american academy of gold foil operators

Gold Leaf

January 2014

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2014 Dr. Clyde Roggencamp
2015 Dr. Bruce Small
2016 Dr. Alan Rauch

Editor: Dr. Scott Barrett
Editor Emeritus: Dr. Rich Brinker

Minutes for AAGFO Board Meeting

October 23, 2013 at 2:00pm

Embassy Suites Hotel, Lincoln, NE

Call to Order at 2:10PM by President Marc Tollefson

1. Minutes of Previous Meeting: Reviewed and approved as printed in the Gold Leaf.

2. Gold Leaf Report: Rich Brinker

He shared a copy of the new issue and gave a history of past cost and type of issues sent. He explained that he had made an insert of the clinical photographs for sharing with patients or other use. Discussion over the method of distribution -e.g. emailing. No mention was made regarding the timing of each issue. Perhaps having a link to AAGFO.ORG in an email is a way to notify members of each issue. Kevin Matis, could print the GL in the JOD either in print or as part of their website with reference in the JOD. He has priced out the cost of doing the printing as we now do.

Highlight of those amounts –

> Online $82. per issue either linked in from their website. Printed version: $430 /issue for 2k issues. $523/issue for print and web.. If printed in house would cost $0.36 based on the current issue. Kevin Matis feels that a set fee per issue might be considered.

Scott Barrett asked that since the last few issues have many Ferrier Study Club matters, he wondered: Why don't we approach them for support? Wendell Foltz and Barry Evans approached the Ferrier SC and asked if they wanted to participate in our annual meeting in May. They did not want any liability for participating. Will the non members have to pay the guest fee as well, given their approach regarding liability? Thanks was given to Kevin for his efforts on behalf of the Gold Leaf subject.

3. Past Secretary Report: As emailed previously. President Marc added to the report concerning Student Awards and updating the membership list. He suggested that the students' names be listed in the GL. Dan Henry has offered to give a 1-3 hour course at any dental school. We need to clarify the letter to the school and students with regards to their award and the invitation to attend the annual meeting.

4. Annual Meeting Report: Elaine Neal mentioned specifically two guests who need to be made to feel especially welcome. One is coming to the lectures. Approximately $20k in income with three who had to cancel. Projection for this meeting is for a slight loss. She did go with a minimal block so we don't have to pay for room rental. Elaine expressed a need to clarify the speakers honorarium, the amount that JOD and the student award meeting costs. Dan Henry wants to have the 2015 Annual Meeting at the Pensacola Beach Hilton. Operations will be at the Pensacola State Community Hygiene School. Date for 2015, October 21st-25th 2015. ACTION-Moved and seconded that we place $5000.00 for speaker budget for annual meetings. PASSED

5. Clinical Report: 10 operators with great help from Henry St. Germain. NOTE: Booklets for the duties of each council person regarding the annual meeting will be the responsibility of the Secretary.

6. Nomination of Councilor:-Rick Nash placed the name of Alan Rauch for election. Moved and Seconded Vote: APPROVED

7. Treasures Report: Printed report passed out. ACTION-Moved that cancellations FOR ANNUAL MEETING be made only after the net balance of the meeting is known. VOTED

Audit of the Treasury: The third councilor should be the person who reviews the Treasurer's books for the preceding year. Discussed the accounting of the JOD subscription fees. Identifying the people attached to the payments has been troublesome for the JOD. Charging for past non issued JODs makes for confusion.

Distinguished Member-Bob Keene: Dave Thorburn is the voted selection of 2013. Discussion regarding the compiling of the cost of the meeting.. The honoring of the president makes sense as well as the DM. Table: Bob Keene will make a report from research on policy over the years and notify council before the MID WINTER. Elaine-students attending the lunch after the critique will not be paying.

8. Report of the JOD: Tim Carlson: In 2012 the academies voted to stay with printed copies so the JOD made that shift. They began refunding the duplicate subscription. Most of those were Tucker members since AAGFO would self-select out their JOD subscription if it is a duplicate. Those checks that are never cashed will be considered a donation. They had a deficit this year, which was expected. The JOD is now charging a $25 submission fee, which should be made to Allan Press Publishing. This has caused a drop in trivial submissions. *(continued inside)*

LETTER FROM THE PRESIDENT

Matriculating through the executive board positions of the American Academy of Gold Foil Operators has been an educational and rewarding experience. Understanding the commitment required to preserve our mission, has fueled my resolve to be part of something greater than myself. Spending time with like-minded dentists creates motivation and clarity. Watching dental operators manipulate a dental material that demands an understanding like no other, is inspiring. Dr. Dan Saucy manipulating his favorite gold burnisher, Dr. Warren Johnson creating a teachable moment or Dr. Dick Tucker sandwiching non-cohesive gold into an occlusal preparation. What could be better? By operating in schools, we are casting our net to find other dentists and dental students ready for their personal journey. AAGFO is a network for support and education. All of our personal journeys toward gold have been different. Some of us had great tutelage from the day of graduating from dental school. Others had a circuitous route to becoming a member of AAGFO. We are a unique group, visual by nature. We know quality when we see it and gravitate toward it. We have the tenacity to master our craft. Whether the tortoise or the hare, our personal journey is “Excellence in Gold”.

Respectfully submitted,

Janet K Zinter, DDS, FAGD

Meeting minutes continued from cover:

Those attending the JOD Board meeting need to be the Sec and President and the President Elect. Moved and Voted.

The liaison person is responsible for submitting the Distinquishing Member and Clinician of the Year award with headshot to Kevin.

9. Web Report: Scott Barrett changed some of the link locations. About 6 site visits per day. He has the most trouble keeping the roster current. Discussion evolved again about the Gold Leaf as to who and how it will be distributed. Scott has offered to co-editor with Rich Brinker to help for one year. The delivery method needs to be decided -postponed

10. Portland Meeting: Wendell Foltz passed out the outline for the meeting. They wanted the option to come to one day without charge as part of their dues each year.. They did not want any other responsibilities. There are 14 operating spots in Portland. Could the Ferrier just pay for the costs of what ever happens and pay the AAGFO? Or at least have the members pay for any difference. Barry will call the hotel and make the reservation under AAGFO. Projected room cost is $209. We are encouraged to call the hotel at 503-224-3400 and make early reservations.

11. Mid Winter Table Clinic: Wendell will follow through with manning the clinical table clinics at midwinter. Everything is set with regards to a space for us.

12. NEW BUSINESS: Janet presented copies of the job descriptions for our editing and return by the midwinter meeting for publishing. CEU process-is there anything that can be done to make it work better? No response other than appreciation expressed to Kevin.

Meeting Adjourned 5:35 pm.

Members Present:

Kevin Matis, CEU manager
Elaine Neal, Meeting Planner
Tim Carlson, JOD
Rich Brinker, Gold Leaf
Marc Tollefson, President
Bob Keene, Secretary Pro-tem
Rick Nash, Past President
Wendell Foltz, Council
Janet Zinter, Pres. Elect
Scott Barrett, Web Master
Dan Henry, Vice President
Barry Evans, Treasurer;
Joe Newell, Past President;

Absent;

Bruce Small-Councilor;
Clyde Roggenkamp-Councilor.

AAGFO Annual Meeting

Portland, Oregon

May 7 -11, 2014

Combined Meeting With
Associated Ferrier Gold Foil Study Clubs

Registration Forms Available at: www.AAGFO.org

Lecture Lineup:

Dr. Tom Walker .....Sleep Dentistry
Dr. Dick Tucker .....Gold Foil Techniques
Dr. Brad McAllister..... Soft Tissue Mgmt.
Dr. Tom Hilton ..... Composite
Dr. Wendell Foltz ..... Clinical Critique
Dr. Jack Ferracane .. Dental Restoratives
Vineyard Tour
Direct Gold Operations with Critique
Saturday Night Gala Banquet

Governor Hotel

614 SW 11th Avenue
(503) 224-3400 • (888) 246-5631
Call and make your Reservations
Use AAGFO code
Room Rate: $185 + Tax

Clinical Operations at
Oregon Health and Sciences University
School of Dentistry
3181 SW Sam Jackson Park Rd.

GENERAL OUTLINE

Wednesday, May 7	Board Meeting & Registration
	Evening Reception
Thursday, May 8	Morning Lecture
	Afternoon Wine Tour
	Evening Dine Around
Friday, May 9	Morning Clinical Operations
	Afternoon Lecture 1pm - 5pm
	Evening on Your Own
Saturday, May 10	Morning Clinical Critiques
	8:30am -10am
	Lecture 10:30am - 12pm
	Afternoon-Undecided
	Evening Banquet

2013 Meeting in Lincoln, Nebraska

Distinguished Member Award - Dr. David Thorburn, Vancouver, BC Canada

David is a general dentist with a full time practice in Vancouver, B.C. Canada. Fro the past 15 years he has helped organize and teach cast gold and gold foil electives at the University of British Columbia, Faculty of Dentistry. He also organized and helped teach the Gerald D. Stibbs Gold Foil Seminar with Dr. Richard D. Tucker from 1993 to 2005. He has presented a number of small courses on gold foil in Italy, Germany, and the USA and Canada.
He has been an active member of the American Academy of Gold Foil Operators since 1989 and was its president in 2005-2006. In 1996 he was awarded the "Clinician of the year"by this academy.
David has been a member of the WK Sproule Gold Foil Study Club since 1987, and belongs to a cast gold study club.He is a member of the Academy of RV Tucker Study Clubs, the Academy of Operative Dentistry, The American College of Dentists and the American Academy of Restorative Dentistry.

Outstanding Clinician Award - Dr. Bruce Small, Lawrenceville, NJ

Bruce is a practicing restorative dentist concentrating on clinical excellence. Dr. Small is a clinical instructor at the University of Medicine and Dentistry of New Jersey and with other members of his study club mentors a cast and direct gold selective/elective at UMDNJ for senior dental students. He has been granted the honor of fellowship in both the International and American College of Dentists and is a master of the American Academy of General Dentistry from which he has received the prestigious Albert Borish Award. Dr. Small is the former editor for 15 years of the restorative dentistry column in *General Dentistry,* the journal of the AGD. He is a member of the American Academy of Restorative Dentistry, a councilor of this academy, past president of the Academy of RV Tucker Study Clubs, and the current vice-president of the Academy of Operative Dentistry.
He has published over 130 articles in dental journals, lectured in over 300 locations in the United States and other countries, and is recognized as one of the top 100 speakers in dentistry. He has been voted one of the top general dentists in New Jersey for the past 7 years as well as one of the best dentists in America by his peers.

Tribute to Dr. Robert Keene

Dear Members,
Jean and I are especially grateful and deeply appreciative of the gestures of kindness expressed through cards and talk during the recent annual meeting. The bowl from Simon Pearce and the generous check made us feel very humble. The 17 years of service in the council and as secretary was a wonderful journey for me personally. I thoroughly enjoyed being in a position to connect with so many fine people.
Our academy has provided us all with great memories and excitement, all through the art and science of direct gold restorations. I salute you all and shall carry the memories and friendships through out the remaining journey of this life.
Please know our door is always open should you journey to New Hampshire.

With thanks and sincere gratitude, Bob and Jean Keene

Dr. Keene was honored for his 11 years of service as the Academy Secretary-Treasurer. In addition he served as meeting facilitator for several years. President Janet Zinter presented Bob with a crystal bowl. In addition the Academy presented Bob and his wife Jean, with a check for $1000 to take a much deserved vacation.

Installation of Officers

President - Dr. Janet Zinter

President-Elect - Dr. Dan Henry

Vice President - Dr. Wendell Foltz

Councilor 2015 - Dr. Bruce Small

Treasurer - Dr. Barry Evans

Secretary - Dr. Marc Tollefson

(Not Pictured Councilor 2014
Dr. Clyde Roggencamp)

Basics of Cone Beam Computed Tomography

Dr. Omaid K. Ahmad

This lecture focused on the history of dental imaging, basics of dental cone beam computed tomography, the imaging physics of Cone beam computed tomography (CBCT), dental panoramic tomography and medical computed tomography, Compared CBCT with these modalities. The presentation also highlighted the radiation dosage, identifying the risks associated with ionizing radiation and how to minimize exposure. Prescription, indication and advantages of CBCT were discussed. One of the most important indications is for implant treatment. The use of a radiographic stent, virtual treatment planning and the role of guided implant surgery was also discussed.

In the second part of the lecture the imaging anatomy of the maxillofacial region was also discussed. Axial, coronal and sagittal slices with soft and hard tissue anatomic landmarks were reviewed. Important anatomic landmarks were highlight and discussed.

A strong emphasis was made on the importance of interpretation for CBCT images from a trained oral and Maxillofacial Radiologist and the importance of diagnosing pathologies were also discussed.

Update on Ceramics

Dr. Paul Hansen

We are noticing a dramatic change in the type of work being done at the dental laboratory. A change is being made away from metal crowns and porcelain fused to metal to all ceramic materials. Using Glidewell Dental Laboratory in California as a bell weather of current workload in crowns, the use of pure zirconia now takes up 58% of all crowns being fabricated. Lithium disilicate, which is marketed as eMax takes 18% of the workload. Zirconia substructures with feldspathic porcelain layered is 6% of the market. Market share of porcelain fused to metal is down to just 15% of the work load. This is half of what was done in 2012. The use of full metal crowns is down to just 2% of the workload.

The possible longevity of various materials was reviewed. The use of gold for restorative work provides an excellent longevity as shown by Donovan in 2004 in a review of Dr. Tucker's restorations. 94% of the restorations are still in function 40 years after placement. Metal ceramics will have a ten year failure rate of approximately 3%. With this knowledge, why does the market place move to all ceramic restorations? The prime reasons are cost, patient demand, conservative preparation compared to PFMs, and esthetics. The pure zirconia restoration will require a preparation similar to gold, very conservative in its tooth reduction requirements. The need for esthetics in a PFM requireS the masking of the metal coping. With the new materials, the substructure is already the color desired, and heavy opaque is not required.

Zirconia is a very strong material, requiring a computer to mill out the restoration from the green state. A shrinkage of 25% can be anticipated by the dental lab. Without the use of the computer, these restorations were not available to us as a profession. The review of the material properties of zirconia reveals a transformational toughening which makes these restorations very strong in the mouth. No studies of these restorations in the mouth exceed five years. The studies at the 5 year point reveal no fractured restorations.

Lithium disilicate is marketed as eMax. As a monolithithic structure it can give the clinician excellent esthetics. There is a glass matrix holding the crystals in place. This glass matrix can be etched and the eMax restoration bonded into place. Lithium disilicate works well as single units but does not have the flexural strength for fixed partial dentures.

Brain Implants - Neuroprosthetics - for Brain Machine Interfaces

by William Shain, PhD

Neuroprosthetics are defined here as devices that allow direct communication with nerve cells in the brain. Devices can be used for stimulation or recording. The greatest clinical success has come using stimulating devices. Several of these are now FDA approved. Deep-brain stimulation (DBS) is used for treating movement disorders including Parkinson's Disease (http://www.ted.com/talks/andres_lozano_parkinson_s_de-pression_and_the_switch_that_might_turn_them_off.html), middle ear deafness (http://youtu.be/0B8Z-j62LoUg), and macular degeneration associated loss of sight (http://www.2-sight.eu). DBS is also being used successfully to treat essential tremor, dystonia, and Tourette's Syndrome. More recently treatment for several psychiatric disorders and Alzheimer's Disease has started. There over 100,000 patients in the US implanted with these devices. A similar number of people are using cochlear implants. Retinal stimulators received FDA and Centers for Medicare & Medicaid Services (CMS) approval this summer. Neuroprosthetics can also be used for recording brain signals. Electroencephalography (EEG) is the oldest of these methods. It is non-invasive - devices (caps) are placed on the scalp - and electrodes record low energy signals derived from large brain regions. Implantable neuroprosthetics provide a means to record signals at higher resolution. Electrocorticography (ECoG) uses a sheet of electrodes placed on the surface of the brain. Electrodes on these devices record signals produced by large populations (e.g. 1x106 or more neurons). Another class of implantable devices are made using microfabrication methods developed for the electronics industry and are inserted into the brain. These devices are made with one or more shanks (Figure 1A). The shanks are 1-5 mm long and are 15-100 micrometers in width, smaller than a human hair (17-180 micrometers). Depending on design and fabrication strategies used, electrodes on the these devices are either at the tips (Figure 1A) or placed along the length of the shank (Figure 1B & D). This device represents a new class of designs. Such "open architecture" devices have been designed using biologically inspired design criteria. These devices will be used to record signals from small groups of nerve cells to control artificial limbs, to direct movement of muscles after spinal cord injury or stroke, and to provide brain-computer interfaces to enable "locked in" patients to communicate directly with a computer. Our laboratory has been studying device-tissue interactions. Our studies have lead us to describe three different periods of brain responses. The first phase occurs in response to the insertion process when physical damage occurs to brain cells during tissue penetration. The second response phase is a repair phase in reaction to the first phase. The third response phase is promoted by the continued presence of the device. This response is similar to foreign body

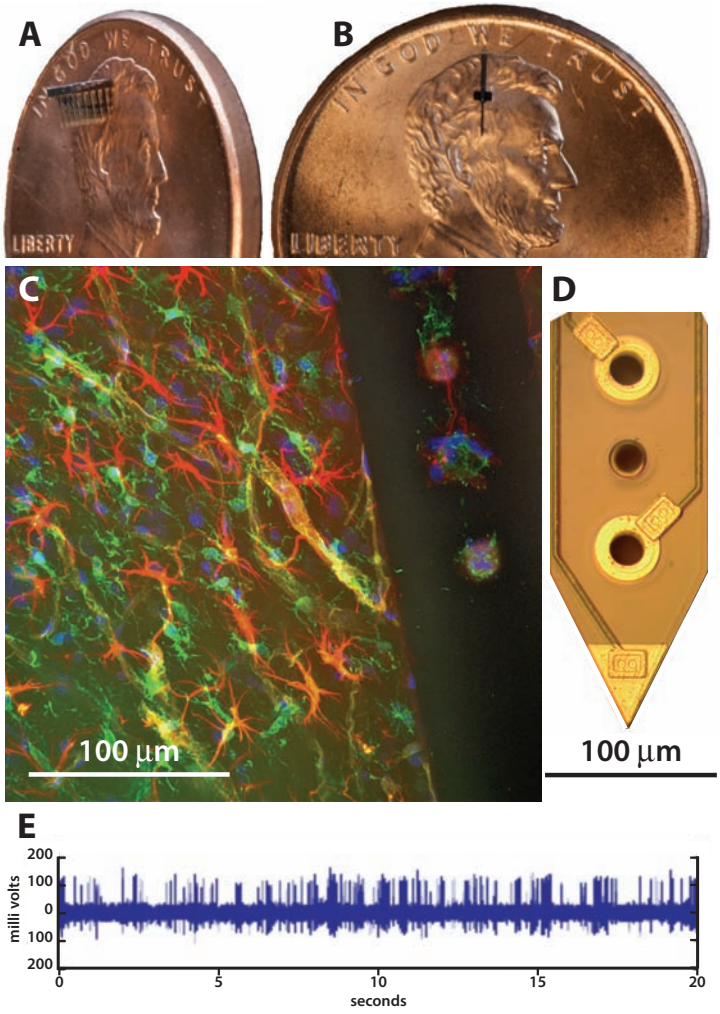


Figure 1. A. Photograph illustrating a multi-shank device from Blackrock Microsystems. **B.** A single shank, multi-electrode open-architecture device from NeuroNexus. **C.** Confocal microscope image illustrating astrocyte (red) processes growing through openings in a an open architecture device. Astrocytes are red, microglia are green, cell nuclei are blue, blood vessels are yellow. **D.** Photograph of the tip of an open-architecture device illustrating electrodes and "wire" leads (gold). **E.** Electrical recording from an electrode on an open architecture device illustraing outstanding signal-to-noise characteristics.

responses observed with implants in other parts of the body. We have hypothesized that this sustained response is due to disruption of astrocyte networks and the subsequent activation of microglia - cells that can participate as the brain's macrophages. Our studies demonstrate that astrocytes grow through open architecture devices, reduce microglia activation (Figure 1C), and provide outstanding recording characteristics (Figure 1E). Ongoing experiments are testing long-term recording performance. We anticipate that these, or other advances in device design, will lead to implanted devices with high fidelity long-term recording performance for patients and allow them to have more fulfilling lives through implementation of brain computer interface devices.

Short History of Non-Cohesive and Cohesive Gold Foil

Dr. Dave Thorburn

If the history books are correct, the use of gold foil in modern dentistry starts around 1400 in renaissance Italy. Its use is described in a medical text written in 1425 by Giovanni Arcolani (Johannas D'Arcola) a professor of the University of Bologna. It had probably been in use for a few years before he wrote his text since he describes the procedure rather casually.

Other texts from the era also describe condensing gold foil into prepared cavities to produce a serviceable restoration. Gold foil has been used as a dental restorative material ever since.

Craftsmen have been hammering gold into thin sheets to be used for decorative purposes for a very long time and I suspect the practice of allowing ammonia vapors to adhere to the gold foil (absorption) goes back many years as well. This absorption of the ammonia gas onto the surface of the gold prevents the gold from adhering if it folds back on itself, or contacts other pieces of foil. It also protects the surface of the gold from contamination which can't be removed. This treatment enables the user of the foil to handle it with a little more ease if you are applying it to picture frames or using it to print letters on glass etc. I can't speak with certainty about the foil in the 1400's but the gold foil used in the 1820s was treated with ammonia and was what we call non cohesive foil.

Gold restorations in the 1830s and 40s were commonly called gold plugs. Dr. Gerry Stibbs once told me that dentists would take long gold foil ribbons and lay them around the periphery of the preparation and coil the gold into the centre like a reverse jelly roll, then drive the last gold into the centre of the roll pressing the gold outwards wedging it very tightly to the preparation walls. Because the gold wouldn't stick to itself you could not build contour above the cavosurface. Fillings were pretty much flat from cavosurface to cavosurface.

All this changed in the 1850s, Dr. Robert Arthur published his paper on sticky gold (cohesive gold) (1854), "A New Method of Using Gold Foil" and dentists start building the contour restorations that we have today.

One story which might be more myth than truth was that a dentist, Dr. Arthur or someone else, lost their office in one of the Chicago fires. When they went back to recover what was salvageable they found that the gold foil they were storing in the office safe was changed. If it touched other pieces of foil from the books that had been in the safe they would stick to each other. The heat of the fire had evaporated the ammonia off the gold foil (and miraculously no other contaminant from the heat of the fire was able to contact the gold inside the safe) so it became cohesive.

In the late 1850s dentists start restoring teeth with cohesive foil and were compared with the silver amalgam restorations which had been around since the 1840s. There were reports that the silver amalgam was outlasting the cohesive foil restoration. It took a few more years developing the technique for cohesive foil which focused on the orientation of the condensing forces to get the foil well adapted to the cavity walls. These restorations then performed as we know them today. By the 1870s the practice of lining cavity walls with non-cohesive foil then condensing cohesive foil over top is mentioned in some articles without mentioning the source of this technique. The sheets of the non cohesive foil can slide past each other under condensing force and get a more perfect adaptation to the cavity wall.

In the 1920s WI Ferrier was a big supporter of this technique and a combination of non cohesive and cohesive gold foil is still used in many procedures today (Cl I, Cl II & Cl V).

Clinical Technique

Dr. Richard D. Tucker

Cohesive and Non-Cohesive Gold Foil

There is a technique where we use non—cohesive gold foil in very narrow preparations - especially occlusals, to fill it 3/4 of the way and then use cohesive foil for the last quarter.This takes advantage of the spreading ability of the non-cohesive gold where you can only condense straight down into the preparation. Normally we would condense against the walls to be sure the gold is well adapted to the surface, but in very narrow preparations the access to the wall is blocked by the proximity of the opposite wall. So we take advantage of the tendency of non-cohesive foil to move laterally under vertical condensation to get the seal on the inaccessible walls. Once the level of the gold is built up to where the condenser can get a good angle to the wall, the operator switches to cohesive foil to finish the restoration. The cohesive foil will give a more durable surface. Another advantage to this technique is the non-cohesive pellets can be quite large, speeding up the filling process.

Additional Comments Cohesive V. Noncohesive and Tales of the Chicago Fire

Dr. Fred Eichmiller

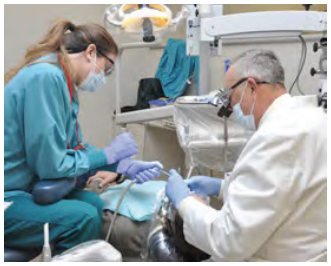
Absorption is process where a gas or compound is incorporated into the surface of another solid. Adsorption is the process where a gas or compound coats a surface, but does not become incorporated into its molecular or grain structure. This is what happens with foil. The ammonia coats the surface, but is easily and completely desorbed by heating.

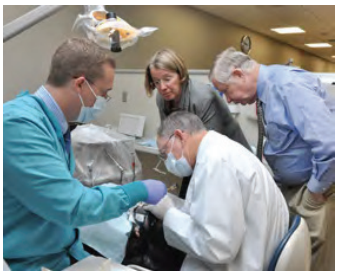
The description of the function of non cohesive foil is correct. Because it still has a non cohesive surface, layers can slide across one another to allow it to more easily be pushed into the retentive and surface features of a preparation. It takes less energy to slide than to bend and stretch the foil, making adaptation a bit more efficient.

The story of the safe has another feature that I heard several times over the years from Clyde Ingersol at Williams. When the foil books were heated in the fire, there was little or no oxygen in the safe and the parchment papers pyrolyzed, which turned them into pure carbon. During that process the sheets wrinkled as the parchment burned. The wrinkled foil sheets were discovered to be easier to handle and form into rope foil than the smooth sheets. Williams copied this wrinkling process in making gold ropes and cylinders, where they wrinkled the foil by pyrolyzing the parchment papers in a vacuum oven before rolling the wrinkled sheets into ropes, which were then cut to form cylinders. I believe all this is illustrated in the video they made of the manufacturing process.

Clinic Day at University of Nebraska Medical College

School of Dentistry

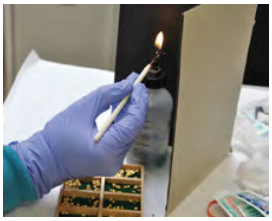




L to R:
Dr. Dan Saucy
Dr. Bruce Small
Dr. Dick Tucker
Photos By:
Margaret A. Cain

Photography By:

Dr. Wendell Foltz
&
Gloria Foltz



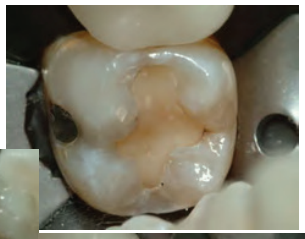
Clinical Operations

Dr. Scott Barrett

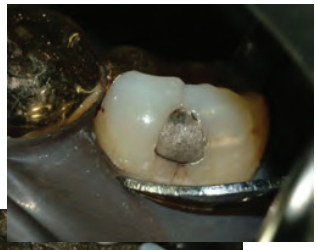
Dr. David Bogacz

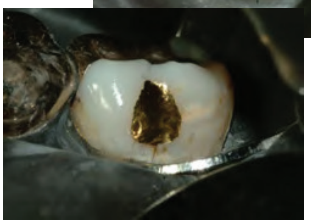
Dr. Barry Evans

Dr. Dan Henry



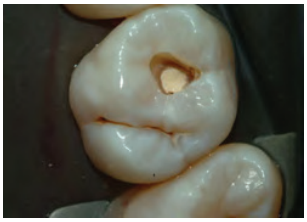
Dr. Joe Newell



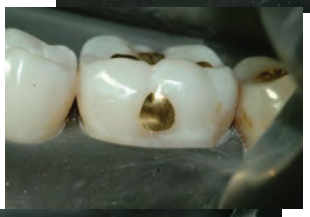


Dr. Dan Saucy

Dr. Bruce Small



Dr. Marshall Snodgrass



Dr. Dick Tucker

AAGFO in Lincoln, Nebraska

Dr. John Reinhart, Dean of UNMC School of Dentistry. Dr. Janet Zinter, President AAGFO 2014. Dr. Henry St. Germain

Members and Guests at the Gala