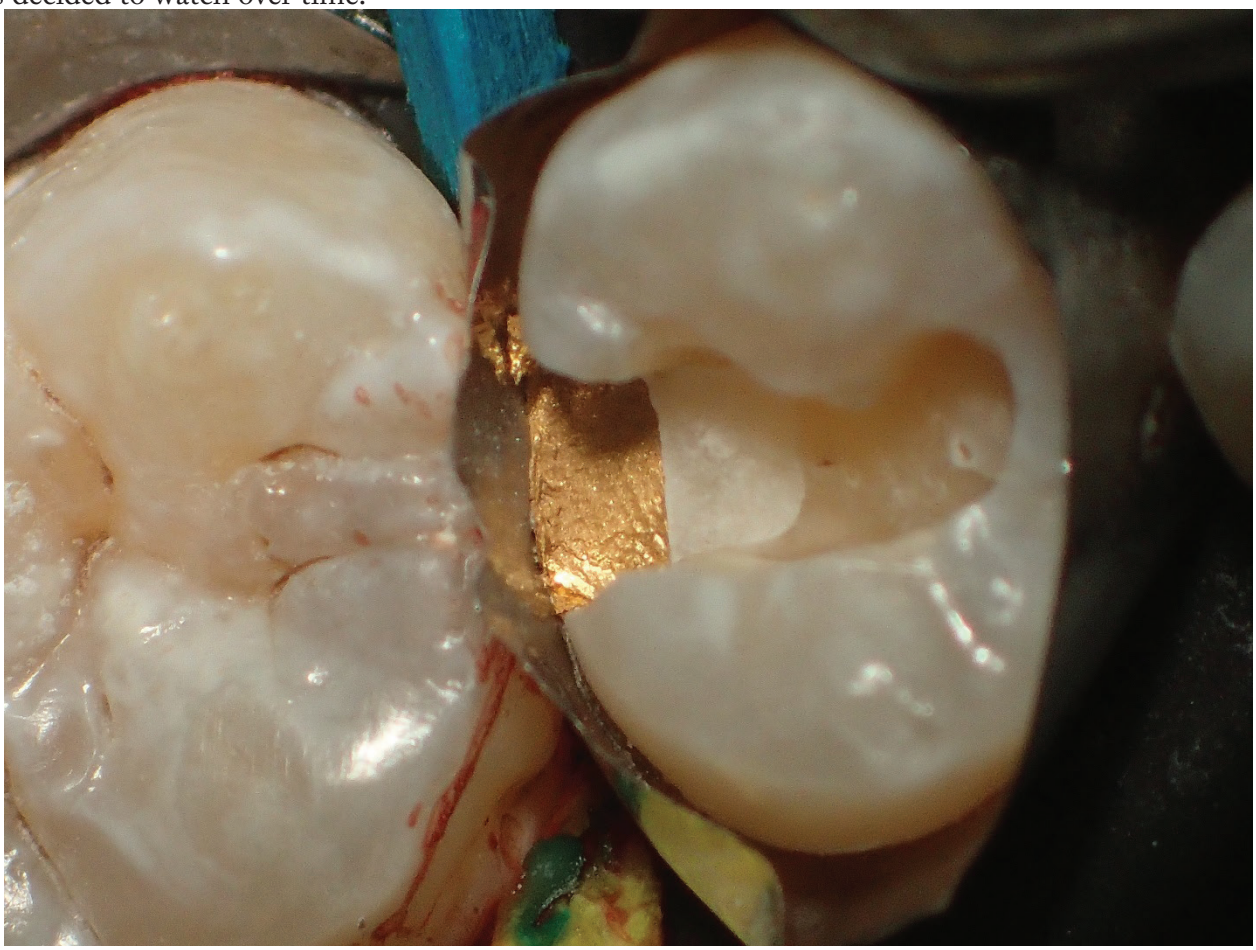


Fig 7. Foil and prep after micro etching with 50-micron aluminum oxide

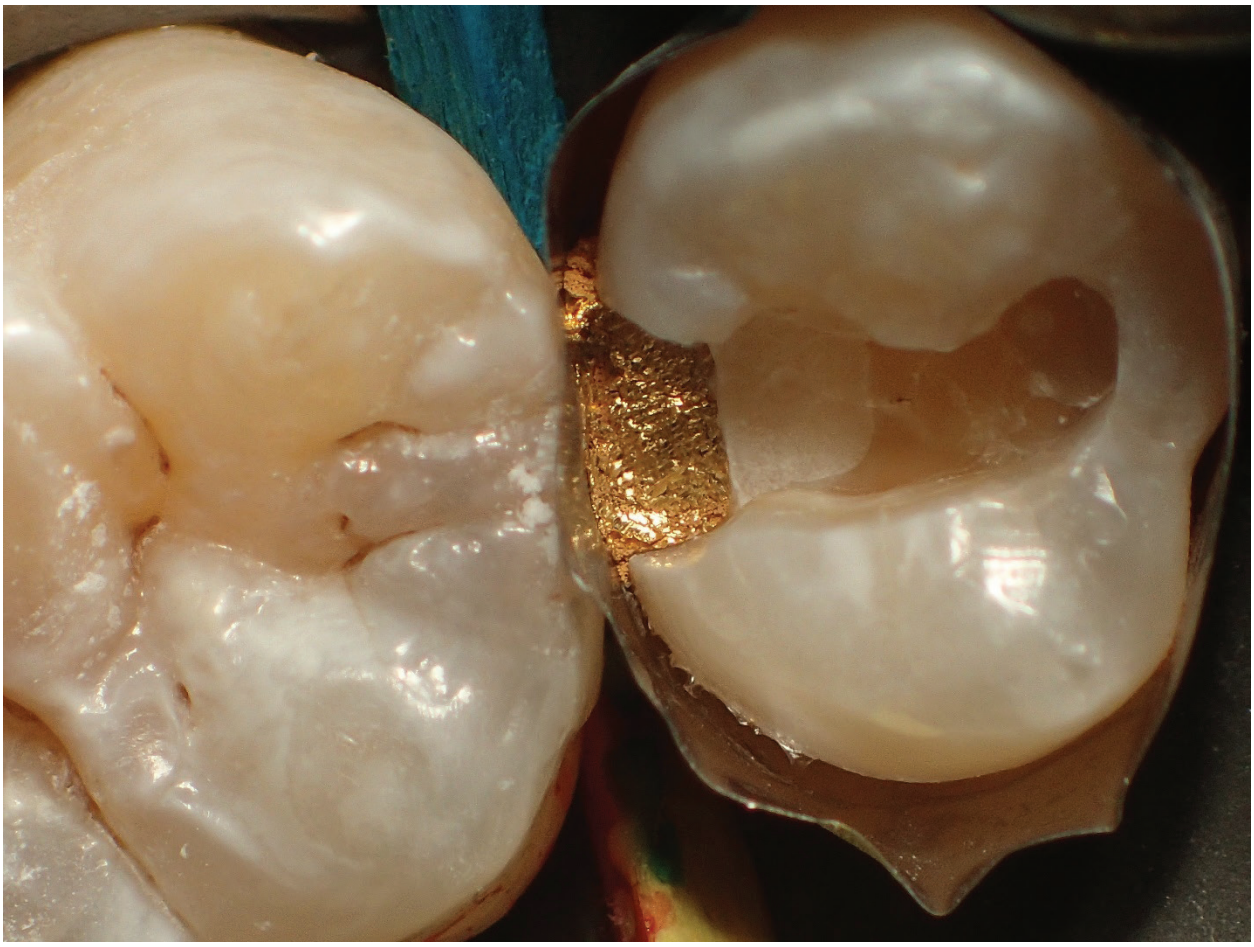


Fig 8. Foil treated with two layers of Metaltite metal bonding resin.

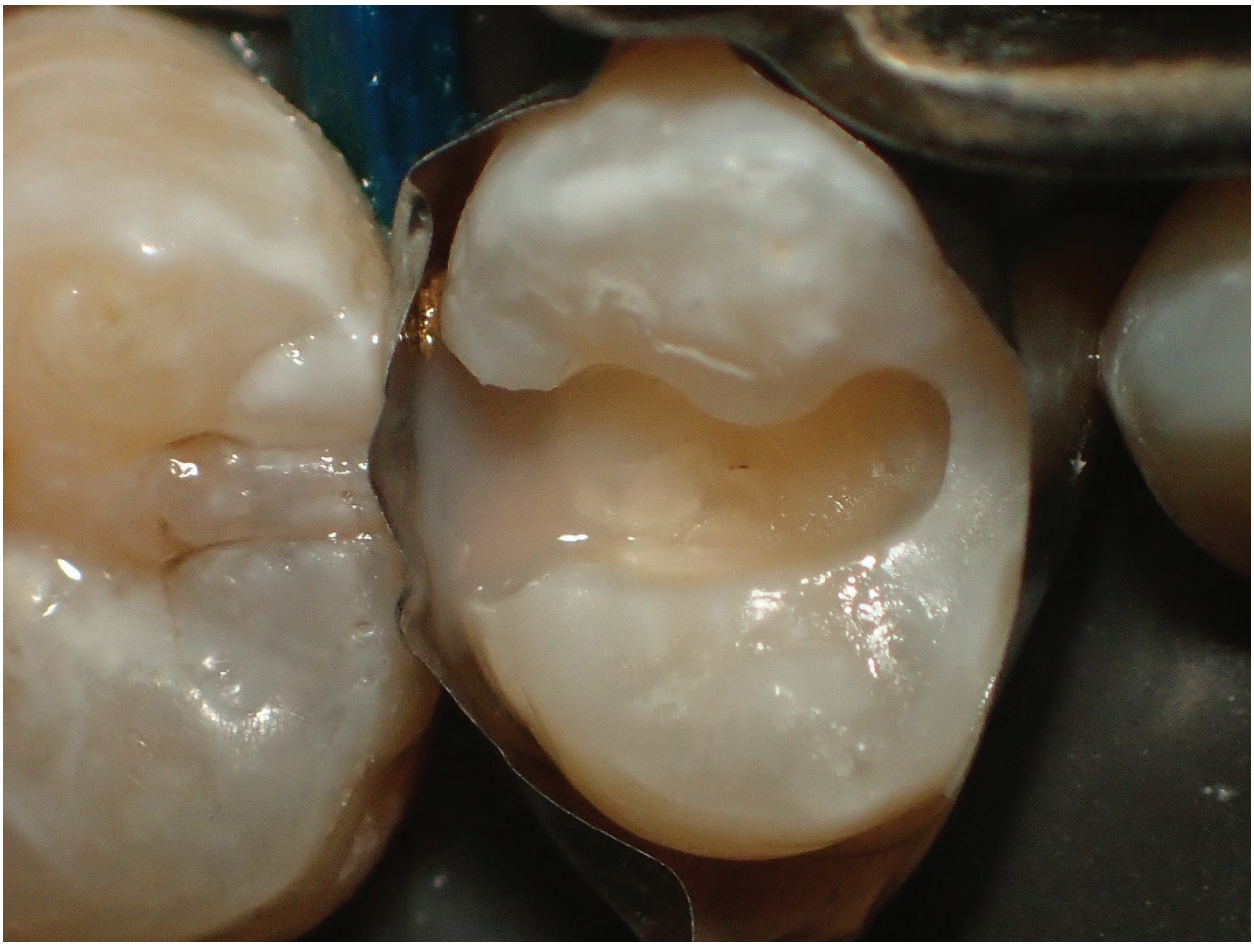


Fig 9. Initial layer covering gold with shade A2.5 3M Filtek flowable composite.

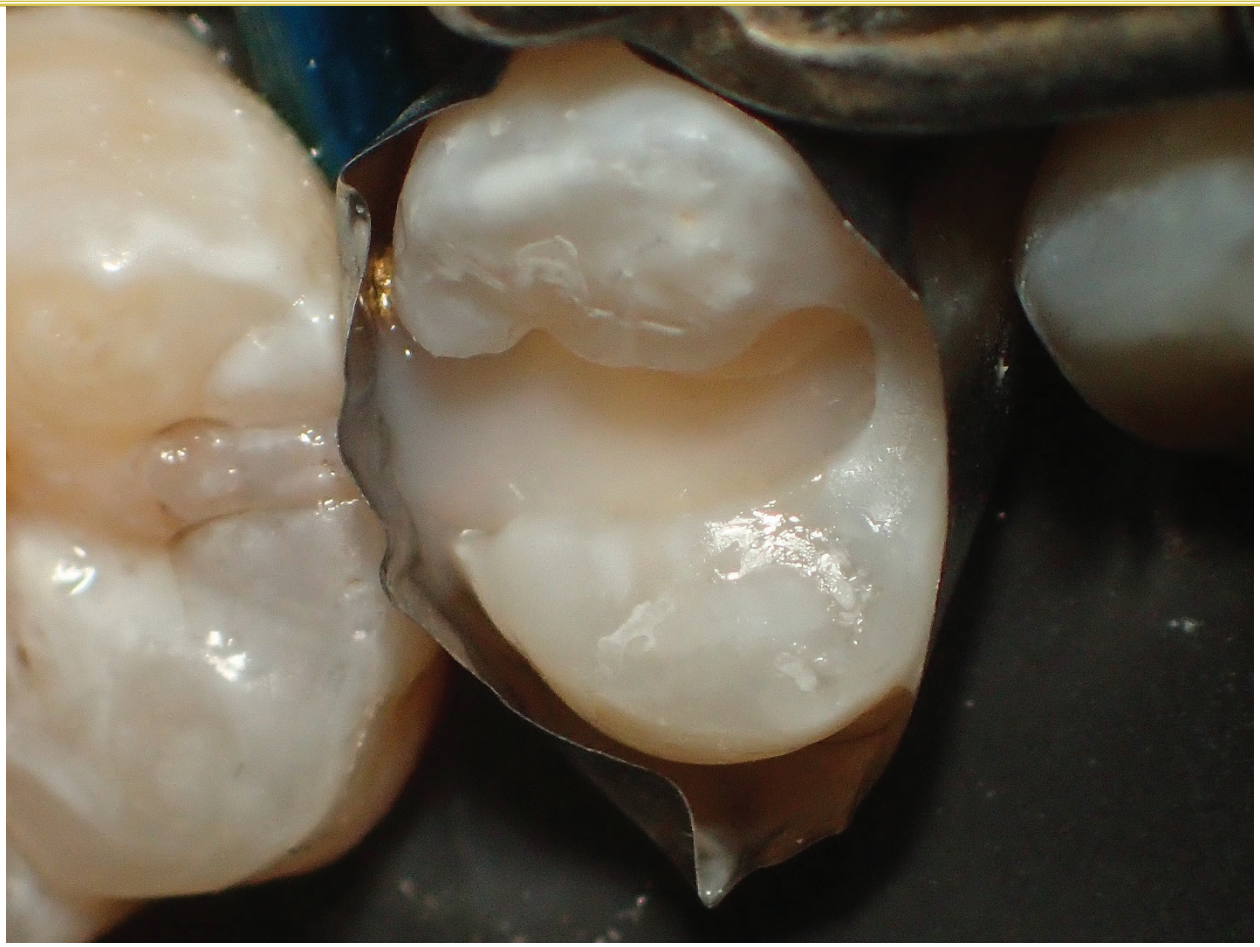


Fig 10. Middle layer of shade A-2 3M Filtek flowable composite.

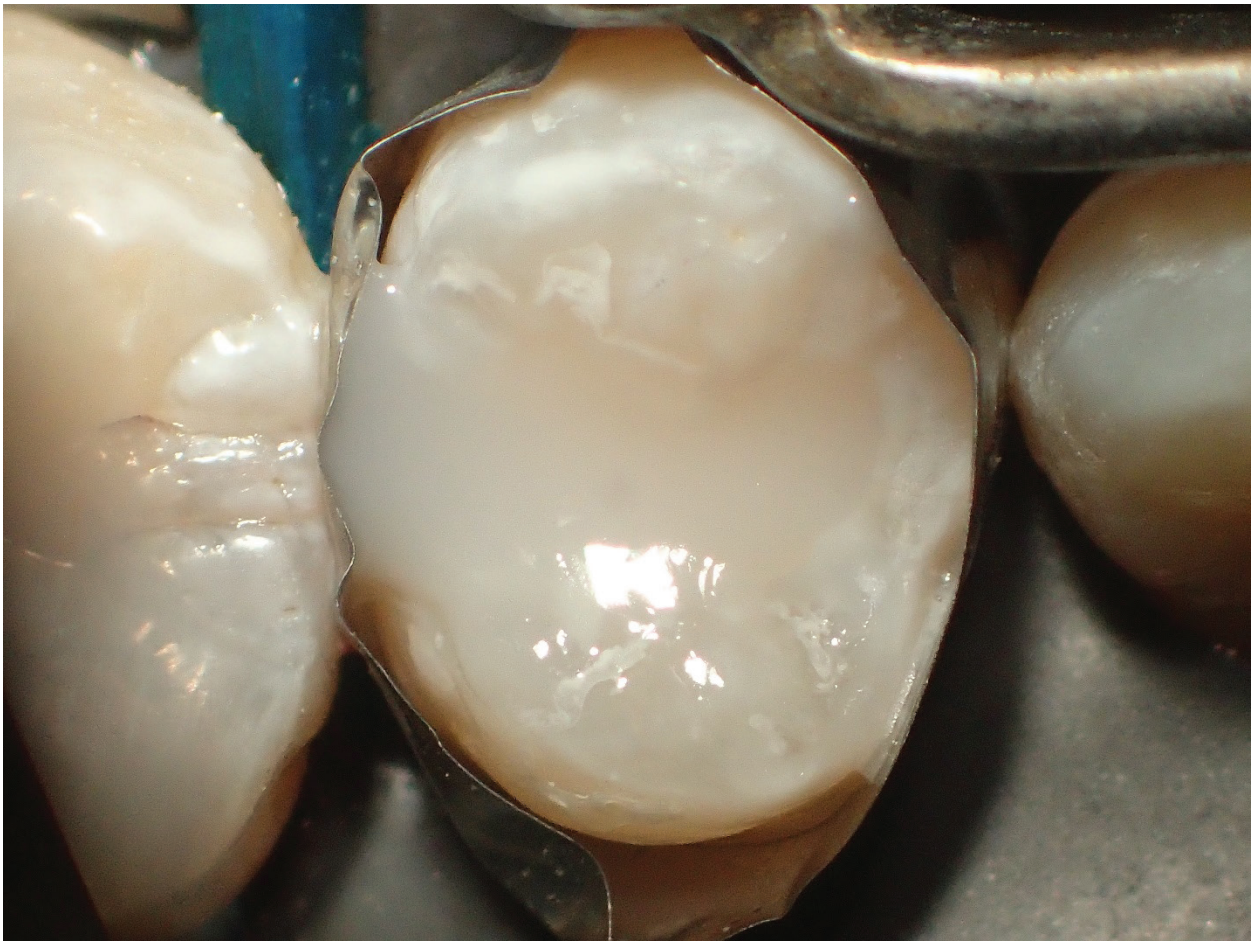


Fig 11. Final layer of shade A-1 3M Filtek flowable composite.

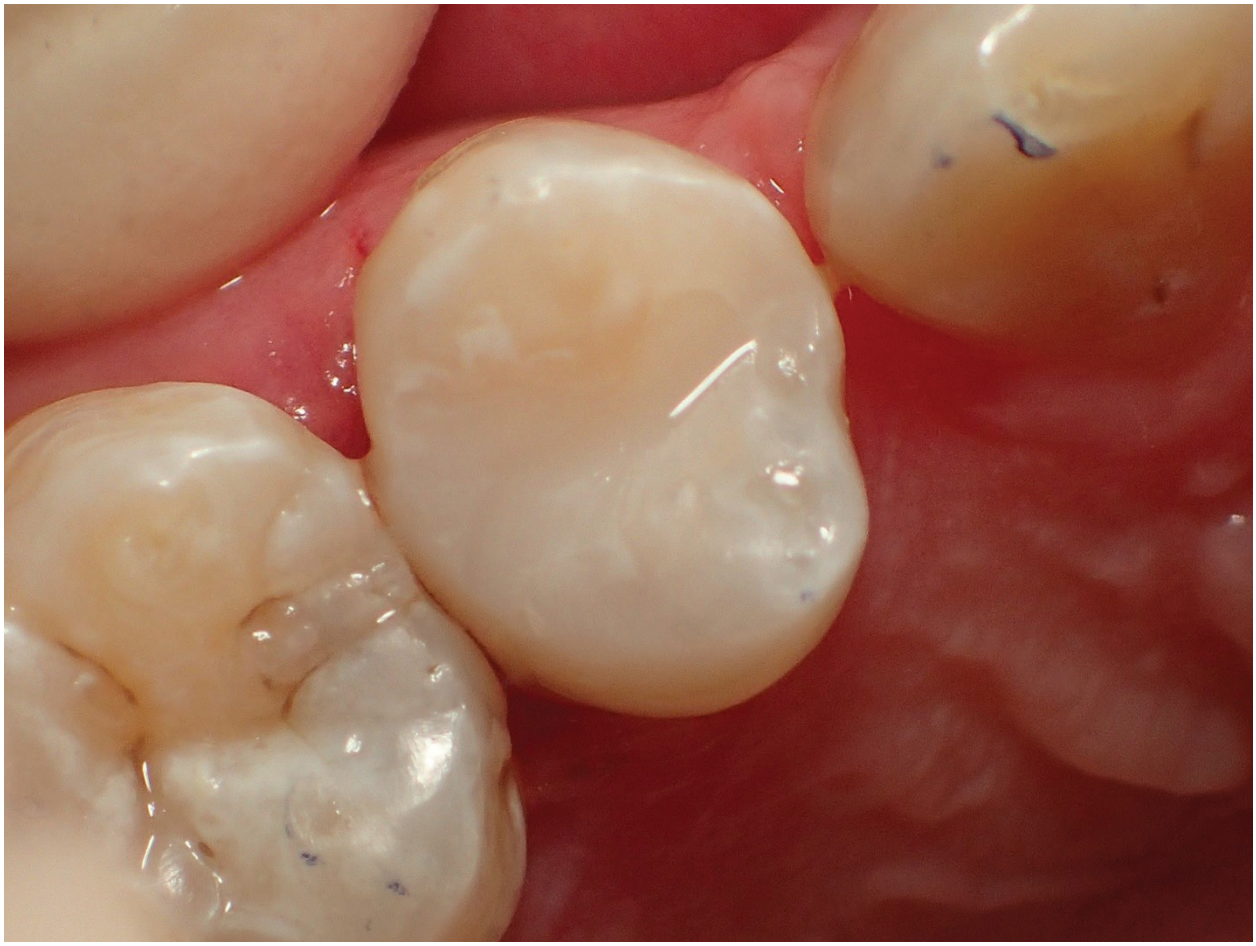


Fig12. Completed DO class 2 foil/composite sandwich on tooth #13.

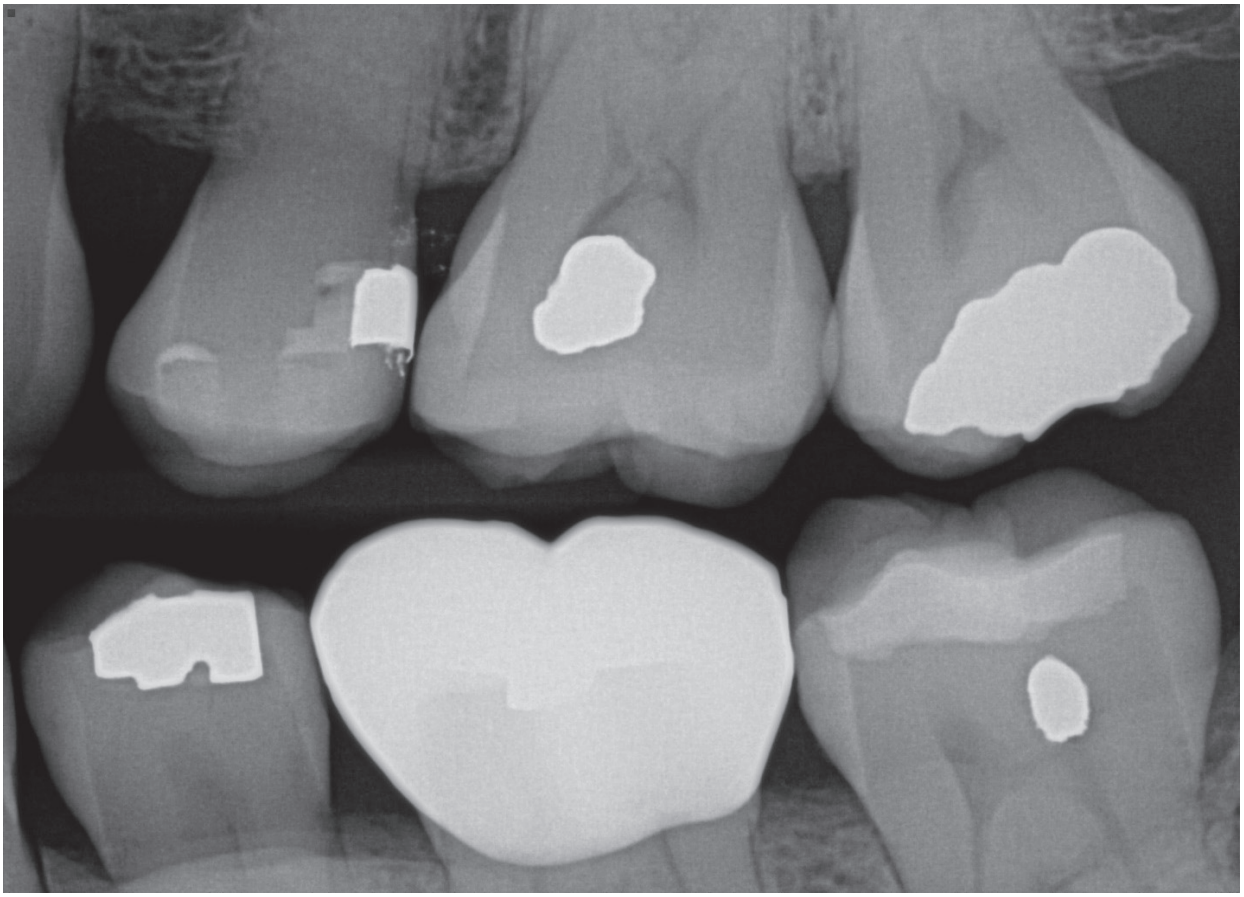


Fig 13. Radiograph showing the placement of the foil in the proximal box distal on tooth #13.

Case 3: Do virgin caries Tooth #4: {Figures 14-23}

A penetration cut with a 169 bur {Brasseler} showing proximal caries DO #4. {Figure 14} This is followed by Figure 15, showing the placement of GI following complete caries removal. Figure 16 shows the final DO prep ready with E-Z Gold in place. In this case E-Z Gold was placed without a matrix band. This is the usual procedure when class 2 foils are completed by the Author. This ensures maximal contact and gives better access to the proximal gingival floor for gold placement. After finishing of the gold contact utilizing VisionFlex Diamond Strips by Brasseler a dead soft matrix band is placed prior to micro etching. {Fig 17} This is to prevent etching the adjacent tooth or restoration.

Figures 17-18 shows the micro etching of the gold and prep followed by treating the gold with Metaltite by Tokuyama. Figures 19-22 show the placement of the composite bonding and layers of 3M Filtek flowable composite. A final veneer of compactable composite can be used in heavy occlusion cases.

Figure 23 shows the final radiograph of the DO restoration with the placement of foil, GI, and composite. {continue pp 26}

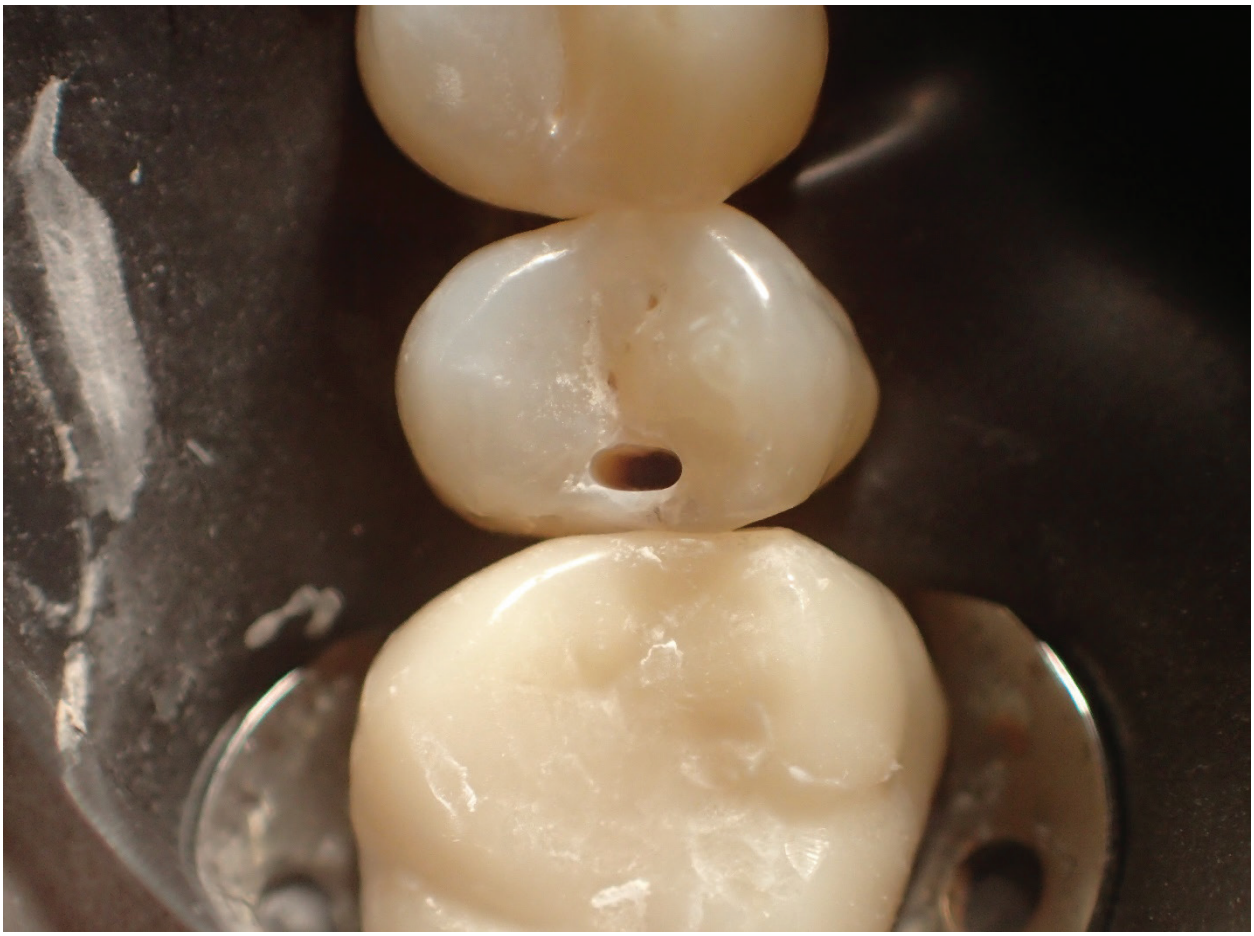


Fig 14 DO #4 169 bur penetration to see caries

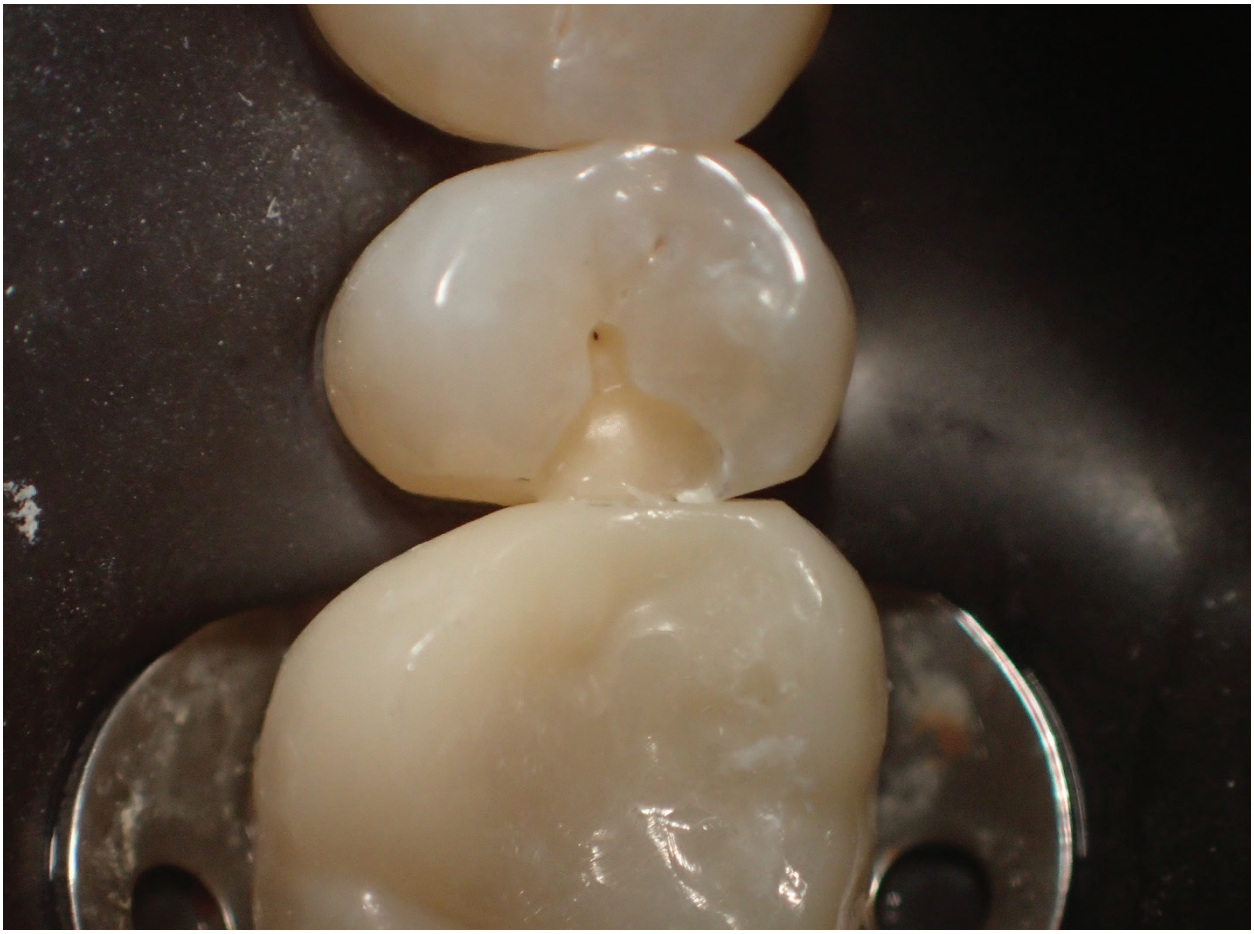


Fig 15 DO #4 caries removed and GI placed prior to final prep.

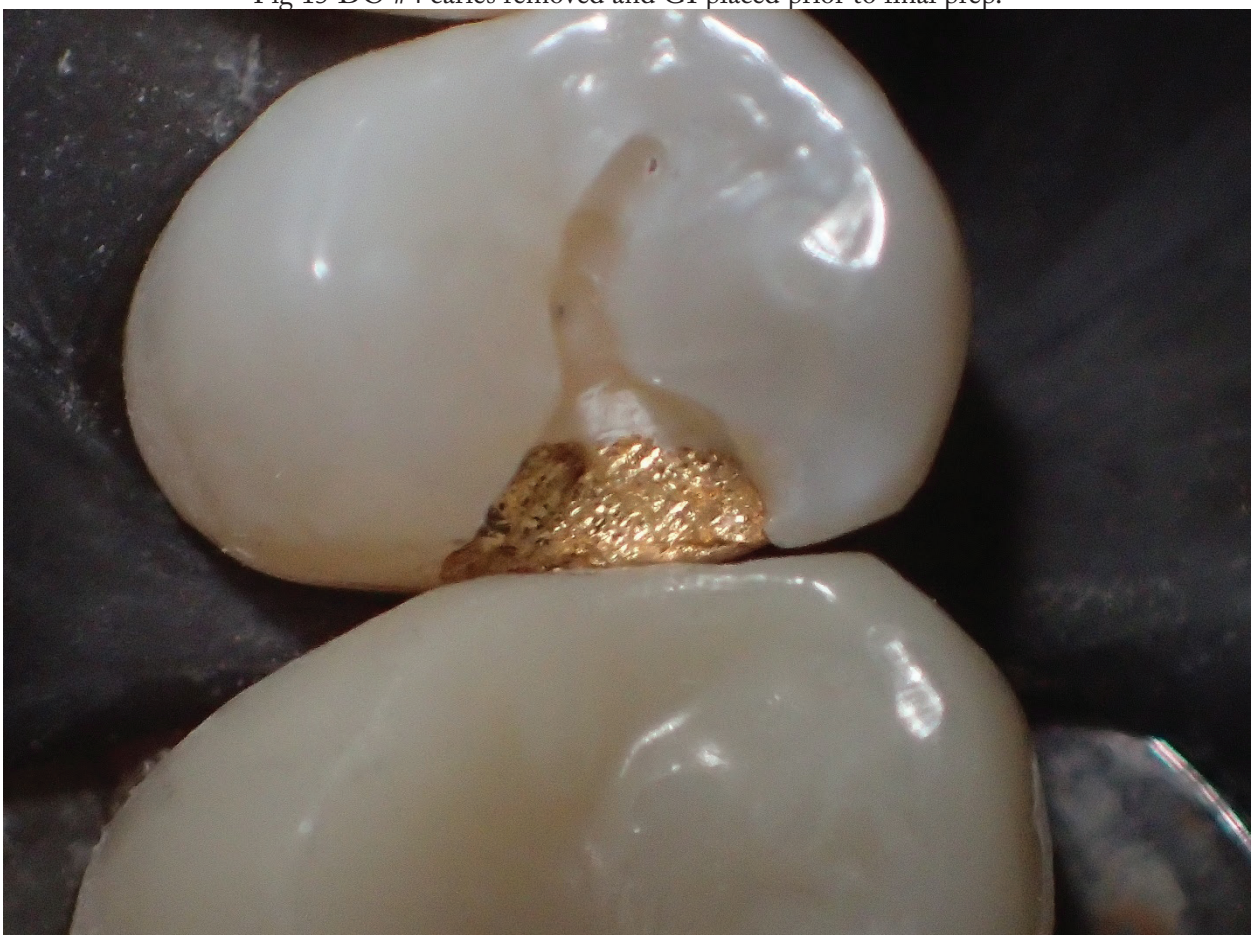


Fig 16 DO #4 with EZ Gold placed to the level of the occlusal floor of prep creating the contact in gold. Gold placed without matrix band to ensure easier access to gingival margin and a tight contact.

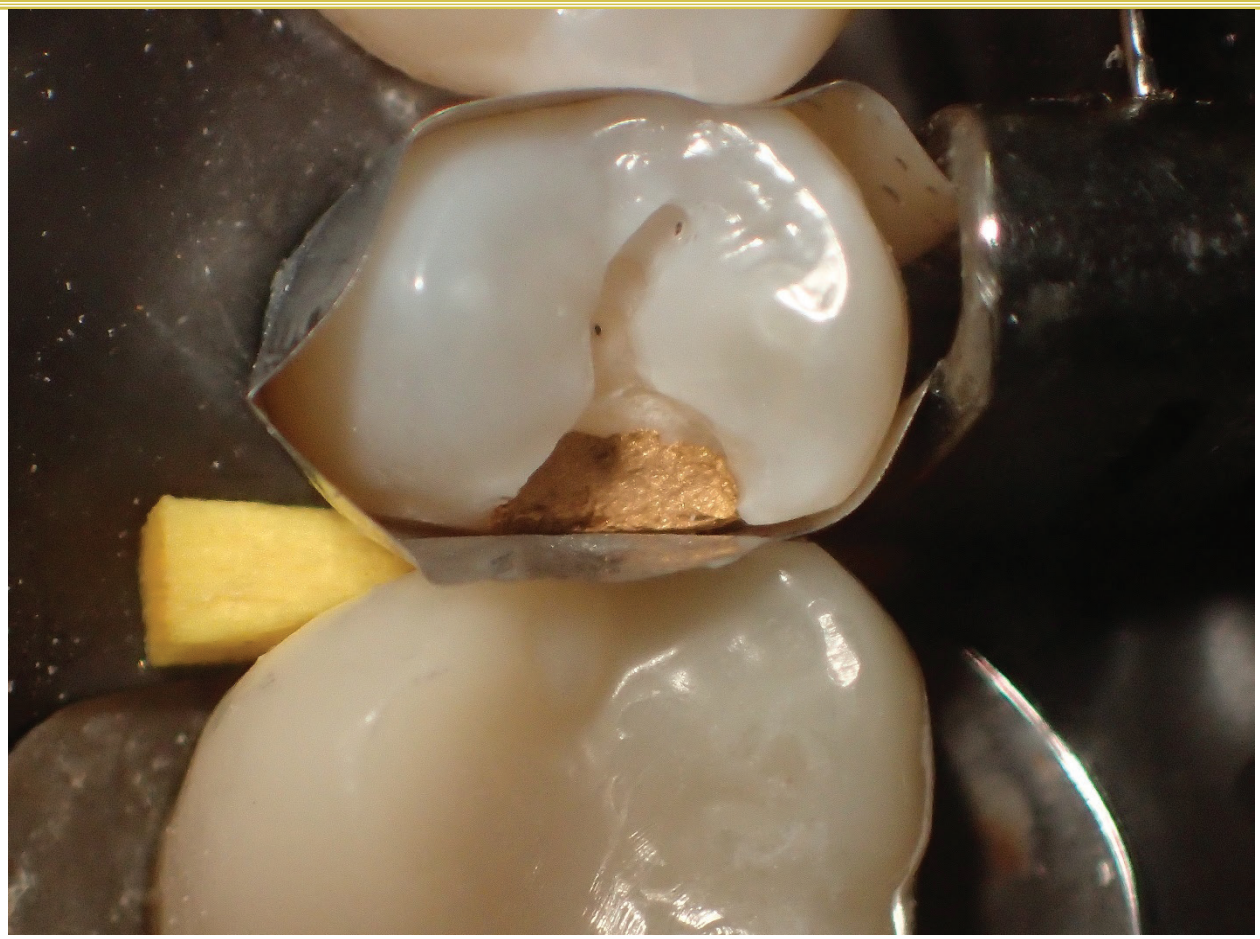


Fig 17 DO #4 micro etched with 50-micron Al oxide also dead soft matrix band used to prevent micro etch #3 and control composite placement. Contact is already established in gold.

Fig 18 DO #4 treated with two layers Metaltite by Tokuyama

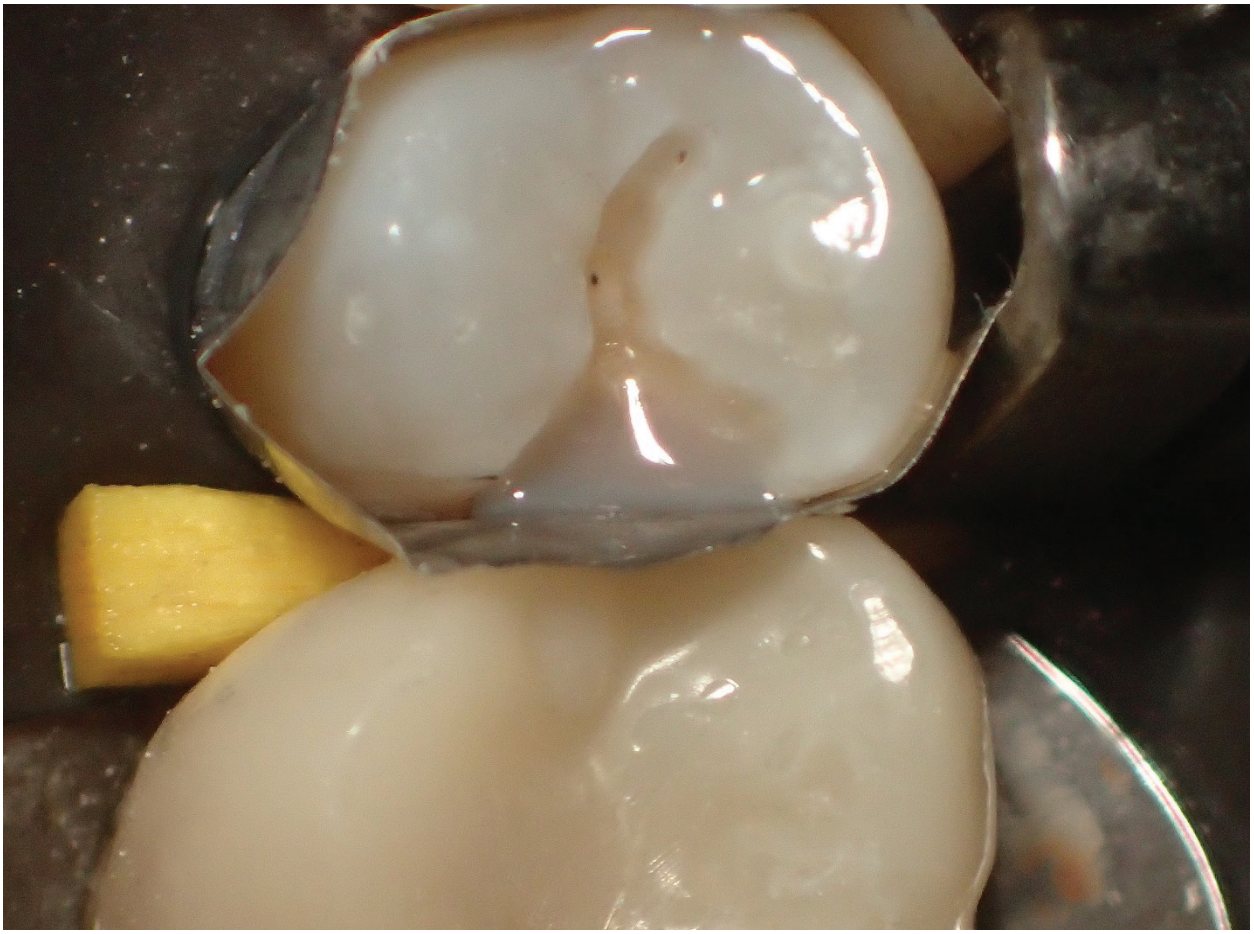


Fig 19 First layer shade 3.5 to cover the gold 3M Filtek

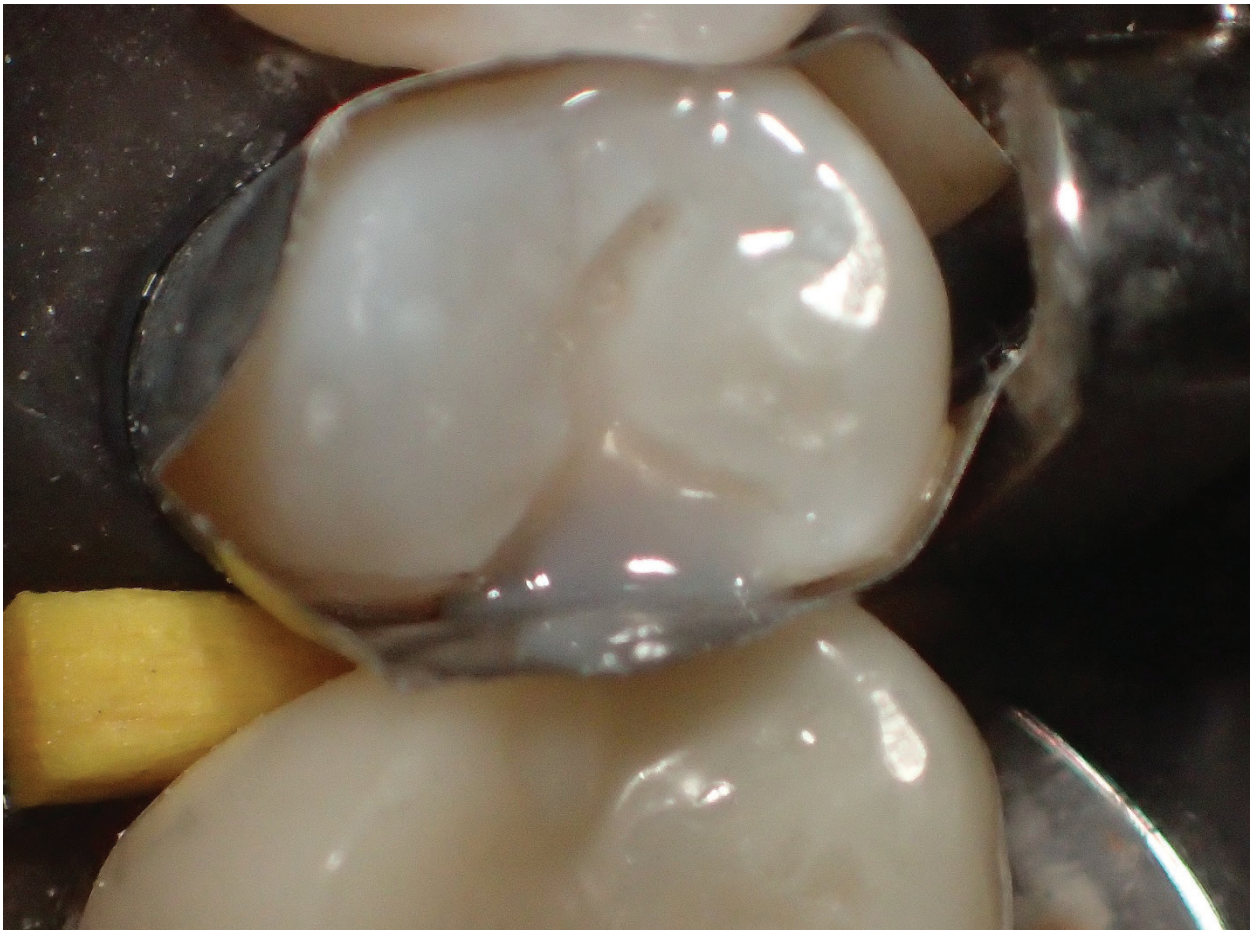


Fig 20 Second layer flowable shade 2.0 applied and cured 3M Filtek

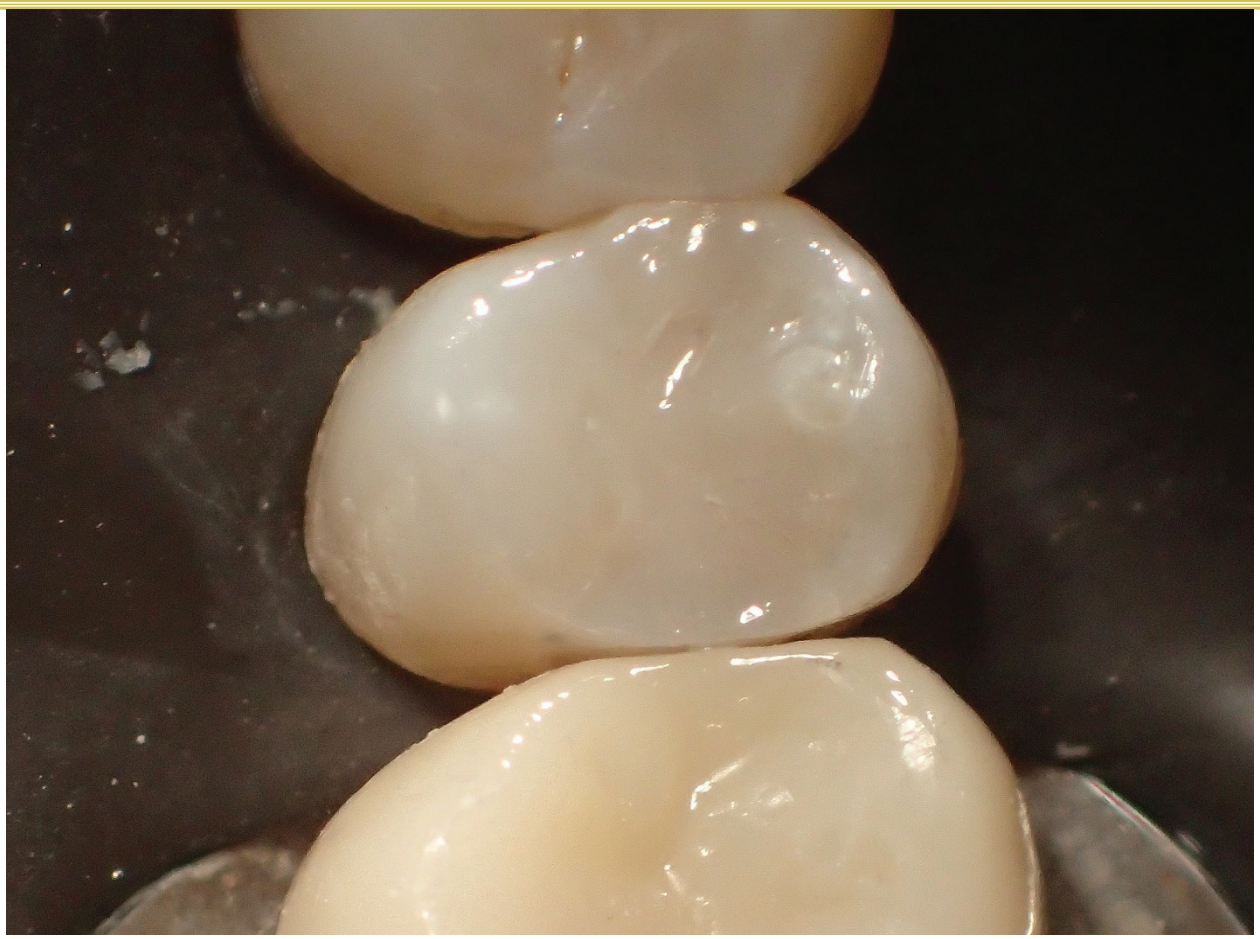


Fig 21 Final layer A-1 laid in and cured 3M Filtek.

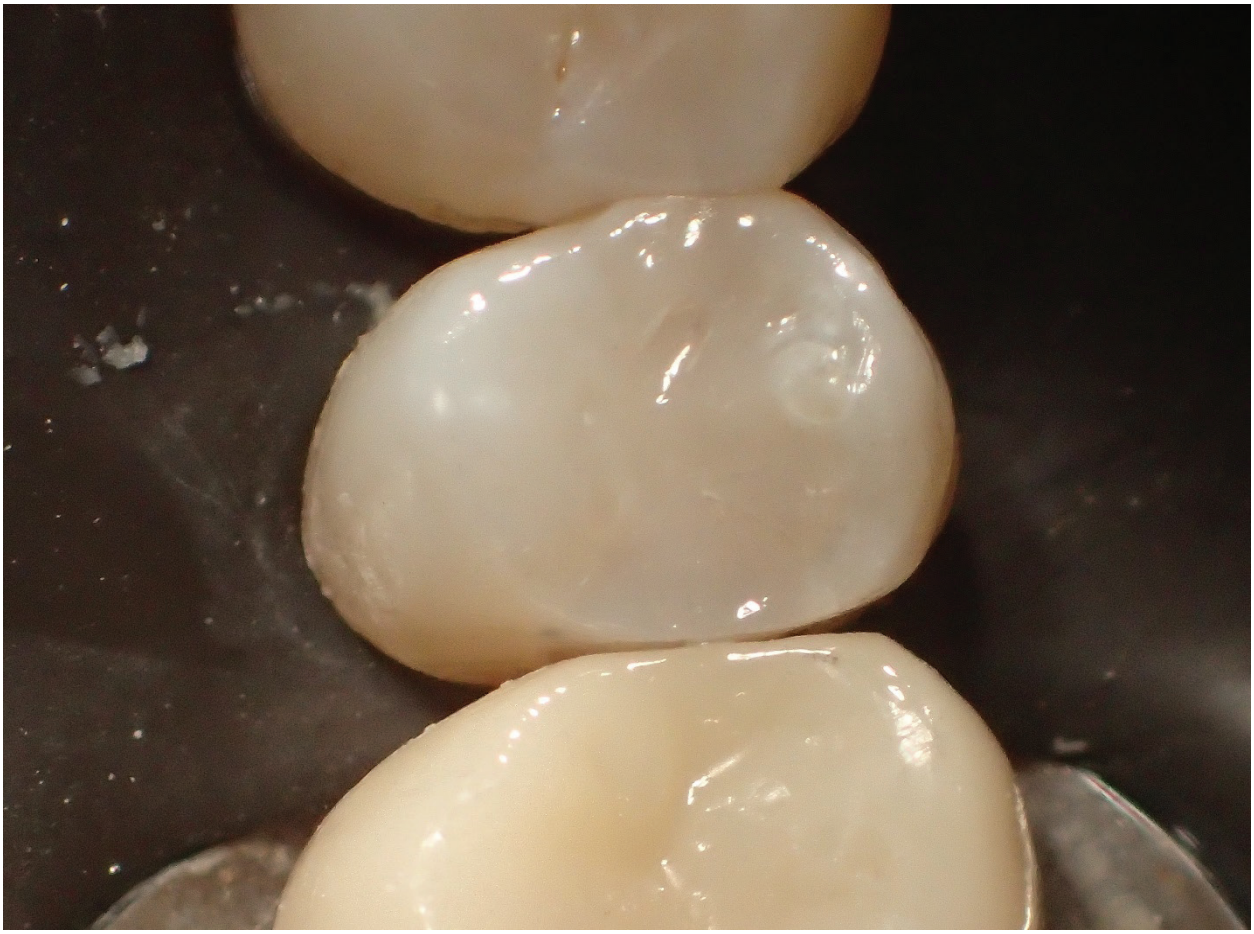


Fig 22 Completed restoration DO #4 foil/ composite sandwich

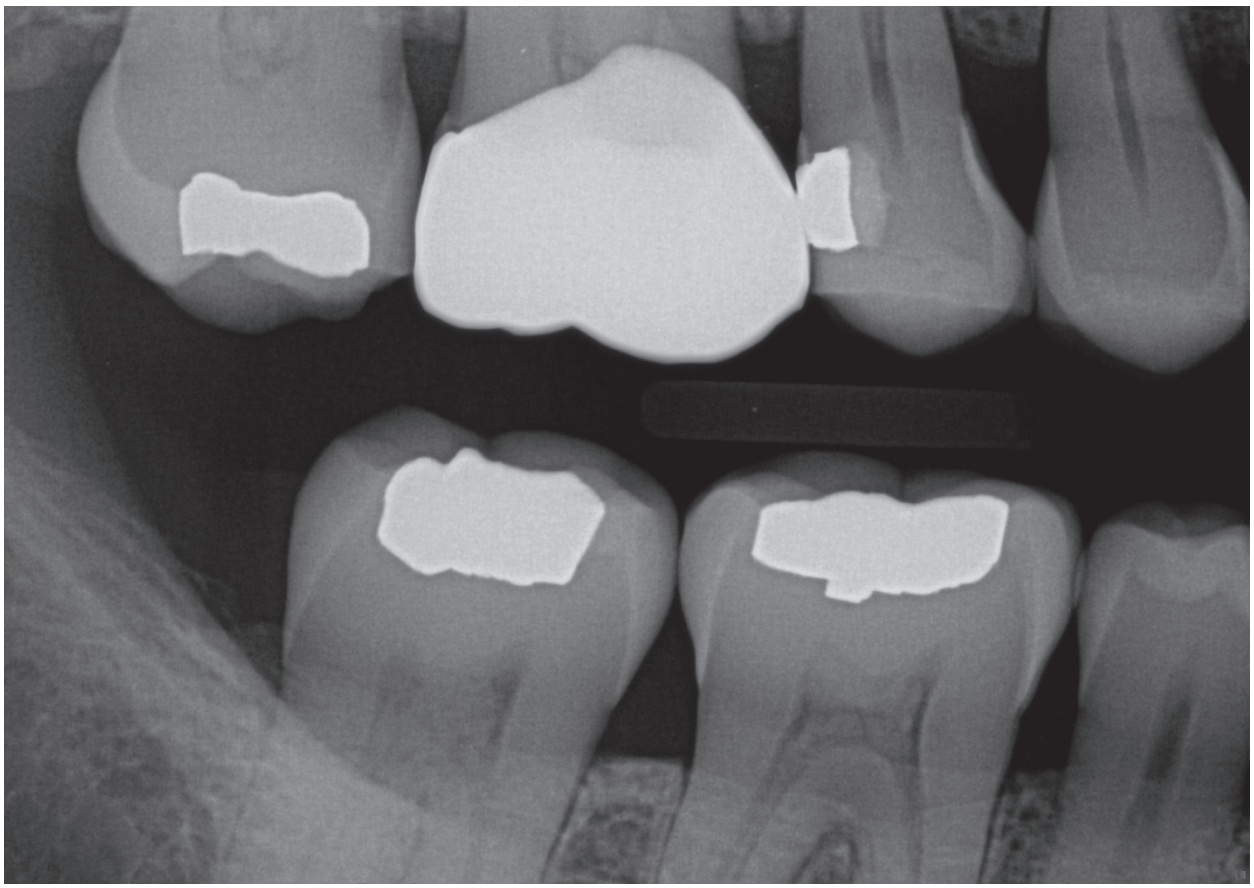


Fig 23 Radiograph showing gold placement with GI proximal composite occlusal DO #4

This presentation is intended to be a thought exercise to demonstrate one possible solution to improving the success for class 2 posterior composite resin procedures. More research is needed, especially to observe what is happening at the bond interface between the composite resin and gold. A comprehensive evaluation of the overall success of adding foil to this procedure would also be beneficial. This is a project that should be completed in an academic setting {personal thoughts}. Obviously, anyone attempting this procedure is expected to be proficient in the placement of gold foil in a clinical setting. A start would be to contact the American Academy of Gold Foil Operators through our web site at AAGFO. The Author is also personally available for comment at:

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The author would like to thank Dr. Clyde Roggenkamp and Dr Frederick Eichmiller for their help in putting together this paper.

1. Moore, D.L. and Stewart, J.L.; Prevalence of defective dental restorations, J. Pros Dentistry, April 1967 p373-378.

2. Fontana, M. and Gonzalez-Cabezas, C. ;Secondary Caries and Restoration Replacement: An Unresolved Problem, Compendium, January 2000, p15-24.

3. Roulet, J.F.; Review of the clinical survival of direct and indirect restorations in posterior teeth of permanent dentition, J. Dent, 1997, Nov 25{6} p459-473.

4. Manhart, J., Chen, H., Hamm, G., Hickel, R.,; Benefits, and disadvantages of tooth-colored alternatives to amalgam, J. Operative Dentistry, 2004, Sept/Oct, Vol 29, {5} p481-508.

5.Sturdevant; Art and Science of Operative Dentistry; Chapter 5, Challenges of Dentin Bonding pp248-249.

6. Overton, J D, et.al. ; Early Failure of class 2 resin Composite Versus class 2 amalgam restorations placed by dental students: J. Dent Edu; 2012 March: 76{3} 338-40.

7. Opdam N. J.M.; et. al.; Longevity of Posterior composite restorations A systematic review and meta-analysis J Dent Res; 2014 Oct:93(10) 943-949

8. Personal correspondence between Dr. Lloyd Baum of Loma Linda University and Dr Giancarlo Gallo of Alba, Italy; 1992-1997.

9. Stibbs, G.; An Appraisal of the gold foil restoration. JAAGFO May 1959 Vol2 / #1 pp 20-30

10. Brinker, H; Gold Foil Can We Afford to do without it; JAAGFO pp25-33; Vol 25 #1 / 1972

11. Goldstein, G.; The Longevity of Direct and Indirect posterior restorations in uncertain etc. J. Evidence Based Dental Practice; 2010 March 10(1) 30 (1) National Library of Medicine

12: Zhou Y; Kong J; Kundu J., et. al.; Antibacterial activities of gold and silver nanoparticles against Escherichia coli and bacillus Calmette-Guérin J. Nanobiotechnology; published on line 212 /May6.

13: Zhang Y., et.al. ; Antimicrobial activity of gold nanoparticles and ionic gold; National Library of Medicine.

14: Small B., Johnson W.; Gold Foil and its use in Modern Dentistry; J. Dentistry Today; March 1, 2006.

15: Hilton, T.J., Broome, J, Fundamentals of Operative Dentistry, Third Edition, Chapter 10 p295.

16: Henry, D.B. ; The Consequences of Restorative Cycles J. Operative Dentistry, Nov 2009, Vol 34, issue 6, p759-760.

17: Henry, D.B.; A Philosophy for Restoring Virgin Caries, J. Operative Dentistry, Sep/Oct 2008-Vol 33 #5 p475-483.

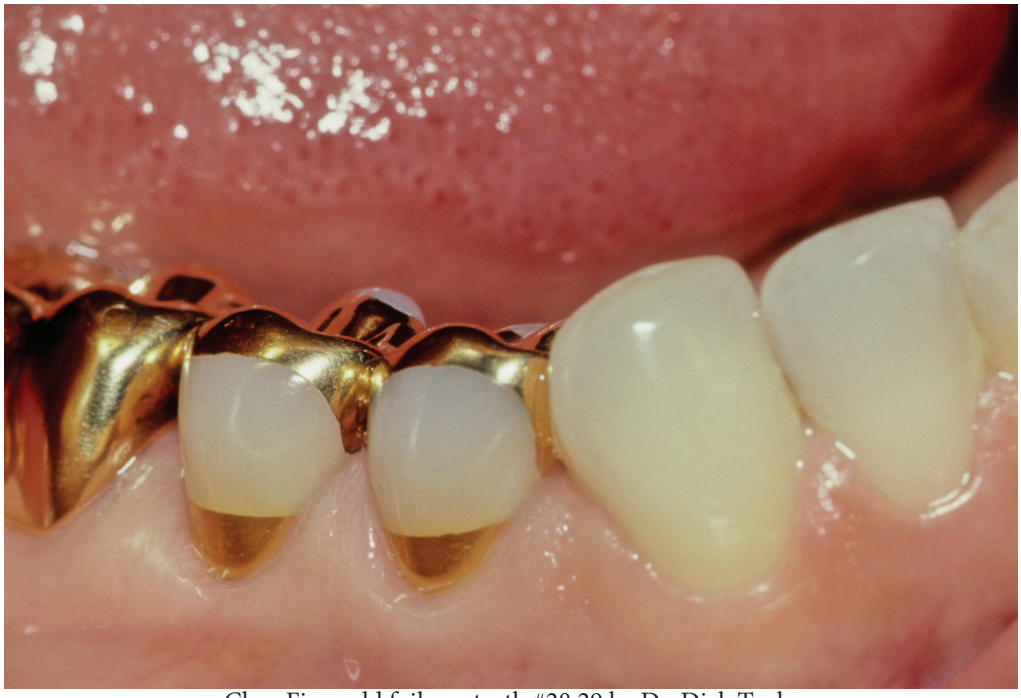
18. Major Ivar. ;Marco Ferrari; Pulp-dentin biology in restorative dentistry. Dept of Operative Dentistry, Univ of Florida, College of Dentistry; PubMed.Gov 11887534.

A History of the Academy

The following is a "History of the Academy" written by Ralph E. Plummer DMD, Bruce Smith DMD, and Gerald D. Stibbs DMD of Seattle Washington. It is taken from October 1958, Vol 1 pp29-31 of The Journal of the American Academy of Gold Foil Operators.

It is appropriate that we look to the past to understand where we come from. In fact, this thought can be applied to our Nation in general! The founding fathers of the AAGFO had the wisdom to create an organization dedicated to excellence and dedicated to preserving that basic concept. As can be seen in the paper; Dr. James Mark Prime of Omaha Nebraska is responsible for the birth of the concept in 1931. I note with interest that the first list of the Gold Foil Awards given out to graduating Seniors for excellence in gold foil restorative work was in 1958. The University of Maryland graduate Howard Stanton Spurrier was the first recipient of the award at Maryland. I was honored with the same award in 1975. The final award at Maryland for work in gold foil was in 2002 when Matthew Henry received the Award for Excellence in Operative Dentistry for doing foils during his clinical training and completing his senior thesis on gold foil. His knowledge and experience came from the Gerry Stibbs gold foil course taken in Vancouver BC, taught by Dr. Richard Tucker and Dr. David Thorburn.

There are only a few dental schools that still participate in this recognition or have any interest in teaching gold foil. Therefore, we have our work cut out for us.



Class Five gold foils on teeth #28,29 by Dr. Dick Tucker

A HISTORY OF THE ACADEMY

Ralph E. Plummer,* D.M.D.; Bruce B. Smith,† D.M.D.; and
Gerald D. Stibbs,‡ D.M.D., Seattle, Washington

Chapter I. Some of the Events Leading to the Formation of the American Academy of Gold Foil Operators

The origin of this thriving young organization is of interest. To a considerable extent the late James Mark Prime of Omaha, Nebraska is responsible for its birth. In 1931 he advocated the formation of such a group in the following words: "As an aid to unify thought on gold foil technic, to bring operators together from all over the country to compare work, to discuss instruments and instrumentation, golds, cavity preparation, etc., and to assist, if possible, in bringing about a more uniform teaching in our schools, I suggest that we organize an academy to meet at the same time and place as the American Dental Association. I suggest that we take some such name as The Academy of Gold Foil Operators of America."[1] It is interesting that his suggested name for the organization was so close to the one ultimately selected. To our knowledge nothing definite was done to follow his suggestion for many years until 1949, when Gerald D. Stibbs, in a paper, recalled Dr. Prime's idea.[2]

In the summer and fall of 1951 various letters began to appear throughout the dental world concerning an International Society of Gold Foil Operators. Leaders in the profession were contacted in all parts of the United States, Canada, South America and Europe. These men were asked to show their interest in saving fine dentistry: gold foil. The letters were drawn up and mailed by Dr. Bruce Smith as a means to determine if sufficient interest in foil was still present in the profession and to enable those interested to form an Academy of Gold Foil.

By March of 1952 the die was cast. Replies were coming in and they were heartening. However, the mailing burden was becoming too great financially for one man to carry easily. Also,

*Past-President, American Academy of Gold Foil Operators; Director, G. V. Black Study Club; Director, University Ferrier Study Club; Past-President, Associated Gold Foil Study Clubs in the Northwest.

†Past-President, American Academy of Gold Foil Operators; Member, University Ferrier Study Club; Part-time instructor of Operative Dentistry and Ceramics, University of Washington.

‡Head, Department of Operative Dentistry and Professor of Fixed Partial Dentures, University of Washington; Director, George Ellsperman Gold Foil Seminar; Member, Vancouver Ferrier Study Club; Honorary Member, Inter-City Study Club.

[1] J. M. Prime, "Gold Foil." *J.A.D.A.*, 18:1477-1484, August, 1931.

[2] G. D. Stibbs, "An Appraisal of the Gold Foil Restoration." *J.C.D.A.*, 17:191-199, April, 1951.

it was now important to "go through the proper channels" and secure the backing of the Northwest Associated Gold Foil Study Clubs. Dr. Smith did so at their annual May meeting. It would be possible to present to you the exact text of the short message asking for financial backing and approval, but space does not permit. It is sufficient to say that this body of devoted men, the trustees under President George Ellsperman, immediately set up a committee to work together and investigate the possibility of forming an academy. The committee consisted of Dr. Ralph E. Plummer, Dr. John H. Williams, Dr. Arthur G. Schultz, Dr. Gerald D. Stibbs and Dr. Bruce B. Smith, Chairman.

As time progressed, the funds borrowed were reimbursed to the group within the following year. At this time Dr. Stibbs, with the practical stenographic backing of his lovely wife Gloria, and the silent yet powerful backing of that great man Dean Ernest Jones began the crusade of contacting men all over the world for a formative meeting. The response was most encouraging. From areas where foil was, to all intents and purposes, a dead issue came replies expressing real interest. As a matter of fact, from all the letters sent out, only three replies were received which expressed definite disapproval of the idea, and indeed expressed an aversion to the continued use of gold foil at all. Two of these letters were from heads of Operative Dentistry Departments. We hope that some day these men will change their minds, and thus benefit the students under their jurisdiction.

Dr. George Hollenback suggested an alliance with an active group of fine dentists led by Dr. Charles Stebner, who advocated increased rubber dam usage in restorative procedures. The greater percentage of these men were members of study clubs and extremely interested in excellent dentistry. Many other suggestions as to aims and objectives were received and are still on file.

The charter meeting of the International Society of Gold Foil Operators was planned for September 11 at 6:00 p.m. at the Chase Hotel in St. Louis, Missouri. Due to illness at the last minute, Dr. Stibbs was unable to leave Seattle. He turned over his plane ticket and hotel reservations to Dr. Plummer, who, with Dr. Smith, headed for St. Louis to arrange the meeting. Thirty-six men had indicated that they wished to attend. When the count was made, thirty-six men were present. This consistency of intent is a strange phenomenon which has since followed the Academy. It must be that foil men have great determination.

Among the speakers at the first meeting were many who have since accomplished great things for the Academy. Dr. Lester E. Myers of Omaha spoke about working groups organized in his area in 1906. Dr. Harry True in speaking of the Golden Gate Study Club said, "It is not good enough unless it is the 'best' we

can do." Dr. Victor Ernst mentioned the fifty-year-old G. V. Black Study Club of St. Paul. Dr. Plummer reported on the many clubs in the Northwest. Dr. Stebner suggested operating at annual meetings. Dr. J. C. Metcalf spoke briefly but highly about Dr. Charles E. Woodbury. (Dr. Woodbury's residence was in Alhambra, California at the time he was originally contacted by the Academy.) [Chapter II.—Next Issue]

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THE 1958 ACADEMY AWARDS

At its last meeting, the Executive Council of the American Academy of Gold Foil Operators decided to present an award to deserving graduates in all dental schools in recognition of outstanding achievement in gold foil procedures during their undergraduate course. As a result of this action, dental schools in the United States and Canada were contacted and informed of the Academy's desire to institute this award.

The five dental schools in Canada were unable to participate in this program because of an established policy that precluded the presentation of awards to their graduates.

The reaction to this program from the forty-three dental schools in the United States was as follows:

1. The University of Southern California, Howard University, The University of Louisville, The University of Michigan, Western Reserve University, The University of Pittsburgh and Georgetown University failed to respond to the original letter of inquiry sent by the Secretary regarding the certificate award.

2. Harvard School of Dental Medicine, The University of Nebraska, The University of Buffalo, The University of North Carolina, and The Medical College of Virginia responded favorably to the original letter of inquiry but stated it was not their policy to present such awards to their graduates.

3. The University of Alabama Medical Center and Emory University responded favorably to the proposed award but stated they had no student whom they considered deserving of this honor.

4. New York University, The University of Tennessee, University of California Medical Center and Loyola University (New Orleans) responded favorably but failed to submit the names of recipients for the award.

5. The remaining twenty-five schools submitted the names of students deserving of the honor and certificate awards for gold foil achievement were presented to the following graduates:

JOHN EDWARD CAREY, *Marquette University*
HAROLD GENE CARTER, *The University of Kansas City*

RALPH DUDEK, *University of Detroit*
JOSEPH T. ELDERS, *College of Physicians and Surgeons*
HOMER WILLIAM GILMORE, *Indiana University*
WILLIAM J. GREEN, *The Ohio State University*
ROBERT HOEHNE, *University of Illinois*
ROBERT W. HORTIN, *Washington University (St. Louis)*
GAYLORD G. HUENEFELD, *Creighton University*
JOHN LEWIS LUTZ, *College of Medical Evangelists*
JACK GARFIELD MANN, *Saint Louis University*
ARTHUR MARSHALL, *University of Pennsylvania*
CLIFFORD D. MARTIN, *Meharry Medical College*
VINCENT FRANK MASIN, *State University of Iowa*
STEPHEN D. MATHESON, *University of Oregon*
ROBERT AUGUST MENDEL, *University of Washington (Seattle)*
HAROLD MILLER, *Loyola University (Chicago)*
MYLON B. MORRIS, *University of Minnesota*
DONALD E. ORLOFF, *Northwestern University*
GEORGE RUDENSKY, *Columbia University*
FRED FLINN SIMMONS, JR., *The University of Texas*
RAYMOND C. SIROIS, *Temple University*
HOWARD STANTON SPURRIER, *University of Maryland*
EDWARD EARL SYPHERD, *Baylor University*
VARSELLE WEAVER, *Tufts University*