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THE PRESIDENT'S MESSAGE

George A. Ellsperman

As my two years of rather active participation in the affairs of our Academy are drawing to a close, there is one observation that I wish to make.

Dental educators must rationalize that the highest type of operative procedures are interwoven with the gold foil teaching and the entire technic. Likewise, it is quite evident that procedures required for the gold foil restoration are common to all restorations.

While men in certain areas continue to downgrade the teaching of gold foil, we of the Academy must take pride and satisfaction that much of the basic clinical research in operative procedures, which must be a part of the curriculum of all successful schools, has been developed by gold foil instructors and leaders.

To discuss even a few examples of gold foil clinical research that are basic to good operative teaching would fill a large manuscript. For example, what operative staff would fail to teach a standardized technic for the use of the rubber dam in its modern sense and the advantages of the heavier or ten one-thousandths thickness dam?

Another example is the development and refinement of cutting instruments for all procedures, one notable example being the Ferrier set. What teacher of operative would not teach the use of the 212 gingival clamp designed for gold foil but equally necessary in all gingival third restorations.

Basic clinical research may in some distant future replace the gold foil restoration, as enduring as it is, with something even finer; but be assured, the restorative procedures that it has spawned will continue forever.

It is always assumed that the tenure in office of a good man will last forever. Now after many years of dedicated and self-sacrificing effort Dr. José E. Medina is retiring from the editorship of the Academy's *Journal* with this issue. He has worked long and hard for the Academy and has given not only a wonderful informative periodical to dentistry, but has contributed much toward the present high excellence of the American Academy of Gold Foil Operators. Our splendid *Journal* with its interesting composition gives us an image of its fine editor. Dr. Medina will take with him many warm friendships from those who have worked with him, together with the deep gratitude of the entire Academy.

With the full knowledge of the great importance of selecting from among us a highly qualified leader with desired talents to assume the editorship of the *Journal*, it is with great joy that I announce to you the acceptance of Dr. Robert B. Wolcott, Professor of Operative Dentistry, UCLA. Bob Wolcott's leadership has had its impact on everyone in this Academy. His pursuits in the academic field highly qualify him for the editorship. I congratulate the Academy for its great good fortune.

George A. Ellsperman
620 Herald Building
Bellingham, Washington

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CORRELATION OF PHYSICAL PROPERTIES AND CLINICAL ASPECTS OF GOLD FOIL AS A RESTORATIVE MATERIAL*

Charles M. Stebner, D.D.S., Laramie, Wyoming

Restorative materials used in operative dentistry are substitutes for diseased or missing tooth structure. These materials with which we restore portions of the anatomy of the natural tooth should be evaluated in comparison with tooth structure itself. Laboratory evidence, such as tables of thermal coefficient of expansion, Brinell hardness, etc., gives us scientific data, and with this empirical information we have certain tools for comparison and measurement. This information, and these tools, should be used to indicate to the clinical dentist how well, or how poorly, he might expect a certain material to substitute for missing natural tooth structure.

Gold foil has often been judged by many as a teaching aid, an exercise or a test of technical dexterity, but we shall attempt to disregard this approach and evaluate gold foil from the standpoint of service to the patient. In selecting any material for a possible service, we must carefully examine the location, classification and type of area to be restored, and we must also consider the occlusal or biting stress because we cannot expect weak and fragile materials to serve under severe and repeated stresses.

Years ago gold foil was often used where it was contraindicated or where another material could be used to greater advantage. In the past we have seen foil used in occlusal Class I cavities where silver amalgam would have served as well or better, and we have seen foils placed in large Class II cavities where inlays could do better service. On the other hand, today we see less adequate and less serviceable materials applied where foil would serve the patient much better. In view of this we shall confine our discussion of gold foil to the areas where its use is principally indicated—the Class III, IV and V cavities. In the gingival cavities it should be judged generally against the amalgams and inlays in the posterior part of the mouth and the silicates and acrylic resins in the anterior. In the interproximal Class III cavities it is compared with the silicate cements, resins and lingual drawn inlays, and in the Class IV cavities its choice is against the silicate, resin or inlay.

Esthetics: Form and Color

Many sizes, shapes and colors of gold foil restorations are observed. Some of them are pleasant to the vision and others are

*This is a revised version of a paper originally published in *Dental Clinics of North America*, pp. 571-584, November, 1958.

not. It is not fair for critics of foil restorations to judge all foils by those that are not well planned and are constructed without proper consideration for esthetic values.

Certainly the color of gold is not ideal, but gold has long been perhaps the most important and generally accepted material in restorative dentistry. The dentist, and the dental patient for whom extensive restorative treatment is planned, begin with an acceptance of gold as a material and as a color—we are all used to it. Until we find a material that will serve as does gold in the preservation of teeth and still have a more desirable color, we must accept gold for what it is and what it will do.

Form

First we might consider form or anatomy in our discussion of esthetics. Certainly Rodin or Michelangelo could have done better when they created their famous masterpieces in sculpture if they had used a material that perfectly reproduced the color and texture of skin. Most of the world's great art is in marble because that material yielded itself to the reproduction of form and, more importantly, because it maintained that form in permanency. It was certainly not used because it was easy to manipulate or because its color duplicated nature. Basically it was used because with it the artist was able to duplicate with extreme intimacy the anatomy of the human body in lasting form. This same characteristic should be considered when we reproduce a portion of a missing tooth in reparative dentistry. More important even than color is the anatomy and detail of the restoration. It is not right that we remove the infected and missing tooth structure and pay no attention to the esthetics of the cavity outline and the carving of detail with its important consideration of lights and shadows, convexities and concavities, ridges and grooves. If the missing tooth structure has been replaced with a restoration of good form, it will be less conspicuous to the eye. If it has good tooth anatomy and matches in form the mate on the other side of the median line, from the standpoint of form, it will be esthetically pleasing. If the form is not carefully reproduced and there is a noticeable deviation in anatomic detail from its mate, the restoration strikes the eye of the observer with an unesthetic impact.

Gold foil permits the reproduction of form very well because of its desirable yield to carving. A gingival cavity can be restored to duplicate exactly the original tooth, and so also can an interproximal cavity when a portion of the labial wall is missing; in a Class IV restoration the angle of the anterior tooth can be made to maintain the detail of its original form.

Color

Gold foil comes in many colors. We have all seen the dark brown or almost black appearing foil in the anterior part of a

patient's mouth, and we have seen foil with a red effect, but it is more pleasant to see light yellow foil, which blends very well with the yellow of much enamel. Basically this approach toward lightness is accomplished by better condensation technics. Foil that is poorly condensed is darker because of its lack of proper light reflection. In the softer, more pitted foils there are many air pockets which soon become filled with moisture and organic material, and in these there is a tendency for greater tarnish and oxidation. Platinum-gold foil, which has a lighter color, is not generally used or often indicated; its usual application is on the incisal angles where greater hardness is desired.

The way the surface of the gold foil is condensed and finished is of the utmost importance in the color and esthetic effect of the material. It should be condensed with careful stepping and with relatively smooth condensing points to produce a perfectly smooth surface without pits. However, it is a mistake to polish too highly the surface of the foil that meets the eye. When a gold knife is used on the proximal surface, a mirror-like effect is often produced. This is desirable under gingival margins and on the lingual and interproximal surfaces that do not meet the eye; sometimes these areas are finished by the use of hand burnishing instruments in order to produce the mirror-like effect, which also results in hardness and a surface that is easily kept clean. But on the surface that meets the eye it is not desirable because of the problems of light reflection. We do not want this surface to act as a mirror and thereby call attention to itself with a flash. The surface of enamel is made up of many ridges, depressions and unevennesses that break and diffuse the light rays instead of reflecting them as does a mirror surface. With this thought in mind we should finish the foil on these surfaces with a finely scratched sand finish. This surface has many tiny hills and valleys that break up the light reflections in many different angles rather than bounce back directly to the viewer's eye. This desirable effect is not accomplished with the exceedingly fine polishing powders (e.g., rouge) that are often used in a relatively dry state to produce "shine," but rather we leave the finished surface scratched by the reasonably fine cuttle strip disk. Often we are able to produce the right type of color and surface with the use of a wet medium pumice applied with the rubber cup or small brush, and if this is washed off in a wet state we have a light yellow surface that is quite esthetic and does not call attention to itself. Actually the contour and color of some properly finished restorations in gingival cavities blend so well into the gingival tissues and line that they appear to be an extension of the gingival tissues.

Although esthetics is important in choosing a restorative material, this factor should not supersede considerations of health or function. With this point in mind we should be aware of the difference between treating incipient caries in a young

patient and replacing a failed restoration in an older patient. Foil lends itself to excellent esthetics in the incipient Class III cavity in younger patients because it is usually not visible when properly placed. On the other hand, the material is blamed for undesirable esthetics because it is often called upon to repair the damage resulting where one or more acrylic or silicate restorations have failed.

Cavity outline and design are also important considerations in esthetics. Poor planning of outline should not condemn the material that would be less conspicuous with good outline. This is evident in the advantages of the Woodbury, Ferrier and True outlines over older conventional outlines. The esthetic effect of the author's Class IV design (Figure 1) is also made more harmonious and pleasing to the eye than the older conventional form. Sharp corners and severe straight lines (Figure 2*A* and *B*) are not nearly as harmonious as are the rounded lines and graceful curves (Figure 2*C* and *D*, Figure 3) that blend with the natural anatomy of the tooth form.

The Cavity Seal

The cavity seal is of utmost importance. Recent investigations [2, 4, 9] with radioactive isotopes have proved that no material completely fills and seals the cavity microscopically, and it

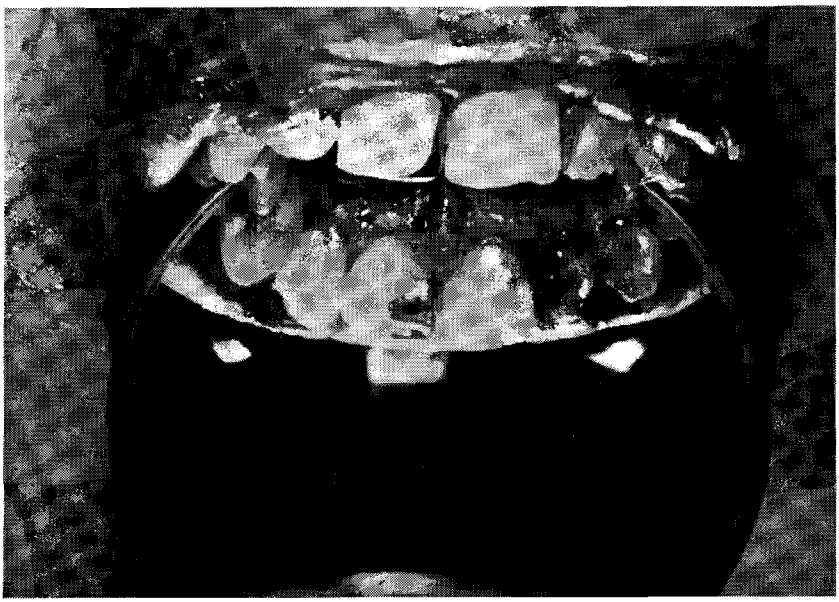

Figure 1

Figure 1. A Class IV gold foil restoration employing the author's design, in which graceful curves are emphasized.

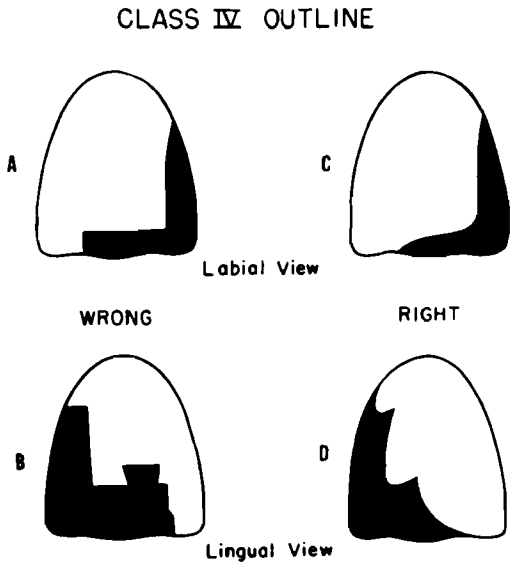

Figure 2

Figure 2. *A, B,* Labial and lingual views of conventional form in Class IV gold foil restorations. *C, D,* Labial and lingual views of the author's design for a Class IV restoration.

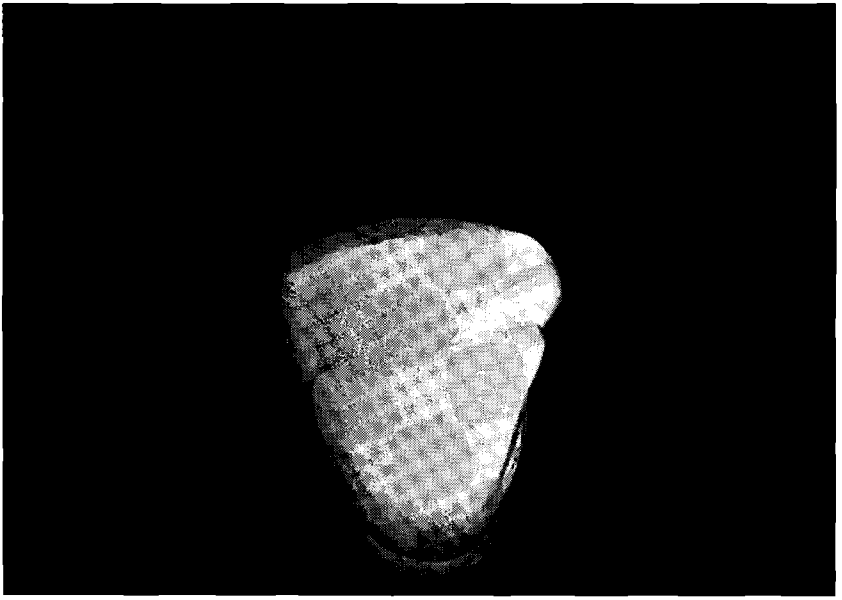

Figure 3

Figure 3. Harmonious outline suggested by the author for his Class IV gold foil restoration.

has been demonstrated that percolation takes place at the margins of all types of restorations owing to the effect of hot and cold materials contacting the tooth and restoration. These considerations of cavity seal are of importance clinically only when the restoration permits gross invasion of bacteria and fluids at the margins. Bacterial invasion at the margins results in complete failure of the restoration to accomplish its primary purpose, that of keeping the elements of infection from the pulp tissue. When the enamel of a tooth is broken or has been attacked by caries, we must restore and repair it with a material that will seal off the dentinal tubules as nearly as possible as did the original enamel. This means simply that we must achieve a bacterial seal of the cavity margins.

In planning a seal of the cavity margins with the restorative material, an adequate bevel is essential (Figure 4). Materials that curl at the bevel as do the acrylics, or that fracture in thin areas as do silicate and amalgam, do not permit the broad bevel that can be achieved with gold. This susceptibility of gold to beveling is of great importance clinically, and greater advantage should be taken of it by the operative dentist.

It is reasonable to assume, from clinical experience, that most of the vulnerable marginal areas can be covered to good advantage by a generous bevel of foil, particularly to prevent postoperative sensitivity to hot, cold, sweets, etc. It is also possible to use inlays as well as foils on the Class V cavity in the same way, but inlays on the Class III cavity cannot accomplish the generous labial bevel that is possible with the foil. With the use of finishing strips to bevel before the application of foil we are able to wrap foil around the enamel margins and effect a more adequate cavity seal. This shingling effect with foil is also of great value in protecting the lingual margins of the maxillary Class III cavity in wear from the labial and incisal edges of the lower anterior teeth. A butt joint of enamel on the lingual aspect of the Class III preparation will cause the enamel rods to fracture and fall out, leaving a void at the margins, but with foil we are able to

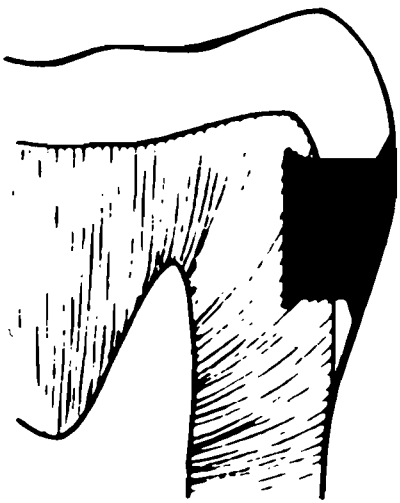

Figure 4

Figure 4. An adequate bevel is essential to provide an effective seal at the cavity margins. Gold foil, because of its mechanical properties, permits such a bevel.

cover this enamel margin and protect it in wear. This same shingling effect is of utmost importance in the protection of the incisal margins in Class IV preparations. We must always avoid the butt joint here; fortunately, with well condensed and highly tempered foil we are able to protect this enamel. Experience proves that as the patient wears this area of the incisal edge of the upper anteriors with the incisal edge of the lowers he burnishes and further contours the foil labially. There are those who object to the use of foil in long thin bevels, suggesting that they will curl back, but clinical experience does not bear out this supposition. Foil will remain in its intended position and wear as does the tooth itself if the cavity margins are so planned that the incisal and masticatory stresses tend to burnish the foil against the enamel wall rather than away from it.

Condensing Instruments

There are three methods being used generally in the condensing of the modern gold foil restoration. The first method employs the Hollenback pneumatic instrument, which is perhaps the most generally used and has been very popular during the last twenty years. The second method used by many experienced operators is the older method of condensation with hand condensers and the hand mallet used by the assistant; it often produces results that are superior. The third and newest method utilizes the electric mallet that has been recently developed in Southern California; this technic offers considerable promise for achieving good results.

The results achieved by these three methods do not depend so much on the instrument as upon the operator and his experience with the particular method of condensation. It also seems that there are particular places and situations in which one of the three methods of condensation works better than the other two methods. Some operators use all three of the means of condensation, the choice depending on the particular situation. Often it is found that the use of the hand instruments allows the operator to compress the foil in retention areas better and with greater ease, and he may then proceed with the pneumatic instrument or the electric mallet, with more rapid blows and with larger condenser instruments, and develop greater hardness. It seems that all three of the instruments have their particular advantages and disadvantages. The younger operator just beginning to use foil would perhaps be better off to use the new electric or the pneumatic mallet, but he should know that the occasional use of the hand mallet would be very advantageous in particular situations. Certainly the type and rapidity of blows delivered by the electric mallet offers new horizons in speed and hardness.[1] The use of this instrument with the smoother faced points and a type of burnishing action should be investigated by the operator.

Types of Foil

Foil is generally used in three different forms. First are the popular cohesive pellets, which become cohesive after the application of heat that is used to drive off moisture and gases. Second, we hear increasingly more about the use of mat foil,[1] which is a crystalline preparation that becomes very cohesive when it is heated properly. It is more difficult to remove the air from it in condensation than from the regular pellet type of cohesive foil, because the mat foil is bulkier and more sticky. It does not seem to be as desirable for strength and surface finish as the regular cohesive material. It is used generally to provide bulk in the deeper portions of the larger Class V preparation where strength is of lesser importance, and it is usually used in conjunction with the regular cohesive foil which is depended upon for the important retentive areas and the margins and exposed finished surfaces. Each of these materials has its proper place, and the conditions of usage should be considered carefully before a selection is made.

The third, and oldest, form of foil is used by more experienced operators in the building of bulk in Class II cavities. It is a non-cohesive cylinder that is folded from sheet form and is not heated. It remains softer in the cavity and is used in the interproximal and gingival areas where there is no occlusal stress on it. It can be made to fit intimately into cavity detail because, unlike cohesive foil, it continues to move and condense much beyond the surface as pressure and blows are applied. The non-cohesive cylinder is used in conjunction with cohesive foil which retains it and takes all occlusal wear and stress. The advantage of the non-cohesive cylinder is that it permits a large area to be filled very quickly; it is a material of expediency, as is the mat foil. The places for the use of the non-cohesive cylinder are rather limited, and it might be disregarded by the average operator. He should confine himself to the use of cohesive pellets in the smaller cavities for greatest success and service.

Depth of Condensation

We should realize that, particularly with regular cohesive foil, we should not expect to condense the foil deeper than the immediate pellet on the surface. Too often operators imagine that they can condense a considerable mass of uncondensed foil by applying heavier blows. To achieve a well condensed foil with sufficient strength we must condense each pellet as it is added to the mass. The only foil that we condense is on the surface, and the effect of the blow does not penetrate into the deeper portions of the material. Often when foils bend, leak or become partially displaced it is because each pellet was not thoroughly condensed when it was placed in the cavity.

The size of the condenser point is also an important consideration. The larger the face of the condenser point, the greater must be the blow that is required to condense the pellet properly. Smaller points and pellets should be used when we desire greater strength of the mass, although reductions in both time and trauma can be effected by the use of larger points and pellets in the larger foils, especially when the building of volume of material is the prime consideration.

Burnishing

It is interesting to note that the burnishing effect of occlusal and incisal wear tends to harden the well condensed foil. We have long understood that when we hand-work metal by burnishing movements we temper and harden it. Masticatory wear and the burnishing effect of hand instruments on foil harden it. The foil starts out very soft and uncondensed, but as we mallet it and work it we harden it, and it is surprising to what extent this hardening will take place if we burnish the foil toward the enamel margins with many rapid blows of the mallet. We have experienced this especially with the Hollenback pneumatic mallet, and more recently with the new electric mallet. It is often desirable to use a skidding movement toward the margins that produces intimate adaptation and increased hardness, especially when using condenser points that are rather smooth on the face. For many years we used serrated amalgam condensers because we believed that the roughness made by them helped the next piece of amalgam to cohere with the mass, but during the last several years we have gone toward smoother faced condensers because we have learned that roughness is not the factor that produces the cohesion. This is also true to some degree with foil.

It must be remembered that there are four primary purposes in the condensation of a foil restoration: first, to contact intimately all the detail of the cavity with the material; second, to eliminate the air space from the cavity and from the uncondensed foil pellets; third, to harden and temper the mass so that it will have sufficient strength to compare favorably with the original structure that it replaces; and fourth, to protect the frail cavity margins in the enamel.

Line of Force

The line of force used in condensing gold foil, though of great importance, is often neglected. It may be defined as the direction in which the condenser points and in which the force of the blow is directed. This line should generally be directed toward the surrounding walls of the cavity. It is our desire to fit the foil as tightly and intimately as possible to a particular wall,

margin or bevel, and to do this we should direct the line of force as nearly as possible at right angles to it.[5] To produce a tightly fitting restoration that will resist leakage at the margins and walls we must first build the foil against one wall, then hold the material very tightly against this wall as we change the line of force against the opposite wall. We cannot expect a successful seal of a lingual wall on a Class III cavity if the line of force used to build up this lingual is directed gingivally, as it often is. In this example the position of the condensing instrument must be changed from the gingival direction to deliver the blow directly against, and at right angles to, the lingual wall we are attempting to seal.

Gingival Acceptance

For many years the clinician has noted the desirable way in which the gingival tissues adapt themselves to foil that runs below their margin. No other material seems to have a greater degree of gingival compatibility. Zander[10] and Waerhaug[8] noted that there seemed to be a cellular attachment to foil that was sealed to the roots of teeth that were extracted and reinserted into the sockets. This indicates that the foil itself has no qualities that repel cellular growth and development, and we would expect this because of the negative chemical reaction of gold.[3] Then, too, we know that a very well condensed foil can be finished almost perfectly smooth, and this characteristic has long been proved to be desirable for contact with living cells. Periodontists try to achieve a smooth polish on roots which is similar to that of the well finished foil. Perhaps the most important factor is that with a long bevel under the gingival margin we have no irritating crevice between the filling material and the cavity margin. Even with the best inlay there is a minor crevice that is filled with cement. This cement in itself is rough and chemically irritating, and, as it dissolves out to any degree, it allows an open crevice that harbors bacteria and other materials.

With any material there tends to be a percolation factor at all margins, probably because of the differences in coefficient of expansion of the various materials and the tooth structure itself. The ratio of the linear coefficient of expansion of gold foil to that of tooth structure[6] is only 1.3. This small difference may be compensated for to a great degree by making a long gingival bevel that will produce, in effect, a sliding-joint action (Figure 5*B*) that permits few or no crevices which will harbor bacteria. This point may account for the very good clinical results obtained by foil throughout the years. Perhaps we should try to finish more of our gingival margins so that the adjoining surfaces of the tooth structure and the restorative material are parallel to the long axis of the tooth rather than at right angles to it as in the gingival butt joint. We should consider the advantage of the

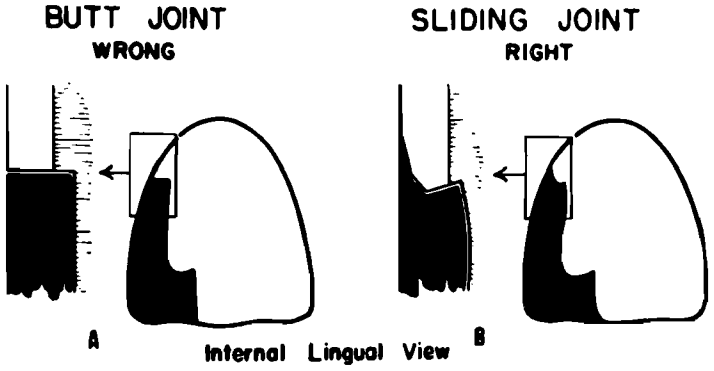

Figure 5

Figure 5. *A*, Butt joint at gingival margin of Class IV gold foil restoration allows formation of crevice that may harbor bacteria. *B*, Sliding joint prevents formation of crevice.

sliding-joint margin produced by the gold crown rather than the right-angle margin suggested for the acrylic. This sliding joint might to some degree explain the clinical effectiveness of the gingival margins in the "slice" inlay preparation, or especially the old full shell crown. With these joints that were made parallel to the long axis of the tooth rather than at right angles to it, perhaps a more desirable condition existed than in the butt joint, which would be opened by the change in dimension of the restoration in response to thermal change.

Anatomy and the Importance of Contact

Gold foil maintains its anatomy in the gingival Class V cavity much better than the silicate restoration, and this desirable contour, as well as the smooth surface, is important to the health of the gingival tissues.

One has only to study the worn contact areas of natural extracted teeth to be impressed with the great importance for hardness of the restorative material that is used to restore contact areas in Class III and Class IV cavities. These contact areas are designed by nature as smooth convexities, and their function seems to be the protection of the gingivae and interproximal alveolar crest from food impaction and trauma. The well-formed and hard contact areas prevent excessive mesial drift of teeth, and these same characteristics of form and hardness can readily be achieved and maintained with properly handled foil. It is of great importance that the foil be tempered and condensed in the contact area with the greatest of care to develop adequate hardness in this area. Certainly we must guard carefully against

pits and uncondensed areas for the sake of cleanliness. Poorly condensed areas in foil are not clean, and it is evident that these pits soon become filled with moisture, bacteria and organic material.

Hardness and Strength

The well made foil has greater strength than other materials used in certain cavities.[7] There is certainly greater hardness in enamel than in any of the restorative materials we use, but when we repair or restore it we find it advantageous to use a material that is similar in hardness and wears rather evenly with the surrounding enamel. The very hard inlay gold often becomes too high as it wears unevenly in relationship with the enamel, and the pure gold casting may wear more rapidly than the surrounding tooth structure, but the tempered quality of the well condensed foil seems to be the nearest to the ideal that we have yet achieved. Many experiences show a beautiful evenness of wear when we build up the incisal edges of anterior teeth with foil. Foil's degree of hardness allows it to replace the softer dentin in cases of severe incisal or lingual abrasion, and it works equally well in the restoration of incisal angles in the MI or DI restoration. In these and in the interproximal restorations, the lingual surfaces that are restored wear evenly with the enamel.

Retention and Material Strength

In the cast inlay where pins are used for strength we often see small gauge iridioplatinum pins used for retention, and although such small bulk serves here because of the nature of the material, we must use more bulk for the retention of foil. Too often we see displaced foil restorations that have depended on similar small caliber points made of gold foil. The lesser strength of foil demands greater bulk in the planned retentions. We should use bars of gold rather than pins or pot-holes—this is particularly true when there is great stress from the opposite arch applied to the restoration, as in Class IV and, often, Class III restorations. It is possible to place the foil and to finish it with inadequately planned retention areas, and although the immediate result seems good, the foil will often be loosened or displaced under the long and repeated stress of function. It is less important how the restoration looks immediately following the operation than how it will serve throughout the years.

Bars built into undercuts (Figure 6*D*) on the gingival and occlusal margins are more desirable than the older pot-holes that have only convenience value in starting the foil, but very little actual retentive value. The gingival retention of well-developed triangles of gold (Figure 6*C*) in Class III and Class IV cavities is necessary and more desirable than the simple bur-produced

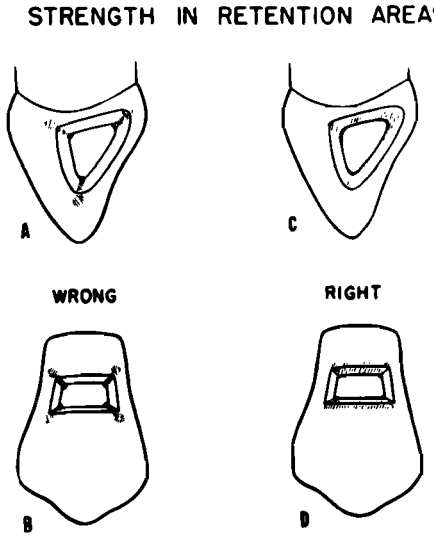

Figure 6

Figure 6. The triangular (*C*) and bar-shaped (*D*) retentive areas are much more effective than the pin and pot-hole types (*A* and *B*).

undercut. We should note that the hardness and strength of the material encourage us to build greater bulk in important areas in order to produce the required resistance to displacement.

Conclusions

The physical properties, cavity design and manipulation of the material for the gold foil restoration have been discussed. As judged by its physical properties and from the standpoint of service to the patient, gold foil is at present indispensable in preserving the natural teeth in a state of function and health.

903 Grand Avenue

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GOLD FOIL DEMONSTRATION IN TOKYO

On May 1, 1962, Dr. Lee D. Barth, an active member of the Academy, demonstrated a gold foil technic before 30 instructors from three dental schools in Tokyo.

Dr. Takao Fusayama, Professor of Operative Dentistry at the Tokyo Medical and Dental University and Chairman of the Japanese Research Society of Dental Materials and Appliances, arranged the program at his school. Dr. Barth gave a one-hour illustrated lecture and then inserted a Class III gold foil restoration with maximum esthetic results. Dr. Barth was assisted by Dr. Hiroyasu Hosoda, Assistant Professor.

The new technic of cosmetic gold foil restoration demonstrated by Dr. Barth greatly impressed the Japanese dentists who eagerly watched the procedure.

THE 1962 ACADEMY AWARDS

Forty-three dental schools were contacted by Mrs. Vonne Wolf, Executive Secretary, to determine their desire to participate in the 1962 Academy Awards. Six schools did not reply to the Secretary's inquiry.

Four schools—New York University, The University of Alabama Medical Center, University of California and University of Pittsburgh—responded favorably to the request but were unable to submit the names of deserving recipients.

The remaining thirty-three schools submitted the names of those students selected to be recipients of the Award, and certificates of achievement were presented to the following graduates:

EVAN LADELL ALLRED, *Washington University (St. Louis)*
RICHARD L. BARNES, *Marquette University*
EARL W. COLLARD, *Loma Linda University*
JAMES E. COLLINS, *Saint Louis University*
DAVE A. DOUMA, *Creighton University*
JAMES D. FREY, *Indiana University*
W. J. FROESE, *The University of Manitoba*
ROBERT E. FULTON, *Fairleigh Dickinson University*
GERALD GRAYSON, *University of Detroit*
JAMES ALBERT GRIFFIN, JR., *Baylor University*
RICHARD Q. HAMORY, *Temple University*
FRANCISCO HERNANDEZ-OQUENDO, *University of Puerto Rico*
HERBERT H. HOOPER, *University of Washington (Seattle)*
ERNEST R. LALONDE, *The University of Buffalo*
ARMAND LUGASSY, *University of Pennsylvania*
GERALD LOUIS MERRITT, JR., *The University of Texas*
STANLEY KONG MIN HEW, *Northwestern University*
MICHAEL P. MONTALEONE, *University of Illinois*
ALBERT KIYOSHI NAKAKURA, *The University of Kansas City*
ALBERT LOUIS PIZZI, *University of Maryland*
GEORGE LINUS RIOSECO, *Seton Hall College of Medicine and Dentistry*
KENNETH H. SCHRECENGOST, *University of Oregon*
KINGSTON F. SMITH, *University of Michigan*
ANTHONY J. STANKEWICZ, *Georgetown University*
JOHN P. THOMAS, *State University of Iowa*
JOHN V. URICK, *University of Minnesota*
DAVID R. WAGNER, *The Ohio State University*
KAHN K. WALKER, *Meharry Medical College*
ROY A. WILKO, *Columbia University*
JOHN DOUGLASS WILLIAMS, *Howard University*
AARON H. WILSON, JR., *West Virginia University*
ROBERT N. WOODALL, *Loyola University (Chicago)*
VANGEL ROBERT ZISSI, *Tufts University*
FRANK C. DEVANE, 1961, *Georgetown University*

PRESCRIPTION WRITING AND DRUGS USEFUL IN DENTISTRY*

Wallace W. Johnson,** B.S., D.D.S., M.S., Iowa City, Iowa

Upon the modern practitioner of dentistry are placed many demands for a wide variety of forms of treatment. The general practitioner must be in his own right a restorative dentist, an oral surgeon, a prosthodontist, a pedodontist, a periodontist, and possibly an orthodontist. He must be an artist in his work, a psychologist with his patients, a businessman for his practice, a contributor to social functions of his community, a pillar in his church, as well as a husband and father, head of his household, and provider for his family.

It is therefore feasible to think that such a man should and must use every available means at his disposal to render his treatment to the best of his ability, and for the benefit of his patients, himself, and his practice.

The purpose, then, of this presentation is to renew acquaintances with an added "tool" that can be so very useful—if not essential—to a dentist in conducting his practice. This "tool" is the proper use of the prescription and medicines in a dental practice.

The question is often asked, "Why should the dentist use medicines and prescriptions in his practice?" The answers are many, and it would be proper to suggest a few here.

The use of medicines through the channels of the prescription places a whole world of drugs at the prescriber's disposal and at no investment on his part. However, he must invest in time and study so as to gain knowledge of their uses. In this way the practitioner selects the appropriate medicine for the condition or disease to be treated, rather than makes the disease fit the samples and drugs he may have on hand.

The proper use of medicines by the dentist gives the patient the full benefit of his training. By the use of medicines through the prescription the dentist can be in full control of the treatment, even when the patient is not in his office. But most important is the fact that incorporating the uses of drugs in one's course of treatment constitutes a scientific approach to the dental problems we are confronted with.

Where, then, can specific medicines be of value in our practice? There are many areas where drugs are needed in conjunction

* Presented before the Interim Meeting of the American Academy of Gold Foil Operators, February 17, 1962, Chicago, Illinois.

** Assistant Professor of Operative Dentistry, State University of Iowa; Member, Woodbury Gold Foil Study Club.

with our other forms of treatment, but for the purposes of this presentation we shall give most of our consideration to three main areas: infection, sedation, and analgesia.

Drugs for Treatment and Prevention of Infection

The Penicillins

Penicillin is still the antibiotic of first choice and importance to the dentist. The reason is that most of the pathogens that concern us are attacked by penicillin. Likewise, the toxicity of penicillin is extremely low; its antibiotic activity is high; and it is the least expensive of all the antibiotics. It also is available in many dosage forms, which enable any patient to have the benefit of this drug.

The types of penicillin which have the most clinical use are penicillin G, in both parenteral and oral forms; phenoxymethyl penicillin; phenoxyethyl penicillin; benzathine penicillin; and dimethoxy penicillin. The types of most interest to the dentist are the forms of penicillin G and phenoxymethyl penicillin or penicillin V.

Penicillin G. Penicillin G seems to be regarded mostly as a parenteral penicillin, but this should not be. It is also a good penicillin when used orally in buffered tablets, and because it is the least expensive and the least toxic of all the antibiotics, much more of it can be given to the patient.

Crystalline potassium or sodium penicillin G is used both orally and parenterally. When given parenterally a therapeutic blood level is obtained in 10-15 minutes. The excretion via the kidney is very rapid and by four hours most of it has been eliminated.

When used orally, crystalline penicillin G (sodium or potassium) must be buffered to prevent its destruction by the gastric juice. Blood levels are reached via this route of administration in approximately one hour. As it is excreted rapidly, a large daily dose must be administered. From 1,200,000 to 1,600,000 units should be taken daily to maintain a therapeutic blood level.

Another form, procaine penicillin G, is used only parenterally, and then only by intramuscular injection. It is much more insoluble, giving a therapeutic blood level for over twelve hours, with traces still present after 24 hours. By the addition of aluminum monostearate, the absorption of the injection is further slowed, and made more even, giving therapeutic blood levels for over 24 hours. The usual dosage of procaine penicillin G is from 300,000 to 600,000 units.

Injectable penicillins are used by many dentists and with good results. If you give any form of penicillin, however, you should have a good history of your patient, his past experiences with penicillin, the types he has previously taken, and any other al-

lergic tendencies he might have. We should be aware that penicillin is a potent allergenic agent, even though it is literally nontoxic. Many forms of allergic responses can be produced in susceptible patients. These range from simple urticarias to complete exfoliative dermatitis, but worst of all the possibility of anaphylactic shock is present. The urticarias and dermatitises are serious but hardly fatal. They should serve as a warning to the patient to never again take penicillin. The anaphylactoid shock though is usually fatal if proper treatment is not forthcoming immediately. The treatment of choice is epinephrine administered intravenously. The dentist who gives parenteral penicillin should therefore have an emergency kit fresh and ready for use at all times.

The dose of epinephrine I.V. is 0.05 mg. to 0.20 mg. (0.05 cc. to 0.20 cc. of a 1/1000 solution) diluted 200 times and given slowly in the vein, according to the needs and response of the patient.

If the intravenous method seems impossible, the next method would be an intramuscular injection of epinephrine, giving 0.25 to 1.0 mg. (0.25 cc. to 1.0 cc. of a 1/1000 solution). The injection area should be massaged vigorously to gain absorption.

Any patient receiving a parenteral form of penicillin should be watched for 30 minutes after the injection. Besides the emergency kit, the dentist should have oxygen equipment at hand to insure proper ventilation.

It is now realized that the majority of sensitivity reactions come from topical and parenteral uses of penicillin. The oral method has a much lower incidence of reactions and is therefore somewhat favored if it can be used.

Penicillin V. Penicillin V was received with much enthusiasm when it came upon the market. Route of administration is only oral. It is not affected by gastric juice and is well absorbed. The peak blood levels obtained are equal to those obtained by the parenteral form of administration. The one question still to be answered is the effect of the greater amount of protein binding of penicillin V over that of penicillin G. One effect of the protein binding is a slower excretion, but does it also lower the antibiotic activity?

Any way that we consider them, however, the oral forms of penicillin G, and V, are a great adjunct to the dentist's control or prevention of infection.

Erythromycin

Erythromycin is a narrow-spectrum antibiotic. Its bacterial spectrum is very similar to that of penicillin. Erythromycin is again available in many convenient dosage forms.

Erythromycin is especially adaptable for interchange with penicillin. If the patient is sensitive to penicillin, or the organ-

ism is resistant to penicillin, erythromycin is the drug of choice since it will not effect a sensitivity reaction in the patient, and will cover the same spectrum as penicillin. For the dentist erythromycin is a very valuable drug. However, we should guard against using it indiscriminately so as to protect is effectiveness.

The Tetracyclines

This group of antibiotics is becoming very large. They are classified as broad spectrum, hitting both but not all gram-positive and gram-negative organisms, rickettsia and large viruses.

We shall discuss only two out of this group—tetracycline (Achromycin, Tetracyn, Mysteclin) and demethyl-chlortetracycline (Declomycin). These drugs are best used in cases unaffected by the narrow-spectrum antibiotics, or if the dentist is dealing with patients hypersensitive to penicillin, or organisms resistant to penicillin or erythromycin. These drugs are very valuable for the dentist also because they have few side reactions, are well absorbed and offer the practitioner a wonderful drug to fight the really tough cases.

Declomycin differs from the other tetracyclines in that it has 50 per cent longer activity due to greater chemical stability and slower renal excretion. It need be given only half as often. Otherwise, resistance and toxicity are the same as for the others.

If the patient should experience nausea or other gastrointestinal symptoms with the tetracyclines, the dentist should advise the patient not to take metallic antacids as these will prevent absorption of the drug.

Superinfection can be a problem in long, heavy dosing with these drugs. However, in dental treatments the dose and length of time of dosing are such that superinfection may not be too critical a problem.

A short discussion on two other antibiotics would be appropriate here. These two drugs are chloramphenicol (Chloromycetin) and the streptomycins.

Chloramphenicol is a naturally occurring broad-spectrum antibiotic. It is well absorbed and well tolerated by the patient, and is an effective antibiotic. However, with some patients it has serious side effects, particularly on the bone marrow. It causes certain blood dyscrasias, the most serious of which is aplastic anemia that seems to be irreversible and is usually fatal. To the dentist, chloromycetin has absolutely no advantage over the tetracyclines and therefore its use is not recommended.

The streptomycins are gram-negative antibiotics. The essential problem with these drugs is their affinity for and damage to the eighth cranial nerve. Streptomycin causes vestibular damage, while dihydrostreptomycin causes auditory damage. For these reasons, the streptomycins are of no value in dental treatment either.

Drugs for Analgesia

In many respects the words "pain" and "dentistry" are synonymous. Even though every dentist prides himself on his painless treatment, the area of analgesia should still demand our constant attention.

If a dentist has a narcotics permit, his field of selection of analgesic drugs is much larger. The narcotic drugs are, of course, the more potent of the analgesics. Of all the narcotics, codeine and Demerol would probably be most useful in dentistry. Their uses should be confined to the more severe types of pain. When the narcotics are used, the dentist will find that they produce not only analgesia but also a fair degree of sedation.

Codeine combined in varying strength with aspirin, or the A.P.C. mixture is still very popular as a dependable analgesic agent. The average adult dose of codeine is 30 mg.; however, it can be effective in doses as low as 15 mg. and may be used in doses as high as 60 mg., not to be repeated more often than every 4 hours.

Two non-narcotic analgesics have achieved popularity in the past few years, and actually are a good addition to our group of analgesics. Darvon and Zactirin are both chemically related to Meperidine, but their analgesic characteristics resemble those of codeine. However, there is little or no central depression with these drugs, and they may be used without a narcotics permit.

Aspirin, phenacetin, and caffeine preparations on the market number into the hundreds and most certainly are not strange to any dentist; they need little comment here.

Aspirin alone also commands much respect as a safe and effective antipyretic analgesic agent. The fact that tons of aspirin are swallowed each year by the American public is an indication of its acceptance. This degree of safety is lost in the hands of children, however, as acetylsalicylic acid is one of the more frequent causes of poisoning in children. When we prescribe, dispense, or recommend aspirin, we should also advise against its availability for small children. Aspirin will continue to be one of our leading drugs for analgesia.

Tranquilizers, Sedatives, Hypnotics

Of this already large and growing group of ataraxic drugs, it would be safe to say that most of the phenothiazine derivatives and the rauwolfia alkaloids are generally unsuited for a dental practice because of the long periods of administration required for results, plus the toxicities they present. However, promethazine, meprobamate, and hydroxyzine seem to enjoy a widespread use among the members of the dental profession. There have been no well-controlled studies to substantiate their effectiveness in dentistry. Most of the knowledge about them has come from their great clinical use.

The tranquilizers are of great significance, even though their usefulness is questioned. Any patient presently taking a tranquilizer may experience untoward reactions with other medications since the tranquilizers tend to potentiate other drugs. It is, therefore, essential that the dentist know about these drugs if they are being used by his patients.

The barbiturates have been dependable sedatives for the dentist for many years. They are inexpensive, and the degree of sedation is fairly sure and can be very well controlled.

The barbiturates do present problems, however, because they are purely cerebral depressants, and any patient under the influence of these drugs will not have normal, alert, mental capacities. It is essential, therefore, that any person receiving such sedation in a dental office be escorted home, or kept in the office until recovery is certain. Also, if the dentist prescribes these medicines for use at home, it is advisable to keep the number dispensed at a minimal amount so as to avoid accidents in overdosing.

The most favorable barbiturates for dental sedation are pentobarbital and secobarbital. These drugs act quickly, within 30 minutes, and have a short duration with a minimal amount of hangover. They last up to four hours. Convenient dosage forms are available for these sedatives so that both children and adults can easily take them. The average adult dose for sedation for either of these two drugs is 100 mg.

How, then, can we prepare ourselves to use medicines properly in our practice? How do we go about writing a prescription?

There is no easy way to make ourselves proficient in the use of drugs. There must be a need for them and an interest in them, and a desire to learn.

There is much written material that can be very valuable in helping us to apply and use medicines in our daily practice. Texts in pharmacology, physicians' desk references, *New and Non-Official Drugs, Merck's Manual,* are only a few of the many publications of value to us. One we should not forget is our own *Accepted Dental Remedies.* The information from this reference is sound and dependable and very practical for our uses.

Another good source of help and information is your pharmacist. Drugs and prescriptions are his business, and he would be very willing to give assistance.

To write the prescription itself is not a difficult task once the drug is selected and the amounts and dosages are decided upon.

As we begin at the top of the prescription, we fill in the patient's name, address, and age, plus the date the prescription was written. Next comes the symbol "Rx," meaning "take thou." Under this comes the ingredients or drugs being ordered and their amounts. Next are the directions to the pharmacist and the directions to the patient about the administration of the

medicaments. The prescription must be signed by the practitioner. If narcotics are used, then the dentist's narcotic number must also be written on the prescription.

Latin is no longer used in writing prescriptions. English has the advantage of being more exact, leaving no room for error. The metric system is recommended to be used in designating the amounts and sizes desired for the drugs.

We should re-emphasize that no treatment in dentistry can be left to drugs alone. However, many of our procedures should not be left to manipulative technics alone either. The use of drugs should supplement our endeavors in our practices. With the proper use of drugs and prescriptions we can have a most valuable and silent practice aid.

College of Dentistry
State University of Iowa

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RUBBER DAM GEMS

An Aid to Proper Hole-Punching. Available is an excellent rubber stamp and stamp pad that makes hole-punching a breeze. It has the average adult arch outlined and includes proper locations for a normal deciduous arch, too. In a matter of minutes, the assistant can stamp several cut pieces of rubber dam in advance of use, and the dots will serve as a guide for the abnormal as well as the normal tooth locations. Contact Dr. Ted Ferguson, the designer, at 4043 Armitage Avenue, Chicago 39, Illinois, for manufacturer and price—about $4.00 with a stamp pad if ordered singly.

An Ideal Lubricant. A tasteless, odorless, greaseless, and completely water-soluble lubricant is available under the name "Water-soluble Ointment Base," supplied by Amole, Incorporated, Dayton, Ohio. Navy dental officers have used this with much success and satisfaction and find that only the minutest quantity is necessary. A one-ounce jar would last a routine user of the dam more than a year. (Suggested by Captain Paul A. Moore, DC, USN.)

A Technic for Rubber Dam. A step-by-step technic for application of the rubber dam is included with a fine plastic template made by the Hygienic Dental Manufacturing Company, Akron, Ohio. Cost: approximately $1.00. (Suggested and recommended by Dr. Charles M. Stebner, Laramie, Wyoming.)

Preparation of Area Before Applying Dam. The troublesome interproximal spaces that hinder proper and easy dam application can be markedly improved by testing the contact areas and removing sharp edges and overhangs that fray or cut the floss or tape. These irregularities can be eliminated by discing and, if necessary, separating and stripping. The use of these methods is a phase of preventive dentistry. (Suggested by Dr. Ray E. Stevens, Jr., Grand Rapids, Michigan.)

Removal of SSW 212 Clamp and True Separator. When clamp or separator is reinforced with compound, warming the clamp forceps will enable the operator to "find" and engage the clamp (or separator) by pressing gently but firmly through the compound. This procedure will allow for opening the edges of the clamp (or separator) and prevent damage to the restoration on removal. (Suggested by Dr. Herbert F. Gillard, Houston, Texas.)

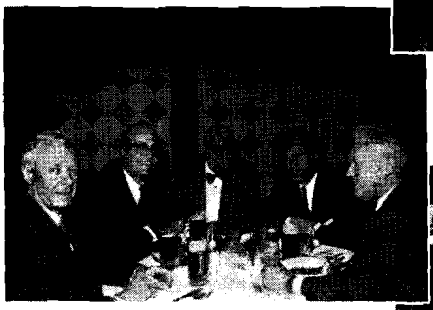
Removing a SSW 212 Clamp. Since both jaws of a rubber dam clamp tend to open at the same time, a finished Class V foil may be damaged by the buccal or labial jaw. A freshly placed amalgam restoration may be ruined very easily. This may be prevented by placing the index finger of the free hand against the lingual of the clamp, opening then only the labial or buccal jaw and thereby eliminating the danger to the restoration in removing the clamp. This method may be used when placing the clamp. (Suggested by Dr. Ted Ferguson, Chicago, Illinois.)

Securing Dam on Anterior Teeth. A small triangle of dam cut from a corner after application may be stretched and placed at the most anterior embrasure for securing the rubber dam in this area. Especially useful when the contact is not tight, it eliminates the need for ligation of the teeth in this region. (Suggested by Dr. Charles F. Bouschor, Dallas, Texas.)

Technic for Rubber Dam Application with Assistant. This technic is intended to set out in order steps in the application of rubber dam, showing the teamwork necessary between the doctor and nurse to accomplish the desired result with a minimum of effort and in the shortest possible time. (Suggested by [and obtainable from] Dr. Harold M. Cline, Medical-Dental Arts Building, Vancouver, British Columbia, Canada.)

NOTE: The Rubber Dam Committee invites all readers to submit their pet ideas on dam application for the "Rubber Dam Gems" section of the *Journal.* Please send your ideas to Paul A. Moore, 32 Upshur Road, United States Naval Academy, Annapolis, Maryland.

PICTORIAL REVIEW OF 1962 INTERIM MEETING



THE 1962 INTERIM ACADEMY MEETING

On February 16, 1962, the Academy held its Interim Meeting at Northwestern University, School of Dentistry. The morning session consisted of two scientific papers, one presented by Dr. Eugene W. Skinner entitled "The Effect of Annealing Temperatures upon the Physical Properties of Gold Foil" and another entitled "Prescription Writing and Drugs Useful in Dentistry" presented by Dr. Wallace W. Johnson. (Editor's note: Dr. Johnson's paper may be found on page 72 of this issue of the *Journal.*)

The afternoon session was devoted to chair and table clinics on various gold foil procedures presented by the following clinicians:

DR. LLOYD BAUM, *Loma Linda, California*
DR. WILLIAM PAUL BURCH, *Elmhurst, Illinois*
DR. ROBERT W. CHAPIN, *Omaha, Nebraska*
DR. CECIL H. FEASEL, *Seattle, Washington*
DR. E. G. FITZGERALD, *Seattle, Washington*
DR. HERBERT F. GILLARD, *Houston, Texas*
DR. H. WILLIAM GILMORE, *Indianapolis, Indiana*
DR. A. IAN HAMILTON, *Seattle, Washington*
DR. J. WARNER HENDERSON, *Hood River, Oregon*
DR. ALEXANDER W. JEFFERY, *Fallbrook, California*
DR. RICHARD N. LAMERMAYER, *Kenilworth, Illinois*
DR. DONALD E. LINDSAY, *Toronto, Ontario, Canada*
DR. LAWRENCE R. LUDWIGSEN, *San Francisco, California*
DR. WILLIAM PETERSON, *Bellingham, Washington*
DR. DONALD K. PHILLIPS, *Nebraska City, Nebraska*
DR. WILLIAM O. PUGSLEY, *Fremont, Nebraska*
DR. HAROLD E. SCHNEPPER, *Rialto, California*
DR. RAYMOND W. SHADDY, *Omaha, Nebraska*
DR. WALTER K. SPROULE, *Vancouver, British Columbia, Canada*
DR. RAY E. STEVENS, JR., *Grand Rapids, Michigan*
DR. THEODORE L. TAYLOR, JR., *Madison, Wisconsin*
DR. WILLIAM M. WALLA, *Fremont, Nebraska*
DR. RALPH J. WERNER, *Menomonie, Wisconsin*

In attendance at this meeting were 383 members, ladies and guests, of which 58 were members of the American Association of Dental Examiners. The Academy sincerely hopes that all those who attended the meeting derived great value through their observations of the procedures demonstrated.

THE 1963 INTERIM ACADEMY MEETING

The 1963 Interim Academy Meeting will be held at Indiana University, School of Dentistry, in Indianapolis, Indiana, on Friday, February 1, 1963. The meeting, which will precede the Chicago Mid-Winter Meeting, will consist of a one-day session of formal presentations and chair clinics. All Academy members as well as guests are invited to attend this meeting.

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NOMINEES FOR ACADEMY OFFICES

The Nominating Committee has submitted the names of the following members for offices during the 1962-1963 term: Dr. Arne F. Romnes, *President-Elect;* Dr. Lawrance R. Ludwigsen, Executive Council (3-year term); and Dr. Paul A. Moore, Executive Council (to fill the unexpired term of Dr. Arne F. Romnes). The balloting will take place during the Annual Business Meeting on Friday, October 25, at The Guest House Motor Inn in Birmingham, Alabama.

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PROGRAM OF THE ELEVENTH ANNUAL MEETING

Arrangements for the Annual Academy Meeting to be held October 25 in Birmingham, Alabama, have been completed. The formal presentations and chair clinics will be conducted at the University of Alabama, School of Dentistry, 1919 7th Avenue, South; the social hour, banquet and business meeting will be held at The Guest House Motor Inn. This inn will be the headquarters for the Academy during its Eleventh Annual Meeting.

The Academy owes a debt of gratitude to Dr. Henry A. Merchant and his committee for making all the arrangements. The Academy would also like to express its appreciation to the participating clinicians, who will contribute their time, effort and skill to provide for the members an excellent program.

PROGRAM

UNIVERSITY OF ALABAMA
SCHOOL OF DENTISTRY

Thursday, October 25, 1962

10:00 a.m.—Executive Council Meeting—"The Guest House"

Friday, October 26, 1962

9:00 a.m.—Registration

9:30 a.m.—Opening Ceremonies

Call to order.....*President*, DR. GEORGE A. ELLSPERMAN
Invocation.....
Welcoming Remarks.....
Remarks.....*Program Chairman*, DR. HENRY A. MERCHANT

10:15 a.m.—12:00 noon

"The Elimination of Thermal Sensitivity Postoperative to Gold Foil Restorations"
Dr. John H. Mosteller, Mobile, Alabama

"The Use of Powdered Gold in Restorative Dentistry"
Dr. Lloyd Baum, Loma Linda, California

"Esthetic Restoration of Anterior Teeth with Emphasis on Rapid Fabrication of Fired Porcelain Units"
Dr. Bruce B. Smith, Seattle, Washington

12:00 noon—Luncheon—"The Guest House"

Annual Business Meeting

1:30 p.m.—5:00 p.m.—Chair Clinics

Class II Restorations

Dr. Lionel U. Bergeron, *Somersworth, New Hampshire*
Dr. Donald K. Phillips, *Nebraska City, Nebraska*
Dr. Kenneth C. Washburn, *Chicago, Illinois*

Class III Restorations

Dr. William J. Brennan, *Omaha, Nebraska*
Dr. Ralph A. Boelsche, *Houston, Texas*
Dr. James R. Burlington, *Lincoln, Nebraska*
Dr. Lyle W. Furst, *York, Nebraska*
Dr. Alvin L. Goding, *Alliance, Nebraska*
Dr. Donald E. Lindsay, *Toronto, Ontario, Canada*
Dr. M. Olin Loomis, *Seattle, Washington*
Dr. Lawrence R. Ludwigsen, *San Francisco, California*
Dr. Gerald D. Stibbs, *Seattle, Washington*
Dr. Wilburn H. Wilson, *Tulsa, Oklahoma*

Class V Restorations

Dr. Jose Amaya y de Vicente, *San Salvador, El Salvador, Central America*
Dr. Peter J. Cavallo, *Forest Hill, Tennessee*
Dr. Michael A. Kondracki, *Braddock, Pennsylvania*
Dr. Emory J. LaPorte, *Omaha, Nebraska*
Dr. Joseph B. Lenzner, *New York, New York*
Captain Norwood E. Lyons, *Laguna Beach, California*
Dr. Clifford H. Miller, *Chicago, Illinois*
Dr. Kenneth Ray, *Asheville, North Carolina*
Dr. Donald C. Stenberg, *Minneapolis, Minnesota*
Dr. Herbert J. Underhill, Jr., *East Greenwich, Rhode Island*
Dr. William M. Walla, *Fremont, Nebraska*
Dr. Paul P. Weaver, *Seattle, Washington*

Friday, Evening Program

"The Guest House"

(Ladies Invited)

6:30 p.m.—Social Hour

7:30 p.m.—Annual Banquet

8:30 p.m.—Installation of Officers

PROCEEDINGS OF TENTH ANNUAL MEETING

The Tenth Annual Meeting of the American Academy of Gold Foil Operators was held on October 13 and 14, 1961 in Philadelphia. The scientific program was presented at the University of Pennsylvania, and the business meetings were conducted at the Benjamin Franklin Hotel.

Dr. Robert B. Wolcott, President of the Academy, called the meeting to order; Dr. Ralph A. Boelsche delivered the invocation; and Dr. George A. Ellsperman, Program Chairman, introduced the essayists and presided over the scientific phase of the meeting.

Attendance

During the course of the two-day program 124 members and guests registered for the meeting. They represented 25 states including Alabama, Alaska, California, Connecticut, Georgia, Illinois, Indiana, Maryland, Massachusetts, Michigan, Missouri, Nebraska, New Hampshire, New Jersey, New York, North Carolina, Ohio, Oregon, Pennsylvania, Rhode Island, Texas, Virginia, Washington, West Virginia, and Wisconsin. In addition to these states, Canada, the District of Columbia and Puerto Rico were also represented.

Didactic Program

During the morning of Friday, October 13, papers were presented by Dr. George A. Brass on "Gold Foil—Discipline for Service," by Dr. Floyd E. Hamstrom on "Evaluation of Rubber Dam Technic," and by Dr. Rene W. Eidson on "The Value of Gold Foil in Clinical Teaching and the Stimulating Influence of New Developments in Methods and Equipment." On Saturday morning, October 14, papers were delivered by Dr. William E. Cody on "Class III Gold Foil Operations in Young Permanent Anteriors," by Dr. José E. Medina on "A Philosophy of Dental Practice," and by Dr. George M. Hollenback on "Physical Properties of Cohesive Gold." All the essays were received with enthusiasm and interest by those attending these didactic sessions. (Editor's note: The essays presented by Drs. Brass, Hamstrom and Medina were published in the May, 1962 issue of the *Journal.*)

Clinical Program

During the afternoon of Friday, October 13, chair and table clinics were conducted, demonstrating the preparation and condensation of Class II, III and V gold foil restorations, the armamentarium for the use of rubber dam, and the instruments and

equipment used in the recent research on the physical properties of cohesive gold. The following clinicians participated in this portion of the program:

DR. LEE D. BARTH, *San Francisco, California*
DR. LIONEL U. BERGERON, *Somersworth, New Hampshire*
DR. HENRY J. BIANCO, JR., *Ellicott City, Maryland*
MR. EARL W. COLLARD, *Loma Linda, California*
DR. GEORGE C. DARTS, *Vancouver, British Columbia, Canada*
DR. D. JACKSON FREESE, *Concord, New Hampshire*
DR. CALVIN J. GAVER, *Baltimore, Maryland*
DR. FLOYD E. HAMSTROM, *Burlington, Washington*
DR. G. RON HEATH, *Lansing, Michigan*
DR. FREDERICK A. HOHLT, *Indianapolis, Indiana*
DR. GEORGE M. HOLLENBACK, *Encino, California*
DR. JOSEPH B. LENZNER, *New York, New York*
DR. LAWRENCE R. LUDWIGSEN, *San Francisco, California*
DR. MELVIN LUND, *Loma Linda, California*
DR. NORWOOD E. LYONS, *Laguna Beach, California*
DR. WILLIAM MILLER, *Vancouver, British Columbia, Canada*
DR. CARL J. MONACELLI, *Brookline, Massachusetts*
DR. ARTHUR J. MONTAGNE, *Detroit, Michigan*
DR. MICHAEL J. MURRAY, *Omaha, Nebraska*
DR. LEO S. PERION, *Fremont, Nebraska*
DR. DONALD K. PHILLIPS, *Nebraska City, Nebraska*
DR. WILLIAM O. PUGSLEY, *Fremont, Nebraska*
DR. JOHN T. RYAN, *Seattle, Washington*
DR. BRUCE B. SMITH, *Seattle, Washington*
DR. RAY E. STEVENS, JR., *Grand Rapids, Michigan*
DR. GERALD D. STIBBS, *Seattle, Washington*
DR. WILLIAM M. WALLA, *Fremont, Nebraska*
DR. PAUL P. WEAVER, *Seattle, Washington*

Social Program

The social hour and banquet held at the Benjamin Franklin Hotel in Philadelphia was attended by 99 members, ladies and other guests.

After a delightful dinner, President Robert B. Wolcott spoke briefly of the progress made by the Academy during the first decade. He then introduced the members and guests seated at the head table and proceeded with the business meeting.

Business Meeting

TREASURER'S REPORT

As of September 1, 1961 the treasurer, Dr. Charles C. Latham, reported the following financial status of the Academy for the year 1960-1961:

Balance on Hand, September 1, 1960	$ 6,694.94
Total Receipts to September 1, 1961	7,378.08
Total	$14,073.02
Disbursements, September 1, 1960 to September 1, 1961	6,669.99
Balance on Hand, September 1, 1961	$ 7,403.03

PROGRAM COMMITTEE

Dr. George A. Ellsperman, Chairman, expressed his appreciation to the many clinicians and essayists who had participated in the Tenth Annual Meeting. He also reported on the successful tour of Morgan, Hastings and Company which was conducted on the afternoon of Thursday, October 12. The Academy accepted his report and extended its congratulations to Dr. Ellsperman and his Committee for the excellent and well-organized program.

NECROLOGY COMMITTEE

Due to the absence of Dr. Harold W. Sidwell, Chairman, Dr. Wolcott read the report recording the passing of Dr. J. H. Burns, of Hutchinson, Minnesota; Dr. William F. Hemphill, of Omaha, Nebraska; Dr. M. David Knower, of New York City; Dr. E. P. Lienemann, of Seattle, Washington; and Dr. Victor H. Carpenter, of Boston, Massachusetts. The Academy observed a moment of silent prayer in memory of these departed members.

MEMBERSHIP COMMITTEE

Throughout the past several years, the membership of the Academy has been increasing gradually. Dr. Arne F. Romnes, Chairman of the Committee, reported that as of September 1, 1961 the Academy roster contained the names of 474 members. This total included the names of the following applicants who were elected to membership during the Tenth Annual Meeting:

ACTIVE MEMBERSHIP

DR. JOHN F. ANDERSON, *Salt Lake City, Utah*
DR. LEE D. BARTH, *San Francisco, California*
DR. HENRY J. BIANCO, JR., *Ellicott City, Maryland*
DR. AMOS R. BLACK, *Seattle, Washington*
DR. M. JOE BROCKMAN, *China Lake, California*
DR. ROGER H. BROWN, *Cranston, Rhode Island*
DR. HERBERT A. CARPENTER, *Grand Rapids, Michigan*
DR. JAMES W. CARPENTER, *Lubbock, Texas*
DR. HARROLD A. CAVNESS, *Hereford, Texas*
DR. HARBORD L. COX, *Pampa, Texas*
DR. PETER P. DALE, *Boston, Massachusetts*
DR. ALAN DAVITT, *Newburyport, Massachusetts*

DR. CARLO A. DELAURENTIS, *Coronado, California*
DR. ROBERT E. DEREVERE, *Philadelphia, Pennsylvania*
DR. EDWARD S. FLYNN, *Spokane, Washington*
DR. BILL K. FORBUS, *Dumas, Texas*
DR. EDWARD R. FOWLER, *Amarillo, Texas*
DR. CALVIN J. GAVER, *Baltimore, Maryland*
DR. T. S. GERALD, *Amarillo, Texas*
DR. G. DON HEATH, *Lansing, Michigan*
DR. DAVID W. HEID, *Bellingham, Washington*
DR. RICHARD D. HENDRICKSON, *Ogden, Utah*
DR. W. T. LOGAN, *Borger, Texas*
DR. ROBERT D. LUDWIG, *Grand Rapids, Michigan*
DR. WILLIAM J. MCILWAIN, *Pasadena, California*
DR. CLIFFORD H. MILLER, *Chicago, Illinois*
DR. JOHN EDWARD MODESTOW, *Florence, Massachusetts*
DR. KENNETH E. MURCHIE, *North Vancouver, British Columbia, Canada*
DR. WILLIAM K. NAJJAR, *Grand Rapids, Michigan*
DR. RAYMOND L. NELSON, *Grand Rapids, Michigan*
DR. HAROLD OSWALD, *Bellingham, Washington*
DR. LEO S. PERION, *Fremont, Nebraska*
DR. GENE SARGENT, *Burlington, Washington*
DR. HUGH S. SEARS, *Downey, California*
DR. JOHN A. STEPHENS, *Los Angeles, California*
DR. MAXWELL SULLIVAN, *Melbourne, Australia*
DR. B. FRANK TAYLOR, *East McKeesport, Pennsylvania*
DR. HERBERT JOSEPH UNDERHILL, JR., *East Greenwich, Rhode Island*
DR. W. PAUL WHITTAKER, *Spokane, Washington*
DR. WALTER E. L. WILLIAMSON, *St. Louis, Missouri*

ASSOCIATE MEMBERSHIP

DR. DUANE J. CIBOCK, *Great Lakes, Illinois*
DR. THEODORE R. HUNLEY, *Bethesda, Maryland*
DR. ROBERT F. O'BRIEN, *Grand Rapids, Michigan*
DR. HARRY R. PAPE, JR., *Great Lakes, Illinois*
DR. JAMES EUGENE ROTA, JR., *Great Lakes, Illinois*
DR. GEORGE A. STANTON, JR., *Great Lakes, Illinois*
DR. ROBERT F. WILKIN, *Great Lakes, Illinois*
DR. CHARLES B. WILLS, JR., *Great Lakes, Illinois*

Three associate members requested a change to active status. These changes were approved by the Academy and made effective as of the date of this Annual Meeting.

ASSOCIATE TO ACTIVE STATUS

DR. LEE A. COUNSELL, *Chelsea, Massachusetts*
DR. EDGAR T. GILLEAN, *Dallas, Texas*
DR. COLLISTER M. WHEELER, *Portland, Oregon*

Three members—Dr. Donald A. Keys, Lincoln, Nebraska; Dr. William S. Kramer, Lincoln, Nebraska; and Dr. William E. Turner, Seattle, Washington—submitted their resignations. The report also contained the names of eight members whose memberships were forfeited for non-payment of dues. The requests were approved by the Academy.

The Committee's report also contained recommendations relative to the sponsoring of applicants for membership in the Academy. The Committee felt that the Executive Council and future Membership Committees should give some serious consideration to the ways and means of impressing upon the sponsor his responsibility when signing an application for membership.

Rubber Dam Committee

Under the able leadership of Dr. Paul A. Moore the Committee attempted to prepare a kit that would contain the necessary items for the efficient application of the rubber dam. A number of Academy members were contacted and encouraged to state their preference in rubber dam accessories. At the present time, the Committee is evaluating all the suggested instrumentarium in order to assemble a kit which would contain the minimum but essential equipment for rubber dam application.

Dental Research Committee

The Committee, under the chairmanship of Dr. Lloyd Baum, reported on the investigations completed during the year by Dr. Robert B. Wolcott and Dr. Gunnar Ryge * and by Dr. George M. Hollenback and Earl W. Collard.** The Committee also reported that a study has been undertaken to study the lack of uniformity in the manufacturing of foil pellets and cylinders. The Committee hopes that some standardization can be instituted for the benefit of all concerned.

Visual Education Committee

Dr. Norwood E. Lyons, Chairman, reported on the continued interest displayed by schools and study clubs in the motion picture produced by Dr. Gerald D. Stibbs under a grant from Morgan, Hastings and Company. The Committee was responsible for seeing that the film was made available to the various groups when requested.

Study Club Committee

Dr. O. T. Olsen, Chairman, reported on the various study clubs now operating throughout the country. Dr. Olsen also stated

* Results of this study appeared in the *Journal*, 5:12-14, May, 1962.
** Dr. Hollenback reported the results of this study in a paper delivered to the Academy on October 14, 1962.

that his Committee had not received requests for financial aid during the year.

EDITORIAL BOARD

Dr. José E. Medina, Editor and Chairman, reported that the two issues of the *Journal* published during the year had been very favorably received. He expressed his hope that the Academy membership would continue to support the publication in future years.

Dr. Ralph A. Boelsche, Business Manager of the *Journal*, reported on the financial status of the *Journal* activities. Dr. Boelsche pointed out that the dental manufacturing companies supporting our endeavors have displayed excellent cooperation during the year. He also informed the Academy that subscriptions from non-members and requests from manufacturers for additional copies of the *Journal* had been processed. Dr. Boelsche also submitted an itemized financial statement which was incorporated with the Secretary's records.

STATE BOARD COMMITTEE

The Committee, under the chairmanship of Dr. Lionel U. Bergeron, sent letters to all State Boards of Dental Examiners informing them of the Academy objectives and requesting their cooperation and consideration in either keeping or reinstituting gold foil requirements as a part of their examinations. The letters also extended an open invitation to all state board members to attend the Academy meetings.

LITERATURE AND PUBLICITY COMMITTEE

This Committee, under the guidance of Dr. Herbert F. Gillard, reported that it had contacted various members of the Academy for original articles on gold foil and rubber dam technics. The Committee hopes that these commitments are fulfilled and that the articles are forwarded to the Editor for *Journal* publication.

Dr. Gillard also stated that an attempt to secure helpful hints on gold foil and rubber dam had been initiated. The Committee expects to make these hints available to the membership. (Editor's note: Some rubber dam hints may be found on page 78 of this issue of the *Journal*.)

The Committee also reported that it had sent letters of rebuttal to the author of an article containing statements belittling the use of gold foil and rubber dam.

SCHOOL COMMITTEE

Under the able leadership of Dr. R. E. R. Lovell the Committee continued its efforts to organize a conference on preventive

dentistry to be sponsored by outside funds. The results of this endeavor have been gratifying, for the Committee has been asked to submit a format and subject matter of such a conference. The Committee recommended that the Executive Council and the next Committee undertake this project and plan the type of conference, symposium or workshop which might most effectively show how a thorough diagnosis and the early, correct use of permanent restorations, headed by gold foil, can be the mainstays in a program of dental conservation.

The Committee also made several suggestions to the Executive Council for use in approaching dental schools with the aim of furthering the teaching of gold foil.

Nominating Committee

In the absence of Dr. George W. Ferguson, Chairman, Dr. Michael J. Murray submitted the following names for offices:

Dr. Henry A. Merchant.....*President-Elect*
Dr. Charles C. Latham.....*Secretary-Treasurer*
Dr. Arne F. Romnes.....*Executive Council*
Dr. William M. Walla.....*Executive Council*
(to fill unexpired term of Dr. Henry A. Merchant)

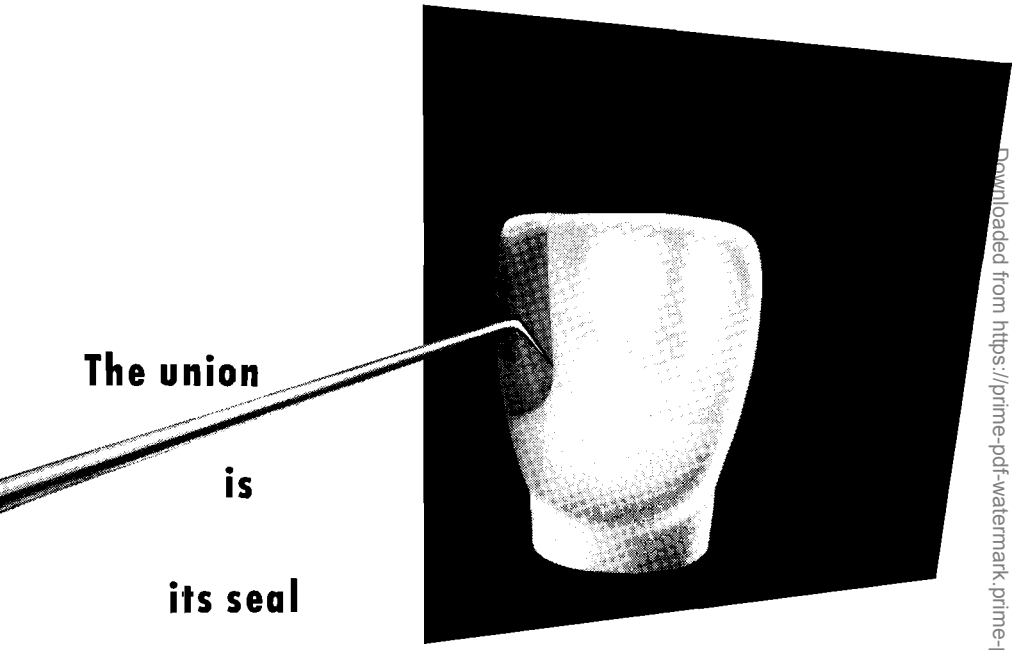
The Academy unanimously elected these members to their respective offices.

Adjournment

After the committee reports, President Robert B. Wolcott presented appropriately inscribed certificates to Dr. George A. Brass, Dr. William E. Cody, Dr. Rene W. Eidson, Dr. Floyd E. Hamstrom, Dr. George M. Hollenback and Dr. José E. Medina for their contribution to the success of the Tenth Annual Meeting. The President also extended the gratitude of the Academy to Mr. Walter Smith and Morgan, Hastings and Company for the open house and tour of the plant.

Dr. George A. Ellsperman was then installed as President for 1961-1962. He praised the efforts put forth by Dr. Wolcott, the outgoing President, and presented him with a certificate in recognition of his many contributions.

Dr. Ellsperman then introduced the President-Elect, Dr. Henry A. Merchant, and the Secretary-Treasurer, Dr. Charles C. Latham. The meeting was adjourned at 9:45 P. M.



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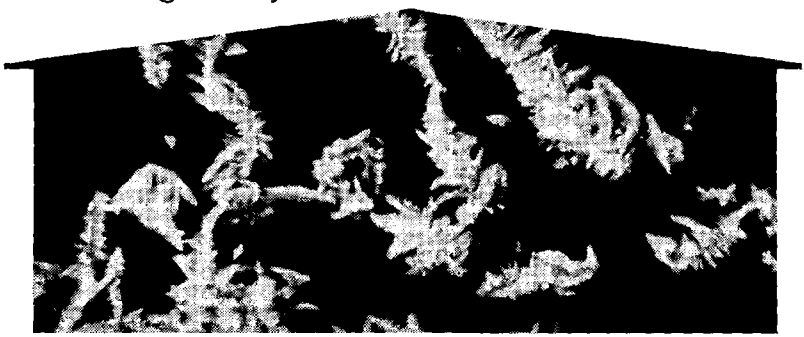

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