Transactions of the

Nebraska State Dental Society

AT THE

Thirty-first Annual Meeting

HELD AT

Lincoln, Nebraska

May 21, 22, 23, 1907

TOLEDO, OHIO
THE FRANKLIN PTG. & ENG. CO.
1908
<table>
<thead>
<tr>
<th>CONTENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CONDENSED MINUTES</strong></td>
</tr>
<tr>
<td><strong>MINUTES OF THE EXECUTIVE COUNCIL</strong></td>
</tr>
<tr>
<td><strong>PRESIDENT'S ADDRESS</strong></td>
</tr>
<tr>
<td>Discussion</td>
</tr>
<tr>
<td>&quot;LITTLE THINGS&quot;—Paper by Dr. Roseman</td>
</tr>
<tr>
<td>Discussion</td>
</tr>
<tr>
<td>&quot;COMMON SENSE TREATMENT OF PYORRHEA&quot;—Paper by Dr. Worthley</td>
</tr>
<tr>
<td>Discussion</td>
</tr>
<tr>
<td>&quot;THE CARE OF THE TEETH&quot;—Paper by Dr. Eells</td>
</tr>
<tr>
<td>Discussion</td>
</tr>
<tr>
<td>Report of Committees on Necrology and Reorganization</td>
</tr>
<tr>
<td>&quot;ORAL HYGIENE AND 'OUR DUTY AS A PROFESSION REGARDING THE SAME'&quot;—Address by Dr. Warren</td>
</tr>
<tr>
<td>Discussion</td>
</tr>
<tr>
<td>&quot;THE DENTIST THAT GROWS&quot;—Paper by Dr. Thomas</td>
</tr>
<tr>
<td>Discussion</td>
</tr>
<tr>
<td>&quot;ETHICS, PROFESSIONAL AND BUSINESS&quot;—Paper by Dr. Prime</td>
</tr>
<tr>
<td>&quot;CARVING PREPARATION AND MANIPULATION OF GOLD FOIL&quot;—Paper by Dr. Woodbury</td>
</tr>
<tr>
<td>Discussion</td>
</tr>
<tr>
<td>&quot;ORTHODONTIA&quot;—Paper by Dr. Antrim</td>
</tr>
<tr>
<td>Discussion</td>
</tr>
<tr>
<td>&quot;ANATOMICAL OCCLUSION OF ARTIFICIAL TEETH&quot;—Paper by Dr. James</td>
</tr>
<tr>
<td>Discussion</td>
</tr>
<tr>
<td>&quot;REPORT OF STATE BOARD&quot;—Paper by Dr. Ladd</td>
</tr>
<tr>
<td>&quot;A GOLD INLAY, MESIO-OCCUSAL CAVITY IN AN UPPER BICUSPID WITHOUT INVESTING&quot;—Report of Clinic by Dr. Beeson</td>
</tr>
<tr>
<td>&quot;NON-COHESIVE GOLD FILLING, OCCUSAL CAVITY&quot;—Report of Clinic by Dr. Brown</td>
</tr>
<tr>
<td>Discussion</td>
</tr>
<tr>
<td>&quot;A CASE OF ORTHODONTIA&quot;—Report of Clinic by Dr. Shannon</td>
</tr>
<tr>
<td>&quot;TREATMENT OF PUTRESCENT ROOT-CANALS&quot;—Report of Clinic by Dr. Puckett</td>
</tr>
<tr>
<td>&quot;HIGH-PRESSURE ANESTHESIA FOR REMOVAL OF PULP&quot;—Report of Clinic by Dr. Cobb</td>
</tr>
<tr>
<td>Discussion</td>
</tr>
<tr>
<td>&quot;AMALGAM FILLING, MESIO-OCCUSAL, UPPER FIRST MOLAR&quot;—Report of Clinic by Dr. Vance</td>
</tr>
<tr>
<td>Discussion</td>
</tr>
<tr>
<td>&quot;ADJUSTMENT OF THE LOGAN CROWN&quot;—Report of Clinic by Dr. Cross</td>
</tr>
<tr>
<td>Discussion</td>
</tr>
<tr>
<td>&quot;LOGAN CROWN, DEMONSTRATING FOIL JOINT&quot;—Report of Clinic by Dr. McMillen</td>
</tr>
<tr>
<td>Discussion</td>
</tr>
<tr>
<td>&quot;GOLD PLATING&quot;—Report of Clinic by Dr. Hanna</td>
</tr>
<tr>
<td>&quot;SEAMLESS GOLD CROWN&quot;—Report of Clinic by Dr. Shearer</td>
</tr>
<tr>
<td>&quot;PRESSURE ANESTHESIA&quot;—Report of Clinic by Dr. McHenry</td>
</tr>
<tr>
<td>&quot;JACKSON'S SYSTEM OF ORTHODONTIA&quot;—Report of Clinic by Dr. Hanna</td>
</tr>
<tr>
<td>&quot;GOLD AND PORCELAIN INLAYS&quot;—Paper by Dr. LeCron</td>
</tr>
<tr>
<td>Discussion</td>
</tr>
<tr>
<td>Officers, 1907</td>
</tr>
<tr>
<td>List of Members</td>
</tr>
<tr>
<td>List of Officers since Organization</td>
</tr>
<tr>
<td>Advertisement</td>
</tr>
</tbody>
</table>
The Thirty-first Annual Meeting of the Nebraska State Dental Society was called to order at 10:30 a.m. in the Assembly Hall, Lindell Hotel. President Norman H. Morrison, of Red Cloud, in the chair.

Dr. B. M. Long, pastor of the Second Presbyterian church, Lincoln, delivered the invocation.

The address of welcome was given by Dr. C. R. Tefft, president of the Lincoln Odontographic Society. In the absence of Dr. H. J. Cole, President Morrison responded.

Vice-president Warren was called to the chair and President Morrison read the annual address.

The discussion of address was participated in by Drs. Bruening, Vance, Wallace, Clyde Davis, Warren, Roseman, H. A. Shannon, Tefft, F. M. Shriver and Damron. Closed by Dr. Morrison.

Dr. J. H. Wallace moved that a committee of three be appointed to consider the matter of reorganization of the society as suggested by the president, and make report at our last business session. Motion seconded by Shannon and carried. Chair appointed Drs. F. B. Damron, of Lincoln, J. H. Wallace, of Omaha and C. E. Brown, of Emerson.

Dr. F. B. Damron moved that a vote of thanks be extended to the secretary, Dr. M. E. Vance, for the enthusiastic and energetic manner in which he has performed his services and for the excellent and strenuous manner in which he has carried out the wishes of the society. (Many seconds to the motion). Carried.

Dr. Vance responded, thanking the members of the society.

Dr. Clyde Davis moved that a committee of three be appointed to draw up resolutions of respect for Drs. H. W. Shriver and T. F. Skeede. Seconded by Dr. King and carried. Chair appointed Drs. Sherraden, Hunt and King.

Dr. H. A. Shannon moved that a committee of three be appointed to consider the plan of bringing the teaching of oral hygiene, as suggested in the president's address, more prominently before the teachers of the state. Motion seconded by Warren and carried.
Chair appointed Drs. H. A. Shannon, Horace Warren and J. J. Foster.

Dr. W. S. Roseman, of Fremont, read a paper on the subject "Little Things". Discussion by Drs. H. T. King, Morrison, Warren, F. M. Shriver, of Glenwood, Iowa, and closed by Dr. Roseman.

Adjournment by motion.

AFTERNOON SESSION, TUESDAY, MAY 21, 1907.

Clinics.

1. Dr. C. E. Brown, Emerson, non-cohesive gold filling. Occlusal cavity, Morgan & Hastings soft foil.
2. Dr. C. E. Cross, Franklin, Logan crown. Anterior tooth.
3. Dr. W. A. McHenry, Nelson, pressure anesthesia for removal of pulp.
5. Dr. A. B. Hopper, Fairfield, gold inlay. Mesio-occlusal cavity in molar, modeling compound impression.
7. Dr. W. L. Shearer, Omaha, seamless gold crown. Demonstrating the procedure from preparation of root to completed crown.
9. Dr. A. W. Starbuck, Iowa City, Ia., porcelain inlay. Proximo-incisal surface of an upper incisor.
10. Dr. Elizabeth Field, Lincoln, bleaching tooth. Demonstrating use of sodium dioxide.
11. Dr. H. A. Shannon, Lincoln, orthodontia. Showing patient and first models.
12. Dr. J. W. Puckett, Geneva, treatment of putrescent canals or abscesses, demonstrating use of Bacter-Gon. Will remove treatment on third day to show results.
13. Dr. C. C. Fall, Trenton, gold crown, upper bicuspid, demonstrating use of facing.

Table Clinics.

16. Dr. C. E. Brown, Lincoln, demonstrating use of Downie twist broach for opening tortuous canals.
17. Dr. E. A. Helfinstine, Valparaiso, original method of making a two-tooth gold bridge without taking impression.
THIRTY-FIRST ANNUAL MEETING, 1907

18. Dr. A. Gaiser, Lincoln, porcelain. Demonstrating different uses of same.
19. Dr. W. S. Roseman, Fremont, a simple, durable and inexpensive crown.
20. Dr. E. A. Hanna, Lincoln, Jackson system of orthodontia.
21. Dr. W. R. Smith, Pawnee City, backing facing.
22. Drs. L. P. Davis and C. R. Tefft, Lincoln, demonstrating their new metaline carving compound for crown and bridge work.

EVENING SESSION, MAY 21, 1907.
A dancing party and reception at Walsh Hall given by the dentists of Lincoln.

MORNING SESSION, WEDNESDAY, MAY 22, 1907.

Clinics.

23. Dr. M. H. Hopfer, Minden, gold crown. Bicuspid Hollingsworth system.
25. Dr. S. W. Gilson, Blue Rapids, Kansas, gold filling. Proximal cavity, anterior tooth. Francis fiber gold.
27. Dr. E. G. Antrim, Lincoln, orthodontia. Showing patient and first models.
29. Dr. O. L. Beeson, Beatrice, gold inlay. Mesio-occlusal cavity upper bicuspid, without investing.
30. Dr. D. T. Hill, Syracuse, demonstrating use of original appliance for anchoring plates and bridgework. Showing patients.
31. Dr. W. H. DeFord, Des Moines, Iowa, a lesson in administering somnoforme.
32. Dr. Wm. Finn, Cedar Rapids, Iowa, gold filling. Proximal surface of anterior tooth. Demonstrating use of proper instruments for preparation of cavity.
34. Dr. L. J. Schneider, Omaha, amalgam filling. Harper's alloy.
35. Dr. D. P. Sims, Lincoln, gold filling. Mesio-occlusal upper first molar.
36. Dr. A. W. Nason, Omaha, an obtunding apparatus using compressed air.
37. Dr. H. A. Shannon, Lincoln, non-cohesive gold filling. Occlusal surface, demonstrating use of Hare's mouth props and mirrors.
Table Clinics.

38. Dr. L. G. VanSlyke, South Omaha, porcelain fillings. How proper color may be obtained.
39. Dr. Z. A. Norton, Milford, (a) Tempering drills. (b) Preparation of cavity in porcelain tooth.
40. Dr. W. D. James, Tracy, Minn., anatomical articulation of artificial teeth.
41. Dr. D. A. Finch, Grand Island, showing removable bridge using Morgan attachments and Steel’s removable facings.
42. Dr. E. H. Bruening, Omaha, seamless crown.
43. Dr. Charles Yungblut, Lincoln, tipping facings.
44. B. F. Philbrook, Dennison, Iowa. (a) Crowning a tooth when porcelain has broken away. (b) Hollow crown post for retaining dentures.
46. Dr. M. E. Vance, Lincoln. (a) Removable facing, using ordinary facing. (b) Opening bite using crowns and inlays.
47. Dr. F. M. Barns, Omaha, normal and abnormal conditions of antrum of Highmore.
48. Dr. C. B. Branson, Beatrice. (a) Demonstrating making of seamless crown from impression of tooth. (b) Also fitting of copper band and carving cusp.
49. Dr. N. C. Christensen, Omaha, cap and band crown.

AFTERNOON SESSION, MAY 22, 1907.

Called to order by the president. Dr. Clyde Davis, superintendent of clinics, announced the clinics in their order and they were discussed.

Dr. Clyde Davis announced that automobiles would be ready at 4:30 to take the ladies for a ride over the city.

Paper by Dr. W. D. James, of Tracy, Minn., “Anatomical Occlusion of Artificial Teeth”. Discussion by Drs. Hunt, Woodbury, of Council Bluffs, Worthley, of Kansas City, and Nauman. Closed by Dr. James.

Dr. James thanked the members of the society for their courteous treatment and invited the society to the National Association at Minneapolis.

Dr. C. F. Ladd, of Lincoln, secretary of the State Board of Dental Secretaries, gave a talk on the work of the board under the new law saying it was the aim of the board to be in harmony with the profession of the state, and asking our co-operation.

A lecture, by Dr. F. G. Worthley, of Kansas City, Mo., “The Common Sense Treatment of Pyorrhoea”. Discussion by Drs. Warren and Wildman. Closed by Dr. Worthley, who thanked the society.
for its courteous treatment and extended an invitation to attend the Missouri State Dental Society meeting in Kansas City, June 4-5-6, 1907.

Paper by L. L. Eells, of South Auburn, "The Care of the Teeth". Discussion by Drs. Wallace, Warren, Cobb, J. F. Daly, H. E. Eells, H. Daly, McCleery, Vance, Corbett, Morrison and Harris. Closed by Dr. Eells.

Adjournment by motion at 5:34 p. m.

EVENING SESSION, MAY 22, 1907.

Called to order by the president at 8 o'clock.

The committee appointed to prepare resolutions of respect for Drs. H. W. Shriner and T. F. Skeede made the following report:

WHEREAS, It has pleased the Almighty Father of the Universe to remove from our midst Dr. Henry W. Shriner, of Omaha, a past president of this society, we, the members of the Nebraska State Dental Society, extend to the bereaved family of our departed brother, our sincere sympathy, assuring them that while autumn shall make sear and yellow the mound that marks the final resting place of his body, his memory shall ever be kept green in our hearts.

The secretary is instructed to spread this resolution upon the records of the society and forward copy to the family.

Fraternally,

W. H. SHERRADEN,
A. O. HUNT,
H. T. KING,
Committee.

WHEREAS, It has pleased the Almighty Ruler of the Universe to remove from our midst Dr. T. F. Skeede, of Seward, we, the members of the Nebraska State Dental Society, extend to the bereaved family of our departed brother our sincere sympathy, assuring them that while autumn shall make sear and yellow the mound that marks the final resting place of his body, his memory shall ever be kept green in our hearts.

The secretary is instructed to spread this resolution on the records of the society and forward a copy to the family.

Fraternally,

W. H. SHERRADEN,
A. O. HUNT,
H. T. KING,
Committee.

The committee appointed to present a plan of reorganization presented their report and explained it before the society. Dr. Damron showed an outline of the proposed districts and the committee suggested dividing the state into seven districts, each to
be organized by a district organizer to be appointed by the president, also a chief organizer to have supervision of the work, to be appointed by the president.

President Morrison made the following appointments: Chairman Reorganization Committee, Dr. F. B. Damron, Lincoln; 1st district, Dr. C. E. Brown, Emerson; 2nd district, Dr. J. H. Wallace, Omaha; 3rd district, Dr. T. J. Morton, Lincoln; 4th district, Dr. C. B. Branson, Beatrice; 5th district, Dr. J. M. Prime, Oxford; 6th district, Dr. A. F. Douglas, Hastings; 7th district, Dr. C. C. Farrell, Cozad.

The report of the committee was adopted by motion of Dr. McCleery after being discussed by Drs. McCleery, Bruening, Morrison, Damron, Wallace, Corbett and Hatfield, and the committee discharged.

Dr. D. O. M. LeCron, of St. Louis, Mo., read a paper on the subject, "Gold and Porcelain Inlays". Discussion by Drs. Van Slyke, Hunt, T. J. Hatfield, Clyde Davis, Prime, Vance, Starbuck, of Iowa City, D. J. McMillen, of Kansas City and C. E. Woodbury, of Council Bluffs. Discussion closed by Dr. LeCron.

Dr. E. A. Thomas, of Red Cloud, read a paper on the subject, "The Dentist That Grows".

Discussion by Drs. McCleery, Wallace, Vance, Morrison, Warren, Prime and Clyde Davis and closed by Dr. Thomas.

Adjournment by motion at 10:30 p. m.

MORNING SESSION, THURSDAY, MAY 23, 1907.

At 8:00 o'clock, Dr. C. E. Woodbury, of Council Bluffs, Iowa, read a paper on the subject, "Cavity Preparation", illustrated by views from the reflectoscope.

Discussion by Drs. Clyde Davis, McMillen, Morrison, Shannon, Wallace, McCleery, Mason, Vance and Warren and closed by Dr. Woodbury.

Clinics.

50. Dr. W. H. Tuttle, Omaha, non-cohesive gold filling. Occlusal upper first molar.


52. Dr. C. B. Branson, Beatrice, seamless gold crown. Method of making and swaging.

53. Dr. Elizabeth Field, Lincoln. Asher’s cement filling. Anterior tooth.

54. Dr. P. T. Barber, Omaha, treatment of pyorrhea. First sitting.

55. Dr. M. H. Dunham, University Place, swaging metal plate. Reid swager.
58. Dr. J. S. Emigh, Red Cloud, somnoforme, for extracting.
59. Dr. P. J. Morton, Lincoln, amalgam filling. Demonstrating use of Hare's mouth props and mirrors.
60. Dr. E. A. Thomas, Red Cloud, gold filling. Mesio-occlusal upper first molar. Francis fibre gold.
61. Dr. V. L. Douglas, Wymore, gold crown upon roots decayed through bifurcation. Lower molar.

Table Clinics.

63. Dr. G. W. Hamilton, Council Bluffs, Iowa, Davis crown, showing speedy method of preparing root and adapting crown.
64. Dr. E. R. Truell, Lincoln, Steele's removable facings for crown and bridge work.
65. Dr. H. R. Wildman, York, showing method of supplying missing lateral.
66. Dr. A. Gaiser, Lincoln, Morgan attachments for anchoring plates and bridge work. Showing some new and useful ideas.
67. Dr. J. R. Shannon, Weeping Water. (a) Refitting of artificial denture, using vulcanizable gutta-percha. (b) Gold crown for rubber denture.
68. Dr. J. B. Troyer, Lincoln, some practical suggestions.
69. Dr. H. T. King, Fremont, "A new kink in crowns."
70. Dr. E. A. Hanna, Lincoln, plating outfit. Showing simple method of constructing same for use of dentist.
71. Dr. H. E. King, Omaha, gold inlay. Showing method of making and completed inlay.
72. Dr. W. H. Sherraden, Omaha, hollow gold inlay. A unique method of constructing same.
73. Dr. F. W. Slabaugh, Omaha, arranging and articulating teeth for artificial denture.
74. Dr. W. T. Humphrey, Lincoln, table clinic.
75. Dr. I. J. H. Atkinson, Omaha, bridge work.

AFTERNOON SESSION, MAY 23, 1907.

Meeting called to order at 1:30 by President Morrison
Dr. J. M. Prime, of Oxford, read a paper on the subject, "Ethics". Discussion by Dr. W. A. McHenry and others.
Dr. Horace Warren, of Missouri Valley, Iowa, gave a lecture on
the subject, "Oral Hygiene and Our Duty as a Profession Regarding the Same". Written discussion asked for from Drs. Prime, Wild- man, Leah Mills and Josephine K. Whinery.

Dr. D. J. McMillen, of Kansas City, Mo., gave a talk on the subject, "My New Bandless Crown". Written discussions asked for from Drs. Vance, Walker, Truell and Harris.

Dr. E. G. Antrim, of Lincoln, read a paper on the subject, "Orthodontia". Written discussion asked for from Drs. Hanna, Shannon, Hunt and Leah Mills.

The president announced that this closed our program of papers and discussions, and we were ready for the election of officers.

The following officers were duly elected: Dr. M. E. Vance, Lincoln, president; Dr. D. A. Finch, Grand Island, vice-president; Dr. E. H. Bruening, Omaha, secretary; Dr. H. T. King, Fremont, treasurer.

For members of the executive for three-year term, ending 1910: Drs. J. H. Wallace, of Omaha, J. S. McCleery, of Beatrice and C. E. Brown, of Emerson.

For unexpired term of secretary-elect Bruening, term expiring 1909, Dr. H. A. Shannon, of Lincoln.

For unexpired term of vice-president-elect Finch, term expiring 1908, Dr. N. H. Morrison, Red Cloud.

Moved by Dr. Prime that a vote of thanks be extended by the society to the retiring officers for their faithful and efficient service. Motion seconded by many and carried.

Moved by Dr. Vance that the president be instructed to send a telegram to Dr. F. D. Sherwin, of Lincoln, who is in the hospital at Rochester, Minn. Seconded and carried.

Moved by Dr. Brown that we meet next year in Omaha. Seconded and carried.

Moved by Dr. Warren, seconded by Dr. Vance that we adjourn sine die. Carried.

N. H. MORRISON, President.
M. E. VANCE, Secretary.
MINUTES
OF THE
EXECUTIVE COUNCIL, 1907
OF THE
NEBRASKA STATE DENTAL SOCIETY

The Executive Council convened for the first session on Tuesday, May 21, at 9:30 a.m., with the following members present: Drs. Morrison, Vance, King, Farrell, Damron and Bruening. President Morrison appointed Drs. L. P. Roune, of Syracuse, C. E. Brown, of Emerson, and J. S. Lnigh, of Red Cloud, to sit as members of the council until the arrival of the absent members.

The secretary read the following names, applicants for membership: H. C. Victor, Lincoln; E. A. Hanna, Lincoln; D. P. Sims, Lincoln; F. M. Booth, Wilsonville; H. J. Porter, Cambridge; A. N. Read, Cozad; F. W. Slabaugh, Omaha; E. W. Fellers, Chester; J. W. Dorwort, Aurora and J. C. Barrett, Cook.

The secretary was instructed to post names of candidates before the society for inspection until next session of the council.

President appointed Drs. Emigh and Brown to fill vacancies on committee on ethics. Charges having been preferred against Dr. L. R. Fritz, of Wymore, same were referred to ethics committee.

Moved that Dr. J. W. Puckett, of Geneva, be requested to give the formula of his preparation before being allowed to give his clinic.

Adjournment upon motion.

Second session of council convened at 8:00 a.m., Wednesday, May 22, and called to order by the president. Members present were: Drs. Morrison, Warren, Vance, King, McCleery, Sherraden, Farrell, Finch, Bruening, Damron, Brown and Emigh.

Dr. Meservey, chairman of membership committee, read the names of candidates whose applications were read at the previous session, and same were duly elected to membership upon motion of Dr. Bruening.

Following names reported by Dr. Meservey as applicants for membership: D. L. Redfern, Auburn; Otis M. Newman, Aurora; Clyde C. Metzler, Harvard; H. S. West, Council Bluffs, Iowa; H. J. McBeth, Osceola; D. C. Dorwart, Friend; M. H. Dunham, Uni. Place; O. R. Ivans, Crawford; Frank B. Schultz, Clarkson; R. F. McCreery, Wahoo; A. E. Calkins, York; C. A. Calkins, York; J. B. Troyer, Lincoln; C. C. Fall, Trenton; Josephine K. Whinery, Omaha; J. J.
Tomiska, Ravenna; H. Thomsen, West Point; F. J. Chollotte, Schuyler; C. F. Cross, Bloomington; A. H. Corbett, Atkinson; O. P. Baker, Exeter; A. J. Cobb, Lincoln; H. R. Wildmen, York; F. A. Motis, Lincoln

Above list to be posted until next session of the council.

Adjournment upon motion of Dr. Bruening.

Third session of the council convened at 5:30 p. m., May 22, and called to order by President Morrison. Following members present: Drs. Morrison, Warren, Vance, King, Wallace, McCleery, Farrell, Finch, Bruening, Damron, Brown and Emigh.

Moved and seconded that the twenty-four applicants, whose names were read at the previous meeting and posted, be elected to membership. Motion carried and they were duly elected.

The secretary read the following names as applicants for membership: G. J. Shippard, Ainsworth; N. J. Maun, Tacama; D. H. Bowen, Sargent; Iva Lee Keim, Beemer; William H. Linn, South Auburn; J. W. McLaren, Springview; Shaw Little, Clarks; Niels Matsen, Columbus; B. E. Gobel, St. Edwards; H. S. Ganson, Nebraska City; J. W. Tegarden, Neleigh and G. H. Lewis, Ponca.

Above list to be posted until next session of the council.

The ethics committee reported to the council that they had not had time to have a hearing with Dr. Fritz and asked for further time. Upon motion of Dr. Finch same was granted.

Adjournment upon motion of Dr. Finch.

Fourth session of the council convened at 1:00 p. m., May 23, 1907, and called to order by President Morrison.

Following members present: Drs. Morrison, Warren, King, Vance, McCleery, Wallace, Brown, Finch, Damron, Bruening, Farrell, and Dr. Meservey, chairman of the membership committee.

Objections having been filed against the applications of Drs. H. S. Ganson, of Nebraska City, J. W. Tegarden, of Neleigh and G. H. Lewis, of Ponca, was moved by Dr. Wallace that these applications be held over for one year under the head of "Probation", and that the membership and initiation fees paid by these applicants be turned over to the chairman of the membership committee and held by him until the next annual meeting. Motion seconded by Damron and carried.

Dr. Brown, for the committee on ethics, made the following report: We, the undersigned committee on ethics, in the matter of charges against L. R. Fritz, of Wymore, beg to report that we find that he has been advertising unethically, but he has given us his word that he will discontinue all such in the future, and it is our recommendation to the executive council that there be no action taken on the matter until next year.

J. S. McCleery.
J. S. Emigh.
C. E. Brown.
Committee.

Also the following: In the matter of charges filed against Drs. T. J. Hatfield and H. R. Hatfield, of York, that we, your
committee, had a talk with the doctors and while admitting that they had done some unethical advertising a year or more ago, feeling that existing circumstances warranted their doing so, but none since that time, and they gave us their word that they would not do so in the future. Your committee recommends that the charges be dropped.

J. S. McCleery.
J. S. Emigh.
C. E. Brown.
Committee.

Moved by Bruening that the report of the ethics committee be accepted. Motion seconded and carried.

Moved by Farrell and seconded by Wallace that the exhibit at the clinic room of unethical advertising be continued, and become an annual feature of future meetings of the society, that it become a part of the duties of the ethics committee to look up, prepare and present such exhibit, displaying therewith, the name of the paper or periodical in which the improper card or advertisement appears. Motion carried.

Moved and seconded that the names of Drs. J. H. Fowler, of Kearney, M. E. House, of Lexington and R. L. Newell, of Union, be referred to the ethics committee for investigation and report at next annual meeting. Motion carried.

The following bills read by the secretary, and upon motion of Dr. Bruening, approved and ordered paid by the treasurer:

- Dr. N. H. Morrison, postage and expenses........... $ 8.60
- Dr. C. E. Woodbury, expenses and charts......... 27.20
- Dr. H. T. King for:
  - Dr. LeCron, expenses.................... $45.30
  - Dr. James, expenses..................... 45.00
  - Postage and expenses.................... 3.50 93.80
- Dr. E. H. Bruening, postage, express, telephone, etc. 9.50
- Geo. A. Blake, reporter, 3 days @$6.00 ........ 18.00
- Railroad fare and hotel.................... 20.00 38.00
- Dr. Clyde Davis, automobile hire.............. 15.00
- Dr. F. B. Damron, entertainment.............. 71.50
- Dr. E. A. Meservey, letters and postage...... 14.98

Dr. Meservey, for the membership committee, read the following applications for membership: C. C. Keith, Hastings; F. M. Blair, Fairbury; Mable M. Dixon, Hastings; Smith D. Atkins, Seward; F. C. Hinman, Crete; H. L. Henry, Ashland; S. A. Hansen, Davey; W. E. Hewett, David City; G. W. Williams, Omaha; C. A. Sorensen, Florence; W. H. Tuttle, Omaha; R. J. Walker, Lincoln; H. E. Eells, Wayne and E. D. Taylor, David City.

Above list to be posted for inspection until next session of the council.

Adjournment upon motion.

Fifth session of the executive council convened at 4:30 p. m., May 23, 1907, and called to order by the president-elect Dr. Vance.

The following members of the society were suspended for non-payment of dues: O. W. Peterson, Omaha; J. H. Naviaux, Nebraska City; W. N. Dorward, Omaha; F. J. Verzani, Newcastle; L. S. Gillman, Havelock; J. V. Houston, Nebraska City; R. C. Houston, Stromsburg and S. W. Gillson, Blue Rapids, Kansas.

Dr. E. Eunice Daly, of Cambridge, requested that her name be dropped from membership, as she had discontinued practice and changed her name.

President-elect Vance made the following committee appointments, which were approved by the council:

Executive Committee, Drs. E. H. Bruening, of Omaha, C. E. Brown, of Emerson and F. B. Damron, of Lincoln.

Superintendent of Clinics, Dr. P. T. Barber, of Omaha; first assistant, Dr. A. B. Hopper, of Fairfield; second assistant, Dr. W. A. Cox, of South Omaha; third assistant, Dr. J. M. Prime, of Oxford.

Membership Committee, Drs. E. A. Meservey, of Kearney, W. A. McHenry, of Nelson and C. R. Mead, of Blair.

Ethics Committee, Drs. H. J. Cole, of Norfolk, W. R. Smith, of Pawnee City and N. H. Morrison, of Red Cloud.

Publication Committee, Drs. E. H. Bruening, of Omaha, Z. A. Norton, of Milford and H. E. King, of Omaha.

Legislative Committee, Drs. C. F. Ladd, of Lincoln, J. H. Wallace, of Omaha, and H. C. Brock, of North Platte.

Dental Art and Inventions Committee, Drs. C. C. Whisler, of Ashland, J. S. Pierce, of Friend and G. J. Packard, of Kearney.

Auditing Committee, Drs. D. A. Finch, of Grand Island, Mable N. Dixon, of Hastings and Iva Lee Keim, of Beemer.

The following bills read by the secretary, and upon motion of Dr. Bruening, ordered paid by the treasurer:

Dr. Clyde Davis, repairs at college and janitor service............................... $25.00
Dr. M. E. Vance, salary for secretary ............................. 25.00
Dr. M. E. Vance, expenses of secretary's office for year, $86.91
                                          To Rev. Long. 5.00 91.91
Dr. H. T. King, treasurer, made the following report:
Balance, 1906 meeting.................... $291.97
Received 1907 meeting, new members...... 228.00
Received 1907, dues......................... 308.00
Paid vouchers 1 to 16........................... $548.76
Balance........................................ 279.21

$827.97

Adjournment upon motion of Dr. Shannon.

M. E. VANCE, President. *
E. H. BRUENING, Secretary
Through your kind indulgence of one year ago, I today have the privilege and exceeding great pleasure of extending to you, the members of this honorable society, and to our friends and guests, a most cordial welcome to this, the thirty-first annual meeting of the Nebraska State Dental Society.

I am proud of this society and the history she has made in her thirty years of existence, and hope that she may thus continue. I deeply feel the grave responsibility you priced upon me by thus honoring me, and yet I should more readily feel my inadequacy did I not know that from those who have nurtured her in her tender years, I shall have fatherly advice and indulgence in my shortcomings, and a hearty co-operation from every member present to give this meeting the high place it is deserving.

It is gratifying to your executive committee to feel that all the services you have so willingly rendered were prompted by hearts filled with a desire for the success of this meeting and the advancement of the dental profession in Nebraska. You have been invited here today to discuss questions of vital to each and all of us if you will but grasp this one idea: questions the better understanding of which may make life easier and more useful; and this society will mean a great deal more to each and all of us if you will but grasp this one idea: question the clinicians freely, discuss the merits of their clinics; criticise as readily, but use discretion in the manner in which you criticise, realizing always that the object of the clinic is, to as nearly as possible, systematize all dental operations so that they may be performed more scientifically; and when discussed in this spirit, the discussion often resulting in more good to the clinician than to the most interesting observer, the same being true of a paper, the essayist often receiving

*Read before the Nebraska State Dental Society, May, 1907.
more benefit from the discussion which his paper enlists than do his hearers from the thoughts which he advances.

No man knows his own power until he knows something of the doings of the men about him; the act of one man is the inspiration of another, and there is no greater work for this society than to help men to discover themselves and their own; neither is there any way in which it can be so readily accomplished as in society clinics, if those clinics might be systematically and scientifically conducted. It is too frequent, I am sorry to say, that we hear unjust criticisms of our state society in its honest endeavors to give its members the best the profession have to offer. Yet we all must agree that there is something radically wrong with an organization which does not appeal to a greater percentage of the members engaged in the same profession within its jurisdiction. We do not do justice to our worthy calling when we condemn those who remain without its ranks, for at present there are but 200 members in the Nebraska Dental Society, while there are nearly 600 members of the profession within the state, and the same conditions must exist in other states, which is the cause of so many of them reorganizing, and by so doing increasing their membership, in some cases several hundred per cent.; but just increasing our membership would not appeal to me if I did not know the inestimable benefit to be derived from society organization and the association of dentists; yet the society, I realize, may become a greater power for good because of its representative membership.

**BETTER SOCIETY ORGANIZATION.**

But can we not so systematize our organization and its work that it will draw the members of the profession closer together, destroying the commercial and competitive spirit, and instilling a desire for research and study, and so direct that study that we may present one grand phalanx of scientific reachers? I think we can, partially at least. And using the words of Dr. Conzett as he laid a similar plan of reorganization before the Iowa Society: "I bring it before you that it may have the benefit of your wisdom. I trust that you may feel as deeply concerned about the welfare of this society and the development of the profession as I do, and will fully and freely discuss and criticise the plan I lay before you, remem-
bering through it all that what I have to offer may not be the best; nor do I have the egotism to think so, but it is the best solution of the problem that presents itself to my mind, and I lay it before you in the hope that your wisdom may so develop it that it may prove to be of great value to us as a society and a profession.”

When I returned to my office at the close of the Omaha meeting, one year ago, it was with the determination to organize a local society in my part of the state; once before I had so decided, and I had gone so far as to prepare a circular letter, to mail to every dentist in that section, but receiving no encouragement from those to whom I talked, I dropped the plan. The Omaha meeting filling me with enthusiasm and a desire for more association with my fellows, I again prepared a similar letter and mailed it to some sixty dentists in the southern part of the state; to this letter I received but a few answers; again I prepared a personal letter and received the expression of some twenty-five dentists, not all, however, favorable to such a move, but enough to assure me that it was possible to organize a local society in that vicinity. Again I sent out a personal letter, stating that at 2 p. m., on the 30th day of August, 1906, we would attempt to organize a local society at Red Cloud, and urged every man in that vicinity to meet with us; the result was that seven dentists organized a local society, giving it the name of the Southern Nebraska Dental Society; officers were elected, committees appointed, and the next place of meeting decided upon before we adjourned that evening. On the 30th of November following, we met at Superior with seventeen members present, and had a very enthusiastic meeting; adopting our constitution, pledged ourselves to endeavor to bring a new member with each of us to our next meeting, which convened in the same place in February, Dr. Clyde Davis, dean of the Lincoln Dental College, accepting an invitation to meet with us at this time. I haven’t the command of words or the power of expression to reveal to you, except in a feeble way, the enthusiasm that was displayed at this meeting. Never before since I have been a member of the dental profession have I seen members warm up to each other (if you will allow so vulgar an expression), and get so close to each other, as at those clinics that morning; there was
no question too insignificant to receive a careful, courteous and considerate answer; no point was raised or an objection offered but what was discussed from an unbiased and unprejudiced standpoint; and that afternoon and evening, as we formed ourselves into a little family circle to read and discuss our papers, it was like gathering around a home fireside, our honored guest occupying father’s chair, and we, as eager children to learn, feeling that it was impossible for us to go astray because we put explicit confidence in his teaching.

Since this meeting I have just described, it has been my great pleasure to attend another conducted practically in the same manner, where the same spirit prevailed, and for nearly four hours we sat as eager listeners careful that not one sentence should fall, but what was eagerly grasped by every member present. I think you will readily discern my plan; it is simply this: make the several local societies now working in our state components to the state society, as was done in Illinois; add to these as many more as it is possible to form in other favorable localities. Let the state society select a list of men who are known to excel in the several kinds of operations which we are called upon to make, the president of each local society casting lots for three of these men to be sent to his local society at its quarterly meeting, the society to pay the expenses of the guest; thus you see every society will have had three clinics during the year. From these clinics and papers each local society would select a few of the better clinics, from which the executive committee of the state society could readily select plenty of material for the state society meeting, which should be the fourth quarterly clinic of all the societies of the state.

Those of you who are at all familiar with the immense amount of correspondence that is necessary to arrange a program so complete as have our executive committee prepared for this meeting can more readily appreciate this feature of the plan.

Often it is necessary to write four or five letters to a man before he will answer; then, perhaps, he will briefly say that he doesn’t know of anything that he does in a peculiar or more skillful manner than any other member of the society. Then, again, there are those to whom the secretary has sent a return postal, a personal letter and a letter with return postage, and
all have been pocketed without an answer. Under this plan the secretary of the program committee may arrange a complete program through correspondence with the secretaries of the local societies only.

Again, this continual hammering away for members by the membership committee will be done away with, as each local society will be responsible for the members in its particular locality, thus assuring the state society of a more desirable membership, because a man is often voted into the state society who is unknown to the committee, or even to any member of the council.

There will be fewer men in arrears for dues and fewer dropped for nonpayment because it will be necessary for a man to keep in good standing with the state society to retain his membership in the local, and the treasurers of the local societies must remit to the treasurer of the state society.

I think I have made myself clear upon this subject and trust that you may feel as deeply interested about the welfare of the society and the development of the profession in Nebraska as I do. In bringing this very important subject to your attention at this time it was with the hopes that I might at least create a lively discussion of the subject and that your wisdom might so elaborate upon this plan that a committee might be appointed, with full instruction as to the wishes of the majority of the members of the society, and that before the close of this session the work of reorganizing the Nebraska Dental Society might actually be begun.

Hoping I have at least partially succeeded in my endeavors, I leave this thought with you and turn to another of greater importance to our patients, but one which can alone be solved by the members of the profession; and in this, the dawn of prophylaxis, to reap the greater fruit for our labors, it seems to me that we must covert our attention to the young and growing.

**ORAL HYGIENE INSTRUCTION IN THE PUBLIC SCHOOLS.**

From the school girl and the school boy how oft have you heard the remark: "Doctor, I should think you would scratch the enamel and cause those teeth to decay by using those sharp steel instruments around them." Why this remark? Simply because every text-book on physiology contains this
commandment, "Thou shalt not pick thy teeth with a metal toothpick." Now, had these same physiologies told the child with what and how to pick his teeth, and how to properly care for and cleanse them, would not he have remembered it just as forcibly? Give the youth the proper instruction in his text-book, backed up by competent teachers who are properly instructed in oral hygiene, and you have paved the way for the dental surgeon to step in and assist the child at the period of greatest danger and cause him to form systematic and regular habits of oral cleanliness which will cling to him through life.

Under our present text-book law we have a more uniform set of books than where each individual procures his own, and if this society will appoint a committee to revise the chapter on oral hygiene in several of the most used text-books, wait upon the state superintendent of public instruction as a committee from this society and induce him to take it up with the publishers of the several books, you have, in my opinion, laid the foundation for the proper pursuance of oral prophylaxis. And to go a little farther, if there could be a dentist selected in each county to go before the teachers' institute and instruct them along a uniform system of oral hygiene, they would be much more capable of instructing the youth and lending a helping hand to the making of preventive dentistry a grand realization in the rising generation.

CALLED BY DEATH.

It is with feeling that I am compelled to call to your attention the fact that the Angel of Death has once more entered our ranks and summoned one who was held in high esteem by this association. In the death of Dr. W. H. Shriver the profession has lost a valuable member, one who was always ready to advance its interest, a man of amiable disposition and faithful in all the relations of life.

I would respectfully recommend that a committee be appointed to draft suitable resolutions and take any other action it might deem proper in connection with Dr. Shriver's death.

And now, in conclusion, I wish to personally thank the members of the various committees for the enthusiastic manner in which they have performed their several duties, and all others who have contributed in any manner to the success of
this meeting. Realizing as I do the enormous amount of society work that has fallen upon our worthy secretary and the manner in which he has so diligently performed his duty, often at the sacrifice of his own business and social relations, I feel that this society is deeply in his debt, a debt not to be paid in dollars and cents, but simply by an expression of appreciation in the form of a complimentary motion.

On behalf of the society, I wish to extend a cordial welcome to our honored guests, thanking them for the honor they bestow upon the Nebraska Dental Society by their presence at this meeting; I assure them that every member present will be deeply interested in what they have to offer. I hope they will feel perfectly at home, and heartily enter into all discussions of clinics and papers, as we wish to make this a particular feature of this meeting.

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DISCUSSION.

Dr. Bruening, Omaha, Neb.: Dr. Vance has corresponded with the secretary of the Illinois and Iowa State Societies, and through them I received their plans of reorganization. I have read them over, and while we have not as many members in this state, yet there isn't any question in my mind but what we can have local societies in a flourishing condition within the next year if the matter were taken up at this meeting. In order to do this, I would suggest that the president appoint a committee to consider this proposition and report a plan of dividing the state into local societies, taking into consideration those local societies which are already organized, so that this society may take definite action.

Dr. M. E. Vance, Lincoln, Neb.: I think it is very fortunate for the society that you are not all as enthusiastic over this plan of reorganization as I am. I think sometimes I go into things a little too deeply and with more enthusiasm than the case warrants. But I feel that if nothing else results from our efforts at this meeting, if we lay plans for the reorganization of our state society along the lines that Illinois and Iowa have proceeded, that we shall have accomplished far more than any other meeting we have ever held. I want to say that the ideas of Dr. Morrison meet with my approval in every way, and I trust some plans will develop during this meeting that will carry his suggestions into effect, that before we close we may have some form of reorganization under way.

Dr. J. H. Wallace, Omaha: I am sure that this idea, as presented by Dr. Morrison is new to a great many of us. We are all
aware that these things are carried out in Illinois and in some other states, but the question that comes to my mind is whether Nebraska has a sufficient membership or number of dentists in the state. But to get this before the society in a proper way, I make a motion that the chair appoint a committee of three to consider this matter and present it at our last business session. Carried.

Dr. Clyde Davis, Lincoln, Neb.: Mr. President—I can say that I heartily agree with my friend Morrison in his plan of reorganization. I believe it is a good one. It takes up the question of the financial part of it, and I think if we carry his ideas out in our organization of secondary societies we will do well. I heartily agree with what the doctor said, and I further move that a committee of three be appointed to draw resolutions on the death of Dr. Skeede and Dr. Shriver.

Dr. Skeede was a very hard worker, and always pleasant. I miss him very much as a personal friend, and I know the society does. Motion carried.

Dr. Roseman: I want to say that Dr. Skeede was elected president of this society in 1893, and of course presided over the sessions of the Nebraska society, and part of the time over the joint meeting of the Iowa and Nebraska societies in the joint meeting in Omaha, in 1894, but he had been a member of the society for several years previous to that, and a good member, too.

Dr. H. A. Shannon, Lincoln, Neb.: There is one other item mentioned in the president's address that I think is worthy of our discussion. It is something which means more to the young and growing people of our community than we at first realize—something that the more we study the more we see it means, not only to the children, but to the parents of those children. It means more not only to the parents of the children, but to the dentists of your locality, and that is the appointment of a committee to draw up a certain form of letter or to organize the dentists of certain communities so that some one man would be appointed to meet with the teachers' institutes and present the oral hygiene question to the teachers in a logical manner. And in order to accomplish this end I would like to make a motion that a committee of three be appointed by the chair, and that they report to this society at the last session the plan which they have adopted with reference to the presenting of oral hygiene. The committee are simply to form a plan or draw up a plan by means of which men may be appointed in various parts of the state to appear before these teachers' meetings and institutes. Motion carried.

Dr. C. R. Tefft, Lincoln, Neb.: I would like to say one word along that line. It is a good thing. The Odontographic Society laid out a plan here in the society some time ago and had a committee appointed. This committee fell down in some way and did not re-
port, but I want to say this: To my mind, there is no better way to educate the people than getting it to the youngsters. Very often there is some child comes home and tells his parents something has happened in school that perhaps the parents were entirely ignorant of. It is necessary to train these young minds when they start out in these matters. The younger generation of dentists are coming on, and they will reap the rewards. The thing to do is to commence with the children. Three quarters of the people are absolutely ignorant of the first principles. They don't know whether the child's tooth is a six-year molar or what it is, and you will find that is true among a mighty intelligent class of people, too. I have been astonished to have people come to my office well "up to snuff"—if you will allow me to use that expression—and they were very ignorant about these things. I think the idea of getting this before the teachers is a splendid idea, and I think it will not only result in the help of the children's teeth, or the older ones, too, but in every way I am satisfied that it is a good thing.

Dr. F. B. Dameron, Lincoln, Neb.: Acting on another suggestion that the president mentioned in his address, I move you that the Nebraska Dental Society extend to our secretary, Dr. M. E. Vance, a vote of thanks for the enthusiastic and energetic manner in which he has performed his services, and for the excellent and strenuous manner in which he has carried out the wishes of the society. Carried.

Dr. Vance: I certainly appreciate this vote of thanks of the society very much, and I presume this relieves me from any responsibility of anything else at this meeting does it not? I want to thank the society for the support that they have given the secretary in the past three years, and I am sure if my efforts have been of any avail, or have contributed in any way toward the success of the meetings, I am well repaid for my efforts, and I thank you again.

President Morrison: I am more than pleased at the manner in which you have received my paper; yet I am also disappointed, because I was in hopes that this matter of reorganization might be handled with gloves on. It is a subject that I have thought a great deal about, and it is a subject which I was in hopes of seeing thoroughly discussed from every phase of the question. I thought about it a great deal before I could decide to bring it before the society, feeling that perhaps I was trying to advance or push the Nebraska society along a little too fast; yet at the same time I realize the amount of good that can be done by the members of the profession of the state of Nebraska if we just simply get together and organize. What little work I have had along this line has firmly convinced me that it is the only way for dentists to go. The reason why I dwelt so long upon our local society was to show you what it was possible to do in a locality where dentists are not very thick. We went over
a radius of, I think, 150 miles at least, from one end of the territory to the other, and from that distance we got dentists to our meetings. Now some one has suggested if it were possible to get enough societies to start in on this reorganization plan. I will say that at present there are at least six local societies within the state of Nebraska. This gives us a nucleus to start upon. There are other districts where the dentists are much more numerous than they are in our locality, where societies could be organized within a county, and yet have more members than it would be possible for us to get in our territory, extending over a number of counties. In planning our society, we planned it with the hopes that the Nebraska State Dental Society would absorb us within a year or two at least. Our constitution and by-laws and everything were planned so that it would be possible for the Nebraska State Dental Society to take us in without any particular effort, and I am disappointed that this subject has not been more thoroughly discussed. I also want to thank Dr. Shannon for bringing up the particular topic that he did in my paper. I was afraid it went so far that maybe this matter would be overlooked. I think that a dentist can do more along the line of oral prophylaxis with the children, and the children get a great many more thoughts from him that they would not get from their text-books if their curiosity were not aroused by their study at school. This one idea as to picking the teeth with the metal toothpick: I never saw a text-book on physiology in my life that did not have that one particular clause in it: "You shan't pick your teeth with a metal toothpick!" There is not a child in the land but what can tell you about it when you go to clean his teeth thoroughly and take the calculi from them. That is what gave me the idea, and I hope that we can get members on this committee that will look after this matter. I believe that is all, and I want to thank you again for the manner in which you received this paper.

LITTLE THINGS.*

By W. S. Roseman, D. D. S., Fremont, Nebraska.

"Little drops of water, little grains of sand
Make the mighty ocean and fill the beauteous land."

How true it is the little things are often as essential as the greater ones. The tender is an important part of a locomotive, yet what would that same locomotive be without the flange to its wheels?

For a few moments I wish to call your attention to a few of the little things I feel are necessary in our practice. In the language of Scripture, "Despise not the day of small things."

*Read before the Nebraska State Dental Society, 1907.
When patients call, they should be received courteously and politely; find their needs and ailments. First of all, inspire them with confidence by showing their interests are your interests, keeping back the one fact or thought of how much you are to get out of it financially. Before taking the chair it is our duty to see that everything is scrupulously clean—no blood upon the cushion, no odor whatever which can be avoided by putting in just a few grains of copperas, in a very little water. Then, no soiled or blood-stained napkins or instruments should greet the sight of our patients. Your essayist well recollects of going in a practitioner’s office, in an adjoining state. The first thing that greeted our eyes was, lying upon the instrument stand, with other instruments, a pair of forceps holding a half-decayed molar just as it had been taken from the mouth; truly, anything but a pleasant sight. This same practitioner made himself unpleasant by working among his pigs and going direct to his office without changing his clothes.

ATTENTION TO THE HANDS.

Too much attention cannot be given to the hands. First, thoroughly washed, the nails trimmed, polished and cleaned; for what can be more repulsive than to see the fingers draped in mourning going into the mouth of a sensitive, critical patient? While on this line I will say, a drop or so of a pleasing antiseptic upon the hands may not be out of place. I find a few drops of Sanitol put in the water before washing the hands leaves a flavor to which few, if any of our patients will object. Sanitol I find quite acceptable when a few drops are put in the water used in washing out cavities preparatory to filling, where the dam is not used.

DO NOT USE TOBACCO.

No dentist, I hold, has a right to in any way use tobacco. More than once has the complaint come to your essayist, saying, “I do not like Dr. So-and-So on account of the strong odor of tobacco.” Especially is this so of ladies from families where there are no men.

As to the care and keeping of the oral cavity, the dentist, of all persons, should be the most fastidious. How can he talk hygiene and cleanliness to his patients when his own mouth belies the practice of what he preaches? Truly, it should be
practice as well as precept. The idea of a dentist having his mouth in a condition he would not let the patient leave the chair in is reprehensible. Too little attention is often paid to properly instructing our patients regarding the care of their teeth after dental operations are performed.

SOME PRACTICAL POINTERS.

A good cavity lining can be made by dissolving Balsamo del Sarto in chloroform. This should be applied just as soon as the preparation of the cavity is finished, in order that the chloroform may evaporate. Then, with a pledget of cotton dipped in alcohol, wipe the tooth dry. When you come to insert your gold you will find no retaining points necessary, as owing to the Balsamo del Desarto being so sticky, your material, especially gold, will remain in place and stand any amount of malleting. I also treat the tooth in the same way when inserting cement or amalgam fillings. Then I feel I have a near a moisture-proof filling as can be made. A good plate is about the consistency of paint. When ready for flasking, coat your cast, giving time to dry, or rather the benzene to lining: Dissolve white rubber in deodorized benzene until it is about the consistency of thick cream. See there are no undissolved pieces of rubber; then add aluminum powder until it evaporate. When your plate is finished you have a lining that cannot peel off, as the addition of the rubber makes it a part of the plate. By so doing the plate is much more easily kept clean, and much more comfortable and pleasing to the eye of the patient. Thorough polishing in the final finish will not be labor lost. The same I might say regarding our gold, amalgam and cement fillings. I find no better way of smoothing the approximal surfaces of an amalgam filling than with a strip of rubber-dam.

OUR RELATION TO OUR COLLEAGUES.

These should always be of most fraternal nature. Nothing is made by continually fault-finding and picking at those who are engaged in our line of practice. If we find flaws in operations of our competitors, let us not be the first to speak of it; the patient will soon find it out. Then, again, when our colleagues are unjustly assailed, as they often are, it is our duty as far as possible to defend. All are liable to mistakes. Continual fault-finding not only lowers us in our own estima-
tion, but reduces the patient's confidence in this, our chosen profession. To expect to build ourselves up by pulling some one else down is one of the greatest fallacies imaginable.

Our relation here spoken of is one of the little things in which I hope no member of this society will adopt in his or her practice, but may the broad mantle of charity be extended to all. With these few cursory remarks, I leave the matter with you, trusting we may not "despise the day of small things".

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DISCUSSION.

Dr. H. T. King, Fremont: This seems a hard paper to attempt to open a discussion on. There are a great many little things and a great many good things. There is one point, though: although Dr. Roseman and I practice in the same town, and I am somewhat acquainted with the peculiarities of our people in Fremont, I don't understand how his patient could stand the odor of Sanitol or prefer that to tobacco. The majority of my patients prefer the tobacco to the Sanitol very, very much. But the point is, what do you want odor for? Why perfume things? It is easy enough to cover things up if you want to. If you have the cleanliness that should be demanded, you don't need anything else in shape of perfumes and the different drugs—hide them and keep them out of sight, and out of the chance of the odor reaching the patients just as thoroughly and completely as you keep the instruments out of sight—I was going to say, bloody instruments, but what is the use of saying anything about a dirty instrument to a society of this kind? Keep all instruments out of sight until you want to use them, and make just as little display of them as possible. The patient will get all he wants of your instruments without having them displayed before him. As to the plate-lining that the doctor mentioned, it is good. He left it rather indefinite, however, when he said that you should make it the consistency of paint. Now, does he mean the ordinary house paint, or ladies' face paint, or some other kind of paint, or what does he mean? However, the lining is good; the lining of a rubber plate with aluminum is the only method that I have ever discovered where I felt safe to allow the patient to see the palatine portion. With all other methods, keep your plate the wrong side up until you get so close they cannot see it. The aluminum lining gives you a clean plate; it will wear. It is harder than your plate itself, and as it comes out of the plaster it absolutely requires no attention on the palatine portion. The plaster completely comes all off and leaves it clean. Some of you have left your plate in the vulcanizer over night, and you have found that you have a big, long job to get the plaster from your plate the next morning. Use the aluminoid lining and you will have no trouble. You can leave it there a week, and it comes out just as clean as you want.
TO MAKE WAX TRIAL PLATES ADHERE TO THE MOUTH.

There is a point not in the paper, and a good one, too, that I struck just the other day after practicing dentistry a number of years. Now, you have all had occasion to insert an upper and lower denture for an old lady who had lost her teeth years ago and had been going without, and some of her friends induced her to have artificial teeth. You make plates of wax and insert the upper denture in the mouth, and that plate will drop down while you are inserting the lower plate. Haven't you had an experience of that kind? All of the older gentlemen here have heard of powdered gum tragicanth, that some people in this state always give their patients when they insert the upper plate, telling them if it does not stay to sprinkle a little gum tragicanth on it and it will stick for hours. I am happy to say that I have not felt the need of that. But there are times when I insert my trial plate to get my bite, and when I insert the trial plate to see if I have the teeth properly mounted and to suit me, and all that, then give your trial plate, your wax plate, a little sprinkling of this gum tragicanth, and you will have no trouble with it. They can move their lips and talk and laugh, and do as they please for an hour, and there you have your trial plate in position. Now, gentlemen and ladies, that little trick alone will pay you the price of admission to this show, providing you, in addition to that, put up the $2 dues at the treasurer's office.

Dr. F. M. Shriver, Glenwood: I am satisfied, if we followed out his small suggestions that he speaks of, it would do us good in the practice.

Dr. Roseman: It is not always safe or just right for a man to plead guilty to a crime, but I must admit it; and if Dr. King wishes to bring a charge against me of being a thief, I should plead guilty, because some of the little things I have there I got from Dr. King, so that he is partly responsible for them. Now, in regard to the doctor. I fear we must have a different class of patients, for some reason, because my patients like the use of Sanitol to cleanse out the oral cavity, and they have not found any fault with it at all. I can not speak for the doctor's, but I can speak for mine, and that is all I can say.

COMMON-SENSE TREATMENT OF PYORRHEA.*

By F. G. Worthley, D. D. S., Kansas City, Missouri.

It is more years ago now than I care to tell that I commenced the practice of dentistry, and I commenced it in the state of Nebraska. I only stayed here one year, but it was

*Read before the Nebraska State Dental Association, 1907.
long enough to acquire a taste for your wind-swept prairies and your hospitable people, and when I received an invitation to be present at this meeting and participate in it, I accepted it with a great deal of pleasure, and selected as a topic the "Common-sense Treatment of Pyorrhea Alveolaris." I selected it for this reason: The subject of pyorrhea is like that of the Panama canal—we can talk about it indefinitely without having to know very much.

I wish to tender an apology to the gentleman who is to open the discussion on this subject for not having written a paper. I should have written one and sent it to him, but in the hurry of business I failed to write a paper, and so depend on simply giving you a few ideas along the line of the treatment of pyorrhea, extemporaneously. The subject is such a broad one that one has to simply talk here and there in order to say anything at all in the few minutes he can occupy at the meeting, and so I shall dismiss today all consideration of the causes of this disease or diseases, although that would be an interesting topic, and only speak along the line of the treatment and diagnosis which goes with the treatment.

The term "pyorrhea" is general, and is applied, by different observers, to several varieties of pericemental degeneration. It is largely owing to the fact that practitioners differ as to what is pyorrhea that so much difference of opinion exists as to its treatment. One man speaks of being successful in the large majority of his cases, while another, perhaps equally skillful, says he finds the disease practically incurable. Perhaps, if each could understand what the other meant by the term pyorrhea they would find no marked difference in their measure of success.

There are four or five different conditions or diseases which are classed under the generic term pyorrhea alveolaris. This name is, of course, not scientific, merely expressing one symptom and one that is perhaps not always present. Various other terms, such as "calcic inflammation," "infectious alveolitis," "phagadenic pericementitis," "interstitial gingivitis," and many others, have been proposed, but until the cause of the various manifestations has been proven there can not well be a scientific nomenclature.

The commonest of the conditions which are frequently classed as pyorrhea is the inflammation and degeneration of
the pericementum and associate parts from gross deposits of salivary calculus on the crowns and necks of the teeth. This might well be termed calcic inflammation, as its obvious cause is the presence of calcic deposits as irritants. It is most common about the lower incisors and upper molars, as these teeth are the ones on which the salivary deposits usually first find lodgment. In the presence of extensive deposits there is usually considerable inflammation of the adjacent gum tissue and dental ligament. There is usually pus formation along the inflamed area, but not much tendency toward a burrowing up the side of the tooth-root and the formation of the pockets, so characteristic of other types of the disease. As this condition at least is caused by local irritants, the obvious and principal step in the treatment is their complete removal. That being done, the only special medicinal treatment indicated is the use of a mild, alkaline antiseptic mouth-wash. A one-per-cent solution of zinc chloride in peppermint water is excellent.

Another condition not at all uncommon is the irritation and loss of structure due to deposits of salivary calculus under the free margin of the gum. This is the type described by Dr. Henry Burchard as "pyorrhea alveolaris beginning as a marginal gingivitis". It is characterized by deposits under the gum margin of thin scales of hard, greenish-colored calculus. The gum over the calculus has a puffy look and a deepened color, in extreme cases looking almost purple in hue. In cases of somewhat long standing, pockets will be found along the sides of the roots, these pockets being comparatively shallow, with a tendency to encircle the tooth root rather than burrow toward the root apex. Within these pockets, on the roots that have been stripped of their protecting membrane, will be found deposits of serumal calculus. This appears as little nodules or islands, and clings with provoking tenacity to the roots. If much loosening of the roots has taken place, it is well, in the treatment of this, as well as other varieties, to first secure them by some method of wiring or splinting. In this day of artistic bridge-work and multiplied orthodontia appliances, it ought not to be difficult for any dentist to devise an appliance for the purpose. This having been put in place, the next step, after a thorough syringing of the parts with hydrogen peroxide, is the removal of the calculus. It is easy to say, "Remove every particle of deposit, both salivary and serumal,"
but in some cases it is impossible. Pockets sometimes burrow to such a depth, and in such directions, that the most expert operator fails to detach every particle of the calculus. Unless he does, there is no hope of a cure. While the serumal deposits are the result and not the cause of the condition, once having formed they will prevent healing. Every operator has his method of procedure in these cases. Probably the best results are obtained by the use of thin push-cut instruments, used in the manner of a chisel. Care should be taken not to wound the free margin of the gum. The pain of the operation can be much lessened by packing the pocket for 10 minutes with a pledget of cotton saturated with a 10-per-cent. solution of cocaine. Having removed the deposits as thoroughly as possible, any of the accepted medicinal treatments may be used. The writer is strongly of the opinion that much more depends on instrumentation than medication. The following has given excellent results:

\[\text{No. 1.}\]
- Iodine crystals \(10\) gr.
- Creosote \(\frac{1}{4}\) oz.

\[\text{No. 2.}\]
- Tannic acid \(10\) gr.
- Glycerine \(\frac{1}{2}\) oz.

To use the above, pump the pocket full of No. 1, using a wood toothpick or sharpened orangewood stick. Wait 30 seconds and follow with No. 2, used in the same manner. Having treated each of the affected teeth in this manner, prescribe a good mouth-wash and dismiss the patient for four days. If at the end of that time there is any pus formation noticeable, the entire treatment, scraping, polishing and medication is to be repeated.

This line of treatment will effect a cure in a comparatively short time, provided all the calcic deposits are removed.

The type of disease that Dr. Black has termed "Phageidanic Pericementitis" is perhaps the most obstinate of all the conditions classed as pyorrhea. It generally affects but few teeth at once; it is first noticed by a shifting of the tooth in position, at which time an examination will show a pocket on the side of the root. These pockets are deep and narrow compared
to those of the type just described. They generally burrow to the root apex by the time the root is one-third encircled. The peridental membrane is stripped from the root the entire length of the pocket and the overlying alveolar process is also destroyed, leaving the gum tissue alone covering the denuded root. There is usually little salivary calculus about the necks of the teeth; in fact, in the majority of cases, there is none at all. However, the serumal deposits are generally found higher up on the root. There is not much change in the local gum color, though many cases show a slight purplish discoloration. Neither are the teeth markedly loosened until the later stages of the disease. In the treatment of this condition, Dr. Black recommends that, in addition to a thorough scraping of the root, the alveolar edges along the sides of the pockets be scraped to remove any necrotic bone that may be present. This is desirable where it can be done. Owing to the depth of the pockets and the comparatively narrow approach, it is impossible in many cases to completely remove the deposits and necrotic tissue without removing the tooth. Consequently many cases of this condition must be regarded as not amenable to treatment. However, there is no reason why such cases should not yield to treatment, provided all irritants are removed. The success of the practitioner in the treatment will depend on his skill in instrumentation. The subsequent medicinal treatment consists in cauterizing the pocket to its entire depth and the use of antiseptic and germicidal washes to prevent a reinfection of the area. The use of such constitutional measures as will insure the greatest amount of resistance to renewed attacks is an important subject, but does not come under the scope of this paper. Almost all of the caustic alkalis and acids have been recommended at different times as cauterizing agents for pyorrhea pockets. Fifty per cent. sulphuric is probably as good as any. Trichloracetic is highly extolled by many.

To sum up: The principal feature of the treatment of pyorrhea is thorough instrumentation. If all local irritants are removed, any of the accepted treatments will prove effective. If they are not removed, no amount of medication, local or general, will avail.
DISCUSSION.

Dr. Horace Warren, Missouri Valley, Iowa: We had Dr. Smith over there at the Iowa society two weeks ago on pyorrhea. He read a paper that took him an hour and forty-five minutes—a paper—that wasn't a talk; an hour and forty-five minutes. Well, it was instructive, but it was tiresome, although he is a great character, Dr. Smith is. He is an authority, and was most interesting to me, though Dr. Smith is a very prosy talker. Now his idea of pyorrhea is that we have got the cause and effect mixed. He says that Bright's disease is caused by pus from pyorrhea, being ingested into the system, whereas those that held to the theory of constitutional cause of pyorrhea claim that the pyorrhea was caused by the Bright's disease, and Dr. Smith's is a much more sensible theory to me. In the treatment of pyorrhea it is an excellent idea to give the patient some of these antiseptic napkins to keep in his pocket or keep with him constantly to absorb that pus—keep it out of the system, and do it continually, just before eating and every few hours. That keeps the pus from getting into the stomach, and by doing that I have had much more success with pyorrhea than before I did that. I don't think I am capable of discussing this any further because it is too excellent a paper.

Dr. Wildman: We are taught that one of the best things in the treatment of pyorrhea after medication is that the patient should massage the gums, rubbing the gums toward the crown of the teeth. That has a tendency to push out all foreign substances, and if any pus forms it pushes that out, and by wiping it away with absorbent cotton or napkins, the pus can be kept out of the system, and it also causes a normal circulation of the blood in the gum tissue.

Dr. Worthley: There has been so little discussion that there is nothing to answer. The point the gentleman just made in regard to the daily massage of the gum—I will say in regard to that that I think it is bad practice and I will state the reason so that you will all understand me, I hope. My object in the treatment of this disease, any of these types, is to get a new growth of tissue that will fill up the pocket. Now, you all know how this tissue forms and a daily massage will break up that new growth and never give nature a chance to build up the case. I heard Dr. Black describe the treatment of an abscess at St. Louis, and he told about treating it for six months. It was when he was practicing near St. Louis, when he was one of the members of the St. Louis Dental Association. And he said he treated the abscess every other day for six months. That was in the winter time, and there came up a terrific snowstorm and the patient could not come for three weeks, and when he came in again so the doctor could go on with the treatment, the abscess had healed. Now, it is very easy to break up the formation of new tissue. There are plenty of men, you know, who will say that there is no chance for the pocket to fill up, and I will admit that it is problematic, but this I do say, that if all the local irritants are removed,
and then you can keep infection out of the pocket, there would be no question whatever, but it will fill up and you will have a restoration. You all know the difficulty of preventing the ingress of infection in such areas. I have tried where a single central incisor was infected to keep infection out of it by wrapping a little cotton around the neck of the tooth, thinking to keep it out mechanically, but it would be just about like trying to hold chloride of lime over your head, thinking it would absorb the rain and keep it off of you in that way.

THE CARE OF THE TEETH.*

Dr. L. L. Eells, South Auburn, Nebraska.

The subject that has been assigned to me is so broad that one cannot think of covering it all in the short space of time allotted to me; it is also so deep that one cannot think of fathoming its depths, for necessarily it has been divided into many branches of specialties, and upon these one might be able to write many volumes, and yet it is with much hesitation that I appear before you today, for, as I look about me and see so many who are so much better qualified both to entertain and instruct you, I feel reluctant in taking much of your time in trying to give you anything on "The Care of the Teeth". This, to everyone of us, is the most important part of our professional life, for neither you nor I chose dentistry as our life's work for the sole purpose of alleviating a suffering humanity, who are so full of the aches and pains of an everyday life, brought on chiefly by disobeying the laws of health, or building for ourselves a reputation that would place us in the ranks with the noted ones of our honored profession, that men would raise up and call us "blessed"; but that we might gather to ourselves some of this earth's possessions, that, in after years, when we had descended the western slopes of time, and when our hands were no longer able to toil for our existence, we might enjoy "life, liberty and the pursuit of happiness".

I do not intend to take up the embryology of the teeth, neither do I purpose dwelling upon the law of heredity, and yet, the latter has a great bearing upon my subject, for if a child inherits from its ancestors any form of constitutional weakness, either of mind or body, you have the first step that sooner or later will affect the organs of mastication, and especially is this true if they inherit that disease known as

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pyorrhea alveolaris, which, in my mind, is the cause of the loss of more teeth than from the ravages of decay. The only ground I have for this assertion is from personal observation. There are two things that I try to impress upon the minds of my patients: First, the necessity of visits to the dentist, at stated intervals, for the examination of their teeth; the duration between each visit depends upon the case at hand. If it be a child under the age of eight or ten years, to have all deciduous teeth that are decayed filled with a sufficiently permanent filling that will preserve them until near the time of eruption of their successors, also that there be no premature or delayed extraction of the deciduous teeth; for if the deciduous teeth be extracted before the proper time there will be a drifting of their neighbors, thus closing part of the space that should be left for their successors; also, if extracted too soon, the jaw would not be properly developed. On the other hand, if left too long, they will interfere with the eruption of the permanent teeth; especially is this true of the cuspid where you get those dreadful teeth known by the laity as "tushes," which, they think, forever blight the future prospect of any fair maiden. Next, if there be any permanent teeth in place, either molars or bicuspids, that they be protected before they are attacked by decay. To do this, dry the tooth with chloroform and hot air, and without any mutilation of the tooth, force cement well into all pits and fissures of the occlusal surface, remove excess, and this will not interfere with proper occlusion. If this be well attended to, you will have little to fear of decay at this point, and you will be surprised to see how long this will protect the tooth, though there be but a small amount of cement; but this comes from the fact of its being so well protected.

It seems useless and almost a waste of time for me to tell those assembled here that we should insist upon our patients having all teeth properly filled, and yet there are those of our number who, when a patient asks them to extract a tooth, will do so without explaining to them why that tooth should not be removed. I know this to be a fact, for, when a boy, I went to a dentist and told him I wanted a tooth extracted; well, he did as I told him, but I have often wished to see that gentleman that I might tell him what I think of him for maiming me for life. I also call to mind a case in my own practice:
a lady came to me with one of her upper incisors decayed, and wanted it extracted. I tried to explain to her why a tooth that was no more decayed than was the one in question should not be extracted, but this was all of no avail, for she could think of nothing but to have it out. I extracted the tooth, but before doing so I assured her that the time would soon come when she would regret having the tooth out, also that she could not blame me for it. This was in July; she came back in December and wanted the space filled. I could not but remind her of the advice I had given her, and she said, "I see it now, but could not then." The patient today is wearing a plate with one tooth upon it, when she might as well have the natural tooth with a small filling in it.

The second thing that I keep in the minds of my patients is the necessity of keeping their teeth free from all deposits. I have as patients two sisters, who have been under my care for some five years; one has been very diligent in keeping her teeth well filled and free from all deposits, though at times I have had to clean them every two or three months, and today her gums are in a healthy condition, while the other gave her teeth little or no attention, and I recently extracted all that she had left, and will soon put in plates. Note the condition: the one with the same amount of care as the other could have her teeth today, instead of being obliged to wear plates. It is almost a daily occurrence to have patients tell us that there is no need of their having anything done to their teeth, as they will soon be decayed again; and they will recite to you the case of some of their great-grandparents who had such lovely teeth and never brushed them nor had any filled; but have you ever stopped to think that we of the present generation are not nearly as strong physically as were our forefathers? Even their habits and the food they ate were different. Their food was of a coarse nature, necessitating a great deal of chewing, therefore cleansing the teeth and gums and mixing it well with saliva; while, on the other hand, our food is chewed, cooked and predigested, many people thinking all they have to do is to swallow it, thus robbing the teeth and gums of the exercise they should have. You will hear others say that they chew tobacco to preserve their teeth; whether or not this is true I cannot say, for I have been unable to find anything in literature upon this subject; but one thing I have observed: when
a person has chewed tobacco for a number of years, you will find cavities on the buccal surfaces of the molar teeth, and I feel confident that his tobacco made them, although I may be mistaken. And last, but not least, we should all instruct both young and old, great and small, that a glass of water, a toothbrush and powder, if properly used, have more cleansing properties than one has any idea of until they have given them a thorough and continued trial. As to the kind of toothbrush, no dentist would think of recommending any other than the prophylactic, and he should keep one in the office and instruct his patients in brushing their teeth. As you will observe, I have refrained from recommending any one kind of powder or mouth-wash, for the manufacturers of every one can give you many reasons why his is the best, as did three men who were telling each other what kind of a wife each wanted. One said that he would want a wife who was like a Bible. Why did he want a wife like a Bible? Because she would seldom be looked at. Another said he would want a wife who was like a piano. Why did he want a wife like a piano? Because she would be upright and grand. The third wanted a wife like an almanac. Why like an almanac? Because he would get a new one every year.

DISCUSSION.

Dr. Wallace: I am not prepared to open this discussion without having seen the paper, not knowing that I was to do so. I am sure you will all agree with me that it was a well-prepared and well-delivered paper, and yet at the same time they are all cold facts, things that we cannot get away from, and we will have to admit them, and therefore they will not allow of any extended discussion. If any one else can pick any flaws they may do so, but I have nothing more to say.

Dr. McCleery: It was a very excellent paper, but I just want to call the doctor's attention to the fact that he was responsible for the extracting of that front tooth. I wish we could impress on these young men that we don't have to do everything that everybody wants us to do, and we are responsible for what we do, and Dr. Eells was responsible for that lady wearing that one-tooth plate.

Dr. Warren: I think so, too, and when Dr. McCleery says, "impress upon the young men," forsooth, the old men are doing the same thing, I want him to understand, all over this land right
today. I am a young man myself, and we are not the only ones who are doing it. The old men are extracting lots of teeth. Why? Because the patient says, "Take this out!" And you argue a while, and he wants it out. That is no excuse for doing an unprofessional act. If a patient should come to a surgeon and say, "Amputate this finger for a felon!" would he be authorized to do it? Well, I guess not! And you never knew a surgeon who would do it; but we stand at the chair like tinkers and work by the hour like plumbers instead of standing up like professional men and charging fees for the work we do. We charge by the hour, and we think we are doing a great thing because we get five or ten dollars an hour, and that is what the plumbers do—charge by the hour. It is not the professional way. Did you ever hear of a physician, or surgeon, or a lawyer, or a doctor of divinity charging by the hour? Not much! And we claim to be in line with these professions, and we, like plumbers, are charging by the hour, and it is not professional at all.

Dr. Cobb: I will admit that I am new—just entering the profession. I have just closed my term of school, and I am not going into this profession altogether for the love of it, while I mean to uphold the profession and am willing to advance it; but when we talk about that we may not extract a central incisor for some lady that insists on it, we know that if we do not do it, there are so many men that will do it. Aren't we just as much entitled to the 50 cents as the next man? and he will do it. I am not in the profession altogether for money, but some other man will do it. What am I going to do? I don't know. I have just started, and I want to know.

Dr. Warren: It is better to starve professionally than to get rich in any irregular way. That has been the rule for the last thousand years.

Dr. H. Daly: Speaking of this question, I had an experience not more than six or eight months ago in our town. A young man about 16 years of age came in and wanted me to extract an upper first molar, and believed that he would have to have it out, and of course I said to him in starting out, "I don't think you ought to have that tooth extracted." "Oh, yes," he said. "I am going to have it out. I am going to have it out." I just sat back in the chair, and I said "All right, but I will never take it out." "Well," he says, "I can go and have it taken out." He went to three physicians in town, and they all refused to remove it. He went to another, and he attempted it, but did not get it out. The young man explained this to me afterwards and talked to me about it, and he said he had tried to, but couldn't get anybody to remove it, and he went to one, and he took hold of it, and the third time he tried and couldn't, and the result was, a day or two after the young man came back to me and wanted to know if I could do anything for him, and I finally took care of the tooth. The last thing he did was to shake hands with me as he went out of the door and thanked me for the position I had
taken in the first place, and I think that will do a man more good than for a dozen to go out and get mad because he did extract the tooth.

**Dr. McCleery:** I think it is a very easy matter to handle. You want to keep your head and explain to them the value of a tooth. I tell them: “Why, if I had that molar in my head I wouldn’t take $50 for it,” and explain to them that you can stop the aching just as quickly without pulling it as you can to pull it. That is what they want—to get rid of the ache—not so much the tooth, but the ache. If you can stop the ache, they will have it filled. I haven’t any trouble with that class of patients at all. You don’t want to get mad at them, or anything of that kind; just keep your head and impress on them the value of the teeth.

**Dr. Corbett:** I had a little experience last week. A lady came into my place, and she says, “Doctor, I want this tooth out. I was up to your neighbor’s, and he would not take it out for me.” She says, “I am going to have it out; he has been working at it a month or two, trying to fix it up, and I have got to have it out.” I says, “All right.” She sat up in the chair; I cleaned the tooth out and put some medicine in. She says, “Ain’t you going to take it out?” I says, “Not yet.” “Well,” she says, “it doesn’t stop aching. What will I do?” I says, “Just sit still a minute,” and in the course of about 10 minutes the tooth was getting easier. I fixed up the tooth and it was all right. In some way or other he had hurt it or injured it, and it was giving her lots of trouble, and aching. She was suffering ever so much, she complained, and had to have it taken out. Of course she was glad not to. I had another case: A lady came in, and she had very large teeth. She was foreign, and they, of course, were not nice to look at. She came in with a neighbor of hers, for whom I had put in a denture that helped her a great deal, and so she says, “I want my teeth all out so I can have in a set of teeth like the lady with her.” I looked at them, and found she had a full set of teeth, upper and lower, and no decay. I told her I would not do that, and she insisted on it. I told her I could not do it, argued with her a long time, told her everything about it, why it should not be done, but she insisted on it, and finally the neighbor says, “Doctor, you might just as well do it; she certainly will have them out!” No, I told her, I couldn’t do that at all; I wouldn’t do it, that was all; I wouldn’t mutilate her, as that would be for looks. Well, that was all. She finally left me and went away, and I thought I had done a pretty good thing. Along about six months after that time these two ladies came into the office again. One looked rather peculiar, and I says, “What is the matter with you?” She says, “You remember when I wanted you to take out the teeth and you wouldn’t do it? I went to our doctor and he took them out, and now I want you to put them in.

**President Morrison:** Dr. Cobb, I think this answers your ques-
tion. You are just starting out, and if you do it this time, you will do it the next. The good-will of the patient, if you save the teeth, will be more to you and will build up your practice and influence more, and be more to you in every way than if you let them go to some one else and have the teeth taken out. It would be worth more to you than all that you would get from extracting in your whole professional career.

Dr. J. F. Daly: I have always refused to extract any tooth that I didn't think ought to be extracted. I will say many times—I am answering Dr. Cobb's inquiry—that we country practitioners are almost forced to extract a tooth that we think ought not to be extracted, but I have had many cases where parents would bring in children where we know better than to extract, but the child has the parent as a guardian, and they would ask to have a tooth extracted for the child, when the child had nothing to say about it. Now, that class of teeth I have positively and absolutely refused to extract for children I knew I was doing an everlasting injury to, and I would not do it. They can get a doctor wherever they please and have it done. I have extracted teeth for grown people 30 or 40 years of age that seemed to know and insist that they should be extracted, and I presume that there isn't a man in the house but what has extracted teeth in his time, in 10 or 15 years' practice, that he thought ought not to be extracted. But I make a difference whether it is a child or whether a person 30 or 40 or 50 years old. They ought to know better.

Dr. McCleery: What is the difference between a child that don't know and a man that don't know?

Dr. Daly: The child is under the guidance of the parent, that ought to know more, and they do not, and I feel it would be imposing more than on a grown person.

Dr. McCleery: If a parent wanted their own teeth out, and didn't know, wouldn't it be just as wicked?

Dr. Daly: No; I don't think so; I feel that I would be doing the child an injury, whereas I don't care so much if the parent insists on it. I tell them how they will miss it, and they still insist on it; that is a different proposition from a child sitting in the chair and don't know that they are going to be injured. I draw a line there.

President Morrison: Punish the child's father for ignorance, but don't punish the child for the ignorance of the father.

Dr. Harris: If a patient has confidence enough in me to come to my office to have work done, I expect the patient to have enough confidence in my judgment to allow me to say what shall be done. There is one point where it is a back tooth and does not show. I try to argue to that patient that it is a back tooth and that it means our health. The front teeth we use for looks; they look well. The
back teeth are the ones from which we derive our benefit, and I try to show to my patients that they are essential and necessary, and if, in my judgment, that tooth would not be saved, I will extract it, otherwise I will save it in some way.

**Dr. Warren:** Just a moment—one point in reference to a great many patients who come in and say, "Well, I really can't afford to have that filled." Now, if I think that is true, I say to that patient, "If you cannot afford to pay for the treatment and filling, you cannot afford to pay for the extraction, and I will, therefore, extract it for nothing." That makes them mad sometimes, but I will have Dr. McCleery understand that I am not so rambunctious in the office as I am here; I am more suave, although I am positive when it comes to the question of extraction. I had an experience 20 years ago this year. It was in the early days of crown-work. A lady came in for whom I had made a partial plate. I was the only dentist in the town at that time—a very unfortunate position, by the way—and she wanted the left lateral extracted. I explained to her how we could cut that lateral off, treat it thoroughly, and put on a crown and attach the central to it, making a nice piece of work and throwing her plate away; how nice that would be. No; she would not do it. "Well, I will just have to say, then, Mrs. So-and-So, that I will not extract it; that is all there is to it." I knew her pretty well. She went to one of the physicians and he wouldn't extract it. There were three physicians there, and none of them would extract that tooth, and she was madder than the "Dickens", but she finally came back and said, "You can do as you please with it." She has thanked me many times and sent me a good many patients.

**Dr. Vance:** We all know that you would refuse to extract a central incisor, but would you refuse to put a gold crown on a central incisor?

**Dr. Warren:** That is an aspersion Dr. Vance is casting upon me just for meanness.

**Dr. H. E. Eells:** There have been some things said here that have been very good. I remember of a patient coming to my office lately that caused me to think considerably. This was regarding a girl of about 10 or 12 years of age. She came to my office the other day and she had just previously had a first molar extracted. By the way, I have a rule, always before I extract to explain the importance of that tooth. I explained to the mother the importance of that tooth and what the child lost by having that extracted. She made the remark, "Had I known that I never would have had that tooth extracted." I didn't do the extracting in this case. Now, we as dentists must discharge our duty as professional men by telling them the importance of these teeth. I heard Dr. A. W. Harlan say in the fall of '95 or spring of '96, "These teeth are worth just what we value them at." I remember I was only a freshman at the time, and
his words were impressed on my mind so that I never forgot them. He said, "Some do not value them at 50 cents, and want them pulled out." He says, "Others value them at a dollar and are willing to have a filling put in. Some will put on them a value of $5 or $10 and have them crowned. But," he says, "for me, I would not take a thousand dollars for these teeth in my head." That was his remark. Now, if we can impress upon our patients the importance of these teeth and what they are given to us for, then they will take into consideration the value of them, and not so much a few dollars and cents, and we as dentists should first impress upon the minds of our patients and educate them to the importance of what the teeth are for to the use of the body and our health.

According to Dr. Warren's language, we don't always practice what we preach. He said he is not always as rambunctious as he is here. But I feel that if I extract some of these that I will get a black eye when I get before Saint Peter.

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REPORT OF COMMITTEES ON NECROLOGY AND REORGANIZATION.*

President Morrison: There were some committees appointed at the opening of this meeting. We can have now the report of two of these committees, and we had better take them up at this time. The first will be the report as to the death of Dr. Shriver and Dr. Skeede.

Report read by President Morrison as follows:

Whereas, It has pleased the Almighty Ruler of the Universe to remove from our midst Dr. Henry W. Shriver, of Omaha, and Dr. T. F. Skeede, of Seward, we, the members of the Nebraska State Dental Society, extend to the bereaved families of our departed brothers our sincere sympathy, assuring them that, while autumn shall make sear and yellow the mounds that mark the final resting places of their bodies, their memory shall ever be kept green in our hearts.

The secretary is instructed to spread these resolutions on the records of the society and forward a copy to their families.

Fraternally,

W. H. SHERRADEN,
A. O. HUNT,
H. T. KING,
Committee.

Moved and seconded that the resolution be separated and placed in two resolutions, separate copies sent to the relatives

*Read before the Nebraska State Dental Society, 1907.
of the departed and engrossed as separate resolutions upon the minutes of the society, and that the report be then adopted. Carried.

REPORT ON REORGANIZATION.

President Morrison: We have the report of another committee, the committee on reorganization.

Dr. Dameron: I want to say, on behalf of this committee, that I never saw or appointed a committee that worked so hard. They have put in the entire afternoon, and they have brought in a report that I know we all want to hear, and we all want to pay strict attention to, and if one is not pretty well posted they will have an opportunity now to get posted on what this committee is going to do. We want your strict attention for the report of this committee. In working out this plan of reorganization, we found necessary to make the following changes in the constitution:

In Art. 1 of the constitution, add to Sec. 2 to make it read as follows: "This society shall be divided into a suitable number of divisions, to be determined by the executive committee."

In Art. 3 we have changed Sec. 2 to read as follows: "Active members shall consist of dentists who are practicing their profession in the state of Nebraska and adjoining counties of neighboring states, provided they hold membership in their district society. They shall be elected as now provided." To Art. 4 we have added to Sec. 2 as follows: "The officers of the district society shall be as they see fit." Under the by-laws the only change was in Art. 1, Sec. 2, as follows: "The meetings of the district societies shall be held as often as they desire, but must convene twice a year."

Sec. A—Now, in dividing the state into districts we have placed the following counties into the First District: Sheridan, Cherry, Grant, Hooker, Thomas, Blaine, Brown, Keya-paha, Boyd, Rock, Loup, Garfield, Wheeler, Holt, Knox, Antelope, Boone, Platte, Madison, Pierce, Cedar, Dixon, Wayne, Stanton, Colfax, Dodge, Cuming, Thurston, Dakota, Burt, Washington, Nance.

Second District to be composed of Saunders, Douglas, Sarpy.

Third District to be composed of Lancaster, Cass, Otoe.
Fourth District to be composed of Saline, Thayer, Jefferson, Gage, Johnson, Pawnee, Nemaha, Richardson.
Fifth District to be composed of Adams, Clay, Hamilton, York, Seward, Butler, Polk, Merrick.
Sixth District to be composed of Perkins, Chase, Dundy, Hitchcock, Hayes, Frontier, Red Willow, Furnas, Gosper, Phelps, Harlan, Franklin, Kearney, Webster, Nuckolls, Fillmore.
Seventh District to be composed of Greeley, Valley, Sherman, Howard, Hall, Buffalo, Dawson, Custer, Logan, Lincoln, Keith, McPherson, Deuel, Cheyenne, Boxbutte, Dawes, Sioux, Scotts Bluffs, Banner, Kimball.

Sec. B—In making these divisions, your committee has left intact the Northeastern Dental Society, Southern Nebraska Dental Society, and the Central Nebraska Dental Society; thus we have three districts practically organized. One of the plans we are working on now is that the business of the Nebraska State Society will be done through these district societies; they can help arrange the program, secure new members and collect all dues.

There will be a chief organizer, and each division a district organizer.

To these positions the president has appointed the following:

Chief organizer, T. B. Dameron, Lincoln; 1st District, C. E. Brown, Emerson; 2nd District, Dr. Wallace, Omaha; 3rd District, P. J. Morton, Lincoln; 4th District, Blaine Branson, Beatrice; 5th District, Arthur Douglas, Hastings; 6th District, J. M. Prime, Oxford; 7th District, C. C. Farrell, Cozad.

The district organizers will report to the chief organizer and he will report to the state society through its executive committee.

F. B. Dameron, Lincoln;
J. H. Wallace, Omaha;
C. E. Brown, Emerson;

Committee.

Report adopted as read.
ORAL HYGIENE AND OUR DUTY AS A PROFESSION REGARDING THE SAME.*

By Dr. Horace Warren, Missouri Valley, Iowa.

I had a very cute caption, as I thought, for this talk. I called it first “Prevention by Extension,” meaning the prevention of oral diseases by the extension of prophylactic knowledge, but along about two months ago I saw something in one of the dental journals by Dr. D. D. Smith with that same idea thus expressed, so I had to change that. I met him at the last Iowa meeting, and he wears the same kind of shoes I do, and he wears slippers in the office, too; so you see he copies many things from me.

Prophylaxis comes from two Greek words; it means to “guard before,” and that is all there is to it. When a baby fresh from God is launched upon this sea of trial, trouble, tribulation, croup, whooping cough, measles, breach of promise cases, divorce suits, Thaw murder trials, and pyorrhea alveolaris, it is absolutely antiseptic, perfectly pure, inside and out, from the crown of its hairless head to the soles of its cornless feet. But before it has been on this voyage of life one hour the animalcules are playing tag up and down its alimentary canal. And so with all life; from the time the first breath is drawn until the final expiration thereof it is one continual, uninterrupted fight for life, contest for supremacy. When we are sick the micrococci, staphylococci, streptococci, gonococci, pneumococci, or some other kind of cock-eyed parasites, are endeavoring to do us. When we are well we are overcoming them. The great and only “blown in the bottle” panacea is purity; pure air, pure water—and, I might add, parenthetically, pure politics and pure religion, although they do not belong to dentistry. Except in traumatic troubles, the majority of our ill feelings are due in some manner either directly or indirectly to bacteria. And a traumatism would heal readily were it not for the bugs, as aseptic surgery has proved beyond the peradventure of a doubt. When the microbes have overpowered us, overcome us and dethroned us, then occurs that phenomenon that we call death. But—

“There is no death—
The dust we tread shall change beneath the summer showers
To golden grain, or mellowed fruit, or rainbow-tinted flowers.

*An address before the Nebraska State Dental Society, 1907.
The granite rocks disorganize to feed the hungry moss they bear;
The forest leaves drink daily life from out the viewless air."

And so life presents the seeming paradox of nothing being
so constant as change. When we have ceased to breathe, when
the heart—that fountain of life—has stopped its pumping, then
the work of disintegration goes rapidly on, because the mi-
crobes of life are superseded by the micro-organisms of death,
and there is no rest till the body reverts to the elements from
which it came.

Now, in view of some of these matters, isn't it well to give
this subject of prophylaxis a thought once in a while, or possi-
bly twice in a while? Dr. Oliver Wendell Holmes once said
that in order to raise a boy correctly it was necessary to begin
back one hundred years or so. Now the doctor was undoubt-
dedly correct. We respect him enough to think so, but it is not
every boy who has had the privilege of selecting his own
father, his own parents, much less his grandparents. But, I
say, many of the misdemeanors, mistakes and side steps of our
ancestors may be overcome by a hygienic regime. Not that
these measures will renew the severed continuity of a cleft
palate, nor yet restore the contour to Hutchinson teeth, but
they may go far toward preventing the unfortunate and inno-
cent victim of a syphilitic taint from filling a premature grave.
The principle of protection prevails in nature to such an extent
that it seems peculiar it has not been observed oftener than it
seems to have been. Now, take the sensation of pain—that
awful bugbear that we have done so much to alleviate and
avoid. How many of us would have our fingers if it were not
for pain? Indeed our arms, our legs, aye, our very lives are
preserved by this beneficent protector, pain.

Now, Hygeia, the great goddess of health, according to
mythology, is claimed by many to be the daughter of Escu-
lapius, the mythological god of medicine. Some others refer
to her as the wife of Esculapius, and it pleases me more for
the goddess of health to be going hand in hand with the god
of medicine. And there is another combination that I believe
is incorrectly coupled up: that is, that "Cleanliness is next to
Godliness." It is indeed next, but most people believe that
they are hitched up tandem, with Godliness in the lead; but I
believe God himself thinks so much of cleanliness, as evidenced
by all the works of nature, that He would place these in juxta-position in the catalog of good deeds.

Now, this business of prophylaxis has received little or no attention in the dental institutions of this country in the last few years, but I believe I see the halo of a brighter day dawning for a phase of dentistry which has always seemed to me to be of such prime importance and on which I claim to be the most profound crank in the United States, not excepting the celebrated Dr. D. D. Smith himself; and I believe the profession is awaking to the fact that there is something in the science of dentistry besides pushing and pulling—and I have the greatest respect for them, too.

Now, treatises on this subject have been written by the greatest philosophers, philanthropists and altruists and ablest scholars from the world's earliest recorded period, and I take pleasure, ladies and gentlemen, in saying that it does me an honor to appear before the members of the Nebraska society and their guests upon such an important subject, realizing, however, my inability to handle it with the power commensurate with its great importance. But the pleasure is all mine, for it is a subject dear to my heart, and one on the altar of which I have sacrificed many patients. Hippocrates is the oldest known writer upon this subject—400 years before Christ (by the way, the same time Confucius was teaching the Golden Rule), when he wrote his article on "Airs, Water and Places," and so well did he write that the principles he laid down with reference to pure air and fresh water, or fresh air and pure water—for, like all good rules, it works well both ways—are as true today as they were 2,300 years ago. The temples erected before the days of Hippocrates, and dedicated to Esculapius, were not institutions of learning; were not medical colleges, where the truths of anatomy and physiology were taught, where the principles of therapeutics were imparted, nor yet where the technique of surgery was ingrained, but they were health resorts, hygienic institutions. So you see we have the greatest possible precedence for giving this subject all the importance that we may wish.

If we remember but for a moment the minute directions and attention to detail which obtained in the old Mosaic laws: the quarantining and isolation of the sick; the proscribing of pork as an article of diet; the rite of circumcision to prevent
the spread of syphilis and other venereal diseases, we cannot
help but know how scrupulously clean the Jews became, thus
impelling us to have more respect for the Semitic race than
would naturally be engendered by our observation of the pawn-
brokers, the second-hand dealers and old-clothes men of the
present day. Many, and, in fact, most of these religious rites
and usages of the Hebrews, were contrived by the wise doctors
purely in the interest of the temporal welfare, the personal
health of their people; but at that age of the world an appeal to
cleanliness would have been about as availing as pouring water
on a duck’s back; so they were instituted, ostensibly, for their
spiritual good. The Jews became wonderfully free from con-
tagious, infectious and epidemic diseases, while their Christian
neighbors were dying by the thousands around them; and so
marked was the difference in the death rate that the Christians
slew many of the Jews believing they had poisoned the Chris-
tians’ wells. A Christian man wonders why a woman thinks it
necessary to turn things upside down and go through the ordeal
of house-cleaning once or twice a year, thus making him miser-
able for a week.

A Jew knows why, because it was originally a religious
rite. It is the mission of hygiene or preventive medicine to as-
certain and determine the cause of disease and formulate rules
for its prevention. Many of these rules are empirical, we must
admit, as indeed the practice of medicine itself is much more so
than the M. D.’s care to own. But, after all, it’s results we de-
sire most.

Now, the medical fraternity has been doing so much to
obliterate constitutional diseases that it seems to me high time
we were doing something in that direction. For instance, they
have taken the black plague; way back in the sixth century
the black plague succeeded in destroying 10,000 people daily
in the city of Constantinople for a season, and as late as the
sixteenth century, in the city of London, nearly 70,000 people
died as a result of this horrible fever, something that we now
know, only breaks out in some filthy province of Asia occa-
sionally. And the yellow fever mosquito has been cornered in
his lair, thanks to those heroic souls who braved death to un-
dergo the experiment—and by the way, one of them went from
Omaha—and the yellow fever, as late as fifty years ago, caused
a great death rate in Philadelphia, and now it is known only in the territory bordering the Gulf of Mexico.

What would you think of a physician who would treat typhoid fever recurring in the same house year after year without investigating as to the cause—defective plumbing, contaminated water supply, adjacent cesspools, or something of that nature? Would you think he was very much alive to the situation? And yet we, who pose as a sister profession, have been hammering away about 100 years without much more than a peep into the etiology of disease, and as to prophylaxis, almost nothing has been done. But the people are learning. The dissemination of knowledge is such today that they can size us up pretty well, and if we don't do something they will think we are a lot of pretenders. Not so very long ago, do you know, the people thought that a surgeon who could amputate a leg was a great surgeon, and the dentist who could extract a tooth with lightning rapidity, he was a fine dentist. They now know that it is not surgery, for, as far as cutting off a leg is concerned, most anybody can do it with a jack-knife and a buck saw; and as to extracting teeth, the barbers have done that for a hundred years. The cross-roads druggists do it; the provincial physicians do it; it is nothing. Not that I wish to minimize the value of any dentist doing it skillfully, but I don't think he builds up his reputation upon a class of work that is calling to his chair a clientele what he will desire in after years. Isn't it more noble to save than destroy? Jesus of Nazareth died to save a world, and history is teeming with the accounts of heroes and heroines who gave up their lives to save others. And for what do we most revere President Roosevelt—for the Teddy-bears he killed in Colorado or the peace he brought about between Russia and Japan? A while ago I attended, in one of your cities, the unveiling of a statue of one of the greatest men in this glorious commonwealth of Nebraska. Was that man a valiant soldier? No! Was he a great statesman? Not specially! Was he a great hunter? Not much! Had he felled vast forests with his mighty axe? Not he! He just planted trees and instituted Arbor Day, and caused this arid west to bloom as the rose, and this spirit spread all over the country and across the seas, and into Europe, and now, on the recurring anniversary of this good man's birth, the 22nd of April, Arbor Day is observed. And
When I heard those distinguished men on that day pay a tribute to J. Sterling Morton, I realized more fully than I ever did before how much more beautiful it was to make something live than to make something die! Oh, yes, we have done a lot of patching up in the last fifty years. We have been erecting some beautiful gold monuments and some very pretty amalgam foot-boards. We have yanked from out their fleshy beds some diseased and deceased members and erected over the grave of each one a white porcelain tombstone. We have been placing crowns on broken heads and exemplifying by our fees that old saying, "No cross, no crown!" And some of us have been getting the double cross to our crown, and we have all been getting the metaphorical double cross for our crown-work many times. But, the general condition of the human teeth isn't improving; and I say, it's our fault; we haven't been doing our duty in the premises to prevent, prevent, I repeat, this alarming increase of oral maladies.

I have been in the habit of interrogating patients and practitioners many years on this subject of prophylaxis. A patient will come in, and with beautiful work in his mouth—grand gold fillings, contoured beautifully and correctly, and some aesthetic porcelain work, but with his mouth in a horribly filthy condition, and I will say:

"Did the doctor who put that work in say anything to you about taking care of your teeth?"

"No, not a word."

"When this beautiful operating was done, were they in the condition they are now?"

"Yes, sir, I guess so."

"Don't you ever brush them?"

"No."

Then said I, "That is beautiful work!"

"Yes," he said, "Dr. King, of Fremont, did that work for me." And that is simply allegorically explanatory of hundreds of cases that I have had where I have been particular to ask them. Then I will ask practitioners, "Are you in the habit of speaking to your patients about the personal care of their teeth?" "Oh, sometimes." That is a great interest. Then some of them will say, "Oh, yes, I say something to them once in a while." "Do you tell them to brush the teeth?" "Yes." "Do you tell them what kind of a brush to use?" "No; I let
them use any kind they want to; that is their privilege.” “Do you tell them when to brush their teeth?” “Yes.” “When do you tell them to brush?” “Tell them to brush after meals.” There it is! They have got that, you know, from the old text books. After meals! Never thought it was proper or not, but they simply said that because somebody else said it, and from the first time that a man walked into the Baltimore college in 1839, and put his name on the roster of that college, down to the 23rd of May, 1907, that has been worked over-time, and to a frazzle. And I would like to see a little common sense injected into prophylactic rules. Nothing to it at all! Brush after meals! Forsooth, I purpose showing that the teeth may be preserved without brushing after meals at all. Some practitioners have answered that it was like casting pearls before swine to advise patients. That’s certainly true with reference to some patients. Some of the intangible things in life are the most material, paradoxical as that may seem. Human thought and imagination back of all the grand and glorious achievements of man’s brain and brawn can not be seen. We do not doubt the presence of electricity because we can not roll it between our fingers; and who ever looked upon a hurricane? You have simply seen the evidence. But are not these potential influences for good or evil?

Then, in view of this, with what force must the full meaning of that old saying come home to us, “An ounce of prevention is worth a pound of cure!” Or again, “A stitch in time saves nine.” That is all there is to prophylaxis. Simply doing a little here to obviate a great deal there. Isn’t it more beautiful? Now, when you explain the beauties of this to your patients some will be so solicitous of your financial welfare that they will tell you they are afraid you will break up in business and some dear old lady will say, “Now, Doctor, if everybody would do as you advise, and everybody would save their teeth as you have, dentistry would soon be a lost art and you would be a statesman out of a job.” But don’t be alarmed; reforms come slowly.

Prof. W. D. Miller, our own dear Dr. Miller—he has been at the head of the Berlin college for many years—stated before the pupils of an eastern college, when over here visiting a few years ago, that the bite of a beautiful girl was as liable to be fatal as that of a venomous serpent. I wonder what figure the
pulchritude of the girl cuts in the matter, but I think a man would be more passive when a beautiful girl were biting him than if she were plain—but be that as it may, are we doing our duty to protect the mouths of mankind?

Many glaring inconsistencies obtain with reference to this subject. I know women; you know them; we all know them—women whose kitchen floors are so clean that you can eat from them, in whose houses a fly would starve to death or commit suicide on account of his loneliness, but the mouths of said women are far filthier than their own slop buckets. Isn't this a beautiful commentary upon the eternal fitness of things? I have noticed many cases of cancer of the oral cavity, the gums, the lips and jaw. I never have known one in the mouth of a person who took fastidious care of his mouth, who brushed his teeth in any kind of a proper way, who took any kind of proper care of his teeth; I have never known of a case of cancer of the oral cavity in such a person. Generally they come by the use of tobacco. General Grant was no exception to this. Dr. Frank Abbott told me he was called in as consulting dentist when General Grant lay on his death bed, and he said that General Grant kept his mouth in a filthy condition, and had not taken care of it properly at all, and he had some molars that were broken down which he had not the courage to have extracted. Think of it! A general in the United States army, president of the United States! Didn't have the courage to have those out or the refinement or culture to keep his mouth correctly. Those sharp teeth irritated his tongue; the nicotine got in, produced proliferation of the cells—result, death. That is what cancer will do. To paraphrase an old saying, "Oh, sharper thou than a serpent's tongue is the scratch of a jagged tooth." I have never seen a baker, a person who works in a bake shop and bakes the bread, cakes and pies, with good teeth. For 30 years I have been looking for a baker with good teeth. I presume some of you may know one; I do not. He has escaped my observation. I have not known a child 12 years old raised in, back of, over, or in connection with a grocery to have good teeth. I have been looking for that child. You may say that candy does not injure the teeth. You may talk about it all you want to, but those circumstances I know.

The most vulnerable time for teeth to decay is in sickness, when the teeth usually receive very little care, but when they
should receive the best care. How delightful it would be for a patient who has been lying for weeks to have his teeth and tongue and gums thoroughly brushed. That would restore the appetite alone in some. And here is where the medical profession should be educated by the dental profession. So many physicians, in treating a patient, will be most particular about the surroundings in every other way than the mouth and let the mouth remain in a filthy condition. Some of the hospitals are doing something in that direction, and perhaps there may be a relief ultimately. A great man has said that great teachers do not really teach us anything; in their presence we are made better. Therefore, every dentist should be most particular, most zealous, in the care of his own teeth. I tell my patients sometimes that I think more of my teeth than anybody else’s, and I want you to say the same. Many times on outings I have been the only one of the entire party who never neglected his teeth, and it is because I think so much of them, and I have never found a dentist yet who had as good teeth as I have. I simply say this to prove my teeth are correctly cared for. You can say my teeth are immune, as Dr. Smith said, but that is because I am taking care of them correctly. A vast amount of evil is done before the child reaches the age of 10, often because of uncleanliness and inattention on the part of the parents and the family physician; and right here is where the dentist should make it a point to educate these two classes.

I make it my life work talking to patients on this subject and telling them about it. We have the effrontery to send missionaries to Japan. Now, in Japan during the last war the death rate was very low. Why? On account of their hygienic rules. Every Japanese soldier, before going into battle, was required to take a bath and don a clean suit of underclothing, so that in the case of a bullet penetrating him and carrying the clothing in, it would be antiseptic as nearly as possible. But listen: They were also always required to keep their mouths clean. Did you ever hear of the soldiers in our army carrying tooth-brushes? I guess not! We should all be missionaries in prophylaxis, although our advice, as you know full well, is not received any more graciously than that of the religious missionaries, for whenever we induce one to keep his mouth clean, we are lifting him up to a more refined and cultured plain, and thereby doing society, as well as the individual, an invaluable service.
Eloquence is said to be the power to convince. I never specially desire to be eloquent except when advising a patient in the care of his teeth, or when importuning practitioners to do their duty toward mankind.

How curious it is that the teeth, the first organs to decay before death, should be the last relics of the grave to revert to the elements. I have dug up Indian mounds in which every vestige of bone was obliterated, but wherein the teeth were as perfect in contour as the day the victim drew his last breath.

The micro-organisms of the mouth which produce decay and other pathological changes are similar to other parasites in many respects; rats are not likely to hang around an empty corncrib, nor mice hold conventions in deserted cupboards. Just so with the bacteria of the mouth. The impurities of the mouth form an excellent feeding ground; the temperature of the mouth, 98.6, is just to their liking, or they wouldn't be there. Why do so many people go to California and Florida in winter and Minnesota in summer? Temperature! The railroads wouldn't declare near the dividends they do were it not for temperature. And the third factor is quiet, rest. That's the keynote to the prophylactic treatment of the mouth. The tramp who calls at your door doesn't ask for work. He wants rest. And so with the bacteria of the mouth. They have been crying for rest since man first trod the primeval forests; and if you allow them this rest which they desire, they will be doing business at the old stand till time shall end.

Many times has it been attempted to produce disintegration of a tooth out of the mouth in imitation of natural decay; it has never been accomplished. Calcific deposits at the cervical margins are a frequent source of irritation of the delicate membrane, producing disease.

Inspissated mucus, which, covering the teeth like a veil, protects the elements of decay and inflammation from disturbance, and they are thereby enabled to accomplish results under such conditions with wonderful rapidity. Those of a lethargic temperament are most prone to that thick, ropy mucus, because they are not strenuous enough in their expectoration. All these causes and circumstances court disaster in the mouth. Much legislation has been enacted to prevent spitting upon walks and public platforms, in the interest of hygiene, and all agree that it is very commendable.
But I tell you that a monument awaits the man who will start a successful reform in the matter of clean mouths in public places, for I would as soon visit a garbage lot on a sight-seeing tour as to come in proximity to some mouths we do, emanating odors beside which bisulphide of carbon is sweet perfume! The majority of persons have never even learned to rinse the mouth properly, not to mention brushing.

Teach the patient to stir up the water so vigorously and strenuously that it will rush between the teeth, and tell him to practice that, and when you see him again, see if he has learned how to do it. It is one of the most necessary things—a vigorous rinsing of the mouth. A few years ago a patient presented himself with his teeth in almost perfect condition. He said he had never had anything done to his teeth. I looked at the teeth and asked him if they had been brushed; there was no decay or tartar. I said, "You have been brushing your teeth, have you?" He said, "No, but I wash them every morning before breakfast." I said, "How?" and he showed me how he rinsed them vigorously and took a napkin and wiped them off. He said: "I do that as soon as I get up from the table. I do that and then pick my teeth." I have been doing that ever since childhood—a vigorous rinsing and picking of the teeth. The pearly occupants of the mouth the poets sing about are the hot-beds of disease, disaster and death. A baby's mouth before the teeth erupt is almost pure, and that of a person later in life without the denture in is nearly so; and what a rape it is to press the lips of a rotten mouth to those of an innocent, pure, defenseless babe! !?

Over at Cedar Rapids, two weeks ago, we met Dr. Smith and as I stated yesterday, he read a paper on pyorrhea; took him an hour and forty-five minutes; that was Tuesday night. The next morning many of the members asked him about the care of the teeth—he was to make a talk that afternoon on prophylaxis. He would say, "I will tell you that this afternoon." When he made his talk he did not give us any specific directions at all, and we had to pump it out of him, draw it out of him; and when he closed he brought out one of his tooth-brushes and showed it to us. There is one of his brushes (showing brush). He did not tell anything definite at all. That is the mistake made when practitioners are speaking to patients. They don't give definite direction. Many have said
to me, "Well, Dr. So and So told me to take care of my teeth; not telling me what to do made a lot of difference."

What should we do? I am going to make a few little illustrations myself. Everybody has been to the board. I have a few symbols here (draws on blackboard three capital P's): Preach prophylaxis to the people perpetually. Practitioners should be paragons of perfection. The first thing you want to teach your patients is this: Three B's—B. B. B.—Brush Before Breakfast. That is absolutely the first thing to teach. If you can get a patient to brush his teeth before breakfast you have him started. The next thing is my Royal Arch Masonry: Rinse After Meals. Get them to do that and teach them how to rinse the mouth out, and then teach them to pick their teeth. I believe, as Booker T. Washington says, in the gospel of the tooth-brush. I also believe in the gospel of the toothpick—not in chewing them on the promenade, but in using them and discarding them at once.

Now, Dr. Smith talks about his prophylaxis instead of prophylactic scheme, as he calls it. He has the right to do that. I guess, if he wants to, but he says to take that wedge-shaped stick and go around the teeth every week or every month or every six weeks, or such a matter, and he is not particular at all to insist on the personal care of the teeth, that I think is more beneficial. I believe a person can do his teeth more good by picking his teeth after rinsing after each meal than to go to the dentist once a month. It seems to me the dentist stands a great deal in the position of a barber who does this. We go to the barber every week or so and have the hair trimmed up. I believe we ought to be professional enough to teach people to do that themselves. We are not there for the purpose of cleaning teeth. However, I do not wish to say it is not efficacious; it is efficacious, but it is adapted to a metropolitan practice. It is aristocratic in its inception, and it is not adapted to any other kind of practice. He is doing a great deal of good to a few wealthy people in Philadelphia. He takes them in there, and in half an hour he is through, and he works that entire half hour on one mouth. He told me my teeth needed treatment. Why, it is the silliest thing in the world to assert that healthy teeth need treatment.

The next important thing is to brush the teeth before re-
tiring; if they are brushed twice a day it will preserve them. We as dentists should brush our teeth after each meal. Don't tell your patients to work five minutes. I have brushed my teeth in 30 seconds, and I can do it perfectly in that time. Have them have one brush at their office and one upstairs and one downstairs—three brushes will last three times as long as one. I believe in calling a spade a spade. Dr. Rhein invented the prophylactic tooth-brush years ago. Dr. Rhein was a scholarly man and a prophylactic man, and that is a prophylactic brush; that is all there is to it. And many of the toothpicks are all right, but I believe every well-regulated house should have a lavatory between the dining-room and the drawing-room, where everybody should step in and rinse the mouth and pick the teeth before sitting in the drawing-room three or four hours with all that filth accumulating around the mouth. I don't believe in it. The micro-organisms in the mouth are like any other parasite—they are there for the purpose of getting something to eat. If you break up their rest by brushing before retiring and the next morning, the first thing before breakfast, you can prevent a great per cent. of decay. Dr. Smith says his prophylaxis scheme will prevent 90 per cent. I don't know how he gets it so, but it will surely make a whole lot of difference.

A sentiment expressed by a great man with reference to another subject, which is not more important to me than this, I will quote and close. That is, he says this with reference to the idea of whether it pays or not:

"Not ye who can stand in the crowd, but ye who can stand alone, fall in! You and I shall not live to see this triumph, but an age unborn shall achieve the victory. Forward, then, against strenuous ignorance! See that your honesty keeps pace with your intelligence, that you dare to do the unprofitable right, and dare to eschew the profitable wrong. Beside this daring all other daring is cowardice."

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**DISCUSSION.**

**Dr. J. M. Prime, Oxford, Neb.:** Dr. Warren may well be named the apostle of sanitation. His memorable paper, "Brush Before Breakfast," was a treat in both wit and wisdom. We dentists took it home with us and began preaching and practicing it.
We look forward to the meeting each year, anticipating something good from Dr. Warren.

He always has his logic interspersed with good humor, which serves, as it were, a sugar-coating so we will all enjoy taking our medicine.

Dr. Warren has not disappointed us this time. His paper today is a masterpiece. It deserves to be placed along side his "B. B. B." paper and scattered broadcast among the profession.

As the essayist has well said, the new-born babe comes into the world with a mouth as clean as spotless linen.

How lamentably soon this condition is, many times, transformed from sweetness and cleanliness to fetor and filth.

As soon as the permanent teeth are in position, we are frequently confronted by a condition disgusting to the eye and sickening to the nostril: the teeth so covered with the filthy accumulations of months that their individuality is hidden. The only feature resembling tooth contour is the cusps lifting their heads from out the debris, as if trying to free themselves from their awful peril.

The teeth sit day and night in a quagmire of decaying filth, midst a hotbed of bacteria.

Then they ask, "Why do my teeth decay?" A more sane question would be, "Why do not all my teeth decay?"

THE DENTIST THAT GROWS.*

By E. A. Thomas, D. D. S., Red Cloud, Nebraska.

I wish to make an explanation for giving you this paper upon this particular subject.

Upon my leaving college and entering into practice, two years flew rapidly by before I realized that I was not growing, and I must confess and admit I was on the wrong road and running into a rut.

I decided to attend the Nebraska Dental Association, and it was while here that I was converted, born anew in dentistry, my eyes opened into a new professional world, and this paper is the result of that conversion, and what I have seen and experienced in this new world of dentistry.

THE DENTIST THAT GROWS.

Could a man be secure
That his days would endure
As of old for a thousand long years,
What deeds might he do!
And all without hurry and care.
What things might he know,

*Read before the Nebraska State Dental Society, 1907.
We, that have but spent long lives must bear in mind our limited time for acquisition and remember how narrowly our time is limited, not only by the shortness of life, but also still more by the business of life.

We ought to be especially solicitous to employ what time we have to the greatest advantage. So much of our time is wasted upon the trifling, minor things of this world that many a man, instead of growing, simply becomes a stagnated pool.

The dentist that grows is a believer in great men, and that nature exists for the excellent, that the world is upheld by the veracity of good men, and that they make the world wholesome.

He believes that life is sweet and wholesome, only as we live in such society and actually or ideally, as we live with our superiors.

His religion is the love and cherishing of such patrons. As he inquires into the kind of services he derives from others, he is warned of the danger of modern studies and begins low enough, not contending against love, nor the substantial existence of others.

He believes his profession a divine calling, one of the highest given to man, the aiding and relieving the suffering, the giving of comfort, happiness and longevity of life. He looks over and beyond monetizing and sees there his sacred and sublime duties from a true light, and his compensation is that happiness which comes from a conscience born of a true and divine calling.

He is temperate, believing in cleanliness of mind, soul and body.

He dives deep into the mysteries of dentistry, receiving into himself every atom that can be moulded into profit, for his fellow-men, imparting any theory, idea, or discovery he may have for the benefit of his profession.

He is always present and on the alert for every dental society, every new invention, every clinic, every paper that is for the advancement of the profession and humanity. Nothing but sickness will keep him from his state and local societies.

He discovers that the other man's point of view is the lens through which he reads his own mind. He does not set himself up as an ideal or superior, but sees those of different calling from his own, and such as are good of their kind.

He believes that the main difference between man is
whether they attend to their own affairs or not; that a man is
that noble, endogenous plant which grows like the palm, from
within outward.

He believes in viewing broadly every question which con­
fronts him, and looking over and beyond the present and gaug­
ing it by the ultimate effect, just so soon shall he disarm his
conscience of many of the petty annoyances which bombard
him in his everyday experience.

He believes there never was a more fatal error than get­
ting even, that every bit of energy used in such an effort is
worse than wasted, and that it invariably brings injury to the
author. The better way to meet a wrong is, either to ignore it,
or else to reckon with it merely to correct it, and prevent its
repetition.

He believes that the first thing to do when slighting re­
marks are made about him is to examine himself closely and
see if the remarks may not be true; that critics can sometimes
see a fault in him that he is unconscious of, and they are fre­
quently of real benefit to him for their calling attention to it.
However, if criticism is manifestly unfounded, and simply due
to a mischief-making spirit, the surest way to disarm them is
to ignore them, and if a real wrong is done him, and must be
reckoned with, he meets the question in the line of correction
rather than vengeance.

He believes in righting wrong under all circumstances,
but he makes sure his motive is above reproach and his sole
aim is to prevent a repetition of the wrong, and thereby im­
prove the condition of society. He counts him a great man
who inhabits a wide sphere of thought, to which other men rise
with labor and difficulty, that he has to open his eyes to see
things in a true light, and in large relations, while they must
make painful corrections and keep an eye on all source of
errors.

It costs a beautiful person no exertion to paint her image
on our lives, yet how splendid is that benefit. It costs no more
for a wise soul to convey his quality to other men.

Every one can do his best thing easiest; he is greatest who
is what he is from nature, and who never reminds us of others’
faults.

He is broad enough to meet an enemy, a ligament half
way, controlling temper in dealing with humanity, thereby de­
vveloping patience.
We are all far from perfect, and cannot believe alike, and this should teach us the sublime reason of patience and charity.

He believes in being broad enough to look out beyond self and see the need of harmonizing the great chaos of humanity. He digs deep into the hearts of his fellow-men, weeding out from them minor vices, heartaches and pain; planting there sunshine, cheer, happiness, charity, and above all, love—Love the one great hope of the world, a lever which moves the hearts of men above the sordid things of earth and gives him a glimpse of that which he calls heaven.

He defines love as the embodiment of all higher virtues merged in one, the essence of all there is in life, and his prayer the illustrious words of Holmes:

"O Father! grant Thy love divine
To make these mystic temples Thine,
When wasting age and wearying strife
Have sapp'd the leaning walls of life.
When darkness gathers over all,
And the last tottering pillars fall,
Take the poor dust Thy mercy warms,
And mould it into heavenly forms."

DISCUSSION.

Dr. McCleery: It was a very excellent paper. I am only sorry that the whole society was not present to hear it. There is not anything to criticise in the paper or in that kind of a paper. Anything that I say will be simply supplementary. The trend of the essay was that the dentist that grows is the perfect man. I suggest that a man, to grow, must first be a man; before he can be a dentist he must first be a man, a man among men, and he must be an honest man. I don't believe that a man could be a good dentist and be dishonest—be a dishonest man. It is a physiological and psychological fact that a man's work is but the expression of the man himself. If he is a dishonest man, he will do dishonest work. I don't care what his profession is; he is not a good dentist, or a good doctor, or a good preacher, or anything, if he is a dishonest man. The foundation of growth is honor and, as was suggested by another essayist here today, we must have an ideal and we must have a high ideal and work for that. An honest man will always do his best; every patient will get his best services; they are entitled to them, I don't care whether they pay for it or not, and the only way a man can grow is to every time give his best service. I have not had the paper and I have not had an opportunity to read it, but I just make these few remarks to supplement it.
Dr. Wallace: I am not going to attempt to discuss the paper, but there is one phase that comes out now, and it has appeared before. A paper like this should be listened to by the entire membership. We have had similar occasions, and I was thinking while sitting here, during the reading of the paper, if there is not some way by which these unpleasant things could be obliterated, especially for the young men. My first appearance was to have a similar reception, and I can assure you that it was no pleasant ordeal. A young man feels his weakness, and on the other hand he has put in a lot of time, and he at least would like to have the courtesy of the profession as far as listening, at least to his production. Perhaps our committee on program try to crowd too much into a short space of time, but coming back to the original business of the evening, possibly a whole lot of this will be obliterated inasmuch as our different local societies will put forth their very best men of each division, and thereby we will get the proper amount of clinical material and the proper amount of essays for a gathering of this kind.

Dr. Vance: I enjoyed that very much, and Dr. Wallace brings out the very reason for the reorganization of our state dental society. Our meetings are entirely too large for us to comprehend all that we do. It is simply impossible to give the time to the discussion of these valuable papers; we don't have the time; we don't have the time to give to the discussion of our valuable clinics, and if we can cut out the papers and clinics that are not so valuable, deriving our programs from the local organizations, then we can make our state organization of far more benefit to the members, and it seems to me that every man in the state should make a special effort to join with the reorganization committee to this one end. Now, at our clinics our chairs are crowded around, and it is not possible for more than six or eight at most to see the clinic, but if we have six or eight similar operations going on at the same time, it will give practically all the members an opportunity to see, and these operations will be the very best that the members of our profession in the state can produce, and I think that the thoughts of Dr. Thomas, and supplemented by Dr. Wallace, will be carried out in our future meetings after our reorganization has come to pass.

President Morrison: This matter of entertainment is a very disagreeable feature, and should be omitted in the future. I know Dr. King has called attention to it several times. I had this same experience at one time, and it is a disagreeable feature. And right here, perhaps, is a good time to speak of the thing that we do, and did, last evening, and it has been done every year of the society, and we pay our car fare and hotel bills, and all to get the benefit of the state society, but we give up to amusement—that perhaps we could get at home—the time we need here. We could enjoy that evening at home, perhaps, when we had leisure, where we are not to the expense that we are here, and would not desire this same entertainment at the state society meeting, and if we could have a meeting the
first evening for the purpose of the work of the state society, why we could certainly crowd in a great deal more very useful material for the state society.

**Dr. Warren:** I deeply appreciate the courtesy extended by the Odontographic Society of Lincoln every year for the entertainment, and still, as the president just said, I don't believe we ought to do it. I believe we ought to have business every night. They do it because they love us, but still I don't think it is right. I think we ought to have business going on here morning, afternoon and evening. It is a very short session. They used to have four days, but they have cut it down to three days now, and I believe it is the consensus of opinion that that is what should be done.

**Dr. Prime:** I think Dr. Thomas had a splendid paper. I couldn't hear it very well on account of the storm roaring outside. I would like to remark that I was present at a meeting of the Southern Nebraska Society when Dr. Thomas read a very excellent paper on prophylaxis, a paper that is well worthy of attention, and I never heard one much better. I regret that there were no more present, and the conditions were not more favorable for Dr. Thomas' paper. I endorse heartily the remarks of the president and Dr. Warren in regard to the amusement feature of our society meetings. I cannot dance, and you may think me selfish in what I say.

I think every moment of our time here ought to be spent in pursuing the object for which we leave our work and come here. We can all dance at home and we can get all the amusement we wish there. So far as I am personally concerned (I say it with all respect), I prefer to be here and hear these papers read and discussed and see these clinics, rather than to see you fellows dance. I would either like to see the time extended so we can get the benefit of these things, or else cut out some of the elements that are not absolutely necessary.

**Dr. Wallace:** I would like to say a word here not on the subject of Dr. Thomas' paper, perhaps, but I am glad that you want to keep it down here at Lincoln in the future. I have hustled on the committee at Omaha, and we all expect next year we will have meetings all the time. If you have any amusement you will have to go out and get it yourselves.

**Dr. Davis:** I think the other members of the society agree with me that this entertainment business is a relic of the past, for the reason that there was a time years ago when we didn't have enough men to come around to our clinics. We could all look over the same clinic then. Thirty-four or five was quite a heavy clinic and we could have only five or six chairs. I remember one year in York four chairs accommodated the entire clinic, and that was only eight years ago. in 1899, in the back of Dr. Hatfield's office, in a little hall; we had four barber chairs and Dr. Hatfield's chair. Well, in those times we need-
ed something to draw the crowd, and this entertainment has been carried over to the present time. I don't think we need it now.

Dr. Prime: I fear I said more than I ought to—not exactly that—but perhaps not in the manner in which I should have said it.

I did not mean to insinuate at all that these entertainments are not appreciated, for indeed they are. The dentists of Lincoln and Omaha have the reputation over the state of being skillful workmen, gentlemen of the highest character, and in the front ranks of the profession, and when it comes to entertaining, they are simply princely. There is absolutely no question about it, and we look forward to it each year, but while that is true, when we come to put entertainment alongside of the work from which we get the benefit for which we came here, why one outweighs the other, to my mind. I am talking from my own viewpoint, of course. Coupled with the fact that this is a source of expense and trouble for these gentlemen to prepare and arrange this, and that it is an expense upon our time. I heartily endorse the argument that it be discontinued.

President Morrison: Those are my sentiments, however not detracting anything the dentists of Lincoln have done for our entertainment. They are good entertainers.

Dr. Thomas: I would like to make an explanation here in regard to that paper and what I have experienced since I have been in town at this convention. It was with fear and trembling that I presented this paper, but yesterday, when I stood around the advertisements that the committee put up in the clinic room, and heard the different criticisms and the different remarks, and how the executive committee was criticised for that work, I wanted to get that paper out and read it there, because I could see over and beyond their work there and see the good there was in the work that they had done by placing those things up there, and it is those things that have brought out that paper in my mind.

Dr. H. R. Wildman, York, Nebraska—Having heard Dr. Warren for the first time I am pleased to say that my first impression is that he is a very able and interesting speaker. Aside from being eloquent he is quite humorous. Even his gestures created many pleasant smiles.

However, I believe that no proud and up-to-date dentist can do other than heartily endorse all that Dr. Warren has narrated and more than that I believe it should be greatly emphasized and added to.

In the first place I believe it the duty of every dentist to practice what he preaches. I would suggest that general hygiene, as well as oral hygiene, be practiced by the dentist himself. Let us always be exceedingly conscientious as regards cleanliness about our offices. Let us keep our instruments clean, bright and sterile. Our operating rooms, waiting rooms and laboratories should be
kept neat and free from dust and trash. Our windows must be washed clean and clear, our lace curtains must be clean and white and nicely draped.

Our own person should present the best appearance of all. Hands and finger-nails free from dirt, clothes brushed and kept in proper condition, hair combed, mouth and teeth clean and in good condition. Above all allow no odor of any sort in the office and about one's own person.

Now that we have set a good example for our patients we are prepared to instruct them. To be a teacher one must first prepare himself.

One author says that hygiene should begin with the mother before the birth of the child. By her own hygiene and the proper use of the kinds of food to build up the osseous system of the child will give it a good foundation upon which to start.

A person can not be brought too early into habits of strict cleanliness. Oral hygiene should be taught the child as soon as it can handle a tooth brush or even when it can use a cloth to rub the teeth with. The practice of giving a child a biscuit or something sweet on going to bed must be strongly condemned, as it fills the inter-proximal spaces of the teeth with highly fermentable material which remains to continue its injurious action while the child sleeps.

Dr. Warren advises rinsing the mouth after meals and the free use of the tooth-pick. I believe that the injudicious use of tooth-picks is a great factor in the production of pyorrhea alveolaris. Wooden tooth-picks, especially the coarse splintering ones, are very injurious to the gums. We should teach our patients to be exceedingly careful in using the small soft wood tooth-picks and even the quill pick.

Patients ought to be made aware of the fact that they should clean their teeth not for appearance so much as for their preservation and the prevention of constitutional diseases. If we impress upon them the fact that diseased conditions of the teeth and mouth promote many of the constitutional disorders they may then realize that an unceasing and thorough cleansing of the oral cavity is their only salvation.

Patients should be impressed with the fact that it is just as essential, and more so, to wash the teeth and mouth as it is to wash the hands and face before eating. They should be advised as to the kind of brush to use and how to use it, also the kind of tooth pastes and mouth washes with which to obtain the best results.

I can not refrain from saying that the dentist may be largely to blame for the carelessness in these things. We get so busy in seeking that almighty dollar that we forget that our success in the future depends upon the interest and devotion we should extend to our patients in every detail at the present moment.
ETHICS, PROFESSIONAL AND BUSINESS.*

By J. M. Prime, Oxford, Nebraska.

The history of civilization is but the history of mankind. It is beaming full of human nature, of selfishness, of avariciousness, of crime, of greed, of blood. It has been one of constant wars, invasion and suffering. True, along the epochs have men of great courage of soul and great love of their fellows, fought bravely for human rights, and how bright do they shine on history's page, as do the beautiful stars in the great black dome of heaven.

Primitive man was naturally selfish. In him seemed to be the inherent desire to keep what he had, and get, if by blood, that which his fellow possessed. He was fiendish, cruel, selfish, unethical.

This selfishness ran rampant until the dawn of the Christian Era, when a Man, born in a manger, in the little hamlet of Bethlehem, disseminated among his fellows principles that have lived, and, in spite of all opposition, have come down to the present time, and by the world today acknowledged the fundamental principles underlying the great brotherhood of mankind.

This man's great life of humility, His immortal teachings of unselfishness, are crystallized into one great and sublime precept,—"As ye would that others should do unto you do ye even so unto them." A Golden Rule indeed; an epitome of all codes of morals, or codes of ethics, ever hitherto devised.

If we would just do what that Golden Rule inculcates, we would not say anything of our fellow-practitioner—unless it ought to be said—and he will not say anything of us, unless it ought to be said.

This is the keynote of our dental ethics.

It is the very essence of Christianity, of morality, of the eternal principles of right and professionalism.

Any mistreatment of our fellows is usually a direct expression of our own selfishness—a boomerang of unkindness, returning ladened with bitterness.

The greatest among us are those seeking what they can give, not what they can get.

Cicero said, "It is difficult to persuade mankind that the love of virtue is the love of themselves."

*Read before the Nebraska State Dental Society, 1907.
In every cavity preparation, in every filling, in every crown, in every denture, should be woven the fiber of that Golden Rule.

Would you want that crown in your own mouth?
Is that filling all that you would wish in your own molar?
If you give your best to the world, to your fellow-dentists, to your patients, the best will come back to you.

Mankind is as a great mirror in which our own images are constantly being reflected back to us.

Indeed the world is as a great forest from which our every utterance is reverberated back to us.

If something good emanates from us, it will grow sweeter as it returns. But if it be something unkind, unprofessional, it will return to us more hideous, blacker and stained with more villainy.

Great success awaits the man who is thoroughly in love with his calling.

If it be the most honorable profession, or that of an humble shoe cobbler, contentment in, and joy of, doing must permeate every cell of his being.

To continue to love it means growth. No man can continue to get that joy of doing whose watchword is not advancement.

"The decreasing progression is the most dangerous form of motion. Whoever engages in it is lost. No rolling mill produces such effacement."

The man who sees only the fee ahead for his pains is lost.
The joy of doing and seeing a thing well done towers above and beyond any mercenary end, until the latter sinks into insignificance.

Joe Jefferson said, "I have spent my life in acting and I stand in awe at its possibilities."

So ought we to view dentistry.

We cannot all excel in manipulative skill; we cannot all possess that enviable personal attractiveness; nor can we all have that affable, pleasing, clever manner, but we can all be clean in character and have our ideals and aims high, and approximate these desirable qualities.

We all can develop, in the profession we love, as the bone and sinew of our professional faith, a spirit of broad humanitarianism which looks to the greatest good for the greatest
number, and which rigidly excludes selfishness of motive and narrowness of purpose.

This will lift us out of the rut of self-conceit and prejudice. It will make us to acknowledge merit wherever merit is due.

It will make us welcome the truth wherever we see it, even if it comes from our worst enemies. It gives us that greatest courage to acknowledge frankly our errors, when pointed out by one in opposition to us.

When we consider a profession from a business standpoint, we are confronted with the oft-repeated saying that professional men are usually poor business men, and successful business men are consequently poor professional men.

It is quite impossible to consider the business feature independent of that emolument which society has made so necessary to our existence. It is only justice to ourselves and those dependent upon us that we do not permit the age of inactivity to come upon us without a reasonable competence.

Here, however, is the pit in which lie the mouldering bones of many a would-be professional man. The spirit of commercialism taking possession and choking out the true, ethical, professional life, and stepping down to the plane of the shopkeeper bartering his wares to the highest bidder.

Professional life has no place for commercialism. They are antiposed. One is fostered at the life of the other.

Since professional life has no commercial element in it, I take it that your committee intended that I should discuss, under the head of business, those acts governing proper use of the sayings from our fees for our professional services.

It becomes a thing quite necessary in the early part of our professional life to acquire those habits of economy and healthful business practices.

A rigid custom should be inaugurated to collect that which is justly due us.

Every dollar placed in the savings, if properly invested, becomes the silent partner for lucrative advancement.

Good judgment should always govern these acts.

Business experience has proven over and over again the profitableness and permanency of real estate investments.

First real estate mortgages are safe and should be sought.
Many glowing propositions are weekly offered to the unsuspecting investor, such as oil, mining stock, etc, etc., but such should be strictly avoided.

In the opinion of your essayist real estate ranks among the most desirable investments.

Habits, extravagant in business, and destructive of health, are a menace to clean, honorable professional life.

If you have failed from a business standpoint, there is hope, but if you have failed from a moral standpoint, it is pitiable indeed.

Sometimes, however, growth comes from decay.

See the waving wheat fields, and its growth comes from ground bones.

An old philosopher once said, "Show me the man who made failures the first half of his life, but each failure was but a spur to something better, and I will show you the man whose latter half of life was crowned with honor."

It was Froude who said, "Where all are selfish the sage is no better than the fool, and only rather more dangerous."

Let us incorporate into our very beings, as it were, the antitoxin to selfishness.

Let us be punctual, industrious, frugal, in business.

Let us honor our profession by practicing with it the Golden Rule.

Let us plant in our hearts a fragrant and ever-blooming flower of professional courtesy and love of our fellows.

Let us bathe it in the warm, mellow sunlight of unselfishness.

Permit your essayist to say with the immortal Shakespeare—

"This above all:
To thine own self be true,
And it must follow as the night the day,
Thou canst not then be false to any man."
CAVITY PREPARATION AND MANIPULATION OF GOLD FOIL.*

By C. E. Woodbury, D. D. S., Council Bluffs, Iowa.

I feel that some apology is due for appearing before you two consecutive years with papers the texts of which are so nearly alike, and I assure you that it was only the repeated insistence of your executive committee which caused me to do so. Therefore, if you have any criticisms to make, address them to your committee and not to me.

The subject, however, is one of vital importance and well worth going over not only twice, but five or six times, and I have found myself very much benefited in the reading I have done preliminary to the rewriting of this paper.

TECHNIC WORK.

To those who are interested in improving their methods of cavity preparation, let me strongly urge upon you the necessity of doing much technic work in your laboratories. This work should be done in freshly extracted teeth and plaster models of teeth. The human teeth you design to use should be cleaned as soon as extracted and dropped into glycerine to which one dram of carbolic acid to the ounce has been added. This will keep the teeth in good condition to work on at your leisure.

The ideas which I am to explain to you this evening are in

*Read before the Nebraska State Dental Society, 1907.
no wise original with me, or, in fact, to any one man. They are the accumulated ideas of the best men of the past and present which have been gathered together and systemized by Dr. G. V. Black. He has added to them the results of his own extensive experiments and experiences, and has given them to us for our use. We should all unite to do honor to this great man, who, I believe, has done more for the dental profession than any man who has ever lived. I wish also at this time to give credit to G. V. Black, C. N. Johnson and Wm. Finn, whose writings and drawings I have liberally used in the preparation of this paper. Credit must also be given to E. K. Wedelstaedt, not so much for what he has written, but for what he has done through clinics and demonstrations.

To G. V. Black belongs the honor of originating and systemizing those things which we believe to be correct in regard to the filling of teeth. But without E. K. Wedelstaedt they would never have been known to the profession at large, and to him should be given the credit of literally forcing them upon the reluctant dental profession. I cannot read this paper without doing honor to this great man, who has made the dental profession of the northwest what it is.

**STUDY EACH CASE.**

It is necessary to study the conditions and environment of each case that presents itself to you. Ascertain what caused
the decay and what is necessary to prevent its recurrence. Learn to differentiate between your cases, some of which will call for much wider extension than others. Study the causes of decay of the enamel so that you may intelligently combat its ravages. Study your failures and those of others, and see why they fail. We should learn more from failures than successes.

The cavity preparation is only one of several essential things that go to make a successful operation. To properly condense your gold, to properly step your plunger, to trim your fillings to correct form, are a few of the essential things, but there are many others which you must grow into. It is a subject that admits of unlimited study, for which you are well repaid.

It is impossible, in a paper of ordinary length, to give anything more than the essential principles underlying the preparation of cavities and outline the technique for ordinary cases. Modifications of these preparations can be applied to all cavities, and once the underlying principles are mastered, they can be adapted to all cases.

**SIX IMPORTANT POINTS.**

There are six points to which I wish to call your especial attention:

**First.** Restore the tooth or teeth to be operated on to their normal position and occlusion, so that when the filling is made a normal interproximal space and contact point will exist.

In nearly all cases that present themselves to us, in which the decay has been at all extensive on the proximal surfaces, there has been a dropping together of the crowns of the teeth so that they lean against each other for mutual support. The
gum within the interproximal space is obliterated and the peri­ental membrane often injured by the packing of food and other debris against them. It is not unusual to find the teeth in contact at their gingival thirds instead of at their occlusal thirds. And unless the mesio-distal diameter of the teeth is re­stored and a proper contact established, the space will be a con­stant source of annoyance and disease. Fig. 1 shows the loss of space, the teeth being almost in contact at their gingival margins; the gum is crowded out and diseased and the periden­tal membrane inflamed and sore. Figs. 2, 3 and 4 show faulty fillings. The failure is due to not restoring the teeth to their original size, meso-distally, and not placing proper points of contact. Such fillings are likely to cause decay to recur, not only around the margins of the filling, but in the proximating tooth as well.

Prior to operating, sufficient room should be obtained so that the operation can be made conveniently, and which will permit us to restore the parts to a condition of normality. It does not make very much difference what means are used to obtain room, mechanical separators may be used or the cavities may be packed with cotton, gutta-percha or other substances. It sometimes requires months to regain this lost space, but per­manent operations and healthy soft tissues can never be brought about and maintained unless this is done.

If the contact point is properly made, as in Figs. 5, 6, 7-26, the gum will fill the interproximal space, and by keeping out foreign matter, protect the peridental membrane from injury and the teeth from recurrence of decay.

Second. Remove all enamel rods that are not supported by dentin.

We all know that the strength of the tooth is in the dentin and that the enamel is simply an armor to protect it from
wear and decay. This enamel, the hardest structure in the hu-
man body, is made up of a system of rods, the ends of which
rest upon the dentin, the general direction of this length be-
ing at right angles to it. The rods are the shape of irregular
hexagons and are cemented together by a bond which has much
less resistance to stress, and slightly less resistance to chemical
dissolution than the rods themselves. In fact, primary decay of
the enamel begins by the dissolution of this cementing sub-
stance. The rods themselves are broken away or fall out, thus
allowing an entrance of the micro-organisms of decay to the
dentin through the breach thus made, as in Figs. 8 and 9. We
find these rods in two conditions, namely, straight rods lying in
straight rows, which are easily split apart much like a straight-
grained pine stick, and irregular and twisted rods, very hard
to cut or split, more like a pine knot. There seems to be a gen-
eral idea that there is a material difference in the density of
enamel of different teeth. This, however, is erroneous, the ap-
parent hardness being due to the interlacing of the enamel
rods, making them more difficult to cut with instruments, but
no more resistant to decay. The rods lying in the gingival
third of a tooth are almost always in direct line with the short
axis of the tooth. In the middle third they decline to the oc-
cclusal, and in the occlusal or the incisal thirds they incline quite
sharply so that at the summit of the cusps in the molars and
bicuspids and the incisal surfaces of the front teeth they are in
line with the long axis of the tooth. (Figs. 10, 11, 12). In the
molars rounding over the cusp they again diverge until the de-
velopmental groove is reached. Thus you will see that a
cavo-surface angle in the occlusal or incisal third of any of the

Fig. 10

Fig. 11

Fig. 12
axial surfaces would require a much longer bevel than a margin on the occlusal surface or in the gingival third, in order that no enamel rods will be left with their dentinal ends cut off and short peripheral ends left unsupported. If such short rods are not fractured by the plugger, they are sure to be broken during mastication if they are on an occlusal or incisal surface. It is often necessary, for aesthetic reasons, to leave enamel on the labial surface of the incisors in the middle third, which, under other conditions, would be cut away, the danger of fracture in this location being from the use of the plugger, as no masticatory force can reach it at this point. This enamel should be protected by cement where possible, and great care should be used in the malleting. When the margin approaches very close to the occlusal or incisal end of a tooth, as on a proximal surface, the bevel must be so long as to leave a thin friable edge of the filling material and to contra-indicate its use, necessitating cutting the tooth to a position where the rods assume a more perpendicular character. The mesio-lingual and disto-lingual ridges in the incisors must be cut away when approached by decay on account of the inclination of the rods at these points. In preparing a cavity, the inclination and depth of the bevel must very largely be determined by the sense of touch, an experienced operator being able to tell by the feel of the enamel under the chisel what its direction and characteristics are. A close study of the arrangement of the enamel rods, their characteristics and the lines of cleavage, will save many fillings that otherwise will be failures.
Third. Extend gingival margins under the free margin of the gum and all other margins to smooth surfaces in such a position that they will be kept clean by the excursions of food and the action of the lips, cheeks, tongue and tooth-brush.

This is what is called extension for prevention, and concerning which there is probably more discussion than over any other subject relating to cavity preparation. Dr. C. N. Johnson very nicely gives the reasons for this extension, which I quote: “Observant operators have noticed that there are certain points around ordinary proximal fillings where decay is most likely to recur. This relates to the labio-gingival, linguo-gingival, and the occlusal and incisal angles. The reasons for this are found in the fact that these regions are not kept clean by the friction of food in mastication, or by the lips or the tongue in their various movements. If the anatomical relation of the proximal surfaces of these teeth is studied, it will be seen that a considerable area in the vicinity of the contact point is not cleansed by the natural processes. This is what admits of caries in this region in the first instance. If, in the preparation of a cavity, we limit the area to a small, round outline, we have left unprotected at the points indicated more or less of the surface of the enamel, which is still subject to decay. With the same influence at work which originally induced decay, there is little to prevent recurrence. The remedy lies in so extending the outlines of the cavity that the margins are kept clean. The gingival margin of the proximal filling has often been alluded to as the “vulnerable point,” even when fillings were well inserted, but this is hardly in strict accordance with facts. In reality, decay seldom recurs along the gingival margin proper. It usually begins at the labio-gingival or buccal and the linguo-gingival angles. From here it may extend and involve the entire gingival margin, but the initial point of fail-
ure is usually at the angles. This is because there is a lodgment place in these positions for deleterious matter to form, undisturbed by the friction from the tongue or the lips and unprotected by gum tissue. In this small sheltered harbor micro-organisms of caries produce their acid and attack enamel. No tooth may be considered safe from recurrence of decay around proximal fillings unless the gingival wall has been carried sufficiently root-wise to bring that portion of the filling under the gum, and the labio-gingival and the linguo-gingival angles have been extended to a point where the margins of the fillings are kept clean by friction."

The argument that the opponents of this extension make is that they do not believe in sacrificing good tooth structure because there may be at some time recurrence of decay around a filling.

I will grant that in the course of years of practice we see many fillings where extension has not been made and where recurrence of decay has not taken place, but the observation of men who have been in practice many years, and who during this time have kept careful records, go to show that these are the few, and it is the many that fail. The same conditions, if they are present, which produced the original decay, will produce a recurrence if there is a condition of susceptibility in that mouth, if the extensions are not made. Even the most enthusiastic advocates of extension for prevention have never advised its use in old people or others who have reached a condition of permanent immunity.

Fourth. The cavo-surface angle should be a bevel from one-fifth to two-thirds the thickness of enamel, depending upon the location of the cavity wall and the condition and direction of the enamel rods.
This should be a true bevel, never a rounded surface, and generally it is best made with a sharp chisel. The reason for this bevel is to take the strain from those enamel rods lying nearest the filling and to make oblique angles which are not easily chipped, either by the plugger or in mastication and to cut away all enamel rods, the dentinal ends of which have been destroyed by cutting or decay.

All the cavity margins in the front teeth should be made in long, graceful curves for the aesthetic effect and should be carried far enough to the labial surface so that the gold will be plainly visible. (Figs. 13-15). If we see only the edge of a filling, it has a very dark appearance and looks more like a decayed spot or an amalgam filling than a gold filling.

Fifth. Make the resistance and the retentive form so that the greatest retention is at the point of stress.

Aside from the desirability of removing the occlusal margins beyond the point of stress so as to avoid chipping or danger of displacing fillings by having stress on the margins during mastication, they should be well seated and well anchored in the occlusal or incisal surface on account of the better resistance form that may be obtained, and also to take full advantage of the law of levers.

This law, as stated in proportion, is: Power is to resistance as the resistance arm is to the power arm. Let us consider the filling a lever: the fulcrum is the gingival wall, the power is the force of mastication, the resistance is that which holds the filling in place. If we anchor the filling in the occlusal or incisal surface at the point of stress the amount of resistance form need only be of equal strength to the force liable to be brought to bear upon the occlusal part of the filling. The equation would be thus (Figs. 16, 17): 200 : X :: 4 : 4 - X
equals 200. If the filling is anchored in the lingual and buccal walls in the gingival half of the tooth the equation would be 

\[ 200 : X : : 2 : 4 \]

\[ - X \] equals 400, showing that it requires twice as much resistance form to retain the filling when anchored in the middle third, as when the anchorage is at the point of stress.

In most cases it is impossible to secure this resistance form in the buccal and lingual walls because there is not sufficient width of wall mesio-distally, and should the dentin be deeply grooved in these walls, it will so weaken them that, under stress of mastication, the leverage employed will break them down and cause the early loss of the filling. It is only in exceptional cases, where the direction of the occlusion is favorable and the lingual and buccal walls of unusual strength, that it is good practice to use them for resistance and retentive form.

Sixth. The interior of all cavities should be made with flat seats and square, definite angles.

This is on the principle that a square pin in a square hole is more secure than a round pin in a round hole. With this square formation the filling is more easily made, there being no tendency to tip or slide out of the cavity under stress of mastication. These walls should be either at right angles or parallel to the long axis of the tooth. All walls that are not parallel to each other should be as nearly at right angles to each other as possible, thus making the retentive form adequate, with very little undercutting.

With these general propositions in view, let us look rather hurriedly into the technic of the different preparations.
TECHNIC OF CAVITY PREPARATION.

Pit and fissure cavities are usually caused by structural defects in the enamel. They are prepared by cutting out the entire length of the fissure, leaving the margins in sound, smooth enamel, the pulpal wall flat, the axial walls at right angles to the pulpal wall and the enamel margins slightly beveled. (Figs. 18, 19, 20, 21, 22, 23).

Cavities in the labial and buccal surfaces are on smooth, accessible surfaces and are generally caused by an unclean condition of the teeth. If these cavities occur near the gum, the gingival margin should be carried under the free margin of it and the other margins extended so as to include all partially decalcified enamel. The floor should be flat, the side walls at right angles to it, the angle sharp and the enamel margins well beveled. (Figs. 24, 25).

Cavities in the proximal surfaces of the front teeth, not involving the incisal angle.

The gingival wall should be extended root-wise well under the gum. The lingual and incisal walls should be extended so as to include the contact point (Figs. 26, 26a), and to sound enamel supported by the dentin; the mesio-lingual or disto-lingual ridge of enamel, if approached by decay, should be cut away. The labial wall should be extended so that the filling should be distinctly visible. (See Figs. 13-15). The gingival wall should be flat and at right angles to the axial wall, the labial and lingual walls should be slightly undercut at the labio-gingivo-axial and linguo-gingivo-axial angles, with an inverted cone bur, which should also be used in making the incisal anchorage. (See Figs. 27, 28). These undercuts should
not be deep, as there is, after the fillings are finished, very little stress brought to bear upon them. The enamel margin should be deeply beveled in the incisal portion.

**FILLINGS IN THE FRONT TEETH INVOLVING THE INCISAL ANGLE.**

These are, in my estimation, the most difficult of all gold fillings to make and retain. (Fig. 29).

The gingival wall should be flat and carried under the margin of the gum. (Fig. 30). The labial and lingual walls should be in sound enamel, well supported by dentin. The labio-gingivo-axial and linguo-gingivo-axial angles should be slightly undercut with an inverted cone bur enough for convenience in starting the filling, and to prevent the filling from being dislodged towards the incisal by sticky foods, candy, etc. The main resistance form should be in the incisal portion of the tooth, and is usually in the form of a step extending from the cavity across the incisal end of the tooth, stopping well in front of, or just beyond, the second developmental groove. (Fig. 31). If the tooth is of normal thickness or less at the incisal end, both the labial and lingual plates of enamel should be cut away until dentin is reached, the lingual plate being cut more deeply than the labial. A square, shallow groove should be made in this dentin, with a depression at the end, also square in shape, with a slight undercut at its farthest point. (Fig. 32). If the tooth is of more than normal thickness at the incisal end, the labial plate of enamel may be left and the lingual plate and half the dentin cut away to make the step. The incisal end of the labial plate of enamel should be beveled and the gold brought completely over it to protect it.
In these cavities incisal anchorage should never be made by cutting a pit in the dentin between the labial and lingual plates of enamel, as such anchorage must necessarily be slight. It weakens the incisal end of the tooth by taking away the supporting dentin and brings the joint between the tooth and the filling, where the leverage employed has the greatest tendency to dislodge the filling.

CAVITIES IN THE BICUSPIDS AND MOLARS INVOLVING THE PROXIMAL AND OCCLUSAL SURFACES.

Cavities on the proximal surfaces of bicuspids and molars should always be made proximo-occlusal cavities when the proximating tooth is in position, for this reason: If the occlusal margin of a proximal cavity is extended to a self-cleansing surface, the enamel will either be broken away by the plugger or during mastication, or if the enamel is protected the filling material will be too thin to have good edge strength. (Fig. 12). If this margin is not brought to a self-cleansing surface, there will be a recurrence of decay if there is a condition of susceptibility in the mouth. These cavities have long been the bugbear of the average practitioner, but when they are properly prepared and filled, are among the easiest to make and those in which permanent results are the most assured.

The gingival wall should be under the free margin of the gum (Fig. 33) and perfectly flat, both mesio-distally and bucco-lingually, and should be broad in proportion to the thickness of the tooth. (Fig. 34).

The buccal and lingual walls should be extended to
smooth, self-cleansing surfaces, which usually bring them near the angle of the tooth. They should be as nearly at right angles to the axial wall as the strength of the tooth will permit, and should be slightly undercut in the linguo-gingivo-axial and bucco-gingivo-axial angles.

The axial wall should be made at right angles to the gingival wall, and if badly decayed, should be built up with cement. The occlusal step should be made by cutting a dovetail through the enamel into the dentin, and should be broad enough for resistance and retention and to include within the cavity that part of the tooth which comes in contact with the cusp of the antagonizing tooth. The walls should be nearly perpendicular and parallel, and the pulpo-axial angle sharp and well defined. The width and depth of this step should be in proportion to the strain that is liable to be put on the filling, and the occlusion and its landmarks should be very carefully observed before beginning to prepare the cavity. I have heard objections made to this form of preparation on the ground that we are not justified in cutting away so much sound tooth structure. But if you will remember that the strength of the tooth is in the dentin and not in the enamel, and that it is seldom necessary in extension either on the occlusal or proximal surfaces of a tooth to go very deep into the dentin and that we do little more than replace the enamel of that tooth with a gold enamel; and when you remember that it requires only half as much retentive form to retain a filling when the retention is made in the occlusal as it does when made in the buccal and lingual walls, the fallacy of this argument will be plainly seen.
It has been impossible in even this lengthy paper to give you every cavity preparation that can be made. But I have tried to give you the fundamentals and some typical forms which you can apply and modify as your cases present themselves. Good judgment must be used in their application. It would be the height of folly to make large extensions in the mouth of a person more than 50 or 60 years old in which a condition of permanent immunity seemed to exist. It would be barbarous to make large extensions for one of those extremely nervous patients to whom the least touch of the instrument is the keenest torture. These fundamentals apply to the ordinary case in which there is an intermittent condition of susceptibility and immunity, and for whom you desire to make operations that are permanent in their character.

Fig. 35  Fig. 36  Fig. 37

ESSENTIAL THINGS CONCERNING THE PROPER MANIPULATION OF GOLD FOIL.

I wish also to call your attention to some of the essential things concerning the proper manipulation of gold foil.

Never fill the gingival third of cavities in the bicuspids and molars with cohesive foil. Dr. Black tells us that in the hands of our best operators 10 per cent. of such operations are failures. Always fill the gingival third or half of these cavities with non-cohesive foil used in the form of cylinders (Fig. 35), with one end placed against the axial wall and the other end extending over the gingival margin into the interproximal space. (Fig. 36). Enough cylinders may be placed side by side to fill the cavity almost to the occlusal step, care only being taken to have the cylinders when condensed well to the gingival of the place the contact point will be, as it should be made wholly of cohesive gold. In condensing the cylinders.
the plugger must be inclined toward the axial wall, and only that portion of the gold well within the cavity should be condensed (Fig. 37) until the cylinders have been tied in by condensing cohesive gold upon them.

When making a filling with cohesive gold, place the first piece in a convenient point angle (Fig. 38), and the filling should be started by laminating the pieces one upon the other along the line angle to another point angle, using rather thick, heavy pieces of gold. The gold should be built up in this line angle, making no attempt to cover the margin until it can be approached by at least an angle of 90 degrees. (Fig. 39). This is to avoid the curling of the gold on the margin. If you place a piece of plate or condensed gold on an anvil fasten it at one end (Fig. 41), and strike it in the center with a hammer; it will curl up (Fig. 42), and can by no manner of malleting be made to lie down flat again. This always occurs when we condense thin pieces of gold over broad flat surfaces. When condensing cohesive gold the plugger should be placed on the gold in a series of steps made in a regular way, each imprint of the plugger overlapping the preceding one. (Fig. 40). A row of steps should be made across the piece of gold near the center of the cavity, and parallel with the wall to be approached. A second row of steps should now be made toward the wall. The last row of steps should be on the gold adjacent to the wall. In this way the gold is fairly wedged against the wall, and no more malleting should be done on that piece of gold. If the gold is condensed next the wall first and in the center of the cavity afterward, it will be drawn away from the wall and a leaky filling result.

Plugger points should not exceed in size one-half or five-eighths of a millimeter in diameter unless very thin pieces of
gold are used. Much better density is obtained by using thick pieces of gold and small pluggers than by using thin pieces of gold and large pluggers on account of the tendency of gold to "bridge" under large plugger points.

A summary might be given as follows:

Restore the tooth or teeth to be operated on to their normal position and occlusion, making a normal interproximal space and contact point.

Remove all enamel rods not supported by dentin.

Extend gingival margins under the gum and all other margins to such smooth surfaces that they will be kept clean by the excursions of food and the action of the lips, cheeks, tongue and tooth-brush.

The cavo-surface angle should be beveled from one-fifth to two-thirds the thickness of the enamel.

Make all resistance and retentive form so that the greatest retention is at the point of stress.

The interior of all cavities should be made with flat seats and square angles.

Use non-cohesive foil in the gingival third of bicuspids and molars, and do not condense it over the gingival margin until it is tied in with cohesive gold.

Approach your margins with cohesive gold at least an angle of 90 degrees.

Use short, thick pieces of gold where possible rather than long thin ones.

Step the plugger from the center of the cavity toward the wall.
Use the plugg'er points one-half millimeter in diameter. Laminate the pieces of gold like shingles.

DISCUSSION.

Dr. Clyde Davis, Lincoln, Neb.—I do not like to discuss a man's paper in his absence, especially when I don't agree with some things he had in that paper.

The paper, in the main, was a good one, and one with which I can heartily agree. It was quite a good exposition of modern teaching, and old teaching as well, because it develops all of the principles, or many of them, with but little modification.

There were some features in it that I could not understand. The first was his understanding of what is the cavo-surface angle. Had he made the statement but once I would have thought it was an error of speech, but he repeatedly said, "When I chisel the cavo-surface angle——." It is possible to chisel or make a cavo-surface and in making that cavo-surface we create an angle which is the cavo-surface angle.

The cavo-surface is that part of the tooth on the inside of the cavity of the tooth which reaches from the cavity wall to the external enamel surface. In some places it is extensive; in other places it can barely be detected. The cavo-surface angle is the angle that is formed with the junction of the cavo-surface and the external enamel surface, and that which finally becomes the margin of the filling. At the cavo-surface angle, the point where it meets the surface, is what you have to show when you are through. He spoke of the entire nomenclature at that point as the cavo-surface angle.

He made another remark: "We do not understand why we have to cross over a marginal developmental ridge when we come to it." I think that that is quite plain. I think it is quite well understood, because the rule for chiseling at that point is this: If you reach the crest of enamel, it makes no difference whether it be upon a triangular ridge, a developmental ridge, or a cusp of a tooth; you must cross over that and pass to the slope beyond and follow that along in the line of the cavity outline. Therefore, if the lingual surface, at the cavo-surface angle, where that angle is located, does not quite reach the crest of the mesial or distal ridges, it may be stopped, and extra excavation or chiseling at that point can be done away with, because of the cleavage of the enamel; but if you must reach the crest of that marginal ridge, you should cross it as abruptly as possible, passing along the slope beyond to the developmental groove, and follow along without reaching that groove, if possible. But if decay has taken place there to such an extent that you must reach that groove, you must then cross that and carry your cavity outline along the slope axially from the ridge or the groove. This all comes from the study of resistance form.

You all know Dr. Black's "cavity procedure" for his cavity
preparation. The "resistance form" deals with those enemies of the permanent retention of a filling, and this part of his paper dealt with resistance form as pertaining to stress. He made one good point in the paper, and that is about the beveling or chiseling of the cavo-surface on the occlusal of molars and cuspids. The study of that will give us a good idea as to where to carry the cavity outline with reference to pits, sulci, etc., but when we chisel the margin on the occlusal surface of bicuspids and molars, we want to get resistance form, as to stress, and those cavity walls, in many instances and in many locations on those surfaces, comes directly to the surface without any, what is commonly called bevel, because the last enamel rod will be a full length rod protected by the dentine.

I see he is particularly fond of Dr. Black—which is no discredit to him—but to the exclusion of Dr. Johnson. A nice study is to take up Dr. Black and then study Dr. Johnson and notice the slight difference. One of these differences he spoke of this morning, and that was the pulpo-axial line angle. Dr. Black insists on that being a sharp, acute angle, while Dr. Johnson says, "Round it." Dr. Johnson carries that out through all of his cavity preparation. All line angles which are prominences rather than depressions, he says to round them. For instance, I can illustrate it by a box. You get inside of the box and you can see the corners where they meet. Three of these meeting would make a point angle, and we will take the cover off of the box. The line angles and the point angles, Johnson and Black both agree, should be sharp, should be at least a right angle, Dr. Black, I believe, modifying it a little bit, and his enthusiasts are saying exactly a right angle. It is impossible to get it every time, and for safety, I say, the angle should be the least bit acute, so you are sure it is not obtuse. Dr. Johnson and he differ on that point. If you will come on the outside of the box and see the corners and lines where the sides meet you will have the line angles or the angles which represent the pulpo-axial angle, and the junction between the cavo-surface and the wall of the cavity proper, Dr. Black says, have that acute. Dr. Johnson says to round it, round each one of them. There is the main difference.

He gave Dr. Johnson a shot when he said: "I only put in one of Dr. Johnson’s fillings in a year."

I think there should be a great discrimination in the use of these two fillings. This difference should be considered for the case that is at hand entirely. For if the teeth are eternally slaughtered, like in Dr. Black’s preparation, I think it is often an error, because if a tooth has a good, sound corner on it, it should be left many times. If you can leave the labial wall protected by an immense wall of dentine, why cut it away? Leave it there. Some of the enthusiasts who are forwarding Dr. Black’s preparation are going, I think, a little too far. They are “Wedelstaedting” pretty nearly everything. Dr. Wedelstaedt is an enthusiast, and is a great teacher. But I had the pleasure of seeing 16 of his pupils or disciples preparing cavities in one corner of the national convention at Buffalo, New York,
two years ago. In many of these cavities I would not even have removed the incisal angle, and the majority of these had the angle cut away—yes, most of them had both angles cut away, as well as the incisal edge, and were filled with gold as we saw Dr. Le Cron's porcelain tip put on last night. I do not think they were justified in doing that in most cases.

I think a mighty good rule to stand by for cutting in there is this: Having studied the cleavage of the enamel on the incisal edge of your central incisors, I think you will find this rule will obtain, and if adhered to will carry you safely through, and that is "that as your filling approaches the central axial line of the tooth, so increase your bevel. It is not very necessary to make a very extensive bevel, and a line can be approached wherein the gold comes very nearly to the incisal edge, provided there is heavy strong dentine under that corner. The corner does not have to come because the cleavage of enamel is in that direction, and the larger the filling the more must be the curve at the incisal edge as you leave it. The more your filling approaches the central axial line the greater the curve as you leave the incisal. When you come past or reach the central axis of a tooth with a large filling of that kind, you must cross over and involve the other angle due to the cleavage of the enamel. I think that that rule will, if adhered to, carry us safely.

The other matters in the doctor's essay with reference to extension for prevention I think were good.

CARRYING CAVITY UNDER THE GUM LINE.

He made one statement, which he passed over quickly, which I believe, if you will hear again, it will be of value, and that is the carrying of the cavity under the gum line. When a filling is completed, when any filling is completed, we should be able to say that we can see the margin of that filling at all times, and when that passes under the gum line it should do so in full view. For instance, if you have proximal cavities in centrals and laterals, after they are completed, unless you have taken great care as to form and unless they have been completed right, decay will take place either incisally or gingivally, from the contact point. And the rule to adhere to in steering clear of that is this: "When you are through with a filling, stand above the case holding the glass below, and looking in the glass you can see part of the outline and from the labial surface with the unaided eye you can see the remainder and never have that line so you can not see it except when it passes under the gum, and then you can see some of it in the glass, and the labial you can see with the naked eye.

One other question we are frequently asked is, "How far below the contact point can one go, and towards the gum, without going under it?"

Now that will depend upon the distance the teeth stand apart and the festooning of the gum, but a majority of these cases, considering the contour of the teeth, the festoons of the gum, large or
small, the length of the teeth, the majority of these cases will not be far from one millimeter. If you get within one millimeter of the gum line there are few cases that are sufficiently self-cleansing that should not pass under, regardless of the conditions of the gingival wall.

**SEAT OF THE CAVITY.**

One other point is the seat of his cavity. He said that the gingival walls should be absolutely at right angles with the axial wall. Now, if he can absolutely do that, I will agree with him. If it can absolutely be done! But I must admit that I can not always do that; I wish to go just a little farther and pitch my gingival wall so that I know the angle there, the gingival axial line angle, is the least bit acute. If it is the least bit obtuse, you have a filling that will bring great stress on the lateral walls of that tooth, and therefore I want the gingival-axial line angle an acute angle—minutely acute! I don't mean pitched like that (making sharp, acute angle with fingers), but so that I can see it is not a right angle. The forces brought to bear on that tooth will crowd it towards the axial wall rather than from it, and bringing the force of mastication on the occlusal surface, it brings stress on the walls in box cavities.

The latter part of his essay is not new; that is, the putting in of soft gold in a filling. If he was here I would like to ask him one question: if he will tell me why use soft gold to fill teeth in preference to cohesive. And I do not think he can answer me in any other way than that: first, to permit of its adaptation to the walls of the cavities, and second, the speed. They are the only two things I have ever been able to get out of it—adaptation to surfaces, and speed. Now, of the speed proposition he did not speak, but only its adaptation. Now that being the case, if he is talking only about the durability of the filling, the best conditions that can be brought about for a good filling, in my estimation, can only be gotten by lining that cavity throughout with soft gold and filling the balance with cohesive. Line it throughout with soft gold only sufficient to take up that amount of indentation which comes from impact from an uneven surface. For that reason, then, the cavity, to be scientifically filled, should be lined entirely with soft gold, and especially at the cavo-surface, and only so thick as would be affected by the impact with the walls. Necessarily, that would not be any one-third of the filling.

I have seen gold fillings put in a cavity with the cavo-surface covered with soft gold, annealing part of it and putting the soft gold out over the margins, and it seems to me that that adaptation is greater and better than if you attempt to use a body of it.

Another proposition: He said, "I would take a foot plugger and I would mallet in between my interproximal spaces. I drive that into the space which would have a tendency to tighten my filling by more solidly condensing this one-third of the cavity with soft gold." Now, not under any consideration, or at any time, can I see
that it is necessary to strike a cavity filling at right angles to its margins. I do not believe that a man can go in with a foot plugger between the teeth, after he has filled it, and strike between the teeth and better the foundation there. I would rather take a burnisher, even if I fill it the way he did—but I would not do that—and cover the soft gold in on the margins, and then I should go in with nothing but a burnisher, and I should burnish and rub that to contour, and if I had too much gold, I should use a very fine file and then take the burnisher and burnish to proper condition rather than mallet it. I do not believe that I can conceive of a condition where I would strike a cavity margin at right angles. I would object to that point.

Of course, he would probably come back and say it was justifiable on account of speed. I will admit that he can fill a cavity one-third or one-half full of soft gold quicker than any one can with cohesive, but I do not think that was the point he was making. He was trying to make, at any expense, a perfect filling, and if adaptation is the only part, he must not only cover the gingival walls, but the whole surface with soft gold, the balance with cohesive.

Dr. D. J. McMillen, Kansas City, Mo.: I never like to discuss a man's paper unless he is on hand to defend himself, because the many things that I learn is in hearing the other man discuss it from his standpoint.

There are a great many things that I can not endorse as regards the preparation of the cavity. I have not learned yet to appreciate the cutting or shaping of the cavity the way it was shaped, according to the essayist. In other words, it seems to me that we have gone crazy on cavity preparation lately, or else I have been preparing cavities wrong all my life.

I do not care to discuss any question at great length, but the idea of preparing a cavity without any undercuts or without anything in the way of foundation that is going to hold my filling in does not appeal to me. I am unable to fill teeth that way and I want to say that all my life I have been filling teeth with undercuts, and with the best possible preparation that I know of, and with the most careful packing of gold, I have not always been able to keep them in the cavities; and without undercuts and with perpendicular walls, as he says, I am unable to keep the cavity filled.

However, there are a few points that I want to discuss a moment or two only as to the fact of cutting this in that shape and bringing this margin down to a perfectly square point or sharp angle. (Illustrating at blackboard). To my mind, there is a place we do not fill. Now if you are going to crown three, or two, or one of six cylinders of non-cohesive gold into that place, I want to say that unless we lay a little bit of a cylinder down there, we are as certain to have a leaky filling there as we are that we put it in, for I have put in more than five thousand in my lifetime.

Now another point that we have to guard against—if we lay these cylinders in in this form, as Dr. Woodbury showed you this morning—but I think there is a better way—one is just as good as
three, and two is better than either. You might build a filling with a step cavity at that point, but placing those cylinders in side by side, and then driving them down and wedging into position in that corner in that shape, and we are just as certain to have a leak as that we do it. I should certainly round out that corner at the margin. In the inner surface of the cavity, you may make your sharp angles if you please. I doubt whether they are filled or not, but it does not make much difference, but at this place, unless you are exceedingly careful, there is a leak. There are these two points that are to be cared for in the gold filling. If we were using tin we might use about a number three and could possibly adapt it as well to the wall of the cavity as the non-cohesive gold, but aside from that I do not believe that we can get any material that adapts itself as well to the cavity as non-cohesive gold.

Now, non-cohesive gold is a gold that one fold slides upon another, and every time that we touch that with a mallet it is pressed to the wall; in other words, every piece of gold that is put in must wedge itself into position, and whenever it does not wedge itself into position it is not put in properly, as non-cohesive gold, properly speaking, should be put in. Now, the adaptability and the ease with which we can handle this gold and the rapidity with which we can fill this portion of the cavity are the reasons for using it. It is certainly able to save the tooth if the cavity is in any way well prepared a little bit better than anything else on earth, I think. If we make a perfect filling with cohesive gold, that is not any better, but it takes much more time and skill to finish that portion. This vulnerable portion here of the filling should be filled with non-cohesive gold, but it takes three times as long to fill with cohesive gold here as with non-cohesive gold.

Now, just one word about this "under the gum" business. It seems to me that that is the craziest idea that I have ever heard in dentistry, to cut a cavity under the gum. Why, it gives me a chill to find one there, if I have to fill it! I can neither fill it nor finish it with half the ease that I can if it is not under the gum. I do not know that I understand the position of these gentlemen. In coming over from the hall with them this morning, I said, "Why do you men persist in cutting these cavities under the gum?" "Because it is immune from decay." It is not immune from decay! If the joint or juncture of that gold is under the gum, I say that it will decay there quicker because the secretions of the mouth are held directly in contact with that joint more readily than any other place, and I am unable to finish that cavity at all to suit myself. Therefore, I am opposed to cutting any cavity under the gum, so as to disturb the pericementum.

Now, when we follow Dr. Woodbury up in regard to the placing of the gold, he does it exactly the way I have done it for many years, and the way, I think, is exactly right. He uses the instruments I do, except with the non-cohesive gold he uses a small-pointed instrument, which I think is wrong. The small-pointed instrument is de-
cidedly right with cohesive gold. I don't think any man can con-
dense it unless he use a small-pointed instrument with considerable
force. He builds up at this point and he keeps building up in this
direction, and then he comes across here in this direction, driving all
time towards the cervical margin, which is the proper thing to
do, and not going back over it and curling his gold. I don't know—
I couldn't have written a paper about this as well myself as he wrote
it, and after he commenced placing his gold he does exactly the way
that I do.

Dr. Clyde Davis, Lincoln, Neb.: Dr. McMillen, like myself,
teaches operative dentistry. He evidently teaches it different than I
do. Here is the proposition: I accept everything he said, with but
one thing, and that I will ask him to explain. He says that he can
not get along with a cavity wall going under the gum line. He says
that Dr. Woodbury says that is an immune surface. Now, my under-
standing of immunity, or partial immunity, is that surface wherein
we do not frequently find caries attacking sound teeth. Now, were I
to find a mouth with one dozen cavities, carious cavities, in it, I
would find them at the contact point, sulci, puts and grooves where
the food lodges, and if I found one originating under the gum mar-
gin, I would find a hypertrophied and diseased gum. Now, if teeth do
not originally decay without filling in this position, are we not justi-
fied in taking the position that it is practically an immune surface?
And if I am to extend my cavity lines, creating my cavo-surface, I
wish to run them as far as possible through those areas in tooth sub-
stance wherein I am not likely to find decay attacking the teeth pri-
marily. Of course, I have seen many cavities occur under the gum
line, and I have seen many fillings made under the gum line.

I believe he criticised the essayist on a proper point as to the
rounded margins, but I think, if this is properly filled and prepared,
it is possible for us to make them in as immune a condition as they
were primarily. And, say your patient is 30 years old and the teeth
have never decayed under the gum; that patient can carry the filling
25 years, and it will not decay under the gum if you put it in as good
shape as it was before. Therefore, I must insist on the fact that
places on teeth wherein the excursions of food and the tooth-brush
and cheeks and tongue remove the albuminous coat which forms on
the teeth, under which bacteria do their destructive work, and in iso-
lated places where they are protected from the saliva for the dilu-
tion of their acids in these places, if I can run my cavity lines in
these places and go down under the gum where primary decay has
not occurred, and where primary decay seldom, if ever, does take
place; then I think I am reaching more immune surfaces than I am
if I cross somewhere between the contact point and the gum. That
is what I would insist on.

With reference to the cavity outline—coming back to that again
—I think if Dr. Woodbury would follow out one injunction it would
be better, and that is that the cavity inside should be a succession
of flat walls coming together at angles the least bit acute, surrounded
by enamel lines of the greatest curves permissible. If it was absolutely round on the outside it would be all right, if it was square inside, so as to eliminate all short curves and all angles, and on that point I would agree with Dr. McMillen. But I must insist that beneath the gum line of a healthy gum tissue is one of the most immune places that we have in the mouth excepting an absolutely flat surface.

**Dr. McMillen:** Until it is filled.

**Dr. Davis:** I believe that is true—until it is filled; however, I believe that the position between the free margin of the gum and the contact point is better before than it was since it is filled. I think they are in the same condition as long as you don't have a filling there. If you have to fill these teeth, and if you have to run that line somewhat root-wise between the contact point, where the primary decay occurred, and some place under the gum margin, I say pick out the best place, and I believe the best place is below the gum line.

**President Morrison:** I would like to bring out a point in defense of Dr. Woodbury. I think that Dr. McMillen has misunderstood, or else I have misunderstood, their interpretation of the teachings of Dr. Woodbury, Dr. Finn and others, and while I am a young disciple of those gentlemen, yet my understanding of the plugger point is this: that they do not use the small plugger point in placing the non-cohesive gold, but when they start in with the cohesive gold is when they use the small plugger point. If you would see the plugger points that they use and the long handles that they have to mallet with, you would see that they are a large instrument and large points, and the point that they use directly against the cervical wall is a large point. But when they come to the cohesive gold they use a small point.

**Dr. H. A. Shannon, Lincoln, Neb.:** There is no question but what we are all called upon to insert fillings, and it is our duty to insert them in the best manner possible to make them give the best service. That is what I try to do and I can heartily recommend what Dr. McMillen has said. Unfortunately, I did not hear the paper this morning, but on my own personal experience I condemn any cavity formation without undercuts. I can not fill them to my own satisfaction nor to the satisfaction of my patients without undercuts, as well as with undercuts. We talk a great deal of extending the cavity for prevention of decay, extension for prevention, extending to immune surfaces. That is all right, but what do we mean by immune surfaces? That has been explained by Dr. Davis; but if we have teeth coming together, knuckling together as they should, with proper contact points, and not contact surface, over what surface of the tooth does that gum cover? It comes almost to the contact point, and in many cases absolutely against the contact point. Consequently, if you carry your cavity beyond the contact point, you carry
it beyond the gum line. We have other cases of recession of the gum, and there are teeth with inter-dental spaces that you can see through. In those cases we have an exposure of the enamel below the contact point. We have an open space for the food to collect. And then where the food particles collect and remain for any length of time there will be an acid reaction taking place and a white line form on the surface of that enamel which will mean decay as sure as it is there. It means a failure to a filling. It means a failure to the tooth if there is no filling there, and in cases of this kind it must be carried—where the gum does not come up between the teeth—underneath the gum line. If the gum comes up nearly to the contact point it is only a matter of carrying it a short distance below, and there is usually free margin enough to admit of finishing every filling.

These are only minor points that we differ on, but they must be considered; and how many hundreds of cavities are prepared and no care taken and no attention given to that white line at the cervical margin of the cavity. At the margin you will notice a white line in your enamel, just enough that it will decay as sure as it is there. If necessary you have to remove every bit of enamel from the cervical portion of your cavity. You must go to the end of that white line. I would no more think of leaving that white line than I would think of leaving a blackened fissure on the occlusal surface coming in contact with the filling, either cohesive or non-cohesive gold or tin or cement, or an inlay, or anything else. There is no power on earth that will save that tooth. There is only one, and I don't believe you can call on that power to help you in that case.

Dr. Davis: I would like to make a statement for some who did not see the size of Dr. Woodbury's plugger points. He said one-half millimeter, I think. This is common bond paper, and by the gauge one-half millimeter measures just five thicknesses of common bond paper.

Dr. Morrison: That was the cohesive gold, doctor. There is one correction I would mention. I asked Dr. Woodbury if he did not misspeak himself in reference to this, and he said he did. In order to make a record of this, I will change it for him. He spoke several times of the nidus of food. The nidus is the nest, or spot right below and inside of the two approximating surfaces of the tooth, and the nidus being the nest, it would be impossible to have a nidus of food there; and Dr. Woodbury stands corrected on that. He said he misspoke himself.

Dr. J. H. Wallace, Omaha, Neb.: I am sorry to hear anybody get up and say that he is not in favor of a cavity unless we have undercuts. Maybe he does not exactly mean the old style undercut, but I think the better way of putting it would be the retentive form. We can anchor a filling, or rather prepare a cavity without having undercuts, and retain the filling all right. That old phrase to "un-
dercut" when we used to start into a cavity and undermine all around the whole cavity was of course wrong. I hardly think Dr. Shannon meant that form.

It is my duty and pleasure as a member of the state board to examine applicants on the branch of operative dentistry. It is amusing, sometimes, the different answers I get to the different operative dentistry questions. Of course, those of us who are disciples of any one man, or any set of men, in this part of the country, we understand, but you take an applicant that comes from some of our southern states or from east of the Alleghanies or probably not that far, and the answers we get are decidedly in opposition to any teachings that we as dentists have received in this part of the country.

Dr. Shannon: I might as well make myself clear where I stand on this subject of undercuts. I have been here a long time, and I am here to stay unless it is clearly shown to me that I am wrong. When it is demonstrated to my entire satisfaction that I can fill cavities without any undercuts, or anything to hold the filling in, I am ready to do it, because I can do it easier if I do not have undercuts; there is no question about that. I believe in having a retentive form to start my filling in, and I believe in having a place to retain my filling as I proceed with that filling. The higher up I build, I still want a retention for my filling, and I think that I can practically illustrate here on the board where I am in regard to that.

(At blackboard). We will take, for instance, this bicuspid, a cross section of it. I believe in having your bevel here. I believe in that, but when we get to this point, I don't believe in having straight parallel planes at that point. I believe in making a retentive form at that point like that, a retentive form, and I believe in not only having a retentive point at that place, but I believe in also having a retentive groove or divergent planes, extending up for at least a short distance from the floor of the cavity, both on the buccal and on the lingual wall. I believe in making it sufficient to keep my filling from moving or rocking, and by thoroughly condensing in those grooves it will prevent the rocking of my filling. Some men may be expert enough to build these fillings absolutely without any undercuts, but I find in my hands that I can put in gold fillings that look pretty fair to me, and that suit my patients pretty well, and they have stood the test of eight years, and they still look pretty fair. It is true, some of them have failed, due probably to my own fault, perhaps to my methods of manipulating the gold, points that I have, maybe, passed over, or points in the cavity preparation that I have not prepared as I should have. We all overlook those at times, but I would rather have a slight undercut—not in the sense of a deep undercut—but you understand, this must come in the dentine. We must not have the enamel rods exposed at that point, but the enamel rods must be supported by the dentine at that point, so that in the movement of your plunger point in condensing that gold you are not going to fracture any enamel rods. But even if the enamel rods are
powdered at that point it does a great deal less harm than it would at the margins. That is what I mean by a retentive form, as you would call it, or undercuts, as I would call it. They are undercuts! Why? Because the distance from A to B is less than it would be from C to D, and a filling driven into those points and thoroughly condensed can be condensed over the margin without the danger of movement or rocking of the filling, and it is because of the success that I have had in this method of putting in my fillings that I still hang to it. When I am fully convinced and shown that I can fill cavities just as well without those grooves I will be glad to do it because I can do it quicker.

**Dr. Nason, Omaha, Neb.:** I would not let this go by without correcting the gentleman just a little bit. I have filled with soft gold for 15 or 20 or 30 or 40 years, more or less. Now I always round this out, but use the flat seat. I don't believe that you understood Dr. Woodbury's preparation for retention. For instance, now, his idea is this step, he calls it, underneath here; that is, where they take a chisel or inverted cone and carry that up in this manner (Blackboard). It is not sharp. It comes from both sides, making these walls at right angles. Then, in placing those round rolls, as you pass on in there, if this floor is not perfectly flat it will be displaced.

**Dr. Morrison:** The size of that inverted cone would seem to be the principal point.

**Dr. Nason:** Well it would be about a 33½. With me I use a very small chisel to cut that down. It makes a decided bevel, and it is strong enough in there in the dentine. It is not what you claim is
a sharp undercut. Now, I am not a Black man, and I do not defend Dr. Woodbury's talk here, but I understand the working of soft gold. I am like my friend over there; I am a little of a back number, but I use the large flat seat. And I don't have to hold my fillings in. I don't hold a piece. I place one there and I intend it to stay, and I place another piece there and the other there, and I go right along with my filling. After that I anneal the soft gold I use; as I get over those surfaces and get here, then I use cohesive gold and pack it with a small plugger.

Now, as far as going underneath the gum is concerned, I have followed the cavities as far as they go. If it is not deep enough for the contact point, I go a little deeper, but I am not an "under the gum" man at all, because you might go the whole length of the root of the tooth before you got a nice, satisfactory place to place your filling. Then you have to finish it.

Dr. Woodbury: I will say very little in closing the discussion on this paper, as the discussion is very long as it is. In the beginning I want to say that I have been "Wedelstaeding" a good deal in the past two or three years, and very greatly to my benefit as well as that of my patients, and I think from the text and volume of the discussion that some of the men who have discussed the paper would very greatly profit by a liberal course of the same treatment. Dr. Wedelstaedt probably has the closest personal friendship with Dr. Black of any man in the dental profession and is as nearly as is possible an exact follower of his teachings. To those who reach a close acquaintance with him only admiration and esteem remain.

Dr. Davis has said so much and has departed so many times from recognized professional nomenclature, using terms that he must have coined himself, that it is a little difficult to follow him, even when reading the discussion. The principal discussion seemed to be over the use of square angles at the gingival wall and the elimination of undercuts in the occlusal step. Dr. McMillen says that fillings can not be made tight nor will they be retained under stress when this preparation is used. He is mistaken, however, and it is capable of demonstration that when the proper technique is used in making the filling they will be not only moisture-proof, but so firmly retained that they can not be displaced without breaking the tooth. The gold is driven into all the little inequalities of the surface of the cavity left by the chisel or the bur. The elastic dentin is compressed, gripping the gold with a tenacity not to be overcome. But mind you, this can not be done with either light mallet blows or large plugger points. The mallet blows should be about 15 pounds, delivered with a lead hand mallet or an automatic mallet, accompanied by plenty of hand pressure, and the proper stepping of the plugger, the mallet being used to drive the hand pressure home. A plugger one millimeter in diameter should be used on the non-cohesive gold and a plugger, one-half millimeter in diameter on the cohesive gold. In July of last year the C. E. Woodbury Study club held its first meet-
ing. At that meeting about 20 fillings were made under this system the first time these operators had ever used it. As far as I am able to find out, every one of these fillings is still in use and not one shows a leaky margin; a rather remarkable record, considering the number of fillings and the inexperience of the operators, showing conclusively that where the proper technique is employed there is no trouble in making these fillings tight at the bucco-gingivo-axial and linguo-gingivo-axial angles, and sufficiently retained to resist the stress of mastication.

Gentlemen, I thank you for the courteous attention and interest you have given this long paper and the extemporaneous explanations which accompanied it. If I have but made one convert to those things which I believe to be right in regard to the filling of teeth, I shall feel amply repaid for the time spent with you.

ORTHODONTIA.*

By Dr. E. G. Antrim, Lincoln, Nebraska.

The points which should be most forcibly presented to the dentist of today relative to this subject are, first, the necessity of his doing some regulating in his practice, and, second, that he practice preventive measures as applied to orthodontia.

All of us, no doubt, realize how easy it is to put off a case in regulating, frequently from time to time, until the case is lost sight of, and a great deal of regulating is done in this way. However, I think this is the sad feature of the matter. The very fact that the patient is caused no suffering and in many instances no apparent uneasiness is the very reason they are neglected.

Another thing to be regretted is that so many of the marked cases of malocclusion are residents of rural districts. People who rarely consult a dentist, and if the dentist is consulted, unless the patient is very persistent he or she is put off the minute they open the subject of regulating; if very persistent they are informed that they had better go to Chicago, New York or some other place where there is a man who does nothing but straighten teeth.

Now, if these people followed the advice, well and good.

*Read before the Nebraska State Dental Society, 1907.
but they don't. On account of their natural antipathy for cities of metropolitan dimensions, and various other reasons (and, by the way, that is where we find the exclusive practitioner, known by us as orthodontist), these people prefer to go along with their deformities unless the home dentist will do the necessary work, and are glad to get it done. It is true, there are many cases that are too extensive and that require the skill and special training which only the specialist is qualified to do.

I think there is more harm done in neglecting the simple class of work than by attempting to do more difficult and complicated cases.

Secondly, every dentist should do all he can to assist nature in placing each individual tooth into its proper position. Preventive treatment must be the watchword, as in other branches of dentistry and medicine.

Deciduous teeth must be retained until closely followed by erupting permanent ones.

The first permanent molars must be carefully preserved, and if any of the permanent teeth are determined to erupt out of the proper line of occlusion, guide them to place with as simple an appliance as can be employed.

As to age at which regulating can best be accomplished, I can only say that the younger the patient the easier will be the work, and the result more gratifying.

Last, but not least, in importance, "the retainer" keep in place a good long time, from 18 months to 2 years, and longer, and you will have less regrets.

DISCUSSION.

Dr. E. A. Hanna, Lincoln, Neb.: I heartily agree with the essayist in saying there is too little orthodontia done by the general practitioners, principally on account of the time and patience it requires before results are obtained, and also patients, in ordinary circumstances, are, as a rule, unwilling to pay a nominal fee for the time and care it takes to bring about satisfactory results, but I think it is the duty of every dentist to be as careful regarding the normal occlusion of the teeth of his patients as in any other branch of our work. At any rate, we should pay more attention to the simple cases of little folks and prevent hard and complicated ones later.

H. A. Shannon, Lincoln, Neb.: I am in hearty accord with the
essayist when he said he was of the opinion that every dentist should do some regulating, and that he should practice preventive measures.

As to the preventive measures, I am sure that a large part of our profession extract deciduous teeth, in many cases, where they know full well the result that will nearly always follow too early extraction. We have many in our profession who never think of advising parents to have their children's teeth taken care of, but allow them to go, and as a last resort, extract several years before the permanent tooth will erupt. This state of affairs will continue until the laity becomes educated sufficiently to understand what should be done and demand it or change to some one who will render them the services they should have.

Many cases of irregularity that are easily handled, if taken at the correct time, are allowed to remain untouched until the case develops into a very difficult one and is then allowed to go through life in that condition when the entire difficulty could have been easily avoided if just a little work had been done at the proper time.

The retaining appliance is one of the important factors in securing permanent results. In the first place, a good articulation should be secured and then hold the teeth moved sufficiently long to allow the process to become dense around them. If the correction has been made at the proper time, there are very few cases that will require the retaining appliance remaining on more than one year; many cases can be removed in from two to three months. I will agree with the doctor, that he may have to leave the retaining appliance on two years if the patient is 35 to 40 years of age, but never for children.

ANATOMICAL OCCLUSION OF ARTIFICIAL TEETH.  

By Dr. W. D. James, Tracy, Minnesota.

It is indeed a pleasure for me to be here today, and to meet with the members of this society. It has been my good pleasure, from time to time, to meet several dentists from Nebraska, and while attending this meeting I have been impressed with the fact as never before that the men from this state are truly up in line with the rapid advancement of dentistry.

Before taking up the subject of occlusion of artificial teeth. I wish to say a few words on what we see and hear as we listen.

*Read before the Nebraska State Dental Society, May, 1907
I hear a great many dentists these days talking about ideal dentistry. Now, I want to ask one question: Does the ideal cover the whole or a part of dentistry?

There is nothing in the world equal to the power of an ideal. A man cannot hope to rise above the merest mediocrity unless he has an ideal planted firmly in his mind, and he cannot hope to attain to anything like his ideal without constant and untiring efforts. Moreover, just as a stream cannot rise above its source, it is physically impossible for a person to rise higher than his ideals. Now, from all I hear and see on this subject, I am led to believe that the ideal dentistry of today does not comprehend the whole. Each dentist seems to have his ideal along some particular branch, and oftentimes forgets the ninety and nine that are becoming lost.

Since I have been studying this subject, I have often asked the question, What is the standard of mechanical as compared to operative dentistry? As yet I have failed to find any one who considered it as high.

Now, I believe many reasons may be given for this. Operative dentistry seems to present a more attractive field for the profession, particularly to the recent graduate. It presents a greater variety of operations, and certainly more definite results. It seems to be more high-toned, and many seem to think a higher order of talent is required in operative dentistry than in prosthetics.

**VULCANITE HAS HELPED TO DEPRECIATE THE STANDARD OF PROSTHETIC DENTISTRY.**

This I will never admit, and will try to justify my position later on. It will be admitted by all that vulcanite has been the one cause more than anything else that has depreciated the standard of prosthetic dentistry. The ease with which a vulcanite plate can be constructed and the cheapness of the production has undoubtedly presented an attractive field for incompetent persons to enter in times past, who have come into competition with more skilled and painstaking dentists, so that they have been compelled to turn to the operative field and let the prosthetic work go. It is not an uncommon sight to see women who wear their silks and sealskins wearing a poorly-fitting rubber plate, the teeth selected with apparent-
ly no thought of artistic taste. Cases like these certainly must
make a dentist whose ideals are high turn to operative dentis-
try with a feeling of satisfaction that in this branch he can
find a more appreciative field for operation.

It does not take long for a person of moderate ability and
skill to construct a rubber plate that will work after a fashion,
and I believe the dental parlors, and also the dental colleges,
have pushed this class of work on the public until there is
hardly anything but vulcanite demanded, and without doubt
many teeth have been sacrificed on account of the cheapness
that otherwise could, and would, have been saved.

Now, the point I wish to make is this: That in consider-
ation of the fact that the necessity for artificial dentures will
exist to the end of time, in spite of fillings, crowns and bridge-
work, why not, then, be able to turn to the prosthetic branch
and supply the patient with a substitute that will make them
look like themselves.

There are comparatively few dentists who possess the ar-
tistic ability to become experts in prosthetic dentistry. Surely,
then, dental prosthetics should occupy as high a plane as the
operative.

Most dentists consider the making of a set of teeth as
purely mechanical, while, to my mind, it requires a finer eye,
a finer artistic sense and as much mechanical ability to proper-
ly select and adapt a set of teeth to some patients who call for
our services as to make a good filling. This expresses my idea
perfectly and refutes the idea that operative dentistry requires
the greater ability, as I have referred to previously in this
paper.

**MORE ARTISTIC RESULTS IN PROSTHETIC DENTISTRY.**

Now, then, let us lift dental prosthetics out of the mire
into which it has fallen; let us study more diligently the re-
quirements of each case we have, and study to produce more
artistic results. Even with the limitations of the vulcanite
plate, very excellent results can be produced by care in the
selection of the teeth and the arrangement of the same. What
looks worse than a small white tooth, be it ever so even, and
worse on the upper jaw of a patient with dark complexion
and a large jaw and wide face, and dark, yellow natural teeth
in the lower jaw?
Gentlemen, I have seen this very thing many times, and what is worse still, many of them have come from dentists who make beautiful fillings. Is it any wonder, then, that dental prosthetics fall into disrepute when this kind of work is being turned out by those we look to for better things? There is, and always will be, a demand for artificial dentures; so I say we should meet the situation and put our thoughts, courage and skill into this kind of work, and I am sure if the results are pleasing the case will give as much satisfaction as any other dental operation. Again, I hold that every dentist, especially those located in the smaller cities, should put forth every effort to perfect himself along this line of work, as it will broaden and deepen his foundation principles, and if he can succeed in dental prosthesis he certainly will succeed in the operative, and the production of a fine, artistic, good-fitting denture does more than anything else to inspire the confidence of a patient, more than almost any other dental operation.

Dental prosthesis, properly speaking, should include crown and bridge-work, but the intent of this paper is to more particularly treat of plate-work. I do not care to say anything of crown and bridge-work, except this: If the character of a great deal of the crown and bridge-work of today is not changed for the better, and that very soon, the men who are doing some of it will see their finish almost before they know it.

Dentistry of today is not the dentistry of our fathers. By the word fathers I mean those noble men of our profession who laid the foundation upon which we today are building. “All reverence to their immortal names.”

In all the liberal arts and sciences there are great masters. Music has its Beethoven, Wagner, Liszt, and others; sculpture its Canova, Michael Angelo; art-its Correggio, Raphael, Landseer; literature its Shakespeare and Dante; law has its Blackstone, Kent, Cooley; medicine its Pasteur, Sayer, Koch, Gray, and others; dentistry has its Harris, Wells, Allen, Miller, Webb, but greater than all these, we have the immortal Black and Bonwill; and last, but not least, our own mighty Dr. E. K. Wedelstaedt. These men are all masters, and all those who are striving to follow in their footsteps are but apprentices.

Today, gentlemen, I invite your attention to but one, the
lamented Dr. W. G. A. Bonwill, who did more for prosthetic dentistry than any other man. It was he who first gave to us the idea of anatomical occlusion of artificial teeth, and perfected an instrument with which we are able to duplicate all the movements of the human jaw.

In 1895, Dr. Bonwill made a journey to St. Paul to demonstrate before our Minnesota State Dental Association. It was there that I received my first impression of what anatomical occlusion of artificial teeth meant. I at once became very much interested, and at the close of the session several of us were invited to spend the evening at his rooms, where he showed us many different skulls, and so thoroughly demonstrated the correctness of his theories and teachings that I have never since made teeth on any other principle.

In coming to you at this time I wish to say, I come not as a teacher or as one having authority, but rather as a humble disciple of my master; and if what I can say or do while with you is the means of helping any of you I shall feel that the time has not been lost.

ANATOMICAL OCCLUSION OF ARTIFICIAL TEETH.

In consideration of the subject proper, "Anatomical Occlusion of Artificial Teeth," I wish to make a statement in order that I may not be misunderstood. As I said in the beginning of this paper, Dr. Bonwill has done more for prosthetic dentistry than any other man, and I believe most thoroughly in his theories and principles; but I do not exactly agree with him in all the details of his work. The points wherein we differ I will not take up in this paper, but will try to demonstrate them in my clinic in order that I may make them more clear.

Assuming that all steps up to occlusion have been taken, we will proceed with that. Before we can comprehend what constitutes true occlusion, we must know the anatomy of the human jaw and its function. I am fully convinced that the only way to learn anything about correct occlusion of the teeth is to make models of different mouths and study closely their general characteristics, also the abnormal conditions which present themselves. It is my practice before making operations of any kind to thoroughly examine the occlusion in
all the various movements of the jaw. In doing this I have received many valuable lessons.

To Dr. Bonwill we are indebted for an articulator which more nearly approximates the human jaw in all its movements than any other that has ever been produced. This fact I have proven to my own satisfaction, and you can do the same if you will search for the truth. It needs no argument on my part to convince you that an artificial set of teeth should correspond with the natural ones in every respect. Then let us take nature for our guide and see how nearly we can duplicate her works.

A study of the anatomy proves one thing, and that is, it is just the same distance from the center of one condyle to the center of the other as it is from the condyles to the point where two central incisors meet at the cutting edge, which forms a triangle of four inches, seldom varying more than a fourth of an inch.

Now, if we observe these points we will notice that law and order is the rule, and that the jaw, in forming this triangle, brings into contact the greatest amount of grinding surface of the bicuspids and molars, and at the same time allows the incisors all to come into action during the lateral movements of the jaw. You will also notice, in observing this rule, that from the cuspid the bicuspids and molars run in nearly a straight line instead of a curved one back toward the condyloid process.

In the normal jaw there should be an over-bite and also a corresponding under-bite, without which the incisors would lose largely their functions, that of incising food. Where the incisors strike directly upon each other the power to cut off food is very much lessened.

Where there is an over-bite and under-bite, just in proportion to their depth will be the length of the cusps in the bicuspids and molars. The curvature at the ramus must be made to conform to the depth of the over-bite, so that when the lower jaw is thrown to the right or left the buccal cusps of both upper and lower sets on that side come together at the same time. The curvature should be great enough to allow the lower second molar on the opposite side to move forward and meet the first molar in the upper. This also balances the plates during mastication and equalizes the action of the mus-
cles on both sides of the mouth at the same time. It may be a question with some whether, by this method of grinding and assembling the teeth, we can imitate the natural movements and expressions. I want to ask one question: Has there ever before been any definite rule or plan where we could regulate our beginning and ending in making a set of teeth? If there has been, I have never heard of it. It has been my observation that artificial teeth—I care not from whose hands they come—are seldom made after any definite rule. I will admit that there are many sets of teeth that do fairly good service, and there are many that look well, and the occlusion is good as far as the up and down movements are concerned, but when it comes to the lateral movements of the jaw they fail utterly. The regular horse-shoe shape, which we see so often, will not admit of the lateral movements, and at the same time bring the bi-cuspids and molars into a position where they will bear an equal amount of stress, and consequently is the cause of teeth breaking off and the double somersaults, excursions which teeth sometimes take. It may not be out of place at this time to give you a few simple rules, which, if followed, will be of service to you in following out this line of work. It is not necessary for me to say that perfect models and a perfect bite are necessary. After obtaining a perfect bite, mark the median line on both upper and lower models; then, with the dividers, mark the length of the bite. This will prevent any possibility of shortening or lengthening the bite in the arrangement of the teeth. In mounting the models in the articulator always place the lower so the median line is about four inches from the condyles of the articulator, and the wax or teeth line will stand about one-half inch from the floor of the articulator. Then place the upper model in position, and you are ready for the grinding and placing of the teeth. The first step is to grind the bi-cuspids and molars so as to form an ogee surface. The great advantage in this method is: We have presented at the occlusal line a broad surface contact instead of point contacts, as in the original teeth as we get them from the manufacturers.

In grinding up a full upper and lower the process is practically the same, only the position of the surfaces is reversed. In the upper the buccal cusp should be at a sharp angle, whil
the lingual cusp should be somewhat rounded. The lower is just the opposite—lingual, sharp and buccal rounded.

In setting up a full upper and lower the six anterior teeth should be placed first, always taking into consideration the general characteristics of the features of the patient. The eye will soon tell one how much of an over-bite will be necessary to restore the natural expression. After this has been done, then commence with the bi-cuspids and molars on each side, first observing the necessary curvature at the ramus, which must always be as great as the over-bite. The lingual cusps of the upper should always strike between the lingual and buccal cusps of the lower when in repose. But when the lower is thrown to the right or left, the teeth upon that side should strike upon their cusps, while upon the opposite side the lingual cusp of the molars should strike upon buccal of the low-
ers. This will, as I have previously stated, equalize the action of the muscles on both sides of the jaw at the same time.

Gentlemen, in this brief paper I have tried to show to you that certain results can be obtained by following certain laws based upon the anatomy of the human jaw, and if by chance I have called attention to prosthetics in a way that will tend to elevate it to the standard of any other branch of den-
tistry, I shall be glad if it is only a beginning.

DISCUSSION.

Dr. Hunt: It is a pleasure to discuss a paper on prosthetic dentistry. I have nothing but words of praise for the paper, because the sentiments expressed in it are absolutely correct. I would only offer one criticism in regard to it—rather not criticise, but make it a little stronger. I do not think the time has ever been, and I do not think it exists today, where one needs to beg the question as to the position that prosthesis occupies in the dental profession, because if it has any place at all it is the foundation of all practice of dentistry, whether it leads off into operative dentistry, orthodon-
tia, or whatever you choose. The foundation must be laid in what is known and what is called prosthesis. It can not be laid anywhere else. There is no other place for it, and it may take many direc-
tions, and it does usually, but nevertheless the foundation prin-
ciples that make prosthetic dentistry are also the principles that are governing nearly all the operations in dentistry. It is always a pleasure to me to pay a tribute to Dr. Bonwill. As the paper has said, he was the first man, and the only man, who ever presented a system of arranging artificial teeth in any manner so that it could
be understood by the average practitioner and be called a system. While, as the essayist says, in the use of it there are a good many times that it is not possible to follow all the details and extreme ideas that Dr. Bonwill presented and held, nevertheless that is nothing against the system. The system itself is the basis upon which to build the operation of arranging a set of teeth. This is not an easy matter to accomplish. One of the reasons why prosthesis does not command the attention of so many of the profession is because it requires more hard labor and more thought than any other part of the profession, in order to get a satisfactory result. If it were only dealing with the mechanics of the subject, in making the artificial dentures, we would soon be out of deep water, but the mechanical feature covers that portion of it which makes one successful in putting the materials together in a proper way, but to arrange a set of teeth, put these materials together, teeth, rubber, gold, whatever may be used in combination, in such a manner that when it is placed in the human mouth the artificial condition is not detected, that is far beyond anything that pertains to mechanics. It is a different field entirely, and it is something that with difficulty can be taught to the individual. It becomes a matter for each individual to work out for himself. But the system of articulation as discussed by this paper gives the basis upon which to start. Now, the measurements given there are approximately correct. It is an equilateral triangle from condyle to condyle and to the mesio-occlusal margin of the central incisor, and so long as you follow this or measure every set of teeth by this triangle of exactly four inches, why, you are going to have more or less of error; but take that as your basis because it is a perfect mechanical system to begin with; it is the starting point from which all other things may be done to better advantage, but without that starting point, without that principle and using that as a basis, you will be utterly at sea to accomplish anything later on. Now, the purpose of the equilateral triangle of Dr. Bonwill was to get the relation and location of the human teeth in the mouth. He found, like others who have investigated this subject—myself among the number—that there was no such thing as regularity in this matter. While in the general characteristics there were many things in common, just like one man looks like another man—all that belong to the race—all men look alike (man-like), but they are not alike, and this law of variation is a universal law; it is everywhere, in everything connected with the human body, whether it be the teeth or what not. But, as I say, you have a basis there that is approximately correct. It will vary from that, but that variation does not depreciate the system. It is the basis from which to work; you change or make any variation that the individual case may call for which is scientific and sure of the results.

Now, the paper speaks of the arrangement of the teeth so that anything outside of that would hardly be fair in the discussion of it. But there are one or two points in regard to this variation that I
spoke of that may perhaps not be out of place to discuss; for in-
stance, nature began with the two lower incisal teeth to put them
in place, and so should we, in the same way. From that starting
point, nature built up the whole arrangement of the teeth, and so
must we. Following out Dr. Bonwill's ideas about the occlusal—
the o. g. surfaces of the teeth—if it had no other advantage what-
ever, the very fact that this porcelain on these surfaces is ground,
that it is roughened, makes that a more efficient tooth to use, but
the fact that they are ground in this form as an o. g., and the slight
lateral motion that the jaw has—it does not have anything like the
lateral motion that Dr. Bonwill always claimed for it—in fact it is
so slight as to be hardly perceptible—but that does not matter; it is
something, but no matter how much those teeth may move to the
right or to the left, they are the same length, because these sur-
faces are the same distance apart all the time. Necessarily, if it
comes in contact anywhere, why, then, they come to an even bearing
on both sides of the mouth alike. So there you have a principle that
is definite, and certainly there is nothing else that has ever been
offered like it, and I don't know of anything else that can possibly
take its place. No matter how much you might vary that, that
substantial principle is there as a basis, and if followed and if used
as a basis, which is probably all you can expect of it, it will give you
good results. Now, all the work that Dr. Bonwill did was of a me-
chanical character. Dr. Bonwill was a great man as a mechanical
man. This is not the only thing, by any means, that he presented:
the dental engine, the dental plugger, and many things—any number
of things. I have been in his office and know his home, and the
things were without number that he was working on all the time,
always doing something or other, but it was always of a mechanical
nature. Now, he demonstrated this triangle. It is worth your
while to read all that he has written on this subject; it will not be
lost time by any means; but he demonstrated so carefully that the
arrangement of the teeth and the position of each individual tooth;
its position, is governed by the equilateral triangle, everywhere in
the mouth; not considering that the law of variation exists every-
where, nevertheless his statement was correct, but from the me-
chanical side alone. Now, then, mechanics means something that is
exact, absolutely straight lines, definite measurements, and so on.
We can not have that altogether in the human body; certainly we
cannot have it in the arrangement of the teeth in the human mouth.
To call your attention to two or three items—for
instance, the length of the lower teeth, the position of
the lower teeth, the lower incisors as given by this equilateral
triangle. The length of the lower teeth is not given by any mechan-
ical measurements, nor can it be. The paper says inch and a half
or inch and three-quarters, but that is approximate. I don't suppose
he means for a moment that it is definite. There is a definite point
outside of actual measurements that the length of the lower teeth
is exactly the length of the lower lip everywhere, and there will be
no variation. Now, then, the length of the lower lip will vary; the peculiar conditions of the lip in a patient's case will vary, but the length of the lower teeth is always the length of the lower lip, whether that is an inch and a half or two inches; no question about it; it does not vary in any case. This field is outside of mechanics because there are no mechanical measurements that will do for each case; there is no way of getting at it mechanically. But with the articulator we are in the same difficulty all the while; it is exact; it is exact as to measurements and distances, and so on. That is not true in the mouth. For instance, in the same type of teeth or in the same individuals or same type, like individuals of a nervous temperament, the articulation of the teeth is not always the same; the overbiting of the teeth is not always the same; that is, the lower bite of the teeth is usually whatever is the length of the cusps of the bicuspid teeth, but there are many sets of teeth where the overbiting is considerably more than that; not that the bicuspid are responsible for that, but the growth of the teeth in the intermaxillary bones and a shortening of them brings on a lack of growth and the teeth are not the length that they should be in that particular mouth. At other times, they are longer slightly by an increased growth of the intermaxillary bones, so that these cases are outside entirely of the mechanics of the subject and are a part of our business to observe in each particular case. The paper spoke of taking models of natural teeth in the mouth. You have probably heard me say that before in this society, and it has not evidently impressed your minds very strongly, but without it you can never know anything about this subject. Why? Because you don't know what the condition of the natural teeth is in the mouth. You may find a skull like the doctor has here, that in its articulation is perfect. The growth of the bones in that head, the sutures, the sinuses, everything about that skull is absolutely as perfect as any one I have ever seen. Now, you might have a hundred skulls of this same temperament and not find another one like that. So that variation is the law that I want to get into your minds in addition, in using the Bonwill system. You can not follow exact mechanical lines and get the best results. You must study the work a little outside of that.

Dr. C. E. Woodbury, Council Bluffs, Iowa: I have very little to say in regard to anatomical articulation of teeth because all I have learned about it I have learned within the last two days. It was my pleasure, Monday and Tuesday morning, to take a course of instruction under Dr. James, and he has demonstrated, to my satisfaction at least, that it was a great improvement over anything that I have ever used before. I will have to take this home and see whether I can apply it. From my own knowledge, I am not in a position to make an intelligent discussion of this subject because it is so very new to me.

Dr. F. G. Worthley, Kansas City, Mo.: I have only a word or two to say in regard to this paper, which I have heard with a great deal of pleasure. I have noticed somewhere in the writings of some
orthodontist this claim: that 90 per cent. of mastication is done by the lateral motion rather than the up-and-down motion of the jaws. Now, there are two constructions that can be placed on that: if we call that the up-and-down motion, and that the lateral motion (illustrating at blackboard), it seems to me that if it was confined to the lateral motion you could not get any action at all. If you were confined to the up-and-down motion, you might just stab the food a little bit. If, however, he means that the jaw is 90 per cent. better and more efficient when it is so articulated that both the up-and-down and the lateral motions can be used, then I have no quarrel with the statement. There is one point in the paper that I think might possibly need explanation, and there is a question I wish to ask Dr. James. I have noticed clinically—and possibly a good many others have—that a large percentage of people who are wearing artificial plates—and this refers particularly to full dentures, upper and lower—chew with an up-and-down motion almost altogether—what has been termed a “Tom-cat motion” of opening and closing the jaw. Most people who use plates use them in that way. The question I wish to ask is this: is that due to the faulty construction of the plates or is it due to the fact that they have not yet discovered a method by which teeth can be so formed and fixed in the mouth that they will stand the stress of the lateral motion, the tendency to tip the plate which exists when the lateral motion is used? It is obvious that when teeth are being used on one side of the mouth with food on one side only there can be no support between the plates on the other side, and there is a tendency to tip the plate. Whatever it is, people make that use of the plates; they seem to put food on both sides of the mouth at once and mash it by chewing up and down. What I want to know is, is that due to the faulty construction or articulation of the teeth, and can that be remedied by the Bonwill method? I have had the pleasure of seeing Dr. Bonwill articulate teeth; it was a revelation—it will be a revelation to any one to see a set of teeth articulated in that way if they have not seen it before, to see the amount of contact that can be gotten between the occlusal surfaces and in the carrying out of the laws set out by Dr. Bonwill, the measurements, the equilateral triangle, and so forth. They are all right and proper and necessary. Still the individual factor comes in the manufacture of every plate, because those rules have got to be varied. The anatomical articulator closely approximates the articulation and action and character of the human jaw, but not exactly; we are not exact; it is not an exact reproduction. The Bonwill articulator comes closer to it, in my opinion, than any instrument that has been given to the profession, and I say, let us use, of course, the very best that we have.

Dr. M. E. Vance, Lincoln, Neb.: Mr. President—I would like to ask Dr. James a question: In articulating a full upper denture, if the anterior teeth have an extremely long overbite, do you try to reproduce the natural condition there, or what would be your articulation?
Dr. Newman: I was very much interested in the discussion that has been brought out here of Dr. James' paper, and what Dr. Hunt has said; it has been familiar to me for a good many years—I have heard him advance the same theories long ago. Now, I was very much more interested in artificial dentures than the average young man, I believe, when I left college. It has been a good many years ago, although I am not very old now, and I have never followed this Bonwill method myself, but there is one point that I would like to have brought out: The doctor referred to an up-and-down motion, or an up-and-down method of using the plates; I have always called it a "pig-bite," and I have noticed this one thing, that a great many patients who have an excessive lateral motion of the jaw get very little use of their dentures. Now, I don't suppose that, although I have given the subject probably more attention than some, I have been more successful in constructing a denture that can be used than any one else, but I have noticed this one thing, that those who do chew up and down, those who divide the food and carry it on both sides, get as a rule the best service out of their dentures, and I have found that in cases where you could overcome that excessive lateral motion, that is, overcome the tendency in the patient towards that, they would get so that they could use their plate. Of course, we all know that some use them with the greatest of ease and get a great deal of good out of the plate, even a plate that does not fit at all, and you cannot persuade them that you can make them anything different, but at the same time there are so many different rules followed out in making plates. I never could understand why a plate constructed on reasonable lines would be a failure where one just made any way would really work. I saw one that was ground absolutely flat and both impressions had been taken in wax. It was inserted in the mouth and the patient told to bite as hard as he could, and the cusps were ground off flat, absolutely flat; you could lay them on a table and all points would touch in that way if they were laid with the articulating surfaces onto a flat surface, and that patient got good service out of that plate, apparently. Now, that was constructed—the teeth taken out in the morning, the plate made in the afternoon—and I didn't do it! But I have seen that plate, and it is a success, so far as service is concerned. It is a hideous affair, from an artificial standpoint, but it works, so far as mastication is concerned. The paper has interested me very much. It has impressed me with the fact that I should investigate this articulation. I have never had much faith in that. I am a poor hand to leave off something old and take on something new, but I believe it is a good thing, and I am glad it has been brought out here today. I would like to have that point brought out, if you please.

Dr. James: I am very glad to hear this discussion. I am particularly grateful to Dr. Hunt for his generosity and kindly criticisms. I was glad to hear Dr. Hunt speak of some of the things outside of dentistry which Dr. Bonwill did for humanity. I wonder how
many here know that it was Dr. Bonwill who invented the hook buttons you are now wearing on your shoes. He was also the inventor of the Wellsbach burner for the kerosene lamp. I only mention these things to show you that Dr. Bonwill was not only a mechanic, but a genius.

Some doctor on my right asked the question, "How do you determine the distance from the chin to the incisal edge of the lower teeth?" I stated in my paper that the distance was from one and one-half to two inches, varying according to the size of the individual. My method of determining this is to take the measurement of patients who come under my care. In doing this I use either a large pair of calipers or the dividers. It is very easily done, and I feel sure, if you will do it, you will prove what I have said to be true. I might add, right here, if you want to be almost absolutely correct in mounting your lower model, you may take your dividers and take the exact measurements from chin, also from the angles of the jaw on either side, to top of the alveolar ridge, then place your model on articulator according to these measurements, and then you practically have the mouth in your hand.

Someone has said here this afternoon (I have not the slightest idea who it was), that a person can chew on both sides at the same time. Well, that was the old theory, years and years ago, but observations and clinical demonstrations have disproven that idea. I will challenge the gentleman to produce the man or woman who can regularly perform such a feat.

Now, relative to the equilateral triangle and the lateral movement of the jaws: It was my privilege some 17 years ago to visit the National Museum at Washington, and with a company of gentlemen we measured several hundred skulls of all the different races and tribes of men, and we found, aside from the anomalies, they seldom varied more than a quarter of an inch from center of condyle to center of condyle, and from center of condyle to the incisal edge of the lower central incisors, so we have adopted the three-inch equilateral triangle as the rule and guide in making artificial teeth.

The curvature of the lower jaw is to compensate for the lateral movements of the lower jaw, as it moves across the upper in the process of mastication, as I have tried to demonstrate to you in the clinic. It gives us the three points of contact which serves to balance the plates at all times and also equalizes the muscular tension on both sides of the mouth at the same time.

One gentleman spoke of the fact that we could not bite into a piece of food without tipping that plate. Well, it will do no good to enter into any argument over that point; but if we just stop for a moment and watch the process of mastication, we will notice that a bolus of food taken into the mouth is very soon divided by the action of the lips, the tongue and the teeth, into smaller divisions, and that we chew but one at a time, and that the tongue pitches them around just where they belong until each is properly masticated and ready to be transferred to the stomach. You may take one mouthful of
food and in the process of mastication you will swallow two or three times.

The method spoken of by the doctor, there on the second row, is the method known as the Pettit method. Dr. Pettit grinds his molars and bicuspids on a perfectly flat plane, so that they will articulate perfectly with a glass slab. I have seen this method demonstrated, but I have never found any one who has had very good results. There is one thing I have always believed in most thoroughly, and that is this: if we are going to duplicate nature, we must work pretty close to nature.

A man may meet with an injury and lose a limb. If he goes to a surgeon who is capable of making him an artificial substitute, that surgeon is not going to make one by guess. He is going to take measurements of the opposite limb, as to its length, size and all of its various movements. If he should say, "Here, I have a storeroom full of these; pick out one and take it home and wear it," I am afraid that man would not get along very well. The same principle applies in false teeth. You have got to take the individual case. You have got to use your judgment in applying the principle which I have tried to give you in this paper, and I think if you will follow them you will find that they are nearly correct. I do not claim that it is absolutely correct, because there is nothing absolutely perfect that I have ever found yet in the way of man's production.

Doctor Newman said that he had no faith in it; well, I can only say to the doctor, we must have faith if we are to accomplish the best results in any calling. We must apply principles, carry them to completion, carry out every detail, and the results will prove to you whether it is right or not.

I want to take this opportunity to thank the members of this society for their kind and courteous treatment towards me while among you. I want to assure you that it has been a great pleasure for me to be here, and I hope it may be my pleasure to meet you all again at some future time.

REPORT OF STATE BOARD.*

By Dr. Ladd, Lincoln, Neb.

I was going to bring a communication to the state society from the state board. I wish to say to you that I am very glad to communicate with you. I asked the different members of the board what I should incorporate in my communication, and it seems that the communication will be a little indefinite unless there is something special to communicate. It seemed the main thing to say to you was to impress upon the members

*Read before the Nebraska State Dental Society, 1907.
of the state society that the board is very anxious that a close and hospitable feeling exist between the state society and the state board. Now, in some states it is required that the state board make a report to the state society. I believe in Nebraska that is not required, but I was to state to the members present that the board would be very glad to make a report to you if you cared to have a report, or to answer any inquiries that you might wish to make. We all know that the object of the state society is for the mutual benefit of its members, to promote our welfare, and the object of the state board is to promote and benefit the state in a professional way or any way that they can. Now, this reciprocity matter is not generally understood. In the different states in which it has been taken up the understanding is that if a man presents himself for a certificate from that board, unless he is a member of the state society, the chances are that he will have pretty hard sledding in receiving recognition from the state in which he seeks to take his certificate. Now, probably, if a man would make a test legally of his being turned down for the fact that he was a member of the state society, it may be that if he would make a legal fight, he might win out; but it is a pretty good idea to have the members know that the state board is back of them and that unless a man presents himself for a certificate from a state board to be taken to another state with which we have signed up reciprocity or an agreement of reciprocity, that he will not have recognition unless it is incorporated in the papers that he takes with him that he is a member of the state society. Now, if the state board is doing that much to encourage membership in the state society, why, the members of the state society should always say a good word for and back up the state board. Some people have a tendency to try and belittle the authority and importance of the state board, but I want to assure you that in this present age, which seems to be going along the lines of anti-graft, that the state boards are given a great deal of latitude by those high in authority, delegating to the members of the board, giving to them the power to rule on a great many matters that come up before them, and make rulings to cover a great deal of important matters, and in these matters and things of that character they will take the rulings of the board as final, and the main object I have in making this communication to you today is to have
the members of the state society feel close to the state board. If you have any complaints to make, why we would be glad to hear them. It would surprise you to see the different communications that have come to us, especially along the advertising line. Now, unless you have taken special pains to read the new law, you may be surprised to know some of its provisions. Now, a great many of us don't care so much about the advertising business. It is not hurting our business, but it is a disgrace to the profession—some of the literature that is thrown out broadcast as to dental work. Now, the board has a great many communications to them asking what can be done with certain parties who are sending out some of this literature. I want to say to you, that there is a provision in the law that a man's certificate may be revoked for several reasons, and one of the reasons is unprofessional conduct, and the law is kind enough to define what unprofessional conduct shall be. It says for advertising, or claiming to be able to do impossible of improbable things or gaining a fee under false representations or fraud, and when a man makes some of the statements that we see advertised, it borders very closely on fraud and misrepresentation. And if any one is specially obnoxious to any of you in your immediate neighborhood, if you will mail to the state board the literature that you think is of the character that should be brought up and possibly be grounds for forfeiting the certificate of the one in question, why, the state board will be very glad to notify the one that his case has been brought to the attention of the state board and give him a warning, and very often a warning of that character is enough because it does not cost the state very much to get the machinery in motion against any man who has performed a trespass of that character. The state board has a great many requests to stop a certain man practicing, and I want to say that the county attorney is the one to bring that action. The state board is not the one to do that. The getting of a new law in running order in a state we find is a pretty hard proposition. The law has been in force now only two years, and we are really just beginning to appreciate a good many of its good qualities, and we feel that we have now one of the best laws in the country in Nebraska. The state board hopes it will receive the co-operation of the state society and help us in all the ways that you can. The state board and its members
are going to do all they can to help the society along the lines which I have told you about, and I hope that the communications I have given you today will promote the intimate and cordial feelings we hope will exist between the state society and the state board.

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A GOLD INLAY, MESIO-OCCUSAL CAVITY IN AN UPPER BICUSPID WITHOUT INVESTING.*

By Dr. Beeson, Beatrice, Nebraska.

I will say that there was nothing special about this. I prepared the cavity as for any inlay and burnished the gold into the cavity with a large round burnisher first, next a smaller burnisher, and then with the smallest round burnisher that is used for that work and flat instruments to burnish the matrix into the cavity. I used 36-gauge gold. In putting in the gold you can use any fibre gold. This I packed quite firmly with hand pressure until it was well filled; then round the margins and remove the matrix and foil very carefully. For soldering use 22k. solder. Finish the proximal surfaces and the cervical portion of the inlay before it is set, and finish the occlusal portion after it is set.

*Report of clinic at Nebraska State Dental Society, 1907.

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NON-COHESIVE GOLD FILLING, OCCLUSAL CAVITY.*

By Dr. C. E. Brown, Emerson, Nebraska.

The clinic yesterday was a non-cohesive gold filling. The cavity was in an occlusal of a superior first molar. The preparation of this cavity was almost as the preparation of any other cavity, with the exception that there was no beveling of the margins because we want almost parallel walls. We have just the least little bit of undercut; practically none; I do not believe it is necessary to have any. My method is to have the gold rolled up into pellets about one-third longer than the depth of the cavity. I start with pellets almost large enough to

*Report of clinic given at Nebraska State Dental Society, 1907.
fill the cavity half full and cram the first one in, and after that another in the opposite side until I have it full. Then I have a wedge-shaped instrument, and I insert little gold wedges rolled tight in there, and keep the operation up and get in as much as I can and mallet it down good and hard. That is about all.

DISCUSSION.

Dr. Farrell: I am inclined to think that this non-cohesive gold filling, particularly for occlusal cavities, is one of the coming things. I think we can better preserve the teeth with the non-cohesive gold filling in an occlusal than you can with the cohesive foil. If the filling was going to be a large one I would say put in a gold inlay. With a small one, I would say put in non-cohesive gold.

Dr. Vance: One thing I would like to criticise Dr. Farrell for: the larger the cavity, it seems to me, the more need of making a non-cohesive gold filling rather than an inlay. You can make it quicker and have a better adaptation with less time than you can with a gold inlay.

A CASE OF ORTHODONTIA.*

By Dr. H. A. Shannon, Lincoln, Nebraska.

This was the case of an impacted cuspid that had not erupted owing to the fact that it had been interfered with in its direction and during its formation. The root laid off at perhaps an angle of 45 degrees of what it would naturally; didn't stand in the arch as it should. This was apparently giving no trouble. I made a plate for the young man who wore it for about a year. He then took the plate out, and for a period of three or four months the case was allowed to stand in that condition. No progress was made. Then I used an appliance, and the appliance that I made. I don't know whom to give the credit to for it, but at any rate, it was an affair that I made myself. I know I got the idea from some place else, but I don't know where or who. It consisted of a band around the central. You understand, there was no lateral incisor present. A temporary lateral had existed there at one time, but had been struck by a baseball and loosened so that it dropped out. That left the cus-

*Report of clinic at Nebraska State Dental Society, 1907.
pid in position, and this tooth was to be brought down in the place of the lateral and cuspid. I made a band for the central incisor of German silver banding material. In the first bicuspid there was a filling in the distal surface covering the occlusal fissure, and in this amalgam filling I drilled a hole, using a round bur, going down to perhaps the depth of one-eighth of an inch, not allowing the bur to go through the filling, but so that the entire point would rest in the filling and not touch the margin of the filling. To this band, which I placed around the central incisor, I soldered a piece of tubing. In this tubing I placed a piece of gold spring clasp wire just fitting the tubing. (It does not need to be heavy—the thinner the better.) It was not more than 18-gauge; I think that was the size of the wire. I bent it from the tubing to an angle of about 90 degrees, bringing it across the open space made by the absence of the cuspid, and I produced another angle and a point extending down, which I allowed to enter the hole in the alloy filling which I had made. In the cuspid I went under the margin of the gum, of which there was but little of the tooth showing. I drilled a hole and placed and cemented in this hole a piece of spring clasp wire, bending the point as it came out at nearly right angles to the surface of the tooth, making a hoop so as to hold the wire. I used that brass wire then that is recommended in the regulation of teeth and I proceeded from day to day to tighten this wire, and drawing it down from day to day, putting pressure on the teeth until the crown was exposed. This tooth was rotated slightly and I drilled another hole and set another pin and put another angle on and put a wire on, the same wire that I had used, and by tightening that from day to day I have rotated the tooth and it has come now pretty nearly to place.

TREATMENT OF PUTRESCENT ROOT-CANALS.*

By Dr. J. W. Puckett, Geneva, Nebraska.

My method of procedure was to cleanse the cavity and the pulp chamber and canals as much as I could conveniently with instruments, and washing them out, then packing the canals with cotton moistened with oil of cloves, and placing a

*Report of clinic at Nebraska State Dental Society, 1907.
small quantity of that preparation about the size of a number six or eight bur in the pulp chamber, wrapping them in a little cotton, making a pellet of it and sealing it with temporary stopping. This preparation is made from solidified formaldehyde, oil of cloves, oil of eucalyptus and glycerine, just enough of the oils and the glycerine to form it into a paste of a consistency to work conveniently. I have used it for more than five years and used it in all cases where I put a dressing in a canal preparatory to filling the canal afterwards.

I do not claim that this preparation will cure an abscess or a putrescent canal, where it is in very bad condition, in three days. I seldom ever treat a tooth with it, and remove the treatment in three days. My object in removing this treatment tomorrow that I put in yesterday was simply to give the doctors present a chance to see what progress had taken place at that time, not expecting, however, that this tooth would be in condition to finish at that time. But if that same dressing I put in yesterday is left for a week or ten days or two weeks, that tooth will be ready to finish permanently when it is opened, without any further treatment. I use that treatment and place the one single treatment in and leave it anywhere from one week to three weeks, any time it is convenient to have a second appointment to finish the tooth. Formaldehyde is a good thing, we all know, but a dangerous thing to use indiscriminately in pulp canals and pulp chambers. I experimented with formaldehyde two years before I finally got this preparation so that it was successful. I want to say here that there is not a manufacturer in America that makes a formaldehyde that is satisfactory. The formaldehyde that is used is made in Berlin, Germany, and that solidified formaldehyde, after being combined with the essential oils as used there does not germinate formaldehyde and allow the gas to escape up the canal at all until it is subjected to heat higher than 98 degrees Fahrenheit. It would stand for years and no formaldehyde escape from it, not enough so that you could scarcely get an odor from it at all until it got above that heat. A piece the size of a number six bur placed in the pulp chamber would continue to generate formaldehyde for a year, and if enough heat is applied it entirely evaporates, if it is the right kind of formaldehyde, and it is simply placing a gas plant in that pulp chamber that continues to generate gas, not fast enough to
produce pressure or cause irritation, but fast enough to go up that canal slowly and through the fistuli, into the tubuli, and find all the germs there and destroy them.

HIGH-PRESSURE ANESTHESIA FOR REMOVAL OF PULP.*

By Dr. A. J. Cobb, Lincoln, Nebraska.

The method I used, or attempted to demonstrate, was the high-pressure syringe. My operation of procedure was somewhat at a disadvantage. I had a carious tooth, an upper second bicuspid with a large filling in it, and the mesial wall was well decayed away. I have often made my boast that I can take this syringe in a normal tooth and expose the nerve and remove it in 50 seconds from the time I start. However, I did not accomplish this yesterday; I was at a disadvantage. In using the syringe I use one-third to one-sixth grain tablets of cocaine, with one to three drops of ammonium chloride, to prevent the flow of blood, and some water or witchhazel. You can apply any amount of pressure that is necessary and it will not burst the tooth. The touch of the operator will demonstrate when he has pressure enough; simply by the turn of the handle he knows when to apply it, and in removing the syringe it comes away with a crack, demonstrating what pressure you have. If we think it advisable to crown a tooth and not extract it, I think the syringe could be recommended for that more than anything else. Simply make your preparation and crown the tooth without any injury to the tooth whatever, or any pain to the patient. A number of doctors asked me if they have a sore tooth from the effects of the high-pressure syringe; I will say that occasionally they do have a sore tooth, but not any more often than they would from pressure anesthesia, and not as often as they would from a careless application of arsenic. I think it is as safe, and more so, and a great deal quicker, than the arsenic treatment.

DISCUSSION.

Dr. Warren: I want to raise my feeble voice against this high-

*Report of clinic at Nebraska State Dental Society, 1907.
pressure syringe, because I think it has done far more harm than
good. It has destroyed pulps in teeth where the cavities were very
small, where it was not any more necessary to destroy the pulp than
it is to destroy the pulp in taking off the tartar. And while it is
perfectly proper to use them undoubtedly in these cases in order to
take out the pulp, it is not proper to use it in these cases wherein
the tooth is to be crowned to obviate that pain. Nor is it proper to
use it in those cases where a filling is to be made. At the February
meeting in St. Paul, Dr. Conzett made a gold filling for a patient for
which case Dr. Jackman, of Cleveland, had used one of these syringes.
Dr. Conzett was not accustomed to the syringe at all, and he said it
worked very nicely, that the pain was obviated entirely. But, he
said, "I would like to see what the result will be, however." Dr.
Jackman said he had not had any bad results. That is very strange,
that he had not had any bad results. If a person watches the re­
sults of that syringe very long he will see a good many injurious re­
sults; he will see a good many pulps destroyed by injections into the
dentine. It is absolutely unnecessary, and it is going to destroy a
great many pulps by pushing something into them, and I don’t think
it is correct practice at all.

Dr. McCleery: I think it is all right to use that where I want
to devitalize a tooth, but I think it is bad practice to use anything
of that kind where you want to save a pulp. My experience has been,
even with the pressure anesthesia for sensitive dentine, that rubber
will destroy half your pulps. I say that has been my experience, and
I have quit it. I am not ashamed to admit it—that I have quit work
along that line any longer.

Dr. Wildman: I would like to ask some of the gentlemen who
are not in favor of this syringe why it is any worse for the pulp to
drive the blood out of it than to drive the blood out of the gum and
then expect it to come back?

Dr. H. R. Hatfield: There is only one disadvantage. The pulp,
strictly speaking, is embryonic tissue, and when you drive the blood
out of that pulp you destroy its power to rebuild itself. It has only
one power in protecting itself, and that is forming secondary dentine.
When you drive the blood out of that pulp you destroy its ability to
rebuild itself, and it has no power. It has no power of recuperation.
It has no power to overcome injury. When once injured it is what
you may term dead, or it will suppurate. That is the trouble with
driving the blood out of any pulp. When you do that you can then
take the pulp out and fill the canal. That is the only resource you
have left.
AMALGAM FILLING, MESIO-OCCLUSAL, UPPER FIRST MOLAR.*

By Dr. M. E. Vance, Lincoln, Nebraska.

The filling was in a mesio-occlusal cavity of a second bicuspid, and there was nothing peculiar about the preparation of the cavity, but my method was demonstrative of a covering of cement underneath an amalgam filling, and it was suggested to me by my use of it in the inlay to prevent thermal change, and, as I feel, making a better filling than just using the alloy.

I don’t use cement for strengthening the walls. If I have a weak enamel wall I cut it away except in exceptional cases. I am like the average dentist; I do the best I can in every case. In some cases I will leave a weak enamel wall rather than to destroy the pulp or to make a sort of a temporary operation with the expectation that in time the pulp will have to be destroyed. I invariably tell the patient that I expect this to happen. I mix my cement reasonably thick. I use a slow-setting cement and a quick-setting alloy, and the cement I cover over the entire surface of my cavity, and then build the amalgam down against all surfaces that are covered with the cement before placing my matrix. Then I have all of my walls and all of my margins covered. One thing I did not say about my method was the use of Dickinson’s wedge matrix, which I find absolutely indispensable to my office equipment. I don’t see how I practiced dentistry and made amalgam fillings before I procured this valuable little instrument. The object of it is to separate the teeth sufficiently so that you can get the proper point of contact with the adjoining tooth.

DISCUSSION.

Dr. Roseman: I commend that method of using the cement for lining a cavity. It prevents the discoloration of the amalgam. It is a hobby of mine, as I brought out in my paper yesterday morning of lining the cavity first with a preparation that I suggested then. Then you have the cement in place, and there is no chance whatever for any moisture or anything to get in between the filling and the tooth. Therefore, there is no chance for discoloration and no chance for decay.

Dr. Beeson: I will state that I have been using this method

*Report of clinic at Nebraska State Dental Society, 1907.
for some time, and always in large fillings where the pulp has not been removed. It protects the tooth from thermal change, preserves the color of the tooth, and I believe adds very materially in the retention of the filling.

Dr. Puckett: I have used the method for more than two years of lining all cavities of any size with cement whether I used amalgam filling or gold filling, and I am satisfied that I gave my patients better service since I adopted that than I ever did before. As has been suggested, it prevents discoloration to some extent and insulates the sensitive part of the dentine from thermal changes and strengthens the weak walls where there is not much dentine to support the enamel. I know that in my work it is a great deal better done that way than it ever was before.

Dr. G. R. Woods: Cement is a fine thing in inlays; if it is such a benefit to it there it is a benefit in our filling.

Dr. Farrell: It seems that every one here has been using this cement. I have not. I do not believe in putting cement close to a pulp. If I wanted to protect the tooth from thermal shock, I would use a pulp preparation there is for that purpose. There is some virtue in cement holding up weak walls, but altogether I am not in favor of putting cement close to the pulp. You have all had experience of having the pulp die on account of the cement being too close to it.

Dr. H. R. Hatfield: Sometimes I use it and sometimes I do not. I believe that in some cases it is all right. I believe that in a great majority of cases it is just the wrong thing to do. When it comes to thermal changes I doubt very much if cement really insulates the filling to any great extent. I imagine that a thin mixture of chloropercha or gutta-percha will do just as much good as the cement, and I rather favor hard gutta-percha for capping rather than cement alone. For strengthening walls I like cement; I believe I will use it. Ordinarily, when a wall needs strengthening by cement, I rather favor breaking it away. I believe the only support for enamel walls, the ideal support rather, is dentine. I don't think cement would be an ideal support for enamel.

Dr. Van Slyke: I would like to ask the doctor if he allows the cement to set before he proceeds with the amalgam, or is the amalgam worked right into the cement?

Dr. Vance: Place amalgam before the cement sets.

Dr. Van Slyke: That is the method I have used for some time with amalgam fillings. Cover the cavity with a thin layer of cement and work the amalgam right into it, and let it stand until the cement is partly set and finish the filling. You can put an amalgam filling into a cavity without any retention at all, and you can't pull
it out. If you have a flat seat you don't need any other retention except the seat. You don't need to weaken your cavity by undercuts as you would with amalgam alone. I think that is the only way to put in amalgam fillings.

**Dr. Vance:** As to the using of pulp capping, I see no need of embalming the pulp, and I don't believe that there is any cement in the market that will destroy the pulp. I have used this method and I have placed cement close to pulps practically in all of my professional career, and I have yet to have a case return to me with the pulp destroyed from the effects of the cement.

**Voice:** Maybe they went some place else.

**Dr. Vance:** Probably they did. My method of cavity preparation is similar to what Dr. Van Slyke has described, and I followed out Dr. Black's cavity preparation as far as my conscience would permit. If I have a flat base and parallel walls my filling will stay in there.

**Dr. Hatfield:** Will it stay without the cement?

**Dr. Vance:** Yes, sir; it will stay in there.

**Dr. Hatfield:** You don't need to have an undercut like a lead pencil to hold it in.

**Dr. Vance:** Yes, but there is no amalgam on the market but what will expand, and with a cement lining it acts the same as it does with an inlay.

**Dr. Roseman:** I want to ask him one question, and that is this: Do you permit the cement to come clear to the margin of your filling?

**Dr. Vance:** I do, yes sir. I aim to have it there.

**Dr. Roseman:** And not cover it up with your amalgam?

**Dr. Vance:** And not cover it up with my amalgam? Yes. I aim to have the cement come clear to the margin and then I force my amalgam clear over the margin, making an amalgam joint there.

**Dr. Hatfield:** I use this in all amalgam fillings, small, large or indifferent.
ADJUSTMENT OF THE LOGAN CROWN.*

By Dr. Cross.

The Logan crown can be used and made nearly a perfect joint, and I might say further that I got my pointers from Dr. Hatfield that he wrote something like a couple of years ago. I go just under the free margin of the gum all around except on the lingual portion, and I don't go any farther down than just to hide it, and it is a very easy matter to take the explorer and push the gum down. If you haven't got it finished, keep on grinding; anybody can grind it that can handle an engine stone. Probably it is not necessary to use foil of any kind, although I believe the foil is an advantage. As to getting the teeth the correct shape, a man using Logan crowns should have a set of trays and pick one as nearly as possible, and then grind it. Slip your explorer down and grind away to the point you want. In my clinic yesterday I only had four crowns brought down here with me, and the one nearest to it was just a line smaller than the root. I did not grind down the lingual portion any farther than where the band of that tooth comes, or that bulge, you might say. Then that joint is self-cleansing. If you have a whole lot of cement in there to form that joint, that cement is going to wash out, and in a very short time you will have an imperfect joint, but they can be gotten perfect by grinding.

DISCUSSION.

Dr. McCleery: I have used the same system that Dr. McMillen stated—not for 30 years, however—but I use gutta-percha instead of gold foil. I just want to throw that suggestion out so that if you don't happen to have any gold around you can very materially improve your joint by using your gutta-percha. After I have prepared my root and crown as nearly as I can, I take a piece of sheet gutta-percha or white gutta-percha and punch a hole through and trim it off, and then warm with the alcohol lamp, and press it into place, and let it stand there for just a minute until it hardens so that it will withdraw. Take it out and trim it off with warm, sharp instruments around the crown, and then warm it again and press it back in place, and it is ready to cement. You have a gutta-percha joint, and you have the tooth fastened with cement. I think it has been a great help to me in setting Logan crowns. Where I have used that I have not had the cement wash out.

*Report of clinic at Nebraska State Dental Society.
Dr. Thomas: I was to open the discussion on Dr. Cross's crown. I watched the work with interest and I want to compliment the doctor on his thorough work and the union between the crown and root. But in order to bring before the convention a few points that I would like to hear discussed, I want to criticize his method of root-preparation—simply to bring before the convention a few points that I want to hear discussed, and that is, I have seen very few crowns on the labial or anterior portion with a calculus deposit at the junction of the root and the crown, and when the root was not ground down to the gum margin on the posterior or lingual portion, in a few instances I have seen at the junction of the crown and the root as it enters the free gum margin decay taking place, and I would advocate their grinding—not in all cases, but in the case Dr. Cross had—the lingual portion below the free margin of the gum.

Dr. Shriver: I wish to say that I watched the doctor with the clinic, and I would say that I was very well pleased with the operation, though I differ with him somewhat in my own practice, and yet I am not quite certain that I would be correct. I want to criticize Dr. Hatfield when he gets up here and says that the home-made crown will beat the manufactured crown. There are very few dentists that are expert porcelain workers or carvers; there are very few of them. A manufactured crown, and especially a Logan crown, will beat anything any dentist can conceive of for a crown. It is the most natural crown and the best shape. It is true some of them have to be sharpened, but I think the Logan crown is a splendid crown, and in fact the dentist need go no further. I have set a great many and I never use much but cement. It works first rate and I don't need either gold foil or gutta-percha.

Dr. Smith: I would like to ask the doctor if he grinds it any different in setting with cement than he does with gold foil.

Dr. Beeson: I at one time thought that I could grind a Logan crown just about as close as anybody else, and by examining carefully could examine the joint with an explorer by placing a small piece of carbon paper in there and pressing it firmly down after I have made the joint, and I would find possibly two small places where I hadn't got it right. Take it off when you have found out this way, grind again, examine it again with carbon paper and keep on grinding until you have discovered and corrected all the marks disclosed by the carbon paper.

Dr. Shriver: One word I want to say in regard to this: I use a small hatchet-shaped spatula, very thin, and in passing it all around, if you get to a little point that it sticks out, by using that spatula you can generally locate it by feeling carefully around. I use that a great deal for finding the places.

Dr. Cross: The point that I brought up in my clinic yesterday
was one of the very objections that I hear mentioned about getting a perfect adaptation. It doesn’t need any beeswax, carbon paper or anything else. I borrowed a method of Dr. McMillen. Keep the stump of the root wet. Whenever you touch that crown there, when you place it on and take it off, there is a wet place on that crown where it touched the root. Grind that wet place and keep on grinding it, and if you have too much saliva on that stump brush some of it off with a piece of cotton. But there is the point all the time.

LOGAN CROWN, DEMONSTRATING FOIL JOINT.*

By Dr. D. J. McMillen, Kansas City, Missouri.

I have not very much to say in regard to this matter. I don’t know that there is anything special, any special reason for this, except long years ago in the Missouri State Society we had a discussion as to how to prevent the cement washing from the joint of a porcelain crown, and in talking that over it was said that if we could devise some plan to keep that cement in the joint, or keep it in position where it couldn’t wash out, where the secretions of the mouth would not wash it away, or devise some plan by which something else could be put in the position where the secretions of the mouth would not wash it away, we would have an ideal crown. In thinking over the matter after going to bed that night, I couldn’t go to sleep, and I devised the plan of placing between the end of the root and the crown this gold foil and forming a gold foil joint, and I have used that to some extent all these years. That was 28 years ago. I don’t know that there is any very great advantage in doing it for the reason that the Logan crown or a porcelain crown of any description well set with good cement without any foil makes an excellent piece of work. With the foil I believe that I can possibly make a water-tight joint or a joint from which the cement does not wash away or wash out, and which holds itself in position so that it is possibly a little better than the cement alone. We lose the stickytiveness of the cement between the crown and the end of the root, and we gain a little possibly by not allowing the secretions to penetrate that joint. I believe that the joint is water-tight. I had quite a discussion with a gentleman up there today, saying that it was not possible to make that joint waterproof. I don’t know

*Report of clinic at Nebraska State Dental Society, 1907.
whether it is water-tight or not, but I do know that it serves
the purpose well. I have heard a great many men say that Lo­
gan crowns were temporary and not fit to insert. To my mind,
the Logan crown is the best crown on top of the earth. There
are various ways of setting these crowns by baking the porce­
lain in them, or in many other ways, but if I were setting a Lo­
gan crown of any description, or any crown of any description, I
should certainly not build the crown up with porcelain. I have
worked porcelain for more than 30 years, too. I believe that
the Logan crowns are better than the ones any of us can make.
If you want to add to it for the purpose of making a joint add
porcelain and bake, all well and good, but I can grind to my
satisfaction a crown if the end of the root is in good condition,
and I can get perfect satisfaction out of the work.

DISCUSSION.

Dr. S. J. Cunningham: I
would like to ask the doctor how
many thicknesses of foil he uses to make that joint.

Dr. McMillen: In the joint I made today I folded the sheet of
gold over so that it represented a sheet 96 thicknesses. Through
the center I punched a hole, and after grinding to fit for accuracy,
not as accurate as I might have possibly ground it if I had had a
better engine and a little more time, I placed that between the root
and the crown, put the cement in the opening and a little on the pin,
driving the two—or should have driven it—solidly together. I used
a pencil not having a pine stick, but it should be hit a couple of
sharp raps with a pine stick, driving it up as thoroughly as possible
until the cement sets, and then the surplus gold that stands out can
be cut off with a sharp instrument of any kind and burnished and
polished and disked.

Dr. Shannon: I would like to know whether it was cohesive or
non-cohesive gold.

Dr. McMillen: Non-cohesive. I think it makes little difference.
I usually use the non-cohesive gold because it adapts itself very
readily to any purpose.

Dr. Meservey: I would like to ask the doctor how much he
grinds his tooth up under the gum margin.

Dr. McMillen: In grinding the root of the tooth for a porcelain
crown—any kind of a crown, whether it be a Richmond or a Davis
or a Bonwill or a Logan crown—I grind it concave from back to
front. The stone is about the size of a quarter I do the grinding
with, and I grind it as much as the surface of the stone grinds it concave from the back to the front, holding the stone directly against the end of the root, and from side to side I concave it, leaving the center of the root the least little bit concave from back to front and considerably concave of course from side to side following the gum festoon. In other words, I want the edge of my crown and the edge of my root to come together, and I don't care anything about the center coming together. The center will take care of itself if you take care of the margins and grind just so that the joint is hidden by the free margin of the gum, just so that I may see that joint all the way around by putting the glass behind and pushing the gum up. I can see whether I have a joint or not. I have been fighting bands, gentlemen, for 25 or 26 years, or more, in all the state societies; five or six a year. Bands ought not to be put on teeth. There might be an exception to that, but that is pretty good doctrine, and I don't like any kind of a band on any kind of a front tooth, and I don't like any kind of a band on any kind of a back tooth, if we can get rid of it.

Voice: Why?

Dr. McMillen: Because it destroys more roots and teeth than anything and everything else combined in dentistry, and I can prove it.

Dr. T. J. Hatfield: I am glad that Dr. McMillen said one thing that I can agree with him about, that is in regard to bands; but I don't believe he produced one particle of argument that I would call argument, so far as this crown is concerned, that will stand. Now, I believe that I am allowed three minutes?

President Morrison: Two minutes.

Dr. T. J. Hatfield: It is absolutely impossible for me to say one-half or one-third of what I have got to say in regard to the crown or the setting of a crown, in three minutes. Consequently I won't undertake to do it, but I want to say that there isn't a man in this room that can grind a root preparatory for setting a crown and grind a Logan one time in a hundred that will be anything like a mechanical piece of work. I don't care if he does put tin foil—gold foil—in the joint. There is nothing that is any more important than adjusting a crown. We find roots every day that can be made serviceable if a good and substantial crown is placed upon it, but I want to tell you that the Logan crown has two or three very bad objections, and one is—now, I can take half an hour explaining to you why the Logan crown is absolutely inefficient. The greatest trouble is that there is not a man on earth that can grind that crown. If it was the natural formation of the teeth, you could do it, but the Logan crowns, or any other manufactured crowns, are made of a kind of a special shape. They are not of various shapes. We know we find roots of uniform shape. The periphery of the root will not correspond with the shape
of the Logan crown, or any other manufactured crown, consequently we will have a shelf, a shoulder, one place on the crown and on the other side we will probably have a shoulder on the root, and we have an imperfect condition.

**President Morrison:** Time is up, Doctor.

**Voices:** Go ahead; go ahead.

**Dr. Hatfield:** Another objection to the crown, the manufactured crown, is, they are just like the manufactured teeth, artificial teeth. They have an artificial appearance, and in a young person, a person of tender years, you can match the teeth very nicely with a manufactured crown, for instance, but you take a person up in the middle age or past the middle age, those crowns do not give expression, and you cannot get the expression. We have cases where there is a peculiarity of the mouth—there is always some peculiarity of the mouth. You take a manufactured crown, and you can not overcome that. I can tell it as far as I can see the person; I can detect it. If you can make a crown—if you have a plan by which you can make a crown, when you make it to take in all of these peculiarities of the mouth, and to get your adaptation, to get your expression, and when you have your root prepared, and prepared in the right way, and as it should be, by grinding a Logan crown, I would like to see it done. I would like to ask Dr. McMillen one question. He says he uses a stone about the size of a quarter of a dollar, and he cuts the end of the root with that, but he does not make it complete. I want to know how he is going to cut that root below the free margin of the gum with that stone and not make the gum bleed.

**Dr. McMillen:** You misunderstood my statement, Doctor; you did not mean to, but I did not say that.

**Dr. Hatfield:** It should not be below the gum. I am afraid I am talking too much, and I would talk an hour longer if you would permit me to do so.

**Dr. McMillen:** The gentleman asked the question, if I grind the root any different if I was going to set it with cement or gold foil? I do not; I grind it just the same. Is this the closing?

**President Morrison:** Yes.

**Dr. McMillen:** I guess we have occupied too much time already. I would like to take a shot or two at Dr. Hatfield.

**Voices:** Go ahead; go ahead.

**Dr. McMillen:** Well, I am surprised at Dr. Hatfield having had the practice that he has, and giving him the credit that I do for knowing what he does, for him to say in this day and generation that
he grinds the root beneath the gum for the purpose of saving the crown. Now he would be ashamed to stand up and say that he shut his eyes and undertook to fit a crown, but he grinds the root down under the gum margin, where it is impossible for anybody to see what he is doing.

GOLD PLATING.*


Not original, but showing how simply it is made, operated and the results gained.

It is composed of an ordinary dry battery or cell, a glass vessel, some bell wire, and one-half pound of potassium cyanide (crude).

Put the potassium in a vessel holding about a pint to three-fourths of a pint of water, connect the wires to the dry cell, put some pure gold on the wire running to the carbon pole and the article to be plated on the wire running to the zinc pole. These are placed in the potassium solution (making sure that they do not touch one another while in the solution) for an hour or so, then polished with the hair buffer and whit- ing. If a heavier plate is desired plate again, polish, plate, etc.

*Report of Clinic given at Nebraska State Dental Society, 1907.

SEAMLESS GOLD CROWN.*

By W. L. Shearer, D. D. S., Omaha, Nebraska.

A demonstration of the making of a seamless gold crown, from the preparing of the root and fitting of band, to completed crown cemented into place.

*Report of Clinic given at Nebraska State Dental Society, 1907.

PRESSURE ANESTHESIA.*


After applying rubber dam on upper first molar, and there already being an exposure of pulp, I dried cavity and applied
the adrenaline chlorid solution, using as much as I could carry with pliers, then dropped into the cavity one-half of a tablet of cocain (Park Davis, No. 150) and allowed to dissolve; then cut a piece of vulcanite rubber of sufficient size to fill cavity, so I could distribute an even pressure to the pulp; then used a flat end amalgam burnisher and applied pressure, at first slowly then with force and the pulp was anesthetized.

*Report of Clinic given at Nebraska State Dental Society, 1907.

JACKSON'S SYSTEM OF ORTHODONTIA.*


Jackson's system of orthodontia showed models and appliances complete, also models showing mode of procedure in making and assembling the different parts, such as partial clasps, base wire, finger springs, etc.

Partial clasps in connection with the spring wire are used for retaining the appliance in position. Base wire is used as a foundation and in expanding the arch. Finger spring wire for moving and pushing the teeth. Also showed how the same appliance may be used in retaining cases and how readily the appliance may be removed and cleaned by the patient—in short the absolute humane and hygienic principles of the system and the simple construction of the appliances is the only, only.

Dr. V. H. Jackson, M. D., D. D. S., of New York City, is the originator of this system.

*Report of Clinic given at Nebraska State Dental Society, 1907.

GOLD AND PORCELAIN INLAY.*

By D. O. M. Le Cron, D. D. S., St. Louis, Mo.

The unusual interest the profession manifests in this branch of dental art is obvious, from the fact of the great mass of literature on this subject in the journals the last few years from the pens of many of the best practitioners. Few issues

*Read before the Nebraska State Dental Society, June, 1907.
but that have something devoted to inlay work, and may say
every phase of the subject has been expounded by able writ­
ers. The inlay principle is recognized by its worth by many of
our most proficient operators, and has secured for itself a con­spicuous place in dentistry. The literature on this subject is
so abundant that I feel but little now remains to be presented
and will simply review and reiterate much that I have pre­
sented before. In inlay work, each operation presents, in some
degree, different requirements, and creditable results are only
to be obtained by a proper appreciation of the importance of
continually keeping in mind all the various factors which enter
into the particular case, and so directing our efforts that our
artistic sense will have the freest play possible consistent with
the mechanical principles involved. In determining the case
we must first consider the location, for the gold and porcelain
inlay each has its distinct field; porcelain for the anterior
teeth and buccal cavities also on occlusal surfaces when suf­
cient porcelain can be applied to assure bulk to withstand the
force of mastication. Unquestionably it is the most artistic
filling, and its utility cannot be questioned if constructed on
mechanical principles. In the greater percentage of cavities
posterior to the cuspids, the gold inlay is far superior, in my
estimation, to fillings of any other character. It is indestructible
and has more strength than any other filling material if perfect­ly
constructed. I assure you that recurrence of caries never ap­
ppears, consequently the chances of permanency are greater
than in any other process that could be used. Another great
advantage: many teeth that formerly indicated crowns can be
restored with gold or porcelain inlays and made to render good
service for many years. Also strong artistic anchorages for
bridges by the inlay method can be produced with most grati­fy­ing results. The 16 years that I have been experimenting
with gold and porcelain inlays convince me that the field for
this class of work is almost unlimited in the hands of skillful
manipulators.

CAVITY PREPARATION FOR INLAYS.

To be successful in this branch of dentistry, the first
important step is a most comprehensive idea of cavity prepar­ation, and to do this necessitates a most exacting and sys­tematic work.

Sufficient anchorage must be made to withstand the force
of mastication and provide firm retention of the inlay within the cavity. When occlusal stress is to be resisted the cavity should be so shaped that the force will drive the inlay against tooth structure with a definite idea for the retention of the inlay. It should be formed at sharp angles with a flat floor at nearly right angles to the walls.

Always keep in mind at the point of stress that we must make the resistance and retentive form so that the greatest retention is at that point.

Cavity preparations for gold and porcelain inlays are formed nearly on the same principle as to shape and retention.

With porcelain, it must always be remembered that on occlusal surfaces we must have bulk sufficient to withstand the force of mastication and the cavity extended to a point down
the incline to avoid sharp edges on said surfaces on account of the friability of the material.

The cavity for the gold inlay. The margins should be very slightly beveled; with porcelain inlay, the cavity margins must be sharp and well defined.

It is difficult for many to conceive the idea of cavity preparation by words of explanation, and to give you a more intelligent conception and method of formation of same, I have drawings that fairly represent my idea and also have models carved out of plaster of paris that I will illustrate in my clinic:

No. 1. This cut represents a right central incisor, with the

![Fig. 3](image)

![Fig. 4](image)

![Fig. 5](image)

incisal angle involved on the distal side and small mesio-labial cavity. You will note the lingual wall is cut quite in excess of the labial wall to form the gingival seat and a groove extending from the floor to the incisal edge on the labial wall; also the groove extending on the floor of the cavity lingually for retention.

The margins have been extended for retention and access, and the form of the cavity is made on straight lines and angles, with a flat base for its seat. To dislodge the inlay, it must be
NEBRASKA STATE DENTAL SOCIETY

lifted from its seat. Direct or lateral force that it receives from the occluding teeth drives it more securely into place.

The small mesio-labial cavity not subject to occlusal stress is formed with walls almost at right angles and with flat floor, also as deep-seated as is consistent for its retention.

No. 2. Left central—represents a tooth with a thin or sharp incisal edge. The cavity is formed with a step by cutting away the incisal margin, and formed as described in Fig. 1.

No. 3. Right lateral—with mesial and distal surface involved extending to incisal edge. This necessitates grinding away the incisal edge and forming the same that it will be so shaped to include all surfaces, making one continuous cavity. It will be noticed that the gingival seats are flat, the walls are inclined both mesially and distally, so that the matrix may readily be removed. Also the lingual wall is cut in excess of the labial, and so shaped that occlusal stress will force the inlay against tooth structure.

No. 4. Left lateral—with incisal end broken off, necessitating full incisal restoration. The end is ground off to a right angle, with the labial surface and the lingual side cut away, form-
ing a mortise, and with the aid of the two pins parallel to each other near the margin of the mesial and distal sides we have ample retention.

No. 5. Left cuspid—cavity on mesial surface, extending to mesio-lingual angle. In this cavity lateral stress must be overcome in shaping the cavity. This is done by cutting away the lingual wall, forming an obtuse angle lingually from the seat formed against the labial wall and cutting two grooves extending from the base of the cavity to the lingual surface.

No. 6. Bicuspid — ordinary cavity on buccal surface, extending to or beyond the gingival line. This class of cavities is quite common, and generally indicates a porcelain inlay. As a rule, they are of an oblong shape, and many of the cavities can be shaped to advantage with such regular outlines that it is difficult to determine the correct position it should take when setting the same. To overcome this, at some place on the seat of the cavity an indentation should be made as a guide, as will be noticed in the cavity of the model. The cavity is formed as usual with a flat base, its walls as near parallel as possible to remove the matrix and as deep-seated as is necessary for its retention.
No. 7. Bicuspid—mesial cavity, extending to buccal margin, but not involving the occlusal surface. The mesio-buccal wall is cut away sufficiently for access after separation and formed at almost right-angles to the floor with the opening on the buccal walls wide enough to remove the impression or matrix. Small grooves can be cut for the better retention on the lingual and buccal sides. Frequently the decay extends quite to the center of the tooth structure, but does not involve the occlusal surface. This model represents that part cut away after the inlay is completed and filled in with cement. So to speak, we may style this a box cavity.

No. 8. Bicuspid—with mesial and occlusal surfaces quite impaired. In this model we will illustrate the necessity of extension for porcelain in posterior teeth. Always remember, the summit or cusp must be crossed and the incline reached to such
a point that the edge of the inlay is formed well down the incline on account of the friable edge, and that a certain amount of porcelain must be used in bulk to withstand the force of mastication.

The cavity is formed by steps representing its base and grooves extending lingually and to the buccal surface for retention.

No 9. Molar—represents a mesio-bucco-occlusal cavity. The mesio-buccal cusp is cut down sufficiently to insure strength to the inlay and the mesial wall cut away, forming a flat seat at the gingival line, and cut on an incline under the lingual cusp. A groove is made on the lingual wall, also one on the posterior part of the step, extending to the buccal surface, to insure retention. If decay should extend beyond the lines represented in model, cut out and fill in with cement as above stated in Model No. 7.

No. 10. Right cuspid—This model represents a gold inlay for an abutment for bridge attachment. In forming cavities for the abutments we follow the lines laid down in cavity preparation for inlay work, with the seat flat, the walls abso-
lolutely parallel, with a view to retention and sufficient depth, in order to get the greatest strength for the attachment. In preparing the cavity the lingual portion of the tooth will be cut away sufficiently for a post of iridio-platinum wire to enter the root-canal, and the cervical wall should extend to or under the gum margin. The labial wall must be parallel with the post, or rather slope from canal to the incisive edge to insure its removal. A groove with a fissure bur is cut from root-canal on base of cavity, extending to lingual margin, also on labial wall from base to incisal edge for retention. The formation of the cavity must be such that the inlay or abutment will not be mis placed by the force of mastication.

No. 11. Bicuspid—representing a gold inlay for an abutment. This cavity should be extended lingually, also well to the buccal surface in all cases, to get the required surface for the attachment of the dummy. The retention can be made by ingeniously forming a dove-tail, as the case may present. Cavities do not come to us prepared, so we are obliged to form them according as our own judgment dictates.

No. 12. Molar—This model represents a cavity formed for an inlay abutment also. It is made step-shaped on mesial side, with occlusal surface cut down at right-angles, with the mesial walls also counter-sunk, and with a groove at a suitable point, so that the inlay or abutment when completed will have a tenon, as it were, to enter the mortise or groove, making good retention.

IMPORTANCE OF RETENTION.

Let me impress on you the importance of retention for final success in inlay work. Ever keep in mind that the inlay must be retained by the mechanical relation of the same to the tooth, and to accomplish the end will require close study and observation to the amount of force and the direction the inlay will be subjected to.

Adapting the matrix to the cavity and the technique of applying the porcelain and the process of baking the inlay, I will not take up your time in giving a description of the same as the clinicians here will demonstrate the methods more satisfactorily than pen can picture.
CASTING GOLD INLAYS IN PLATINUM MATRIX.

One year ago I commenced an experiment in casting gold inlays in a platinum matrix, and the final result is a most perfect inlay that has given great satisfaction to my patients and myself. Will give a brief description of the method and more fully demonstrating the same in my clinic with the models I have prepared to illustrate the opening the bite with inlays.

Prepare the cavity without undercuts, with flat seat and walls as near parallel consistent to draw matrix without warping, with margins slightly beveled. Extend the cavity, as case in hand indicates, for mechanical retention, and determine upon the removal of the matrix in a certain direction, and cut the walls of the cavity accordingly.

**Forming the Matrix.** Many advocate burnishing direct in the cavity. I can get far better results by taking a sharp impression with modeling compound and packing the same with copper amalgam. When sufficiently hard the .001 thickness of platinum matrix can most readily be adjusted with damp cotton and burnisher to the walls and over the margin of the cavity, and with Ash's water-bag swager, the matrix is accurately adapted to all parts of the cavity, and then the matrix can readily be trimmed roughly to the outlines. To prevent matrix from tearing, work it gently to the floor of cavity with a suitable soft piece of wood and adapt roughly to same. Don't pay any attention to the creases or folds it causes to the matrix; the damp cotton and the burnisher will care for them later.

When suitably formed on the amalgam die it is carried to the mouth for final burnishing and perfect adjustment to the cavity.

Satisfied that the matrix is adapted to all parts perfectly, fill in with wax, and if occlusion is necessary, instruct the patient to close the teeth, and with a suitable instrument carve
the wax to the desired form of contour and shape that we wish
the inlay to present when complete. Remove matrix with wax
and invest the same just to the edges of the metal to secure it
from warping in handling, and set aside till sufficiently hard
so that it can be handled.

With .002 thickness of platinum foil, we adapt to wax with
warm burnishers (if the inlay indicates it), leaving a small
opening at contact point of adjoining tooth to cast the gold
into. If the cavity is deep and narrow, in many cases it will
have to have a vent for the metal to pass to the extreme end
of the concavity. This can be done by puncturing a small
hole in matrix at the end opposite to the gate or opening and insert­
ning a piece of broom-straw through the hole into wax. Firing
the same after investment, the straw will burn out, leaving a
small air vent. The whole is now invested in as small an
amount of good investment material as is consistent to hold it
secure and so formed that at the opening it will present a con­
cave shape and gate that the molten gold may lead into the
matrix.

The wax is boiled out by holding the investment with
large tweezers and pouring boiling water into gateway of in­
vestment.

CASTING THE INLAY.

Pure gold is placed in the depression near the gate and the
investment gradually heated from the underside and around un­
til the whole is at a temperature, or nearly so, that the gold
will fuse. The flame is directed on the pellet of gold fusing the
mass most thoroughly, causing it to liquefy and roll into the
matrix. By placing small pellets and fusing them in this way
till cavity of matrix is closed or full, it is not necessary always
to have a vent—only in cases mentioned above, as the gold will
spread and most thoroughly adapt itself to all parts of the
platinum matrix. The two metals seem to have an affinity for
each other, as it were.

The soldering problem is a great ordeal to many of the
profession, and few seem to realize that sufficient heat well
distributed is necessary. Success in casting or soldering de­
 depends on all parts being clean and the heat equally distributed
under and around investment sufficiently to cause the metal to
flow.
If proper care is used in manipulation of matrix, carving wax to perfect occlusion and contour, and adapting this platinum to the wax surface as carved, the inlay when cast will require only cutting the thickness of the platinum on the occlusal and contour surfaces when placed in the cavity. The inlay is set under pressure as usual and polished down to the tooth structure as we should a gold filling.

In closing, I venture to say that porcelain or gold inlays, when honestly and artistically constructed, are a credit to the skilful practitioner and a comfort to the patient.

Many hesitate to make the start on account of the manipulation being so different from that of other operations and that it requires a development of skill that I dare say too many of the profession have an aversion to acquiring. They are satisfied with the ease with which plastic filling materials are introduced that require no skill and lead to most careless manipulation. We should all endeavor to develop our manipulative skill, together with the artistic perception that it will add to our professional calling. Remember the motto of Morris: “Not how cheap, but how good;” and that Emerson said: “If a man shall do a piece of work incomparably better than his fellows, the world will make a pathway to his door, though he live in a forest.”

DISCUSSION.

Dr. Van Slyke: On account of not seeing Dr. Le Cron’s paper or his work until this morning, I did not know whether I was going to agree with the doctor or not; but I am happy to say that, with a few exceptions, I indorse the doctor’s preparations and his inlay work. His preparation on the cuspid of the abutment for a bridge I don’t like as well as if he had ground the whole lingual surface of the cuspid and inserted a pin for the attachment. It gives much more strength than he could possibly get by cutting in one side. (Exhibits chart No. 10, used by Dr. Le Cron). This is the case I mentioned. I always grind back here on the cuspid and form an inlay over the whole lingual surface, and then insert a pin in that way. I think we get a great deal more retention, and it is less liable to fracture than we would get where we cut so deep on one side. There are one or two changes I would make in the preparations of some others, but they are very slight. The doctor’s method of making a cast inlay was brand new to me, and I think it is a very smooth thing, and from now on, where I want to make a gold inlay for a bicuspid or a molar, I will undoubtedly use Dr. Le Cron’s method for a cast inlay;
but I don’t expect to give up my hollow inlay for large molar fillings. I did not see any of his porcelain manipulation, so I can not say anything about that, but his cavity preparation is along the same lines that we all seem to be working on. It is my opinion that the next few years the inlays are going to be a whole lot more popular than they are today, for the reason, it seems to me, that no tooth can be so properly filled as with an inlay. No material that you can place in the tooth makes a perfect union between the filling and the tooth like an inlay where a soft cement is placed in the cavity and the inlay seated under pressure; you have an absolutely sealed cavity and a connection of the filling to the tooth which you have not by any other method. Where a filling is fastened with undercuts, and so on, we depend altogether on the undercuts to hold it in—no adhesion whatever. I think that the reason inlays today—porcelain especially—are not a success is not a fault of the material, but of the operator. It may be through being too busy to take it up right or it may be through being a little prejudiced, or it may be that a man has been in practice 15 or 20 years, and he does everything in dentistry, as he thinks, to perfection. He sees some man demonstrate a porcelain inlay, and some fellow from a supply house hands him a package for $35 or $40; he takes it home and he makes a porcelain inlay. Well, he misses the color, and he misses the fit, and maybe, in a year or two, he will miss the patient. But if that same man stops he will realize that when he started to make gold fillings, or even amalgam fillings, they were not a success. It is my opinion that the poorest inlay a man can make would be a whole lot better filling than any other poor filling, and I really believe that any skillful operator who is skillful with other materials would make a skillful inlay worker, either gold or porcelain. A sloppy operator who seldom uses a matrix in putting in an amalgam filling certainly would not make a good inlay, either porcelain or gold. There is one thing I must say in favor of the inlay: We can get a perfect contour, better contact points, than you can with any other filling material without an awfully good separation. I see a lot of Omaha Gold Study Club fellows here, and I have got to look out, but if more operators would take up the gold inlay for badly broken-down molars and quit making these fine-fitting gold crowns, these that fit fine on the outside—not around under the gum—they would save more teeth and the people in general would have a better opinion of us as dentists. I don’t think there is anything as liable to cause irritation of the gums as a gold crown—an ordinary gold crown. Of course, once in a while we can, all of us, make a nice fit on a gold crown, but the same man that makes a good fit on a gold crown ordinarily would save the same tooth a whole lot better with a nice gold inlay. Of course, it might be that patients would not think they got quite as much gold for the money, but if you weigh it up I believe they would have a little more, especially if they made cast inlays as the doctor demonstrated here today. It is what is the best for the people we want to consider. One thing the doctor said in closing was,
"It is not how much a thing costs or what you got for doing it, but how good is it?" That is the main thing. I am happy to say that every day I try to do a piece of work just a little better than I did the last, and I expect to keep right on. It seems to me as we see work that is being done by some operators in a careless, haphazard way that the more stress we can lay on better contact points, better contour, and better fillings in every respect, the better it is going to be for all of us.

Dr. R. J. Walker, Lincoln, Neb.: Operators familiar with the possibilities of careful, thoughtful amalgam preparation and manipulation for crown-filling, inlay-filling with cavity or post-retention, margins extended for prevention or protection, can but question the true value of the gold inlay in posterior teeth. Still, with all teeth and all other filling materials in the mouths of careless patients, tobacco-tog, rail and other metal biters, or fillings left a trifle high, we are compelled to overlook many faults and welcome the one security—it's never-varying edge strength; the color as an excuse. Why must we teach ourselves and patients that gold is the only proper thing to use? Should we not advocate amalgam and receive five or ten dollars, if not a proportionally larger amount for a restoration with it, when its actual value to our patients is many times greater? They depending on our honor and ability are usually persuaded to accept the aristocracy of the gold because they will pay for it, and we have a higher opinion of ourselves while working it, even if we don't "need the money".

The greatest injury of the single crown is admitted to be that to the gum by the band, and while this is the same or greater, if attached to the bridge, in bridge-work, it fades into insignificance compared with injuries to the alveolus and periodontal membrane, due to the increased abnormal and unnatural amount of work or exercise. These movements and stress of leverage must be met with strength, the cement adhering and retentive and the wall protecting surfaces of the band. The wedge-like and prying tendencies of the partial interlocked inlay create entirely new forces toward the operator or between the roots and from center towards the external, which are claimed to be overcome by the adhesiveness of the cement, maybe, but at present I would not prefer the interlocked or overlooked inlay where there is to be more than one dummy between abutments, in small lower anterior teeth or where the mutilation of a weak or sound tooth makes a single swing preferable.

Dr. A. O. Hunt: The greatest benefit of any paper is not in the reading of it; the benefit is in what may be brought out in the way of discussions. More than that, everybody who has done anything in the way of inlay work or porcelain work has some certain ideas in regard to it, and as they work along with it, they have some experience. Now, it does not matter whether it is Dr. Le Cron or anybody else that presents a paper before a society like this; everybody who has been experimenting along these lines should give the benefit of
their experience in it. We have all the time, and always have had since I have been in dentistry, two classes of men at work upon any problem that may absorb the main attention of the profession for the time being: one class of men are always going to the extreme, another class are keeping along on the conservative line of things. Now, I don't know that there is anything wrong with this. I don't think there is, because the extremists usually go so far in their experimentation that perhaps they find—and they do find now and then—some valuable ideas, but the conservative man is all the while putting the balance wheel on and holding them back, not detrimentally to their interests, however, but holding them so that they don't go actually wild upon any of these subjects. Now, I consider the paper and the cavity preparation here by Dr. Le Cron along the conservative lines rather than the extreme lines, and yet in the preparation of cavities for this class of work perhaps there is not any great radical difference. The question comes largely, and almost entirely, upon the retention of the filling or inlay within the cavity in such manner that it will resist the stress and force to the best advantage. I don't know how many of you paid attention to the models that Dr. Le Cron exhibited, but the preparations of the cavities are not extreme, at least not as extreme as some others, and yet when the inlays are placed in the cavities, it is almost impossible for them to be removed by any force of mastication and still saving to a large extent a certain amount of tooth structure. I may be perhaps old-fashioned in some things: I don't believe in saving tooth structure if in cutting it away it saves the tooth for a longer time, but I do criticise severely the cutting away of tooth structure just for the purpose of making it easier for the operator. A necessary amount of convenience is required for access in all operations, but I think sometimes—in fact I know—that extreme conditions prevail with individuals that perhaps do not produce any better results than the more conservative ways of doing things will. I apprehend that there is not any radical difference in the preparation of cavities for inlays, whether they are gold or porcelain, because the preparation is practically the same, but at the same time I must feel, and from my long experience in dentistry I do feel, like giving a certain amount of warning or a caution to not go to extremes. Be conservative but be correct; that is all. Now, gentlemen, the inlay presented here by Dr. Le Cron—to my mind, that is the only complete plan and the most perfect system of making an inlay that I have ever seen. I do not know of any plan or any way by which an inlay can be made so accurately, so simply, as this, and yet when made, when finished, so complete in all its parts; and not only that, when it is finished it is an inlay composed of pure gold. When we use 20 or 22k. solder instead of pure gold in an inlay, it does not have that comfortable, rich, beautiful appearance that pure gold gives us, such as we see in the gold filling. Now the inlay is supposed and intended to take the place of the gold filling. So the nearer we approach to that condition the better, and we may experiment as much as we please, but I apprehend that the
time will never come when we will find any material that is better
to make fillings of than pure gold under ordinary and general con­
ditions. Now, then, whether you put it in with a mallet or whether
you put it in by a system of anchorage inlays, mechanically, it is
mechanical, anyway. We have these mechanical ideas for our basal
ideas; when you can flow pure gold in and finish the inlay with that
beautiful appearance that looks like a gold filling, I doubt whether
we will get any better condition than that with a metal inlay. So
far as I am informed, I don't believe we have ever had presented to
the profession at any time a more simple, accurate, definite method
than the method the doctor chooses to call the cast inlay. I would
hardly call it a cast inlay myself, because it is not a process of cast­
ing altogether, but the result is obtained, and those of you who saw
the clinic and the models certainly must appreciate the fact of the
good appearance that was shown by them. And in closing, I again
simply want to call your attention and get your minds on the fact
of being conservative. Remember, Dr. Van Slyke, in opening this
discussion, made the remark that he believed an inlay was very much
better than any method of crowning. Now, I was probably the first
one to ever teach crown and bridge-work in this country. I saw its
many weak points and I see them yet, and I would be glad to see the
day come when the crown can be thrown aside and the thousands
and thousands of teeth that are being ruined today by trying to
crown them saved by the inlay.

Dr. Starbuck: I want to say, if you are looking for a scrap
and want this paper thoroughly torn to pieces, you will be disap­
pointed. Now, the dental profession, who have taken any note of
porcelain work, know who Dr. Le Cron is and what he is, and some
of us who have watched his work the last few years have noticed
some change in the cavity preparation he has presented. Whether
he was a radical man and is getting down to the conservative or not,
I cannot say; but there is no question but what he is on the conserva­
tive level now, and the cavities he has presented to you tonight in
his paper and in his clinic today are based upon the accepted ideas
on this subject at the present time. Whether these will be the cav­
ties of the future or not remains to be seen. This porcelain work,
and porcelain inlay work especially, is in its infancy, and although
I believe it is our place to look into it and get in touch with it, still
it is not advisable to discard the old methods and take this up ex­
clusively; but get busy and help the good work along. There is no
question but what the inlay, in its place—both gold and porcelain—
is here to stay, and the sooner we take it up and make a study of it
the sooner it will be perfected. This has got to be done by the den­
tists. We have the manufacturer that turns out the porcelain and
the apparatus, but he does that for himself; he does not do that for
you. He will accept your ideas and suggestions if they are ac­
cepted by the dental profession, but he knows nothing about the
practical side of this work and the sooner you get down and work
this out for the profession the sooner we are going to have it on a
scientific basis. You will notice that Dr. Le Cron, in his prepara-
tions depends more on mechanical retention, flat seats and parallel
walls than the former theory of retention by the use of cement. A
few years ago it was advocated by some of the leading porcelain men
that all that was necessary was to prepare the cavity in the manner
that was most convenient for the removal of the matrix, and then
depend entirely upon the inlay, cemented in under pressure, for the
retention, and for that reason the inlay is in the position it is today,
or has been, in the last few years. This has been a failure, but we
are getting down now, as Dr. Le Cron has shown you, to the use of
mechanical retention, and you will find fewer inlays being dislodged.
There is only one criticism I have of Dr. Le Cron's preparation. It is
this inlay or cavity (Cut No. 1), where he has grooved under the
labial wall. Now, that is excellent retention if your cavity will jus-
tify it, but in most cases, where the decay is so extensive that it in-
volves the angle, it extends so close to the labial wall that if you
make a groove beneath that labial plate you cut, or have a tendency
to cut, the entire dentine away extending along that groove, and the
result is, you have absolutely destroyed that labial wall. It is possi-
bile, if the decay is not so extensive, to make a groove there which is
undoubtedly additional retention, but be careful, in doing it, not to
cut away all the dentin, for just as soon as you have cut away the
dentin, you have destroyed the wall, for there is absolutely no
strength in enamel when standing alone, from a practical standpoint.
In regard to the gold inlay, I think the doctor's method of casting
the gold inlay is simply a starter for something that is coming in
the very near future that is probably going to revolutionize the gold
inlay. A great many of you have read in the dental journals, those
that have been following it the last few months, of Dr. Taggart's cast
inlays. This, I think, is going to entirely revolutionize the methods
of making gold inlays. If you can all get results as beautiful as Dr.
Taggart's, there is no question about it. I appreciated listening to
Dr. Le Cron this evening, and I am sure we all have. He is a learned
man on this subject. I have listened to him time and again, and he
always has something new, and it is always of the very best. I have
certainly appreciated this paper very much.

Dr. Clyde Davis: I appreciated the paper very much. I believe
it is a good one, and I heartily endorse almost everything that has
been said, particularly that the retention for inlays must be flat seats
and the possibility of the inlay coming out only when parallel planes
pass one another. I can conceive of no preparation of a cavity that
would be at all retentive were it not for the fact that parallel planes
must pass one another. To accomplish this it is but necessary to
take our common cavity preparation that we teach and have been
taught in all the schools, particularly I refer to Dr. Black's, and con-
sider the basal line angles; instead of having them come together
at acute angles make them obtuse. In a simple occlusal cavity it
would be simply making the basal line angles acute instead of ob-
tuse. The matrix you move out to exit in but one way, and the inlay can be seated in but one direction. I passed through the porcelain craze. The first men that said anything to me about it were those who told me if I fitted an inlay in a cavity like a saucer and had a groove like that in the bottom of the saucer, and put in cement, it would stay. They all came out, and those of some of the old clinicians came out, and I lost faith in it. However, I am using the porcelain inlay, but the preparation is along the lines of which the essayist has spoken, only he has not made mention of the passing of parallel planes. Every cavity he has shown you has practically parallel walls, and such an inlay properly made, if perfectly fitted, would be retentive for quite a while with no cement, because it is mechanically retained. Dr. Hunt touched the key, I think, when he spoke of the gold inlay with reference to its supplanting the crown. I don't believe that the gold inlay—or the porcelain inlay, either—will take the preference of gold fillings, except where cosmetic effects are paramount. When we have only to think of the cosmetic effects, the porcelain inlay is the only one to think of. When we think of durability and resistance to stress, we must think of the gold inlay and metal fillings, and, as Dr. Hunt has said, if the gold inlays will do away with the large number, I believe 90 per cent., of our banded gold crowns, or any other kind of a banded crown, it will accomplish the greatest good of anything the profession can have. I was taught that gold crowns were all right to a limited degree; I used them to the limit. Dr. Hunt taught me that, by the way. He taught me just what he said tonight.

Dr. Hunt: Did you believe me?

Dr. Davis: I believed you, and I used gold crowns wherever I could see $10 and a tooth, and I think I have been conservative. I have not in my life yet cut off a tooth except for the abutment for a bridge where I could fill it. I have lived long enough in one locality to see my patients reject those crowns and descry their value, and my own experience with the work I have done myself is identical with that my neighbor has done. That man does not live—I have not seen him yet—who can so fit a band to a root on a tooth that it does not irritate the gum from the day it is put in there until the patient is in the grave or the tooth is in the basket. Sometimes the gum is more recuperative than in other cases, and they can stand the irritation. Nearly all teeth are abnormally pink or red over the band. Some people are immune from pyorrhea alveolaris; others, the very slightest irritation destroys that tooth and its attachment to the tissues. Therefore, I am not in favor of crowns. I am putting them on just the same, and all of you will have to; yet the conservative man, when he sees a tooth for which it is possible to make a gold inlay, I think he should think twice and make a gold inlay instead of a crown. I am going to the national this year to see a whole section divided off for gold and porcelain inlays—a whole section—the first time in the national society. The inlays have come to stay, but I
heard one man remark, "Why all this hue and cry about the inlay?" He says, "Is it because some men are looking around to introduce something in which they are so skilled that we poor yaps have to sit around with open mouths and wonder at their skill in putting them in?" I don't think that is the case. I think that they see the benefit in it, and I think they are honestly advocating it. I am a student in inlay work, and I believe in porcelain inlays only where the cosmetic effect is paramount, and gold inlays when resistance to stress is paramount. I avoid the band wherever possible. What would you do with a split root? I would do almost anything. There are lots of methods of fixing them up and I don't believe that any root is stronger with a band on it than it is without. So whenever I hear anything on inlays I heartily agree with everything I hear, as I am a student of this; I am a student, and the man who says that he can put an inlay in that will not come out, I believe him, but I don't want him to say that it is the best filling in all cases. Those of you who are familiar with Dr. Johnson's work on operative dentistry—I wish you would read the last and closing remark about the gold inlay. After going ahead and describing the methods of gold inlays, their virtues and value, he follows that with about this remark: he says: "And when properly constructed and perfectly made they will look like, and cause you to think they are, a built-in gold filling." Therefore, the most excellent gold inlay that you can make, according to Dr. Johnson's idea, looks like, represents, and is as good as a built-in gold filling.

**Dr. D. J. McMillen, Kansas City, Mo.:** I don't think I have anything to say along this line at this time. I was to read a paper or make a talk along this line. I am very much in favor of inlay work, both porcelain and gold, but don't forget that fillings save teeth. We don't want to get going too fast on any kind of inlays. I have been making and using inlays for quite a number of years in a way, gold and porcelain both, when we used to grind them into the cavities, and they are certainly indicated in many places and are the best class of work that can be done in many places, but not for every place. Even a good amalgam filling sometimes is the best piece of work that can be inserted in a tooth to save that tooth, and I think that we should stop to think a little about that we may be going a little too fast in regard to undertaking to use inlays in every cavity. I heard a statement five or six years ago in Denver, when I was at a meeting there, by Dr. Reeves, that the gold filling was a thing of the past. We know that fillings have saved teeth for many years, and we also know that inlays have saved teeth for many years, but I am not in favor of using inlays for every cavity. Don't forget that gold and amalgam fillings save teeth.

**Dr. Woodbury:** I was in hopes that you were not going to call on me. Seems to me I have been doing so much talking today, and I have to talk tomorrow again, that before I get through you will have rather an overdose of Woodbury. I do not differ so very ma-
terially from anything that Dr. Le Cron has said. I want to em-
phasize what Dr. McMillen has said just now: "Do not forget your
gold fillings." There are places for gold inlays—I use them myself—
and there are places for porcelain inlays, and where they are indi-
cated I use them, but it has never seemed possible to me that you
can seal a cavity with cement as perfectly as you can by malleting
gold against the margins, if the cavity preparation is right and the
manipulation of your gold or amalgam is right. There are only one
or two of these drawings with which I wish to take issue with Dr.
Le Cron: In general his cavity preparation is such as I accept, and
most of us in this section of the country accept, but
there are one or two of these that I can not accept, and I want to
tell you why (Cut No. 1); for instance, in that lateral incisor the in-
cisal margin of that cavity is brought to the point where there is the
greatest condition of susceptibility of any place in that whole tooth.
The margin is just above the contact point. The food gets in there
and lodges on the margin of the filling. Another thing in this prepa-
ration here: He has brought the whole filling to the incisal edge; he
has a long margin that extends from the distal wall over across the
labial plate there, and it makes a long line of juncture between the
enamel and the filling subject to stress. A preparation similar to
one other he has here, in my judgment, is much better. Cutting off
the incisal gives you additional anchorage as well as to bring as short
a margin as possible subject to stress. There is one other cut here
that I wish to say a few words about also (Cut No. 7): In that filling
you also have the juncture of the filling at the point of greatest sus-
ceptibility. The contact point in this filling is nearly at the margin
of this filling; also, if you will study the direction of the enamel
rods you will find that these enamel rods, as they come over the
proximal surface, incline very sharply. Here he has cut off the den-
tinal ends of the enamel rods, and has left the peripheral ends un-
supported about an eighth of an inch; those enamel rods have no sup-
port except the cement. The enamel rods in the occlusal portion of
the tooth will, as sure as I stand here, break down, and if I had
made it, I would say that it would break down in a short time. The
direction of the enamel rods absolutely contraindicates such a prepa-
ration. That cavity should have been cut through to the occlusal sur-
face and brought to a position where the enamel rods would have
been perpendicular. Other than that, the paper meets with my ab-
solute approval. I am glad to see him bring to your consideration
the principles of mechanical retention for all inlays. You will re-
member, about three years ago, you had Dr. Reeves give a lecture in
Omaha, and I think you will remember that I got up at that time in
the discussion of Dr. Reeves' paper and made the assertion that in
the course of two or three years we would demand as much mechan-
ical retention for our porcelain inlays as for metallic fillings. The
time has come sooner than I expected.

Dr. Vance: I have been trying to get up nerve enough to say
something on this paper. I don't presume anybody has had more
grief in experimenting with inlays than I have, and I have made very
few porcelain inlays that have been satisfactory to me. I was a
close student of Dr. Reeves' methods, and I found the same fault
that Dr. Woodbury complained of—that Dr. Reeves didn't have the
proper cavity preparation—and I have been following out in the past
two or three years a cavity preparation similar to what Dr. Le Cron
does—not as extensive, but with much better success than formerly.
Still I have not been getting the success that I feel I must get in the
future. I am not discouraged; I am a young practitioner, and I
have not had the experience of Dr. Le Cron or Dr. McMillen or Dr.
Woodbury, but when they tell us of their experience and their fail­
ures, it gives me new hope and makes me feel that there is a possi­
bility in the future, if I keep on in the same lines they are teaching
now, that I can make porcelain and gold inlays that will preserve the
teeth. I still feel that they will never supplant gold fillings or amal­
gam fillings. They all have their place. I don't think we can lay
down a rule that will apply in every case for any one filling material.
They all have their place, and if you can make a good gold filling or
a good amalgam filling, for Heaven's sake don't give them up and
think the porcelain inlay is a panacea for all ills of the teeth. They
are not, but don't neglect this new work. Dr. Hatfield has said we
must do that work, and if we do not do it, we simply don't keep up
with the times.

**Dr. Woodbury:** I just want to supplement my remarks by saying
one more thing: Don't think, in your inlay work, that the cement
joint will cover a multitude of sins. You must have perfect adapta­
tion with either gold porcelain inlays, and the cement joint must be
almost microscopic, and it requires as accurate manipulation and
skill to make a good porcelain inlay or a gold inlay as it does to
make a gold filling. And those of you who have an idea that any­
thing can be cemented into a tooth and the cement joint is going to
cover that sin are going to be mistaken. For that reason get your
skill and be as exact in this work as with the most delicate thing that
you do.

**Dr. Prime:** When Dr. Reeves came to Omaha to our meeting
three years ago, he demonstrated one of his cavity preparations for
porcelain inlays that very closely resembled the concavity in an ordi­
nary sauce-dish. He made an inlay and cemented it into this cavity
and told us it would stay there. I took courage and bought me a
furnace.

I did not think I could make a porcelain inlay until I saw Dr.
Reeves' clinic. I could not get the results Dr. Reeves says he gets.
However, I am still using porcelain, but not to the degree I did when
I first got my furnace. I am learning where to use it as well as
where not to use it. I think the margins of a well-adapted inlay are
more nearly immune from recurring decay than they would be with
the same cavity filled with gold.
I think one of the best parts of human nature and of our profession is conservativeness. The human mind has a tendency to run to extremes, and, like one of the doctors said in his discussion, we find men at each extreme—all porcelain is one extreme; all gold is the other. I think that porcelain has its place; I think that gold also has its place. I am partial to a gold inlay; the field of its application, however, is limited. My opinion is today that the gold inlay is the best filling I make. I put in a great many gold inlays. I consider that both the gold and porcelain inlays have a weak point. Its adaptation to the cavity hinges upon the treacherous cement. Cement in my hands is an unsatisfactory thing, and I have wondered why they do not improve it, or why they did not improve it before I began the practice of dentistry. When I began practicing, I thought I could make a cement filling, one that would last. I read on the bottle that it was insoluble. That is a falsehood. The solubility in the cement creates a weak point in the inlay. The inlay is a grand, good thing, and I am glad to welcome it into my practice and learn all I can of it.

Dr. Davis: I would like to ask Dr. Le Cron one thing when he closes the discussion, or one question, and that is as to the wax he uses in beginning upon this inlay. I didn't see that in his clinic. I use hard wax or crown and bridge-work wax, called sticky wax sometimes. I would like to know if he knows of any wax that is an improvement on that wax.

Dr. Le Cron: Just the ordinary beeswax.

Dr. Le Cron (in closing): In closing this discussion, I have but very few remarks to make. In regard to Dr. Woodbury and some other gentleman—I don't remember who it was—but you will note in the two incisors the cutting edge is wide—plenty of room in this one, and in the other one the incisal edge is sharp. You will note in the paper that I spoke of the sharp incisal edge. This one, as a rule, I cut away where these gentlemen spoke of, but there are some cavities that are shaped in this way. In this cut, of course, it represents, no doubt, the enamel rods, as he says here, perhaps one-sixteenth to one-quarter of an inch. Of course that is supposed to come down here a half inch on model. These cuts are not made by measurement, but the cavity is extended in that way, the decay extending in under the cavity proper. You get quite frequent cavities there on those surfaces, and all I have to do is to make the separation and cut in and form that box; secure perfect adaptation to the cavity. The thin margin of cement there, with either a gold or porcelain inlay, will support that part. It is different from gold fillings. In speaking of fillings, I wish it understood that I put in a few amalgam fillings; I put in gold fillings, too, but when it comes to a large contour filling, I fall back on the gold inlay. I have put them in for years, and I have had good results, and to a man starting in I would say that I had my break-downs many times; not every inlay I have put in was...
a success, either porcelain or gold, and when we start out on inlays we must expect to go up against some break-downs occasionally; and you cannot expect to start in, and not understand the formation of the cavity and the adaptation of the matrix, and meet with success. You have got to understand them. You must have everything perfect, but you cannot expect to do that the first time. We can tell you how to form cavities and construct inlays, but you must learn to understand them from a mechanical standpoint. We did not do it perfectly the first time, not by a long shot; and the best way, perhaps, is not to experiment on your patient, but to experiment out of the patient's mouth until you become somewhat proficient and you get confidence by working that way. You do not learn this in a week's time or in a year's time. I don't claim to be proficient yet. I have got much to learn, and I think many more of us will have to do it. You must make up your minds to experiment; no question about that. You could not put in gold fillings when you started on them; you were not proficient. It is experience that makes all these things apparently easy; and the younger men, particularly, it is well for them to experiment and put in some of their time at least trying to solve the problem. Some of you no doubt are quite busy all the time, but put a little time in, in the evening; go down to your office early in the morning; that is the way Dr. McMillen and these other men did in their time. You have to experiment and work to become proficient in anything, no matter what branch or business or vocation of life you are in. You have to work to meet success. It is the same way with gold and porcelain inlays. I don't know as I have any other remarks to make or any questions to answer. If there are any questions that you wish me to answer, I would be glad to do it. About the wax: it is just the ordinary wax. In boiling it out you get your surface perfectly clean. Of course, the matrix in these inlays is invested before you burnish over the contour and the occlusal surface. It is invested so that you can handle and burnish in that way. I thank you for the kind words you have said and the attention you have given me.
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Davis, J. R. .................. Lincoln.
Davis, L. P. .................. Lincoln.
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Dixon, Mable M ............. Hastings.
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Dorward, J. W. .............. Aurora.
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Dunham, M. H. .............. University Place.
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Eells, L. L. .................. South Auburn.
Emigh, J. S. .................. Red Cloud.
Fall, C. C. .................. Lincoln.
Farrell, C. C. .................. Cozad.
Feese, E. L. .................. Wymore.
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Field, Elizabeth ............. Lincoln.
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Foster, J. J. .................. Omaha.
Fraser, M. O. .................. Lincoln.
Fritz, L. R. .................. Wymore.
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Gaiser, A. .................. Lincoln.
Gallagher, G. L. ............. Utica.
Gard, G. R. .................. Ord.
Giddings, E. T. .............. Mo, Valley, 1a.
Gilson, S. W. .............. Blue Rapids, Kan.
Giffman, L. S. .............. Havelock.
Gobel, B. E. .................. St. Edwards.
Goslee, W. A. .................. Auburn.
Graff, C. W. .............. Tecumseh.
Hagan, A. N. .............. South Omaha.
Haller, W. M. .............. Blair.
Hanna, E. A. .................. Lincoln.
Hansen, S. A. .............. Davey.
Harris, H. G. .................. Auburn.
Hartman, G. E. .............. Randolph.
Hatfield, H. R. ............. York.
Hatfield, T. J. .............. York.
Helfinstine, A. E. ............ Valparaiso.
Hensel, F. B. .............. Deshler.
Henry, H. L. .............. Ashland.
Hewitt, W. E. .............. David City.
Hill, D. T. .................. Syracuse.
Hinman, F. C. .............. Crete.
Hipple, A. H. .................. Omaha.
Hogan, E. N. .................. Bancroft.
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| McMullen, J. J.    | Omaha         |
| Mathers, E. R.     | Falls City    |
| Matzen, Niels      | Columbus      |
| Maun, N. J.        | Tekamah       |
| Mead, C. R.        | Blair         |
| Meese, D. A.       | Benkleman     |
| Meradinth, B. C.   | Holdrege      |
| Meservey, E. A.    | Kearney       |
| Metzler, C. C.     | Harvard       |
| Miles, H. W.       | Beatrice      |
| Miller, M. A.      | Wahoo         |
| Mills, Leah        | Omaha         |
| Mittlestadt, R. A. | Newark        |
| Morrison, N. H.    | Norwalk, N. J.|
| Morrow, W. S.      | Kearney       |
| Morton, P. J.      | Lincoln       |
| Motis, F. A.       | Lincoln       |
| Mullen, G. M.      | Creighton     |
| Mullen, W. H.      | Bloomfield    |
| Mullins, R. S.     | Broken Bow    |
| Myers, L. G.       | Aurora        |
| Nason, A. W.       | Omaha         |
| Nauman, E. H.      | Columbus      |
| Naviaux, J. H.     | Nebraska City |
| Neff, J. G.        | Sterling      |
| Nelson, J. F.      | Superior      |
| Newman, O. M.      | Aurora        |
| Norton, Z. A.      | Milford       |
| Packard, G. J.     | Kearney       |
| Parker, C. S.      | Norfolk       |
| Parker, H. C.      | Omaha         |
| Paul, J. E.        | Columbus      |
| Percival, C. W.    | Pender        |
| Peterson, A. W.    | Omaha         |
| Phillips, C. A.    | Hastings      |
| Pierce, J. S.      | Friend        |
| Poe, O. M.         | Beaver City   |
| Porter, C. K.      | Seward        |
| Porter, H. J.      | Cambridge     |
| Powell, E. P.      | Wakefield     |
| Prime, J. M.       | Oxford        |
| Propst, W. E.      | Geneva        |
| Puckett, J. W.     | Geneva        |
| Raver, C. A.       | Tekamah       |
| Redfern, D. L.     | Auburn        |
| Reed, A. N.        | Cozad         |
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| Robins, J.         | Lyons         |
| Robson, A. F.      | Blair         |
| Ross, F. R.        | Omaha         |
| Roune, L. P.       | Syracuse      |
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| Seyster, Geo.      | Hebron        |
| Shannon, H. A.     | Lincoln       |
| Shannon, J. R.     | Weeping Water |
| Sharp, W. V.       | Stromberg     |
| Shearer, L. W.     | Omaha         |
| Sherraden, W. H.   | Omaha         |
| Shipppard, G. D.   | Ainsworth     |
| Sims, D. P.        | Lincoln       |
| Sitter, Chas.      | Albion        |
| Slabaugh, F. W.    | Omaha         |
| Shockley, Ned      | Farragut, Ia. |
| Smith, C. E.       | Omaha         |
| Smith, W. R.       | Pawnee City   |
| Smith, W. T.       | Geneva        |
| Sorensen, C. A.    | Florence      |
| Soukup, J. C.      | Omaha         |
| Spellman, B. L.    | Beatrice      |
| Spellman, C. A.    | Beatrice      |
| Stewart, J. A.     | Orleans       |
| Stryker, W. H.     | Beatrice      |
| Taylor, A. P.      | Denver        |
NEBRASKA STATE DENTAL SOCIETY

Taylor, E. D. ..........David City.
Thomas, E. A. ..........Red Cloud.
Tomsen, H. ..........West Point.
Tomiska, J. J. ..........Ravenna.
Tornholm, A. F. ..........Wausa.
Troyer, J. B. ..........Lincoln.
Truell, E. A. ..........Lincoln.
Tuttle, W. H. ..........Omaha.

Vance, M. E. ..........Lincoln.
Vahue, E. O. ..........McCook.

Wait, J. Enos ..........Superior.
Walker, R. J. ..........Lincoln.

Wallace, J. H ..........Omaha.
Warner, L. H ..........Fullerton.
Wente, L. N ..........Lincoln.
Wetmore, H. J. ..........Salt Lake City, Utah.
Whinnery, Josephine K ..........Omaha.
Whisler, C. C ..........Ashland.
Whitcomb, F. F ..........Omaha.
Willey, H. D ..........Fruitville, Cal.
Williams, G. W ..........Omaha.
Williams, F. V ..........Central City.

Youngblut, Chas ..........Lincoln.
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*Resigned at the request of the Executive Committee on account of unprofessional conduct.*
TO THE MEMBERS OF THE DENTAL PROFESSION:

The report of the meeting recorded in this book is and should be interesting not only to the dentist but to those whose duties are to take care of and anticipate the wants of the dental profession.

Our business is to supply our customers' demands; our duty, and it shall be our aim, to identify ourselves with those things which have merit and for which there is a need.

The American dentist stands today at the head of his chosen profession. Why? Simply because he is willing to investigate and encourage new ideas. We are willing at all times to do our share in the part we play to encourage thinking in the dental profession. Anything which tends to bring dentistry to a higher plane shall always have our heartiest support.

We want your business, no matter how large or small, but first, last and always we need your friendship.

Sincerely,

BILLINGS-MARSHALL DENTAL SUPPLY CO.