THE JOURNAL

OF THE

AMERICAN ACADEMY OF GOLD FOIL OPERATORS

Vol. XI April 1968 No. 1

ROBERT B. WOLCOTT, *Editor*
School of Dentistry
Center for the Health Sciences
University of California
Los Angeles, California 90024

RALPH A. BOELSCHE
Business Manager
1024 Esperson Building
Houston, Texas 77002

GORDON J. CHRISTENSEN
College of Dentistry
University of Kentucky
Lexington, Kentucky 40506

CLIFFORD H. MILLER
Northwestern University
Dental School
311 E. Chicago Avenue
Chicago, Illinois 60611

JOHN L. BOMBA
School of Dentistry
Temple University
Philadelphia, Pennsylvania 19140

The Journal of the American Academy of Gold Foil Operators is published biannually by the American Academy of Gold Foil Operators. The opinions expressed in this publication by individual authors do not necessarily express the views of the Academy, unless they are based upon reports adopted by the Academy. The Academy reserves the right to reject, condense, revise and edit any article submitted for publication if it does not conform to the standards and objectives established by the Editorial Board. In order to be considered for publication all articles must be submitted typewritten and double spaced, at least three months prior to the date of publication. Papers presented before any of the Academy meetings will become the property of the Academy and will be published in the Journal as time and space will permit.

Printed in U.S.A. by the Premier Printing Company, Fullerton, California

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-09-03 via free access

Officers and Committees 1967 - 1968

Gerald H. Stibbs : *President*
Paul T. Dawson : *President-Elect*
Ralph J. Werner : *Vice-President*
H. William Gilmore : *Secretary-Treasurer*

Constitution and By-Laws Committee
Gordon J. Christensen, *Chairman*
Robert B. Wolcott
Frank E. Endzell
Basil Plumb

Editorial Board
Robert B. Wolcott, *Editor*
Ralph A. Boelsche, *Business Manager*
Gordon J. Christensen (1968)
Clifford H. Miller (1969)
John L. Bomba (1970)

Membership Committee
Charles F. Bouschor, *Chairman*
Melvin F. Rugg (1969)
Jack G. Seymour (1970)
G. Ron Heath (1971)
Carl J. Monacelli (1972)

Nominating Committee
Ralph A. Boelsche, *Chairman*
Jose E. Medina (1969)
Bruce B. Smith (1970)

Necrology Committee
William M. Walla, Sr., *Chairman*
Harold E. Schnepper
William H. Silverstein

Rubber Dam Committee
Loren V. Hickey, *Chairman*
George W. Ferguson
Paul A. Moore
Duane E. Compton
Joseph Kanter
Cecil C. Case

Program Committee
Paul T. Dawson, *Chairman*
G. Ron Heath
J. Raymond Gill
Charles B. Cartwright
Carlos L. Suarez

Study Club Committee
Olin M. Loomis, *Chairman*
Gene Sargent
Norwood E. Lyons
Merryl D. Schulke
John W. Wittrock

State Board Committee
Paul P. Weaver, *Chairman*
Jose E. Medina
Richard V. Tucker

School Committee
Fletcher M. Craig, *Chairman*
Kenneth R. Cantwell
H. William Gilmore
Ronald E. Jordan
Robert R. Taylor

Visual Education Committee
Theodore R. Hunley, *Chairman*
John L. Manning
Walter E. Dilts
Carl H. Jepsen
Paul M. Morrison

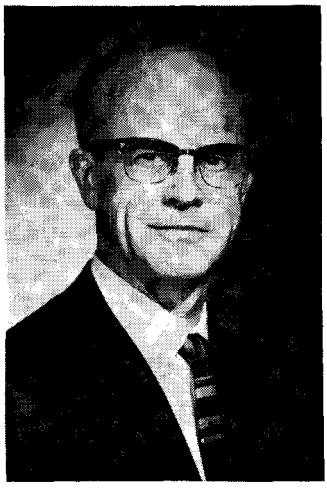
Dental Research Committee
Lloyd Baum, *Chairman*
Lloyd M. Armstrong
Bruce B. Smith
George H. Gibb
Clifford H. Miller
John W. Coughlin
Harry J. Winner

Literature and Publicity Committee
James D. Enoch, *Chairman*
Harry Rosen
Harold L. Sondheim
Richard M. Stamm
Signey S. Markowitz

Executive Council
George A. Brass (1968)
Hunter A. Brinker (1969)
Olin M. Loomis (1970)

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-09-03 via free access

President's Message



GERALD D. STIBBS, D.D.S.

IT IS A DISTINCT HONOR to greet the members of the Academy from the President's Page of the first issue of the 1968 volume of our JOURNAL. I wish for all of you a highly successful year of service to the public and to our profession. I hope to see even better attendance at our fine meetings and more widespread participation in Academy affairs, especially the committee assignments.

One of my most rewarding experiences has been to observe and be a small part of the birth and growth of this organization, whose prime objective is to strive continually for a greater degree of excellence in dental restorative therapy. In the 15 years of its existence, our roster has swelled from the 36 who attended the first organized meeting in 1952 to the present 576 members.

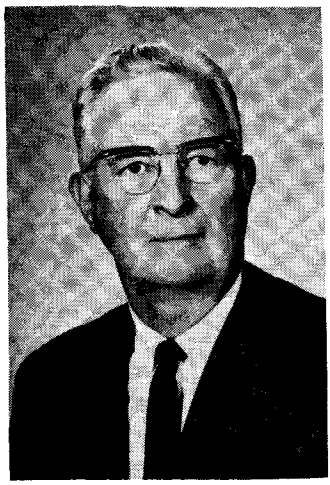
We have held meetings in 20 different cities and our clinic sessions have been hosted by 22 dental schools. Before this JOURNAL is published we will have held another fine Interim meeting under the chairmanship of our staunch colleague, Paul Dawson, aided by Ron Heath as Arrangements Chairman. Then, ambitiously, plans are materializing for an Annual meeting with Pan American atmosphere, in Puerto Rico this fall. Incidentally, if you have not already done so, you are urged not to delay making reservations for this one. While we have experienced the anticipated growing pains, I think it is generally agreed that the quality of the clinical demonstrations particularly, evidence an ever greater degree of refinement in terms of technical skill, conservation of tooth structure and concern for the dental tissues and the supporting structures.

To grow in numbers and to hold highly successful meetings, even though these include the stimulus of fine, but increasingly rare, chair clinics is not enough in this day, however. Dentistry, as an inseparable part of the world's complex society, faces some very real challenges and frustrations. At times it would seem that most

(Please Turn to Page 19)

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-09-03 via free access

Our President-Elect



PAUL T. DAWSON, D.D.S.

DR. PAUL T. DAWSON has served on the faculty of Loyola School of Dentistry since 1928 and has distinguished himself both as a dental educator and as an expert practitioner.

He was born in Kansas, Illinois and received his dental degree from Loyola University and subsequently received a B.S. degree at that school. He began his teaching career as an instructor in Physiology and then became an assistant professor of Crown & Bridge. In 1951 he was appointed a full professor and named Chairman of the Department of Operative Dentistry. Though he is known best for his accomplishments in Operative Dentistry, he has taught a variety of subjects, namely, Oral Diagnosis, Therapeutics and Oral Surgery. He possesses outstanding ability in most phases of direct and indirect gold techniques and has lectured and demonstrated this skill on many occasions.

Dr. Dawson has given numerous guest lectures throughout the country, and in Canada and has conducted continuing education courses at Northwestern University. He has received many honors for his contribution to dentistry among which are:

Fellowship in the American College of Dentists
Membership in Omicron Kappa Upsilon Society
Membership in Blue Key Honor Society
Member of the Eastern Illinois Dental Society
Member of Illinois State Dental Society
Member of the American Dental Association
Member of Society of Endodontists
Member of the International Association of Dental Research
Charter Member of the American Academy of
Gold Foil Operators

Dr. Dawson has devoted a major portion of his energies to the personal instruction of students and this sincere devotion has earned him a genuine expression of appreciation from all his former students. In appreciation of his distinguished service, the Alumni of Loyola University selected him to the Hall of Fame in 1966.

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-09-03 via free access

Periodontics and the Rubber Dam

JOSEPH J. KRAJEWSKI, D.D.S., M.S.,*
WILLIAM C. RUBACH, D.D.S., M.S.D.,** AND
THOMAS L. HIGGINBOTHAM, D.D.S., M.S.D.***

INTRODUCTION

THE INCREASE in human longevity has restated our need for a restorative dentistry that lasts beyond just a few years. In the past we may have been somewhat justified in believing that our work should be geared to tiding the patient through the period of the "first set of dentures." This period, in many cases, was culminated in the 50 to 60 year bracket of life; not too far removed from the then expected life span. Life expectancy has now increased well into the seventieth decade.

Increased longevity has created many problems for the premature denture wearer. The dilemna of ill fit, periodic relining and replacement and chronic irritation is directly related to osseous resorption. The alveolar process has the prime function of supporting teeth. Without the dentition, physiologic stimulation to the bone is lost or at least greatly diminished. Resorption of the denture-bearing ridge results with impairment of masticatory function as the natural consequence.

Loss of the individual or collective dentition may be prevented by good home care and judicious replacement of lost parts of the masticatory components. Use of auxiliary aids such as the rubber dam facilitates this replacement process by providing a clear, dry field in which to work. The advantages of the rubber dam have been well presented and its application often becomes automatic. This degree of automation, acquired after repeated use, may lull us into forgetting that tissue may respond adversely to instrumentation.

Within the past few years new concepts of periodontal anatomy and histology have evolved and are influencing operative techniques. The purpose of this article is a presentation of these concepts as they relate to clinical problems — specifically the use of the rubber dam.

---

* *University of California, San Francisco Medical Center, San Francisco, Calif.*
** *University of California, San Francisco Medical Center, San Francisco, Calif.*
*** *University of California, School of Dentistry, Los Angeles, California.*

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-09-03 via free access

MORPHOLOGY OF GINGIVA AND CROWNS

The normal gingival morphology when viewed from buccal or lingual presents a scalloped margin with the papilla as the high point and the midline of the tooth as the lowest. This height differential is related to the width and placement of the contact area, which in turn is dictated by the length and curvature of the crown. Tapering crowns with narrow interproximal areas often present a high and narrow papilla that fully fills the interproximal space; whereas the bell-shaped crown more often presents a low papilla that is more in keeping with the buccal and lingual marginal levels. A "one level gingiva" can more easily accommodate rubber dam clamps having wider arms, such as the molar clamps. A narrow, tapering tooth requires smaller clamp arms which will not impinge on the interproximal tissues. Interproximal tissue damaged by the use of a poorly selected clamp may recover but usually shows some degree of "scarring" which may be manifest in the adjacent supporting bone.

The morphology of the normal gingival margin is described as having a knife-like edge. If repeated injury or chronic inflammation exists, there is initially an inflammatory response. This is followed by repair which often takes the form of a collagen deposition acting as a fibrous barrier to the spread of inflammation. This deposition of collagen results in a change of morphology characterized by a thickened gingival margin. Such a margin loses its deflecting ability and leads to pooling or packaging of food.

Another undesirable consequence of utilizing clamps of too great a width is the forcible lateral displacement of the papillae. This displacement often leads to an over-extension of the proximal margins of the finished restoration which far exceeds that amount of extension that might be needed for "prevention."

The width of class 5 preparations is dictated by two factors, "extension for caries prevention and esthetics." Both criteria are well satisfied by a relatively narrow restoration which extends minimally into the interproximal areas.

It is interesting to note that the roots of narrow, tapering teeth are often close together and separated by alveolar bone with a diminished number of marrow spaces. This type of bone is often lacking in the regenerating elements of the marrow. Impingement of such interproximal areas also involved with periodontal pathosis may lead to a rapid extension of inflammation and a dissolution of the narrow supporting bone. Therefore, it becomes the responsibility of the dentist to minimize operative trauma thus reducing iatrogenic gingival inflammation.

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-09-03 via free access

GINGIVAL PHYSIOLOGY

The clinically normal marginal and attached gingiva fits rather snugly to the cervical area of the tooth due to the natural constricting tendency of the gingival fiber groups. In the presence of an inflammatory exudate, these fibers may become lysed resulting in the loss of supporting function. This is especially true in the circular-transeptal fiber complex. The destructive process leads to an extension of inflammation into the supporting bone. With the destruction of fibers the gingival support is lost and the marginal gingiva is no longer closely adapted to the tooth.

Teeth that clinically present a gingiva easily retracted by the clamp and dam should be suspected of harboring inflammation. Operative procedures in such areas may leave a trail of irritated tissue that heals very slowly, if at all. Irritated gingival tissue exhibits an outflow of fluid from the gingival crevice. A thickening (hyperplasia) of the gingival margin may occur if the inflammation is of a longer duration.

The flow of gingival fluid increases with the increase of inflammation and is regarded as a clinical criterion by which we may judge the severity of inflammation.[1,2] This gingival fluid should not be confused with the purulent or hemorrhagic exudate that is found in conditions of advanced periodontal pathology. It is important to evaluate each tooth and its surrounding tissue prior to placement of the dam. Examination of the periodontal tissues is best accomplished prior to instituting any operative procedures and preferably at a separate appointment such as the initial examination or the periodic recall prophylaxis.

GINGIVAL COLOR

The clinically normal gingiva presents a variety in shades of pink but appears red when an acute inflammatory condition exists. As inflammation progresses to the chronic phase the coloring becomes a blue or purple cast which results from a pooling and stagnation of venous blood. This has been referred to as venous stasis. Any deviation from a normal salmon pink color must be suspect; a delay in operative procedures is indicated until normal tissue is re-attained.

Two conditions complicate the use of color for diagnosis: pigmentation and ischemia.

Pigmentation of gingival tissues, although indigenous to certain races, may be present in any mouth and will exert a masking effect. It is to be considered as a normal finding.

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-09-03 via free access

Often overlooked, but nevertheless a prevalent finding masking inflammatory redness, is marginal gingival ischemia. This can result in tissue subjected to the pressure of a newly placed, over-contoured restoration. When a restoration is placed subgingivally, adequate tooth structure, consistent with marginal strength, must be removed. Encroachment on the space formerly occupied by the marginal gingiva may otherwise result. New restorative materials such as the often used porcelain fused to metal, require a certain amount of bulk that must be gained at the expense of tooth structure by creating a wide gingival shoulder instead of pressuring the gingiva with the over-contoured material.

It should be noted that over-contouring can occur on the interproximal areas as well as buccal and lingual. If the papilla is not afforded enough "breathing room," it will become slightly compressed with a resultant gingival inflammation followed by gingival recession or fibrosis. The body's method of removing an irritant is often manifest by retreating from the irritant.

THE ATTACHED GINGIVA

A correlation should be made between the character and quantity of attached gingiva, the type of proposed restorations, and the need for the rubber dam.

Attached gingiva is often keratinized and firmly bound to the underlying bone by connective tissue.[3] This enables it to function as a barrier tissue which confines the often present marginal gingivitis. The connective tissue of the attached gingiva is comprised of many collagen fibers. This physical barrier inhibits the spread of inflammation through the usual pathways of loose connective tissue which surround blood vessels. Any reduction in the density or amount of these connective tissue fibers lessens the protective function of this tissue.

The width of the attached gingiva varies in different individuals and also in different areas within the same mouth. Narrow bands of attached gingiva are found adjacent to frenal attachments, on teeth with prominent roots, on the disto-buccal aspect of the last mandibular molar having a rather horizontal buccal shelf, and in individuals with a shallow buccal vestibule. A minimum of 2 mm. of attached gingiva is necessary to prevent an adverse effect by the oro-facial musculature. Without an adequate band of attached gingiva, the margin can be retracted from the tooth by the exerting forces of the lip and corresponding musculature.

Areas of the mouth that have a narrow band of attached gin-

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-09-03 via free access

giva and present a prominent root through the adjacent alveolar mucosa may readily form recession of clefts. After injury, the presence of calculus and improperly formed and irritating restorations may be the chief etiological factors. Cleft formation is thought to be dependent upon a thinner labial plate of bone, probably developmental in origin.[4] Because of its lack of a nutrient corium (the marrow spaces) this cortical bone is susceptible to injury that does not rapidly repair. A dehiscence or separation of the overlying tissue results and the cleft is created.

Care must be exercised in restoring cervical areas of teeth with little attached gingiva. Placement of the restoration and application of the dam becomes critical. These teeth might be best restored, where possible, with a gingival margin that does not extend into the gingival crevice. Restorations in areas of minimal attached gingiva should be cared for by a home care regimen that does not traumatize the area. Soft multi-tufted brushes are preferred.

The attached gingiva is usually found to be wider on the first molar and second premolar which makes them ideal teeth for clamp anchorage.

CEMENTUM

The cemental surface, relatively soft as compared to enamel or dentin, lends itself as semi-compressible anchorage for clamps but is at the same time quite susceptible to scratching or notching by these instruments. When the clamp is placed on the tooth while testing the clamp size or when the operative procedure has commenced, it is imperative that the clamp is not skidded along the surface. This skidding procedure will produce a washboard notching effect on the cementum similar to that caused by injudicious use of periodontal scalers.

Cementum damage may be prevented by care in clamp placement, use of a clamp that has enough but not too much tension, by stabilization of clamp with compound, and by using rubber dam wedges as a substitute for clamps where and when possible.

If surface etching is present at the conclusion of operative procedures, the operator must smooth these areas making them less susceptible to plaque and calculus deposition. Curettes appear to give the smoothest surface and are the hand instruments of choice for such a finite procedure.[5]

THE GINGIVAL CREVICE

The gingival crevice was formerly thought to be an area of bac-

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-09-03 via free access

terial immunity. Recent investigations of crevicular flora indicate that this is not the case and even the "clinically normal" crevice harbors a great number and variety of organisms.[6,7] The quantity increases with the severity of inflammation. This knowledge is influencing our home care techniques by emphasizing the elimination of bacteria and their end products rather than removal of irritants that could physically injure the gingiva. The role of hard deposits is now thought to be that of providing a roughened surface on which the bacterial plaque may adhere.[8] This fact alone will justify their removal of these hard deposits.

Determination of a normal crevicular depth has been attempted by many investigators with the tabulation of figures that vary from zero to a couple of millimeters.[9,10] The consensus of opinion is that a deeper crevice is more likely to harbor inflammation. It is conceivable that such a deep crevice might be relatively free of inflammation but this area will always remain as a potential danger site.

The periodontal probe is a useful instrument to examine the crevice surrounding the tooth on which operative procedures are indicated. Sulcular exploration by a periodontal probe enables us to determine intersulcular morphology, types and location of subgingival deposits and the character of the lining tissues. Without prior gingival inspection we might find ourselves in a position of restoring a tooth whose foundation may soon crumble.

Subgingival restorative margins that are well adapted and polished are kind to the tissues, but are still capable of harboring some bacteria at the marginal area. Because of the potential dangers harbored within any gingival crevice, we must investigate these crevicular areas by probing prior to placement of the dam and prior to determining the subgingival extension of any restorative margin.

FLOSS LIGATION

In recent years, the morphology of the interproximal papilla has been extensively studied. It was found that contrary to former beliefs, the cross-sectional shape of the papilla is that of a sagging pup tent, with a buccal and lingual prominence and dip between. Col, a mountaineering term for a valley between two peaks, was coined to describe this morphology. It was found that this col area directly under the contact has a non-keratinized thin epithelium that is susceptible to inflammation and injury. It should also be noted that the col is not present between teeth that do not have proximal contact or in areas of extensive papillary recession.

Use of floss to ligate the rubber dam may act to surgically

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-09-03 via free access

detach the epithelial attachment at the buccal and lingual prominences of the papilla. This detachment, if it occurs, would place the floss close to the susceptible injury area of the col. If floss ligation is used, the area of the papilla will act as a fulcrum that takes the pressure of the ligation force.

Current use of heavy dam material has to a great extent eliminated the need for accessory ligation. The heavier gauge material is able to retract the gingiva yet does not tear the epithelial attachment.

THE GINGIVAL FLAP

A sound operative procedure is the placement of the clamp on the tooth as a testing procedure prior to using the dam material. This enables the operator to determine the amount of gingival retraction without causing injury to the marginal tissues. It is occasionally found that the carious lesion extends far into the gingival crevice, too far for the gingiva to be retracted without tearing the tissue. In such cases, the use of a flap can be considered as a method of gaining access to the operative field. This method of gaining access to deep subgingival areas is usually initiated by a vertical incision within the sulcus, next to and parallel to the tooth followed by two horizontal relaxing incisions at the adjacent papillae. The tissue components of this flap are marginal gingiva and some parts of the connective tissue attachment of the attached gingiva. The exposed tooth structure often, if not always, contains remnants of the epithelial attachment and connective tissue fibers. The jaws of the clamp are often placed within the areas of these remnants and may be positioned apical to the epithelial attachment exposing this remnant tissue to the operative field and subjecting it to the process of desiccation. Care should be taken to keep the operative procedure short. The drying effect as experienced in long operative procedures leads to a loss in viability of both cells and fibers that remain on the teeth. Such exposed cells apparently remain viable throughout the duration of short flap procedures (i.e. flap for access to an impacted third molar), but if this cell viability is lost either through long exposure or damage to the attachment surface with the polishing procedures we can expect shrinkage of the flap area and a concommitent exposure of the tooth structure.

The danger of injury with a flap procedure far outweighs its usefulness unless the operative procedure is short. It would be best to regulate this technique to special circumstances and if adequate attached gingiva is present, the excess marginal tissue might be best removed by a gingivectomy technique either before or at the time of the operative appointment.

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-09-03 via free access

SUMMARY

Some aspects of the relationship between periodontal concepts and the use of the rubber dam have been elaborated upon. Such a relationship is always present and must be a consideration of the operator if comprehensive treatment is the goal of the modern practitioner.

REFERENCES

1. Brill, N. and Krasse, B. Passage of Tissue Fluid Into the Clinically Healthy Gingival Pocket. *Acta Odont. Scandinav.*, 16:233-245, 1958.
2. Egelberg, J. Gingival Exudate Measurements for Evaluation of Inflammatory Changes of the Gingivae. *Odont. Revy.*, 15:381-398, 1964.
3. Orban, B. *Oral Histology and Embryology*. Editor: Sicher, H. Publisher: C. V. Mosby Co., St. Louis, 1962., pp. 224-230.
4. Stahl, S., Cantor, M. and Zwig, E. Fenestrations of the Labial and Alveolar Plate in Human Skulls. *Periodontics*, 1:99, 1963.
5. Barnes, J. and Schaffer, E. Subgingival Root Planing: A Comparison Using Files, Hoes and Curettes. *J. Periodont.*, 31:300-303, 1960.
6. Crowley, M., Beppler, W. and Ramfjord, S. The Bacterial Flora of the Normal Gingival Sulcus. *J. Periodont.*, 35:52-54, 1964.
7. DeCastro, C. and Going, D. Bacteriologic and Histologic Investigation of the Healthy Gingival Sulcus of Young Dogs and Children. *J. Periodont.*, 35:216-221, 1964.
8. Armin, S. Microcosms of the Human Mouth. *J. Tenn. State Dent. Assoc.*, 39:3, 1958.
9. Gottlieb, B. What is a Normal Pocket? *JADA*, 13:1747, 1926.
10. Gargiulo, A. W., Wentz, F. M. and Orban, B. Dimensions and Relations of the Dentogingival Junction in Humans. *J. Periodont.*, 32:261, 1961.

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-09-03 via free access

Why Gold Foils?

NORWOOD E. LYONS, D.D.S.

IN THIS MODERN AGE of dentistry, with the high speed and other up-to-date equipment, we have a tendency to forget the fine art of cavity preparation. Gold foil, more than any other type of procedure, offers an answer to this problem. It is an exacting preparation and tests the skill of the operator. When well done, no other restoration can compare to it.

Over the years, many new filling materials have been developed, especially the plastics under a variety of trade names, but, to date, none have been satisfactory as a restorative material.

Owing to the fact that the plastics and cement silicates are subject to change of form during the hardening process,[1] and that they are lacking in crushing resistance and edge strength as compared with most of the non-plastics, they are not nearly so permanent in character. From a standpoint of lasting qualities, gold is the king of restorative materials. In some sections of the United States, gold foil as a restorative material is not used extensively, yet many practitioners and teachers are recognizing that, in spite of the more recently introduced materials and techniques, gold foil still holds the leading position in choice of materials. A true recognition of its value and limitations and a development of skill in its use can make it take its place with other restorative procedures.

Since the introduction of the modern cast gold inlay, the silicates and acrylic resins, the use of cohesive gold has diminished. This is to be deplored since there is no material to compare with it as a preserver of tooth structure. However, gold, as a restorative material, still occupies an important place in dentistry and will probably continue to do so for a long time.

The principal disadvantages of the cohesive gold foil restora-

---

Lecturer, Operative Dentistry, University of California School of Dentistry, San Francisco, California.

Presented at the Annual Meeting of the American Academy of Gold Foil Operators in Bethesda, Maryland on October 28, 1967.

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-09-03 via free access

tion is the time required for its introduction in large cavities, and the possible physical and nervous strain on both patient and operator resulting from its manipulation. These disadvantages may be reduced to a comfortable minimum with the increased skill of the operator. In fact, many times, with an experienced operator, gold foil operations can be less strenuous on patient and operator than the construction of a gold inlay. This is particularly so in the case of the Class V or Class III preparation where gold is indicated.

The many failures resulting from an indiscriminate use of the gold inlay, the silicates and acrylic resins by the profession during the last several years have gradually led to a revival of interest in the cohesive gold foil restoration, and it is slowly returning to the place which it deserves.

If the full story of dentistry's service to humanity is ever told, gold foil must be given the major credit for this service. If the source is sought for the outstanding achievement in saving the natural teeth after they are attacked by decay, gold foil must claim its full share in this beneficial function.

For an appraisal of the gold foil restoration,[2] the work of Dr. Gerald Stibbs of the University of Washington, School of Dentistry, has been included in this essay for its honest and sincere approach to the problem. As Dr. Stibbs points out, "As one appraises gold foil restorations in operative dentistry, it is well at the outset to establish a justification for the discourse.

"When one reviews the literature of operative dentistry for the past fifty years, it is apparent that the great leaders in the field have thoroughly and painstakingly and brilliantly taught by word, picture and clinic all the fundamental principles as well as the mechanical refinements to produce the ultimate in restorative dentistry. Beyond the purely technical presentations, there are also any number of pleas for an increased use of foil, and for a keener perception of the obligation of the profession to perform restorative procedures more conscientiously and more universally. There are three reasons for this.

"First — The continued and increased use of foil in dental practice is so tremendously important to the future security of dentistry as a truly scientific profession.

"Second — Repetition in one form or another is essential to maintain on the scales of dental practice the current degree of balance for the adequate use of gold foil.

"Third — There has been an unfortunate reticence in empha-

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-09-03 via free access

sizing the economic soundness of fine operative procedures for a just remuneration. From a purely operative point of view, foil takes second place to nothing else in the incipient stages of decay or erosion.

"It is of particular value in the small pit and fissure cavities, in the gingival third cavities of the incisor, cuspid and bicuspid teeth, in the mesial and especially the distal surfaces of the incisors and cuspids when incisal angles are not involved; in the proximal surfaces of some posteriors, especially the upper and lower first bicuspids; and finally in the class six cavity or the cupped out depression in the dentin where the enamel of a cusp tip has been worn through." While generally familiar to members of this Academy, it may not be remiss to be reminded of the properties of gold which make it so valuable to us.

Gold is one of the first metals used by man and owing to its varied and remarkable properties as well as its intrinsic value, it is recognized as the most noble of metals. From the earliest historic records down through the ages, it has played a prominent part in the development of our present knowledge of metallurgy. Several collodial forms of gold have been introduced for its therapeutic value in malignant diseases.

Gold possesses a number of important characteristics which render it of special value as a restorative material.

These characteristics may be summarized as follows:

First – Cohesiveness to a greater extent than any other metal. This quality depends largely on purity. The best golds for restorative purposes are about 999 parts in 1000 pure gold.

Second – Softness during manipulation. This quality depends largely on purity.

Third – Malleability. It exceeds all other metals in this respect. It may be reduced by beating to 1/250,000 of an inch in thickness.

Fourth – Ductility. It is the most ductile of all metals. One grain of pure gold may be drawn into a wire nearly five hundred feet long.

Fifth – Hardness in bulk form. Gold is about one-third as hard as the diamond. This property is largely increased by alloying and by hammering or rolling. Its Brinell hardness is given as 48.0 in comparison with copper 74.0 and silver 59.0.

COHESIVE GOLD FOIL

The prepared pellets that come in various sizes are the most com-

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-09-03 via free access

monly used. However, many gold foil operators prefer to roll their own from the 4 x 4 inch sheets. The No. 4 sheet can be hand-rolled but cannot be prepared successfully by the manufacturer. The main advantage is that each pellet has more bulk and less mass. The advantages and disadvantages of cohesive gold as a restorative material are:

ADVANTAGES

1. Insolubility in the oral fluids.
2. Perfect adaptability to cavity walls if properly worked.
3. Perfect weldability to a cold state.
4. Great density, crushing resistance and edge strength.
5. Low tendency to molecular change, since it is free from objectionable shrinkage or expansion.
6. Capability of receiving and maintaining a high polish.
7. No inter-cementing substance necessary.
8. Excellent tissue tolerance.

DISADVANTAGES

1. The color may be objectionable in certain areas of the mouth.
2. Difficulty of manipulation by inexperienced operators.
3. Force of compaction in very deep lesions may have adverse traumatic effect.
4. Periodontally involved teeth with a great amount of bone loss are poor risks for foil restorations.

Gold is insoluble in and is not oxidized by the oral fluids or their contents. Consequently, restorations made with it do not discolor or disintegrate. If properly condensed and wedged into place, gold foil is capable of extremely close adaptation to cavity walls.

Dr. G. V. Black,[3] the father of operative dentistry, proved this in his experiments many years ago. The hardness of gold restorations depends on the efficiency and amount of malleting used during its introduction to the cavity. The elasticity of dentin assists in producing a near perfect type of adaptation. The grip of the elastic dentin will depend upon the force with which the gold is wedged between opposing cavity walls.

Factors influencing selection of gold foil as a restorative material are as follows:

1. Extent and rapidity of caries, development and hygienic condition of the mouth.

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-09-03 via free access

2. Strength of cavity walls.
3. Character of occlusion (strength of the bite and character of excursions of the mandible).
4. Presence or absence of abrasion.
5. Accessibility of the cavity.
6. Skill of the operator.
7. Esthetic consideration.

The care which the patient gives the mouth and the susceptibility to caries will always have a bearing. Gold is the most permanent of the restorative materials and its need will be proportional to the demand for lasting qualities in these cases. The profession is indebted to such men as Doctors Woodbury, True, Ferrier, Hollenback, Rule and others for their untiring efforts and dedication to the profession so that we may do better dentistry.

This Academy should do all in its power to remind others in the profession of the tremendous merits of gold foil as a restorative medium. When used properly, and where indicated, it is still one of the most permanent and excellent means at our disposal for saving teeth in health and function. Current techniques of manipulation make its use no longer a problem in respect to stress or strain on either patient or operator. There is no restoration more beautiful and serviceable than a well inserted gold foil. The satisfaction it renders to both operator and patient is indeed gratifying.

REFERENCES

1. McGeehee, True, Inskipp: *A Textbook of Operative Dentistry*. McGraw-Hill Book Co., The Blakiston Division, 1956, pp. 355-382.
2. W. J. Simon: *Clinical Operative Dentistry*. W. B. Saunders Co., Philadelphia, Pa., 1956, pp. 278-279.
3. G. V. Black: *Operative Dentistry, Vol. II, Physical Properties of Filling Materials and Correlation of Forces Concerned*, pp. 224-237. Medico-Dental Publishing Co., Chicago, Illinois, 1914.

CONSTITUTION AND BY-LAWS NOTICE

A Committee has been struck to review the Constitution and By-Laws. If any member has any suggestion to make in this connection, please communicate with Dr. Gordon J. Christensen, College of Dentistry University of Kentucky, Lexington, Kentucky 40506, Chairman of the Committee, or with any of the Academy officers.

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-09-03 via free access

Dam Gems

It is the intent of the Rubber Dam Committee to publicize, at regular intervals, various techniques that will be of use to students and practitioners. Some of these will be time-proven and others will be new. Your comments, suggestions and ideas for assisting others with various steps of dam techniques will be appreciated. If photographs are necessary, the Committee will make every effort to be of assistance to you. Please send your ideas to CDR. Loren V. Hickey, DC, *USN, Naval Dental School, National Naval Medical Center, Bethesda, Maryland 20014.*

RUBBER DAM STRAP ATTACHMENT

Attaching the ½ inch black elastic strap to the Woodbury - True rubber dam holder should be in through the front slot and out through the back slot. This manner, with the free end over the top, (Fig. 1) provides a self-locking arrangement and prevents the holder from becoming loose once the application is completed.

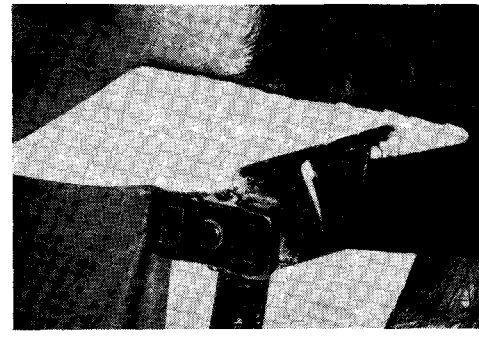


Figure 1

(Suggested by: Dr. Dave Snyder, San Diego, California)

RUBBER DAM HOLDER

The rubber dam holder is placed on the head rest prior to seating the patient. This obviates the need for raising the patient's head when attaching the holder to the rubber dam. (Fig. 2) This is one of several simple procedures which makes the application smoother and the result more stable.

(Suggested by: CDR. Loren V. Hickey, Bethesda, Maryland)

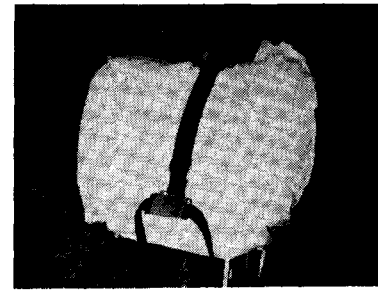


Figure 2

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-09-03 via free access

NO. 212 RETAINER AND LIP

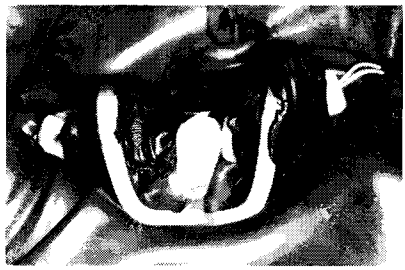


Figure 3

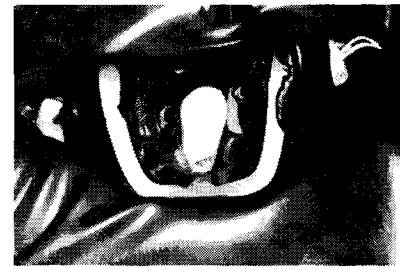


Figure 4

During placement and stabilizing of the No. 212 retainer, the lip is often impinged under the horizontal facial portion of the retainer. (Fig. 3) After stabilizing, the lip is easily moved out from under the retainer and prevents a postoperative sore lip. (Fig. 4) (Suggested by: Dr. James Vernetti, Coronado, California)

PRESIDENT'S MESSAGE – *from Page 3*

of our cherished ideals of fine operative procedures, conservative and permanent restorative treatments, private patient-to-dentist relationships, pre-hippie regard for order and discipline, and presumed integrity in all the affairs of life are disintegrating before our eyes.

There is nothing to be gained by trying to ignore this unrest and turmoil. We cannot "wish" the problems away. We should not withdraw, indignantly or petulantly, from the fray. On the other hand, there is no need to acquiesce silently to the attacks on what we feel to be basic, proven concepts; nor should we meekly accept changes which are advocated only for the sake of change.

Instead, we have an opportunity, and indeed an obligation, to try to adjust our sights to the moving target of providing service in life and dentistry, and to utilize our experience and capabilities to hit that target. Let us strive individually and collectively to contribute to the betterment of all concerned. With the sense of responsibility and excellence that members of our Academy possess, you can be a tremendous force for good in this troubled world. Good luck to you all, and thank you for the honor of serving as your President this year. &

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-09-03 via free access

Academy Memberships Awarded

Active

Dr. Leonard R. Aksamit
Dr. Gordon T. Ballantyne
Dr. Fletcher M. Craig
Dr. John W. Coughlin
Dr. Perry W. Dungey
Dr. Robert C. Millsop
Dr. John L. Manning
Dr. Erick C. Nehls, Jr.
Dr. W. Perry Powell
Dr. Robert R. Taylor
Dr. Leon H. Verwest
Dr. Charles R. Wold

Associate

Dr. Thomas E. Barker
Dr. Raymond P. Bassich, Jr.
Dr. Herbert S. Black
Dr. Robert C. Blackburn
Dr. George P. Branscum
Dr. Robert E. Bricker
Dr. William P. Brodie
Dr. Herbert E. Burgess
Dr. Charles B. Cartwright
Dr. Cecil C. Case
Dr. Roger V. Chastain
Dr. Harold G. Cheney
Dr. John L. Chynoweth
Dr. Walter E. Dilts
Dr. Thomas A. Dwyer
Dr. Charles V. Farrell
Dr. George Goldfarb
Dr. Robert H. Hewitt
Dr. Robert C. Hinkle
Dr. Harvey L. Imber
Dr. M. Michael Ivans, Jr.
Dr. Carl H. Jepsen
Dr. Robert E. Klein
Dr. Darrell R. Ludeman
Dr. William F. Malone
Dr. Sidney S. Markowitz
Dr. Paul M. Morrison
Dr. Albert S. Mowery, Jr.
Dr. Donald E. Nemer
Dr. Tomas C. Pablos
Dr. James W. Paul
Dr. Clair D. Reitz
Dr. Joseph W. Rossa
Dr. Mario V. Santangelo
Dr. Chester J. Schultz, Jr.
Dr. Wesley E. Shaw
Dr. Harry P. Silverstein
Dr. Richard M. Stamm
Dr. Carlos L. Suarez
Dr. Bill E. Taylor
Dr. James J. Theisen
Dr. Robert P. Thye
Dr. Roy A. Wilko
Dr. Frida A. Xhonga
Dr. Joseph F. Zokol

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-09-03 via free access

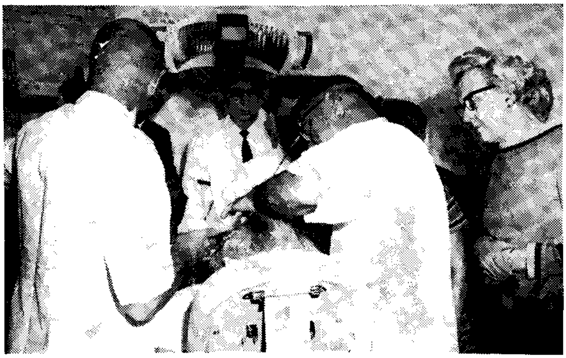
Annual Meeting Pictorial

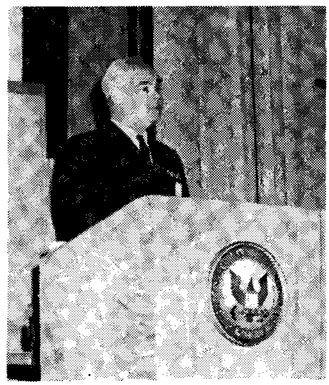
U.S. Naval Dental School

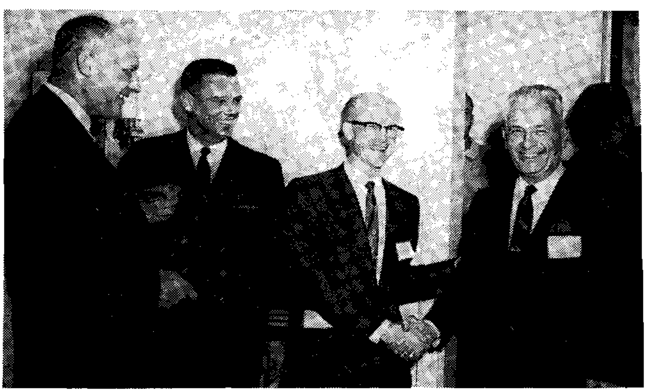
Bethesda, Maryland

October 27, 1967

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-09-03 via free access







Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-09-03 via free access

Program

Interim Session

AMERICAN ACADEMY OF GOLD FOIL OPERATORS

February 2, 1968

University of Michigan, Ann Arbor, Michigan

9:15 a.m. PULPAL RESPONSES WITH DRY FIELD PROCEDURES
Dr. Alfred S. Schuchard, San Francisco, California

9:45 a.m. EFFICIENT USE OF A CHAIRSIDE ASSISTANT IN OPERATIVE DENTISTRY
Dr. William Brown, Ann Arbor, University of Michigan

10:30 a.m. THE USE OF IRIDIOPLATINUM POSTS IN THE CLASS IV RESTORATION
Dr. John A. Nolen, Muskegon, Michigan

11:00 a.m. TO DAM OR NOT TO DAM
Dr. Robert R. Taylor, Columbus, Ohio

11:30 a.m. GOLD FOIL — FAILURES AND FUTURE
Dr. Charles M. Stebner, Laramie, Wyoming

1:30 p.m. CLINICAL DEMONSTRATIONS
Patient Demonstrations — Kellogg Graduate Clinic

Class III Restorations

Dr. Robert Beasley	Yakima, Washington
Dr. Norman Chaney	Yakima, Washington
Dr. Roy M. Cumming	Detroit, Michigan
Dr. Perry W. Dungey	Waconia, Minnesota
Dr. Floyd E. Hamstrom	Burlington, Washington
Dr. Richard N. Lamermayer	Kenilworth, Illinois
Dr. Clifford H. Miller	Chicago, Illinois
Dr. Erick C. Nehls	Milford, Illinois
Dr. Richard K. Otagaki	Washington, D.C.
Dr. Anthony D. Romano	Pine City, Minnesota
Dr. Charles M. Stebner	Laramie, Wyoming

Class IV Restorations

Dr. James C. Nolen	Muskegon, Michigan
Dr. John A. Nolen	Muskegon, Michigan

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-09-03 via free access

Class V Restorations

Dr. Herbert A. Carpenter	Grand Rapids, Michigan
Dr. Roger V. Chastain	Morgantown, West Virginia
Dr. William Gilmore	Indianapolis, Indiana
Dr. Stephen F. Kozak	Grand Rapids, Michigan
Dr. Robert D. Ludwig	Grand Rapids, Michigan
Dr. Robert E. Maunz	Grosse Pointe, Michigan
Dr. John E. Modestow	Florence, Massachusetts
Dr. James E. Newman	Huntington, West Virginia
Dr. John W. Osborne	Buffalo, New York
Dr. Frank W. Rennell	Birmingham, Michigan
Dr. Alfred S. Schuchard	San Francisco, California
Dr. Roy A. Wilko	Buffalo, New York
Dr. Robert P. Thye	Los Angeles, California
Dr. James P. Vernetti	Coronado, California

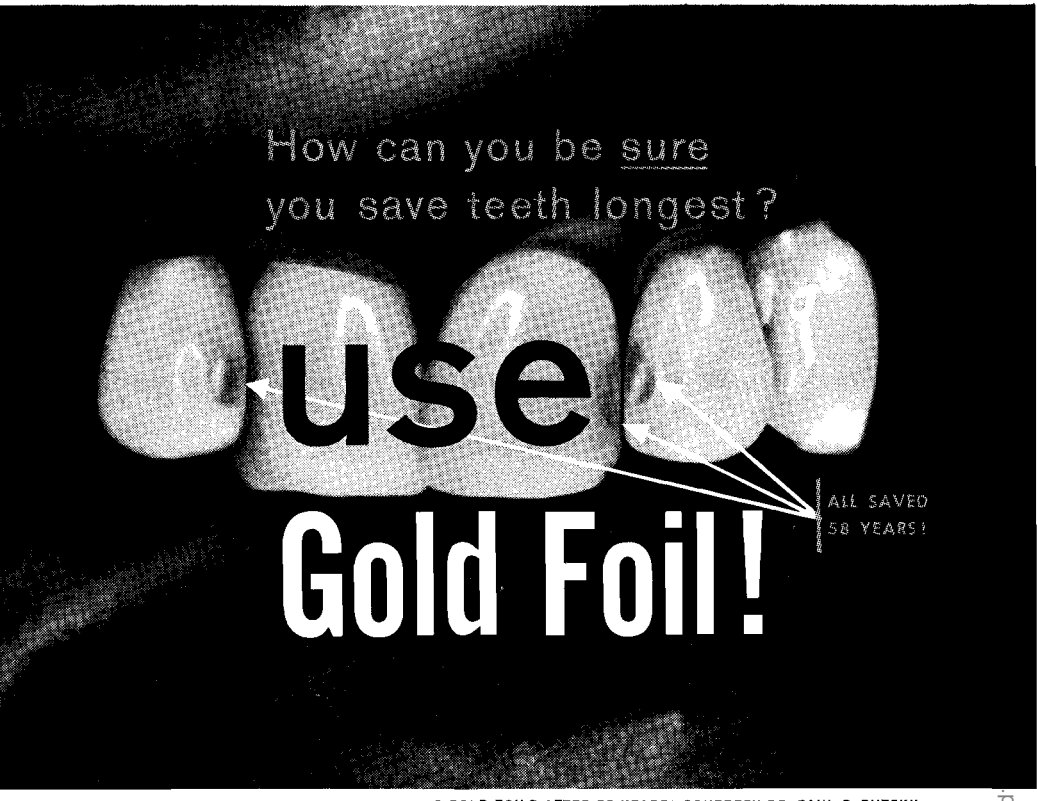
New Gold Foil Group Meets

The UCLA Gold Foil Seminar recently had its first operating meeting in the new School of Dentistry. The group is composed of 15 members of the staff who represent various divisions of the school. Officers are: James P. Vernetti, Director; R. B. Wolcott, Associate Director; Robert P. Thye, President; Earl Collard, Vice President; Robert Garfield, Secretary. Other members are: Harold Drucker, Robert Dunnings, John Flocken, Helyn Luechauer, Jarvis Luechauer, Jon Standlee, Raymond Stewart, Thomas Stewart, Frida Xhonga, and Eugene Ziegler.

Students observing study Club session at UCLA.

A unique and valuable adjunct to the study club's objective is to develop a more complete utilization of the dental assistants. The Dental Assistant Utilization program provides trained assistants for students in the dental clinics. In turn, the seminar will enhance the faculty's understanding of the technics being taught students.

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-09-03 via free access



3 GOLD FOILS AFTER 58 YEARS! COURTESY DR. PAUL P. RUTSKY

why only with Gold Foil!

Shown here are three restorations made as long ago as *1910.* All three are still as good as the day they were made—still as serviceable as *58 years ago.* What can have saved all three teeth so long and so well? Gold Foils, of course!

And of course *only* Gold Foils! Only the Gold Foil can be integrated with the tooth so as truly to restore its integrity. Unlike the compounds (acrylics, amalgam, silicates, etc.) and the cemented inlay, Gold Foil can be built right up to the cavity walls with such force as to lock in place by *interlocking* with the dentin.

And so the results possible with Gold Foil are not possible with anything else. Only Gold Foil has all it takes to save teeth for life—for lifetime service, lifetime satisfaction, long-range economy. Gold Foil is truly tops. And the only thing better than a Gold Foil is a tooth free from caries altogether!

To learn more about this wonderful material, mail the lower portion of this page with your card or letterhead to **Morgan, Hastings & Co.,** 2314 Market Street, Philadelphia, Pa. 19101—Finest Filling Golds ever since 1820.

Only GOLD FOIL has all it takes to save for life! (MH)®

pubfactory.com/ at 2025-09-03 via free access

MANUFACTURERS

OF

Gold Foil Instruments

For Over

ONE QUARTER CENTURY

FERRIER

JEFFERY

TRU-BAL

INSTRUMENT SHARPENER

O. SUTER DENTAL MFG. CO.

P. O. BOX 1329

CHICO, CALIFORNIA 95926

If Your Dealer Does Not Have A Stock

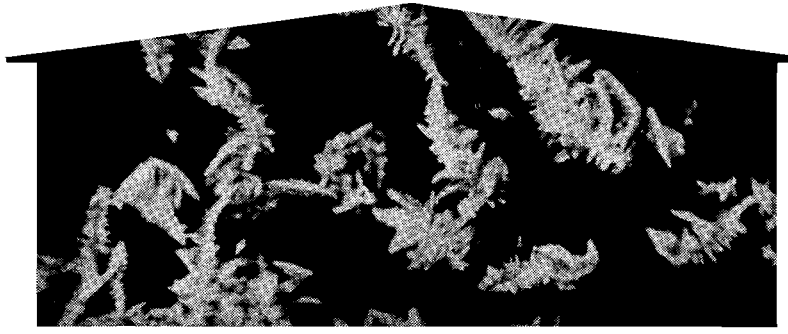
ORDER DIRECT

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-09-03 via free access

2 RECOGNIZED AND ACCEPTED AIDS TO SUCCESSFUL AND ENDURING TOOTH RESTORATION

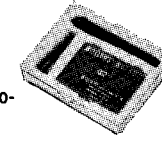
WILLIAMS MAT GOLD is an interlaced, interlocked, crystalline product of the highest purity ever marketed commercially. After proper annealing to expel air-borne cohesion impairing surface deposits, it may be condensed by standard methods into masses of a density and hardness comparable to a Type A gold casting. For ease of working, and where indicated, there is no superior filling material.

WILLIAMS MAT-FOIL is Mat Gold with a thin overlay of gold foil covering the surfaces. It has been developed for ease of handling and results in a restoration of outstanding density.



Mat crystals magnified about 100 times. This shows the "pine tree" effect which makes it possible for the interlocking of particles. Also, this configuration gives a greater surface area to enhance cold welding.

Your special introductory outfit supplies Mat Gold or Mat-Foil, serrated Plugger Points, and Handle. Contact your dealer for your introductory kit.



WILLIAMS-JUSTI

WILLIAMS GOLD REFINING COMPANY, INC.

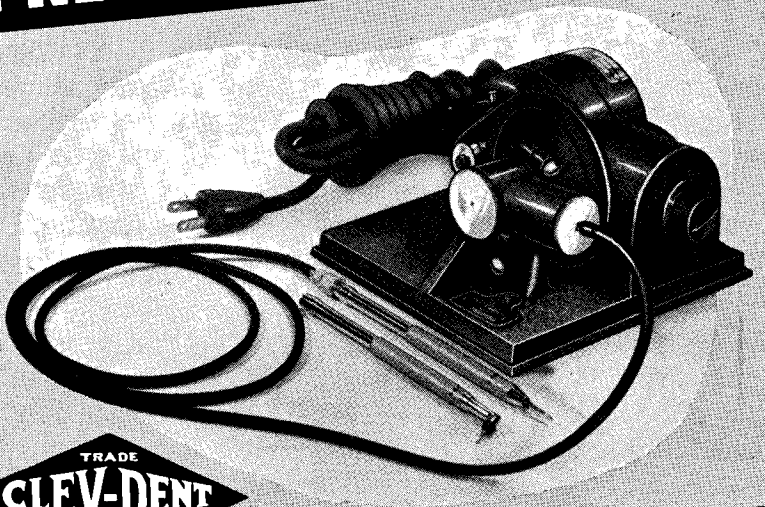
2978 MAIN STREET BUFFALO 14, NEW YORK

and WILLIAMS GOLD REFINING CO. OF CANADA, LTD.

FORT ERIE ONTARIO

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-09-03 via free access

The PNEUMATIC CONDENSER



TRADE CLEV-DENT MARK

For Denser Gold Foil and Amalgam Fillings

A time saving and efficient air hammer which, due to its consistency of pressure, will build homogenous gold foil and amalgam restorations.

The pneumatic condenser stimulates the use of gold foil and in the construction of amalgam restorations it is a valuable aid in obtaining unchanging results.

Full Details on Request

SERVING THE PROFESSION SINCE 1893

The Cleveland Dental MANUFACTURING COMPANY

A DIVISION OF CAVITRON EQUIPMENT CORPORATION

3307 Scranton Rd., S.W. • Cleveland 1, Ohio

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-09-03 via free access

JABBER JABBER rinse SPIT
JABBER WHATCHA? JABBER
rinse SPIT JABBER JABBER
GULP
SPIT SPIT GLUCK GLUCK
SAY DOC HUH DOC? rinse
SPIT JABBER JABBER
rinse SPIT JABBER

you can't get a drill in edgewise without

THE RUBBER DAM

by THE Hygienic DENTAL MFG. CO.

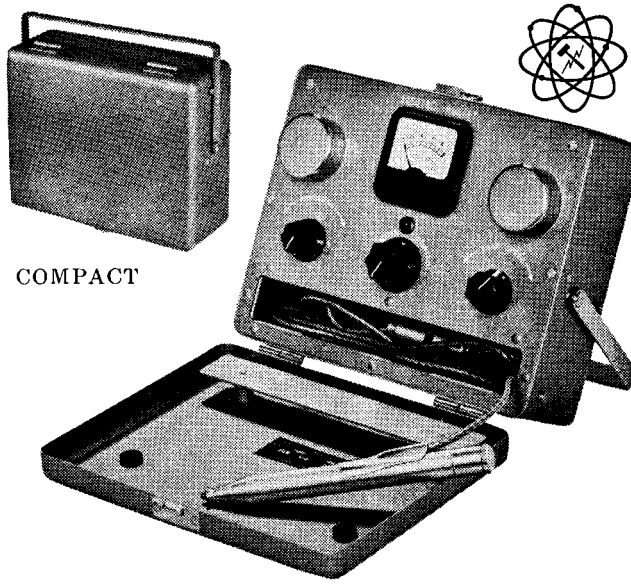
1252 HOME AVENUE • AKRON, OHIO 44310

Write for our free, illustrated booklet, "The Rubber Dam, Its Advantages and Application."

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-09-03 via free access

ELECTRO - MALLET

The Electronic Foil Condenser



COMPACT

Operates on the new principle of high-frequency malleting at reduced intensity without sacrifice of foil density. Easier for operator. Less trauma for patient. This has been proved in leading Dental Schools and in practice by nationally recognized foil operators.

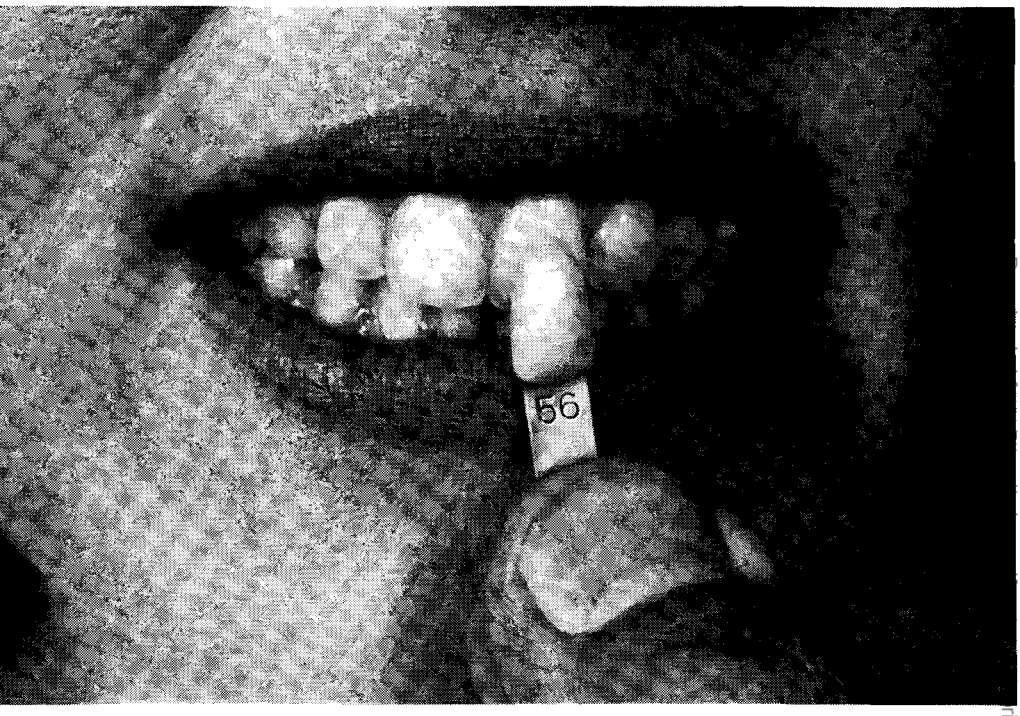
The **Electro - Mallet** is equally advantageous for condensing **amalgam.**

A 30-day trial without obligation to purchase is available. Please write for details.

McShirley Products

6535-41 San Fernando Road Glendale, Calif 91201
Phone — 213/243-8994

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-09-03 via free access



For silicate restorations of unequaled strength and beauty

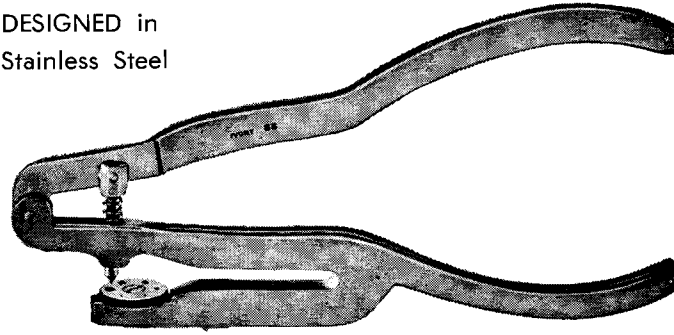
MQ®

MQ is the silicate filling material that makes possible restorations of beauty and strength never before obtained with a silicate. With MQ's wide spectrum of colors you are assured of quick, easy tooth matching, unusual color stability and life-like translucence. Write for free booklet. S.S. White Company, 211 South 12th St., Philadelphia, Pa. 19105.

rime-prod.pubfactory.com/ at 2025-09-03 via free access

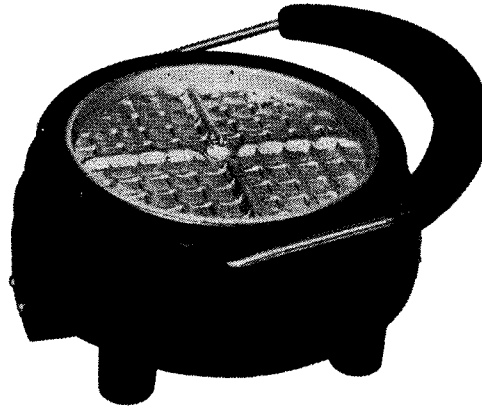
IVORY RUBBER DAM PUNCH

DESIGNED in
Stainless Steel



Only a clean cut hole in rubber stands extensive stretching. Ragged edges tear easily. This design permits the punch to move up and down in a straight line, thus insuring a perfectly cut hole in the dam. A moderately large hole will exclude moisture better than one too small. The six different size holes in the disk meet your every requirement. A real feature is the fact the disk may be resharpened or replaced.

J. W. IVORY, INC.
Manufacturer
PHILADELPHIA, PA. 19102, U.S.A.



GOLD FOIL ANNEALER

kustom kraft
10245 Glenoaks, Pacoima Calif.

Contact your supplier or write direct

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-09-03 via free access