

# JOURNAL OF *Endodontia*

---

Volume 1

Published by the  
American Association of Endodontists

Number 2

---

## TABLE OF CONTENTS

	Page
TOOTHACHE AT ALTITUDE	
<i>Ritchey, Beryl and Orban, Balint.....</i>	13
BOOK REVIEWS .....	19
MEMBERSHIP LIST .....	21
EDITORIAL .....	(Inside Back Cover)

JUNE, 1946

# *Journal of Endodontia*

---

Volume I

JUNE, 1946

Number 2

---

## EDITOR

BALINT ORBAN

180 No. Michigan Avenue  
Chicago 1, Illinois

## PUBLICATION COMMITTEE

*Chairman*, Louis I. Grossman, Philadelphia, Pa.

*Members*, Wm. B. Ingersoll, Washington, D. C.  
E. A. Jasper, Milwaukee, Wisconsin

## Officers of the

## AMERICAN ASSOCIATION OF ENDODONTISTS

*President*, E. G. Van Valey, New York, N. Y.

*Vice-President*, S. M. Weaver, Cleveland, Ohio

*President Elect*, M. K. Hine, Indianapolis, Ind.

*Secretary*, T. J. Hill, Cleveland, Ohio

*Treasurer*, S. D. Green, Chicago, Illinois

Published Quarterly—March, June, September, December—by the  
American Association of Endodontists

180 No. Michigan Avenue, Room 2303, Chicago 1, Illinois

---

Yearly Subscription \$2.00

Single Copies 50 cents

---

Entry as second class matter applied for at the Post Office  
at Chicago, Illinois, under the act of March 3, 1879.

Publication of an article or abstract does not imply endorsement by the Journal or the  
American Association of Endodontists.

Printed by: McCormick and Henderson, Inc., 411 S. Wells St., Chicago 7, Ill.



*Toothache At Altitude\**

by  
BERYL RITCHEY, D.D.S., Colorado Springs, Colorado  
and  
BALINT ORBAN, M.D., D.D.S., Chicago, Illinois

**Introduction**

Toothache at high altitudes focused attention on many problems associated with the diagnosis and treatment of dental disorders in flying personnel. Although not a frequent clinical problem the high altitude dental disorders present a number of questions of clinical significance.

In a previous investigation<sup>1</sup> pathologic conditions were shown in a group of specimens that had exhibited toothache at altitude and that were extracted some time after return to ground level. Since pain in teeth with vital pulps almost invariably subsides by the time the subject returns to ground level it was felt that further histopathologic explanation of high altitude pain would require that specimens be obtained at high altitude and that tissues be fixed under decompression. Twelve pulps and seven gingiva specimens were obtained under these conditions.

**Material and Method of Investigation**

The total material consisted of fifty-nine pulps and fourteen gingiva specimens which were prepared for microscopic study. The specimens were chosen to provide clinically normal and diseased tissues at both ground level and at barometric pressures simulating high altitudes. Complete clinical records were kept on all specimens. Nine of the twelve pulp specimens obtained at altitude were from pain free teeth, diagnosed clinically as normal; the other three altitude pulp specimens were from teeth exhibiting toothache at the time of extraction, diagnosed clinically as cases of pulpitis.

The gingival tissues obtained at alti-

tude included four normal and three inflamed specimens; in each of these seven cases a control biopsy from the same mouth was made at ground level.

In the collection of the altitude specimens both patient and operator used regulation oxygen masks up to 38,000 feet; after ten minutes at this altitude the patient was instructed to hold his breath while the regulation mask was exchanged for a modified one, covering the nose only, to permit access to the oral cavity. Ground level practice was given in the use of the modified mask since it was necessary that no air be inhaled through the mouth.

Anesthetic was given by the injection of two percent procaine containing adrenalin one to sixty thousand. In the cases with normal gingiva only an interdental papilla was taken, but in the periodontal cases, selected to study inflammation, a gingivectomy was performed. Post-operative hemorrhage in both extraction and biopsy was controlled by biting pressure on an adrenalin-soaked gauze sponge. In no case was any difficulty experienced due to the injection of the procaine solution or from excessive post-operative hemorrhage. Following the extraction or the biopsy the regulation mask was refitted to the patient and he was immediately returned to ground level. The operator remained at 38,000 feet to grind the tooth specimens, under water, until only a thin layer of dentin covered the pulp. All altitude specimens were sealed in a jar containing Zenker-formalin solution; the air-tight containers permitted tissue fixation to take place at the same baro-

\*From the Department of Research, School of Dentistry, Loyola University, Chicago College of Dental Surgery

<sup>1</sup>Orban, B. and Ritchey, B. Toothache under Conditions Simulating High Altitude Flight J.A.D.A. 32:145:1945



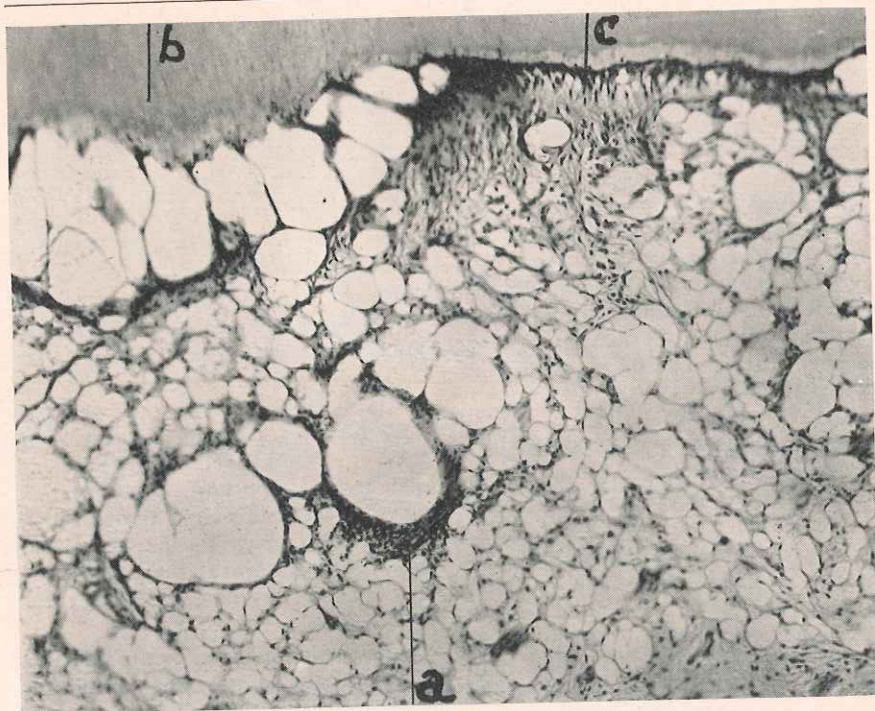


Fig. 1 (R 10) Upper third molar. Pain at 25,000 feet; extracted and fixed at this altitude. Foam-like appearance of pulp tissue. Acute inflammation. Leukocytes around a "bubble" (a). Dentin (b). Odontoblasts (c).

metric pressure as that at which the specimens had been obtained.

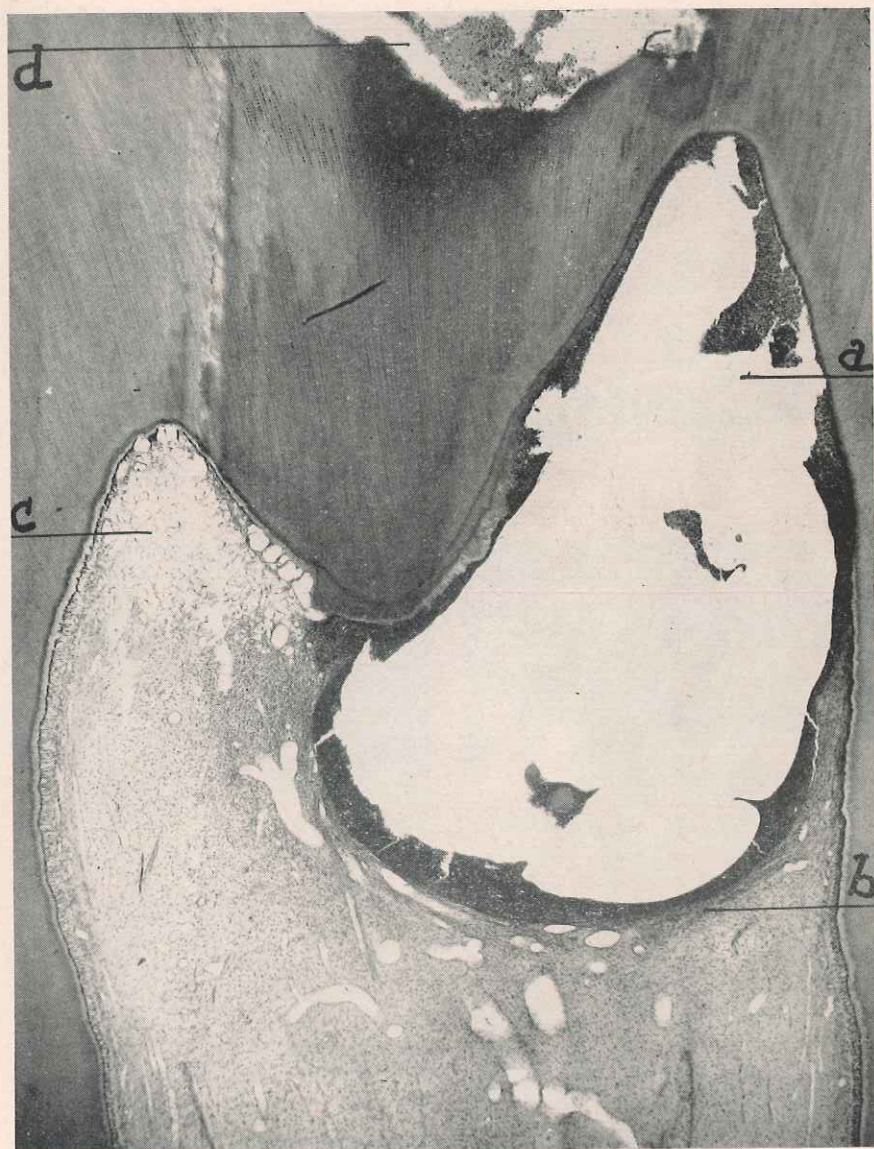
### Findings

In the pulps of the three teeth extracted at the altitude at which they had become almost unbearably painful there was observed a peculiar foam-like appearance as seen in Fig. 1 and 2.

The tooth from which the section in Fig. 1 was taken had become painful at ground level four weeks after being filled with silver amalgam. Removal of the amalgam and placing of a zinc-oxide and eugenol filling relieved the pain within an hour; a decompression test made four hours after the placing of this dressing produced a very severe toothache at 25,000 feet. The tooth was extracted and fixed at that altitude. There are numerous foam-like

spaces deep in the pulp tissue as well as between the odontoblasts. There is an acute inflammation in this area as evidenced by the numerous polymorphonuclear leukocytes; a large accumulation of these leukocytes can be seen surrounding one of the larger bubble-like spaces.

A section through a tooth which became painful at 2,000 feet and was extracted at 11,000 feet because of unbearable pain is shown in Fig. 2. This tooth and the teeth just mesially and distally to it had been filled with silver amalgam for some months. There was a history of pain at altitude in this region one month previously at 32,000 feet and again at 25,000 feet on the day before extraction. There is a large pus-containing space in one of the pulp horns; toward the pulp this abscess cavity is limited by compressed



*Fig. 2 (R 52) Lower bicuspid. Pain started at 2,000 feet, unbearable at 11,000 feet; extraction and fixation at this altitude. Pus contained abscess cavity (a) expanded compressing surrounding tissue (b). Foam-like appearance of pulp tissue in other pulp horn (c). Cavity (d).*

connective tissue fibers (Fig. 3) simulating in appearance an abscess capsule. The other pulp horn of this specimen shows foam-like structures similar to those in Fig. 1.

The only non-painful tooth which was extracted at 38,000 feet exhibiting a comparable foam-like appearance had deep occlusal caries.

Decompression produced no demon-



strable change in any of the eight normal pulps obtained and fixed at altitude. In Fig. 4 are shown views from sections of two teeth from the same individual; one tooth, Fig. 4A, was extracted at ground level and the other tooth, Fig. 4B, was extracted at 38,000 feet.

In the clinically normal teeth removed at ground level within thirty minutes after decompression no changes suggestive of altitude disorder were seen; none of these teeth had caused pain at altitude.

There were no perceptible histopathologic changes in the seven gingiva specimens obtained at altitude that could be attributed to decompression.

### Discussion

The three teeth that caused pain at altitude and which were extracted and fixed at altitude showed inflammation in the pulp, and all three showed the foam-like spaces as shown in Figs. 1 and 2. These peculiar bubble-like spaces were found in only four specimens; three of these were the three teeth extracted at altitude while exhibiting pain, the fourth was a non-painful, unfilled carious tooth extracted at 38,000 feet. In an investigation reported in 1945<sup>1</sup> there was only one specimen (P 260, Fig. 9) which presented microscopic evidence of this particular foam-like formation and that was the only specimen, in that series of cases, which had been extracted at altitude while exhibiting severe pain. Whether these spaces were actually bubbles filled with gas which escaped from the tissues and the tissue fluids during decompression, or, whether, they were filled with a fluid and are but a feature of an extensive edema is difficult to ascertain. Edema appears to be a constant finding in all pulps that have caused pain at altitude and it is considered possible that it was a very severe edema which produced the foam-like appearance in these four specimens. There is no

definite basis in these data on which to ascribe pulp pain at altitude to nitrogen liberation.

The clinical records indicate that pain at altitude does not occur in untreated carious teeth regardless of the condition of the pulp; the finding of the foam-like structures in a carious specimen extracted at 38,000 feet was not accompanied by any painful symptoms.

None of the other eight specimens of clinically normal pulps, either from intact or carious teeth, obtained at altitude exhibited any histologic change attributable to decompression, and not one of them exhibited a painful symptom during the decompression.

The effects of the expansion of preformed gas, from necrotic areas in the pulp, is exhibited in Fig. 2. This tooth began to cause discomfort at 2,000 feet and was extracted at 11,000 feet. This specimen is typical of the teeth that have caused severe pain at relatively low altitudes. The histologic picture is consistent with an assumption that the bubble developed from gas existing within the abscess. The clinical record of this tooth parallels six cases described and illustrated in the 1945 report.<sup>1</sup>

The clinical significance of this problem is emphasized by the futile attempt to correlate the clinical and histopathologic findings in a group of teeth that had caused pain at altitude; one is quickly convinced that it is practically impossible to make an accurate clinical diagnosis of the specific pathologic changes in the dental pulp. Microscopic studies of teeth, which have caused pain at altitude, present convincing evidence that a very high percentage of clinical failures is to be expected if such teeth are selected for restoration or for use as abutments in any type of restorative appliance. Pulps of teeth are not just dead or alive; they may be "sick" and to date

<sup>1</sup>Orban, B. and Ritchey, B. Toothache under Conditions Simulating High Altitude Flight J.A.D.A. 32:145; 1945



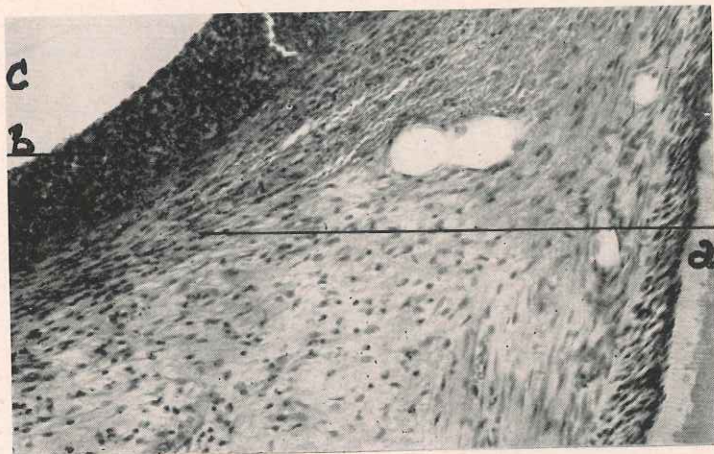


Fig. 3. High magnification of area b from Fig. 2. Compressed pulp tissue (a) due to expansion of gas in abscess cavity (c). Pus (b).

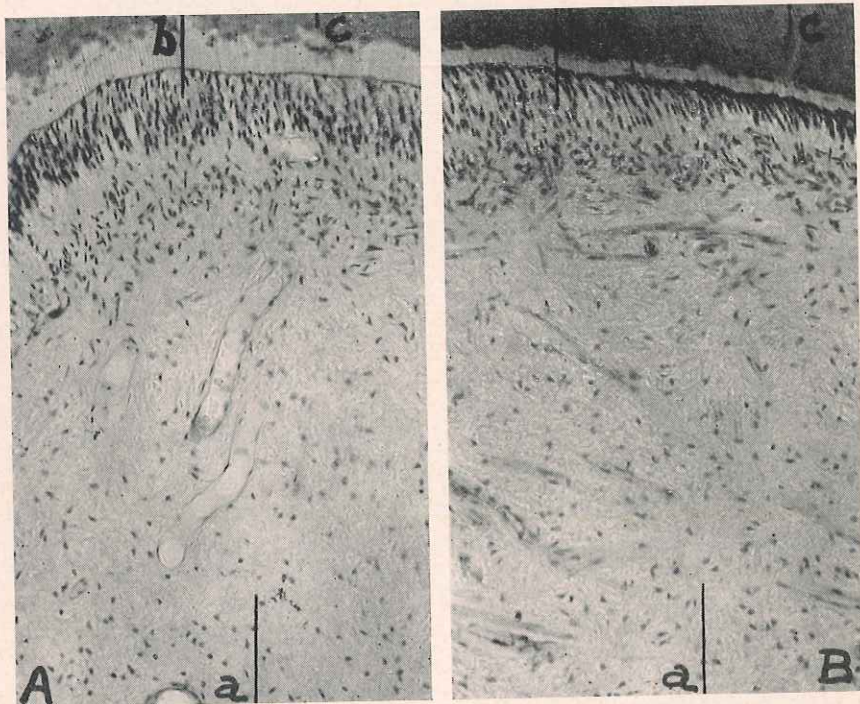


Fig. 4A (R 8) Normal pulp; tooth extracted at ground level.

Fig. 4B (R 9) Normal pulp; tooth extracted and fixed at 38,000 feet. Both teeth from the same individual. Pulp (a). Odontoblasts (b). Dentin (c).

an accurate diagnosis and prognosis of these diseased pulps is next to impossible. Not only would an accurate

knowledge of the condition of the pulp assist in the selection of teeth for restoration or abutment use but it



would also indicate the ideal time for the institution of conservative therapeutic treatment, or, for root canal therapy in the case of pulps judged to be hopelessly involved.

### Summary

1. A total of fifty-nine pulps and fourteen gingiva specimens from carefully selected cases were examined histologically and the finding correlated with clinical tests and histories. Twelve extractions and seven gingiva biopsies were performed under procaine anesthesia in a decompression chamber at a simulated altitude up to 38,000 feet. To insure tissue fixation under decompression all altitude specimens were sealed in a jar of Zenker-formalin solution at the altitude at which they were obtained.

2. In each of the three teeth extracted at the altitude at which they had developed a severe toothache the pulps show typical acute inflammation; they also present a peculiar foam-like appearance, possibly due to a severe edema. One unfilled carious tooth extracted at altitude presented a somewhat similar appearance, though it did not cause pain.

3. No demonstrable tissue changes occurred at 38,000 feet in the teeth with clinically normal pulps obtained at altitude, and in no case did any of these teeth give rise to painful symp-

toms during decompression. Five of these eight teeth were unfilled and caries free, two were carious but unfilled, and two had caries under old amalgam fillings.

4. There is no histopathologic evidence of changes due to altitude in any of the seven gingiva specimens taken at 38,000 feet, regardless of the presence or absence of inflammation.

5. The ramifications of the many problems encountered emphasize the necessity for further investigations into the physiology and pathology of the dental pulp. The rationale of pulp diagnosis and of pulp and dentin therapy stand to be greatly benefited by a continued study of the pathogenesis of the high altitude toothache.

### Conclusions

1. Decompression will not cause pain or histopathologic changes in a normal pulp, regardless of the fact that the tooth is intact, carious or filled.

2. Pain in a vital pulp at altitude is dependent upon a pre-existing tissue change; the tissue change is thought to be a disturbance in the circulatory conditions, leading to physico-chemical changes producing the pain.

3. The gingivae, whether normal or inflamed, exhibit neither clinical nor histopathologic evidence of any tissue reaction in a single decompression simulating an altitude of 38,000 feet.

339 First Natl. Bank Bldg. 180 N. Michigan Ave.

### REGISTRY OF MOTION PICTURE FILMS

It has been suggested by a member of the executive committee that a Registry of Motion Picture Films be printed in these pages so that study clubs or groups of members may borrow such films upon application to the owners. It is recommended that those members of the association who own films and are willing to lend or rent them, should register the title of the film or films with the editor giving title, width in mm., whether silent or sound, and approximate running time

of film. Such information will then be published in these pages. The editor or association will assume no responsibility other than publishing such information. Application for borrowing films will be made direct to the owner of the film. In this manner, one of the objects of the association, namely, "to promote interchange of ideas on methods of pulp conservation and root canal treatment . . . by disseminating information" will come closer to being fulfilled.



## Book Reviews

**"Clinical Pathology and Treatment of the Dental Pulp and Periodontal Tissues"** by Edgar D. Coolidge, B.S., M.S., D.D.S., Professor of Therapeutics, Preventive Dentistry and Oral Hygiene, School of Dentistry, Loyola University, Chicago College of Dental Surgery, Chicago, Illinois; formerly Professor of Materia Medica, Pharmacology and Therapeutics, School of Dentistry, University of Illinois. Second Edition. 511 pages and 350 illustrations. Price \$7.00. Philadelphia: Lea and Febiger, 1946.

In the first edition, Dr. Coolidge gave the profession an outstanding book. It was adopted as a text in many dental schools, and numerous dentists found it a most helpful guide in practice. The long experience and careful observation of the author was constantly reflected in the direct and explicit presentation of the subject matter.

In this edition one finds all the basic work of the first volume, augmented by developments that have occurred in the intervening years. The extensive bibliography of the initial treatise now contains references to many new publications, and numerous illustrations, not found in the earlier edition, embellish its pages. Also, Dr. Coolidge has enlisted the aid of his young and eminent colleague, Dr. Maynard Hine, in revising the chapter on Gingivitis Caused by Infection.

The first part of the book deals with the treatment of pulp-involved teeth. A thorough and precise classification of the diseases of the dental pulp and periapical tissues is combined with a detailed description of appropriate treatments. Emphasis is placed upon the rationale in each instance. Serial radiograms, made at the time of operating and during the ensuing months, show the progress of

healing and repair. In various cases, where teeth were sacrificed for study purposes, striking photomicrographs substantiate inferences made from radiographic examinations. Dr. Coolidge stresses the point that these favorable tissue changes occur only when close attention is given to certain cardinal factors, such as: surgical cleanliness, the judicious use of drugs, etc.

For many years the treatment of pulp-involved teeth was considered a doubtful practice, and countless teeth were needlessly extracted. It is through the painstaking research of such men as Dr. Coolidge that the practice of endodontics has been placed on a high level, and dentists everywhere are learning to appreciate the significance of it.

The second part of the book embraces the diagnosis and treatment of gingival and periodontal diseases. The discussion of the various types of gingivitis, including an evaluation of the many treatments suggested for Vincent's infection, is most interesting and instructive.

Virtually every procedure advocated for the control of periodontal disease is carefully considered. The author urges a thorough study of all the factors contributing to the disease before deciding upon the method of treatment. So often periodontal disease is due to a combination of causes and, if one is overlooked, the treatment is very apt to be unsatisfactory.

The surgical elimination of periodontal pockets is discussed fully. Likewise, the use of electro-coagulation for this purpose is considered. The relative merits of both are presented without bias.

In all, it is a most useful book and will undoubtedly attain even greater popularity than the original issue.

*E. A. Jasper*

**Conductos Radiculares. Anatomia, Patologia Y Terapia** (Root Canals, Anatomy, Pathology and Therapy.)

Vol. I Fundamentos Sobre Conductos Radiculares (Fundamentals on root canals) by Francisco M. Pucci and Roberto Reig.

Vol. II Clinica de los Conductos Radiculares (Clinic of the Root Canals) by Francisco M. Pucci.

Montevideo, Uruguay

The two volumes on root canals, a most valuable contribution to dental literature, should correctly be called a Handbook on root canals. The very completeness of the work makes a review difficult and, at the same time, easy: difficult because a list of the contents cannot do justice to the labor and knowledge invested, easy because the list of chapters can be augmented only by some general remarks. Part one is divided into seven chapters:

- I Fundamental facts on the development of teeth.
- II Anatomy, histology and physiology of enamel, dentin, pulp, and apical periodontal membrane.
- III Dental morphology and topography.
- IV Dental anatomy in relation to root surgery.
- V Pathology and pathophysiology of dentin, pulp and periapical tissues.
- VI Biology of dentin, pulp and periapical tissues.
- VII Nomenclature and classification of diseases of pulp, roots and periapical tissues.

The second part contains nine chapters.

- I Diagnosis and prognosis of dental and periapical lesions.
- II Preservation of the vitality of the pulp and pulp therapy.
- III Root canal therapy.
- IV Periapical therapy.
- V Choice of technique according to pathology of pulp, root and periapical tissues.
- VI Pulp and root therapy and deciduous teeth.
- VII Biologic aspects of the therapy.
- VIII Infected teeth and the focal theory of focal infection.
- IX Social prevention of pulpal and periapical affections.

This book combines three rare qualities; thorough knowledge of literature, its critical evaluation and original work of the authors. As a reference for world literature the book is quite excellent and its translation into the English language would be justified on this count alone. The value of the book is further increased by the excellent organization of the material under discussion.

Of special interest are the chapters where the authors contribute original material from their rich collections and experience. The classification of the variations of roots and root canals, the correlation of radiograms and histopathology, the discussion of the variations in the accessibility of root canals are especially commendable. The illustrations, some in color, are all of the highest quality. It is indeed rare to see radiograms reproduced in so perfect a manner. It is only fair to congratulate the authors and the publishers.

Harry Sicher



# American Association of Endodontists

## Membership List

- Adami, George C.,**  
2466 N. 46th Street,  
Milwaukee, Wis.
- Adams, Fred R.,**  
55 W. 42nd Street,  
New York City, N. Y.
- Aguilar, Enrique C.,**  
Palma Norte 330-308,  
Mexico D. F., Mexico
- Albert, Harry,**  
57 West 57th Street,  
New York City 19, N. Y.
- Alexander, M. M.,**  
1726 Eye Street, N. W.,  
Washington, D. C.
- Allen, R. E.,**  
Otsego, Michigan
- Allen, W. H.,**  
Meharry Medical College,  
Nashville 8, Tenn.
- Altman, A. J.,**  
11703 Dexter Blvd.,  
Detroit, Mich.
- Anderson, A. F.,**  
13119 Woodrow Wilson Ave.,  
Detroit, Mich.
- Andersen, E. J.,**  
201 Savings Bank Bldg.,  
Manistee, Mich.
- Anthony, L. Pierce,**  
501 S. Edgewood,  
La Grange, Ill.
- Armstrong, P. J.,**  
Middlesboro, Ky.
- Auerbach, M. B.,**  
One Hanson Place,  
Brooklyn 17, N. Y.
- Axel, Albert L.,**  
Pierce Building,  
Bradley Beach, N. J.
- Baer, H. R.,**  
400 Belmont Avenue,  
Newark 8, N. J.
- Bailey, L. G.,**  
1716 Olds Tower,  
Lansing 8, Mich.
- Baker, Fred F.,**  
307 Huron & Erie Bldg.,  
London, Ont., Canada
- Balthaser, J. B.,**  
549 West 8th Street,  
Erie, Pa.
- Bannister, G. P.,**  
1036 Rose Building,  
Cleveland 15, Ohio
- Barab, John D.,**  
711 Pacific Avenue,  
Atlantic City, N. J.
- Barber, J. L.,**  
626 B. Avenue,  
Coronado, Calif.
- Barron, S. L.,**  
1219 Medical Arts Bldg.,  
Dallas 1, Texas
- Barton, Glenn E.,**  
427 N. Michigan,  
Saginaw, Mich.
- Belding, Paul H.,**  
3 Mill Street,  
Waucoma, Iowa
- Bender, I. B.,**  
1551 Champlost Avenue,  
Philadelphia 41, Pa.
- Bennish, I.,**  
612 Maccabee Bldg.,  
Detroit 2, Mich.
- Berg, Bernard,**  
Tufts Dental College,  
416 Huntington Ave.,  
Boston, Mass.
- Berman, David,**  
Univ. of Illinois,  
College of Dentistry,  
808 S. Wood Street,  
Chicago 12, Ill.
- Berman, Martin H.,**  
2 Whitney Avenue,  
Floral Park, N. Y.
- Bernier, Joseph L. (Lt. Col.)**  
Army Medical Museum,  
Washington 25, D. C.
- Best, Elmer S.,**  
801 Medical Arts Building,  
Minneapolis 10, Minn.
- Blayney, J. R.,**  
Zoller Memorial Clinic,  
950 E. 59th Street,  
Chicago 37, Illinois
- Bloomfield, Hugh F.,**  
417 W. Genesee Street,  
Saginaw, Mich.
- Bock, James L. (Major),**  
AAF Pilot School,  
Advance 2 Engine,  
Altus, Okla.
- Bolks, Harry,**  
923-25 Badgerow Bldg.,  
Sioux City, Iowa
- Bolotny, Sophia N.,**  
25 E. Washington Street,  
Chicago 2, Ill.
- Boulger, Earl P.,**  
27 S. Pulaski Road,  
Chicago 24, Ill.
- Brewer, Charles A.,**  
Sur del Municipal 2,  
Caracas, Venezuela
- Brooks, G. R.,**  
1st National Bank Building,  
Rochester, Mich.
- Burkman, N. Weir,**  
214 Wabek Building,  
Birmingham, Mich.
- Cahn, Lester R.,**  
888 Park Avenue,  
New York City, N. Y.
- Carrera, Louis de la,**  
930 Huerfanos,  
Santiago, Chile
- Carroll, P. R.,**  
Stephenson, Mich.
- Carter, C. W.,**  
315 Sperry Bldg.,  
Port Huron, Mich.
- Carter, Rosalie,**  
Carter Bldg.,  
Franklin, Tenn.
- Casey, Jerome B.,**  
Navy 926 N.O.B.,  
F.P.O. San Francisco, Calif.
- Clark, Bruce E.,**  
635 Union Trust Bldg.,  
Pittsburgh 19, Pa.
- Clipner, George A.,**  
312 Lister Bldg.,  
St. Louis 8, Mo.
- Cohn, Charles,**  
350 Central Park West,  
New York City 25, N. Y.
- Cohen, Morris,**  
57 West 57th Street,  
New York City, N. Y.
- Colee, O. L.,**  
Magnolia, Miss.
- Conat, Charles M.,**  
672 Fisher Bldg.,  
Detroit 2, Mich.
- Conrad, William K. (Lt.),**  
260 E. Lincoln Highway,  
Coatesville, Pa.
- Conrida, Edgar D.,**  
25 E. Washington Street,  
Chicago 2, Illinois
- Crockett, C. D.,**  
510 Townsend,  
Lansing, Mich.
- Crook, J. H.,**  
620 Medical Arts Bldg.,  
Dallas 1, Texas.
- Crosthwaite, L. T.,**  
7159 Michigan Avenue,  
Detroit 10, Mich.
- Cunningham, R. E.,**  
215 Standard Life Bldg.,  
Jackson, Miss.
- Curtis, R. O.,**  
1110 Reynolds Bldg.,  
Jackson, Mich.
- Dai, David,**  
West China Union Univ.,  
Chengtu, China
- Davis, Julius M.,**  
P.O. Box 246,  
Sylacagua, Alabama
- Davis, Ned E.,**  
1525 Medical & Dental Bldg.,  
Seattle 1, Wash.
- Davis, W. Clyde,**  
814 Security Mutual Bldg.,  
Lincoln, Nebraska
- Dawson, Paul T.,**  
401 N. York Street,  
Elmhurst, Illinois
- DeKruif, R. R.,**  
3780 Wilshire Blvd.,  
Los Angeles 5, Calif.
- Denbo, Sidney,**  
438 High Street,  
Burlington, N. J.
- DeWitt, Truman G.,**  
712 West Burlington Avenue,  
La Grange, Ill.
- Dolowitz, Maurice A.,**  
2 Stratford Place,  
Newark 8, N. J.

- Dummett, Clifton O.**,  
Dental School,  
Meharry Medical College,  
Nashville 8, Tenn.
- Ellis, R. C.**,  
230 College Street,  
Toronto, Canada
- Ellis, W. H.**,  
325 Masonic Temple,  
Shawnee, Oklahoma
- Epstein, Irwin A.**,  
391 Lowry Medical Arts Bldg.,  
St. Paul 2, Minn.
- Epstein, L. I.**,  
2912 Delaware Ave.,  
Kenmore 17, N. Y.
- Estrada, H. Enrique**,  
8a Calle Poniente No. 8,  
Guatemala, Central America
- Fajardo, Ernesto**,  
Carrera 10, No. 12-74,  
Bogota, Colombia
- Farnsworth, D. A.**,  
430 Medical Arts Bldg.,  
Charleston, W. Va.
- Fenech, Louis J.**,  
502 Medical Arts Bldg.,  
Windsor, Ontario, Canada
- Fineman, George G.**,  
14-8 Maccabee Bldg.,  
Detroit 2, Mich.
- Finklestein, C. I.**,  
5011 Park Avenue,  
Montreal, Canada
- Felberbaum, Alfred S.**,  
213 Broadway,  
Amityville, Long Island, N. Y.
- Fischer, Jesse H.**,  
728 Security National Bldg.,  
Akron 8, Ohio
- Frace, Ray W.**,  
344 E. New Street,  
Lancaster, Pa.
- Friedman Maurice**,  
424 Madison Avenue,  
New York City, N. Y.
- Frisk, C. J.**,  
Crawford Co. Trust Bldg.,  
Meadville, Pa.
- Garday, Arnold G.**,  
610 2nd National Bank Bldg.,  
Saginaw, Mich.
- Gerber, Benjamin**,  
6239 N. 16th Street,  
Philadelphia 41, Pa.
- Ginsberg, Joseph R.**,  
1537 Main Street,  
Springfield 3, Mass.
- Girardot, Raymond L.**,  
1401 Stroh Bldg.,  
Detroit 26, Mich.
- Gonzalez, Jose M.**,  
Box 624,  
San Juan, Puerto Rico
- Gooding, Walton J.**,  
726 Riker Bldg.,  
Pontiac, Mich.
- Gordon, William A.**,  
82½ Saginaw Avenue,  
Pontiac, Michigan
- Gornv, S. S.**,  
1858 So. Ashland Avenue,  
Chicago 8, Ill.
- Granados, Humberto**,  
260 Crittenden Blvd.,  
Rochester 7, N. Y.
- Gratzinger, Max**,  
25 E. Washington Street,  
Chicago 2, Ill.
- Green, Sylvester D.**,  
180 No. Michigan Ave.,  
Chicago 1, Ill.
- Greenblatt, Leo A.**,  
722-26 Maccabee Building,  
Detroit 2, Mich.
- Grossman, Louis I.**,  
1002 Medical Arts Bldg.,  
Philadelphia 2, Pa.
- Halperin, H. M.**,  
1396 St. Catherine Street W.,  
Montreal, Ontario, Can.
- Hanson, T. J.**,  
16638 Birwood,  
Detroit 21, Mich.
- Hare, G. C.**,  
2487 Bloor Street W.,  
Toronto 9, Ontario, Canada
- Hatton, Edward H.**,  
311 E. Chicago Avenue,  
Chicago 11, Illinois
- Henkelmann, Carl**,  
819-820 Federal Securities  
Bldg.,  
Lincoln 8, Neb.
- Hayes, R. L.**,  
3107-14th Street, N.E.,  
Washington, D. C.
- Haymaker, George T.**,  
77 Euclid Avenue,  
Sharon, Pa.
- High, O. C.**,  
412 Stimson Bldg.,  
Seattle, Washington
- Hill, Thomas J.**,  
School of Dentistry,  
Western Reserve University,  
Cleveland 6, Ohio
- Hine, Marnard K.**,  
1121 W. Michigan Street,  
Indianapolis 2, Ind.
- Hiner, A. A.**,  
E. Main Street,  
Ashland, Ohio
- Hirschman, L. M.**,  
Medical Arts Bldg.,  
Baltimore 1, Maryland
- Hoare, A. R.**,  
302 Sherland Building,  
South Bend 9, Indiana
- Hodge, Hugh W.**,  
1013 First National Bank  
Bldg.,  
Wichita 2, Kansas
- Hoff, Franz F.**,  
11 Daniels Street,  
Portsmouth, N. H.
- Hopp, Samuel L. (Lt.)**,  
Naval Air Base,  
c/o F.P.O., Navy 807,  
San Francisco, California
- Hospers, John H.**,  
25 E. Washington Street,  
Chicago 2, Illinois
- Hubbard, Charles E.**,  
920 Riker Bldg.,  
Pontiac, Mich.
- Hubert, Wm. J.**,  
6545 2nd Avenue,  
Detroit 2, Mich.
- Ingersoll, Wm. B.**,  
1220-16th Street N.W.,  
Washington 6, D. C.
- Inskipp, E. Frank**,  
135 Stockton Street,  
San Francisco 8, Calif.
- Isreal, Hyman**,  
4856 Sherbrooke St., W.,  
Montreal, Canada
- Izsak, Laszlo**,  
U. S. Coast Guard Training  
Station,  
Atlantic City, N. J.
- Jacks, George S. (Capt.)**,  
D.C. 0399624  
101 Glenwood Drive,  
Chattanooga, Tennessee
- Jankelson, Bernard**,  
652 Stimson Bldg.,  
Seattle, Wash.
- Jasper, E. A.**,  
Marquette University,  
Dental School,  
Milwaukee 3, Wis.
- Johnson, M. O.**,  
1201 Federal Securities Bldg.,  
Lincoln 8, Nebraska
- Johnston, Harry B., Sr.**,  
831 Candler Bldg.,  
Atlanta 3, Ga.
- Johnston, Harry B., Jr.**,  
831 Candler Bldg.,  
Bethesda 14, Md.
- Jones, Donald B.**,  
705 Carroll Avenue,  
Takoma Park,  
Washington 12, D. C.
- Jones, Harold D.**,  
Glennic, Michigan
- Joyce, Richard C.**,  
601 West College Avenue,  
Appleton, Wis.
- Kahn, Henry**,  
5 S. Wabash,  
Chicago 2, Ill.
- Kaiser, J. Henry**,  
21 E. State Street,  
Columbus 15, Ohio
- Kalk, Lester E.**,  
5500 S. Halsted Street,  
Chicago 21, Ill.
- Katz, Samuel, Jr.**,  
5945 Larchwood,  
Philadelphia, Pa.
- Kellner, Ernest**,  
3 Balfour Street,  
Haifa, Palestine
- Kelly, Joseph J.**,  
Georgetown University,  
Washington, D. C.
- Kesel, Robert**,  
808 South Wood Street,  
Chicago 12, Illinois
- Kinsman, Robert E.**,  
Beverly Prof. Bldg.,  
Beverly Hills, Calif.
- Kitchen, Curtis J. B.**,  
205 So. Tenth Street,  
Escanaba, Mich.
- Kollen, Daniel M.**,  
24 W. 59th Street,  
New York City, N. Y.
- Kopely, Jack R.**,  
1410 East Avenue,  
Box 62, New York City
- Koselko, Stephen W.**,  
3658 Clippert Street,  
Detroit, Mich.
- Kozil, W. J.**,  
1438 W. Chicago Avenue,  
Chicago 22, Illinois



- Kramp, Edgar H.**,  
Univ. of Illinois,  
808 S. Wood Street,  
Chicago 12, Ill.
- Krueger, L. F.**,  
2234 Queen Street E.,  
Toronto 8, Ontario, Canada
- Kurzrock, A. H.**,  
182 Ferry Street,  
Newark 5, N. J.
- Land, Melvin**,  
2623 Abrams Road,  
Dallas, Texas.
- Landsman, Ned**,  
340 W. 86th Street,  
New York City 24, N. Y.
- Lavine, Benjamin**,  
751 Stuyvesant Avenue,  
Trenton 8, N. J.
- Levine, Julius H.**,  
53 Bay State Road,  
Boston 15, Mass.
- Levy, Saul**,  
704 Medical Arts Bldg.,  
Scranton 3, Pa.
- Leycegui, Felix R.**,  
Oficina de Especializacion  
Sanitaria, Viena 26,  
Mexico, D. F., Mexico
- Lieban, E. A.**,  
30 West 59th Street,  
New York 19, N. Y.
- Logie, David**,  
86½ Crown Street,  
Aberdeen, Scotland
- Lorenz, George W.**,  
66 Goodell Street,  
Buffalo 3, N. Y.
- Lucas, L. A.**,  
210½ W. Commerce Street,  
Oklahoma City, Oklahoma
- Lundquist, G. R.**,  
55 E. Washington Street,  
Chicago 2, Ill.
- Luton, Harry H.**,  
846 Giddings, S.E.,  
Grand Rapids, Mich.
- Maeth, Harry**  
Mosinee, Wisconsin
- Maizels, Albert D. (Capt.)**,  
0522038,  
1199 Van Buren Street, S.W.,  
Atlanta, Ga.
- Maxmen, Harold A.**,  
2305 Eaton Tower,  
Detroit, Mich.
- Meinig, Douglas A.**,  
2550 Prairie Ave.,  
Evanston, Ill.
- Meinig, George E.**,  
6 No. Michigan Ave.  
Chicago 2, Ill.
- Meiman, B. W.**,  
2005 N. 32nd Street,  
Philadelphia 21, Pa.
- Milas, Vincent B.**,  
2559 West 63rd Street,  
Chicago 29, Ill.
- Miller, Arthur**,  
8439 Linwood Avenue,  
Detroit, Mich.
- Miller, Herbert C.**,  
809 N. E. Sixth Avenue,  
Portland 14, Oregon
- Mintz, Anna**,  
416 Marlborough Street,  
Boston, Mass.
- Moore, Alton W.**,  
1804 West Congress Street,  
Professional Schools,  
Chicago 12, Illinois
- Morris, H. C.**,  
1506 Market Street,  
Youngstown, Ohio
- Moyer, Clarence H.**,  
1034 Francis Street,  
Jackson, Mich.
- Mueller, Augustus H.**,  
30 N. Michigan Avenue,  
Chicago 2, Ill.
- Munn, A. R.**,  
939 David Whitney Building,  
Detroit, Mich.
- Murray, B. A.**,  
1132 Republic Building,  
Denver 2, Colorado
- Musser, Lee A.**,  
South Haven, Mich.
- McCole, Patrick A.**,  
7349 Wisconsin Avenue,  
Bethesda, Maryland
- McCormack, O. J.**,  
400 Keith Theater Bldg.,  
Syracuse 2, N. Y.
- McElroy, A.**,  
808 S. Wood Street,  
Chicago 12, Ill.
- McPherson, O. C.**,  
290 W. Michigan Avenue,  
Jackson, Mich.
- Nethery, Ronald J. (Capt.)**,  
4135 Wentworth Avenue, So.,  
Minneapolis 8, Minn.
- Neuwirth, P. Sidney**,  
628 Jefferson Building,  
Peoria, Ill.
- Noss, George M. (Lt. Comdr.)**,  
U. S. Coast Guard Dist. Med.  
Off., 1400 Custom House,  
Boston, Mass.
- Obst, Joseph Jay**,  
8 Seventh Ave.,  
Brooklyn 17, N. Y.
- Olech, Raymond**,  
332 So. Michigan Ave.  
Chicago 4, Ill.
- Orban, Balint**,  
180 N. Michigan Avenue,  
Chicago 1, Illinois
- Ostrander, F. D.**,  
School of Dentistry,  
University of Michigan,  
Ann Arbor, Mich.
- Parker, C. E.**,  
914 Betting Bldg.,  
Wichita, Kansas
- Parkinson, David T.**,  
Reacon Bldg.,  
Wichita, Kansas
- Parula, Nicolas**,  
Sante Fe 1127,  
Buenos Aires, Argentina
- Pasetti, Louis O. (Capt.)**,  
Camp Blanding,  
A.S.F. Regional Hospital,  
Florida
- Paul, W. E.**,  
381 High Street,  
Morgantown, W. Va.
- Paulinski, Edward**,  
3034 La Grange,  
Toledo, Ohio
- Pear, John R.**,  
6252 W. Fort Street,  
Detroit, Mich.
- Pearn, Frank C.**,  
433 Medical Arts Bldg.,  
Portland, Oregon
- Pearson, H. H.**,  
500 Birks Building,  
Montreal 2, Canada
- Peschelt, William Adolph**,  
9949 Santa Monica Blvd.,  
Beverly Hills, Calif.
- Pharr, J. R.**,  
612 Professional Bldg.,  
Charlotte, North Carolina
- Pinney, Benton S.**,  
12 Golf Avenue,  
Woodstock, Vermont
- Portuguese, Morris**,  
1145 Bergen Street,  
Newark 8, N. J.
- Prinz, Hermann**,  
400 S. Lansdowne Avenue,  
Lansdowne, Pa.
- Qua, George**,  
1649 David Whitney Building,  
Detroit, Mich.
- Quinn, Henry T.**,  
255 Greenwich Avenue,  
Greenwich, Conn.
- Rafish, S. M.**,  
202-4 Metals Bank Building,  
Butte, Montana
- Reese, Wheldon A.**,  
581 Main Street,  
Pennsburg, Pa.
- Richardson, A. D.**,  
400 Birks Building,  
Montreal, Quebec
- Riggall, Charles W., Jr.**,  
112 S. 16th Street,  
Philadelphia, Pa.
- Ritter, J. W.**,  
16 N. Wabash Avenue,  
Chicago 2, Illinois
- Robbins, S. M.**,  
1284 E. 105th Street,  
Cleveland 8, Ohio
- Robertson, O. T.**,  
602 Miami Avenue,  
Terrace Park, Ohio
- Robin, M. M.**,  
3037 Wentworth Avenue,  
Chicago 6, Illinois
- Rosen, Louis J.**,  
1410 Stanley Street,  
Montreal 28, Quebec, Canada
- Rosen, Ralph**,  
1005 Paul Brown Building,  
St. Louis 1, Mo.
- Rosenstein, P. F.**,  
1416 Medical Arts Building,  
Houston 2, Texas
- Ross, H. Justin**,  
515 Madison Avenue,  
New York 22, N. Y.
- Ross, Percv J.**,  
13341 Livernois,  
Detroit 4, Mich.
- Rothman, Samuel**,  
27 West 96th Street,  
New York City, N. Y.
- Rydborg, Costa**,  
Baylor University,  
College of Dentistry,  
Dallas 1, Texas.

- Sample, Arthur R.,**  
800 Medical Arts Building,  
Memphis, Tenn.
- Santelices, Agustin,**  
Pio Nono 199,  
Santiago, Chile
- Sawyer, Carl W.,**  
Western Dental College,  
1108 E. 10th Street,  
Kansas City 6, Missouri
- Saxon, S. W.,**  
33 W. 42nd St.,  
New York 18, N. Y.
- Schiff, Wm. C., Jr. (Capt.)**  
1040 Park Ave.,  
New York 28, N. Y.
- Schwartz, Milton**  
355 Clinton Ave.,  
Brooklyn 5, N. Y.
- Shafer, Feno,**  
914 First National Bank Bldg.,  
Salt Lake City 1, Utah
- Shapiro, Eva,**  
315 Calton Building,  
Toledo, Ohio
- Sharp, George C.,**  
16 N. Marengo Avenue,  
Pasadena 1, Calif.
- Sherwood, Paul P.,**  
2165 Adelbert Road,  
Cleveland 6, Ohio
- Siegel, Rudolph,**  
Provident Bank Building,  
Cincinnati 2, Ohio
- Siegel, Louis C.,**  
1006 Provident Bank Bldg.,  
Cincinnati 2, Ohio
- Simmons, D. G.,**  
500 Morrison Building,  
Logan, W. Va.
- Singer, John W.,**  
1117 St. Catherine St. W.,  
Montreal, Quebec, Can.
- Slocum, Harold S.,**  
509 David Whitney Building,  
Detroit 26, Mich.
- Smith, C. M.,**  
727 Jefferson Bldg.,  
Peoria 2, Illinois
- Sneed, Fulton C.,**  
Osyka, Miss.
- Sommer, Ralph F.,**  
206 Michigan Theatre Bldg.,  
Ann Arbor, Mich.
- Stark, Jacob J.,**  
1522 President Street,  
Brooklyn, New York
- Starshak, T. C.,**  
753 E. 79th Street,  
Chicago 19, Illinois
- Stein, George,**  
730 Fifth Avenue,  
New York City, N. Y.
- Stevens, Burr E.,**  
310 Sperry Building,  
Port Huron, Mich.
- Stewart, Howard T.,**  
Canal Bank Bldg.,  
New Orleans, La.
- Stewart, L. R.,**  
730 Fifth Avenue,  
New York City, N. Y.
- Sullivan, John W.,**  
1447 N. 17th Street,  
Philadelphia 21, Pa.
- Swinehart, Ward E.,**  
5½ E. Main Street,  
Troy, Ohio
- Swirsky, Edward (Capt.),**  
Station Hospital,  
Camp Rucker, Alabama
- Terry, Irvin L.,**  
405 Siminole  
Marietta, Ga.
- Thaler, Morton (Lt.),**  
Kearns, Utah
- Thorson, A. T.,**  
339 Lowry Medical Arts Bldg.,  
St. Paul 2, Minn.
- Tilton, G. E.,**  
1006 Union National Bank  
Bldg.,  
Wichita, Kansas
- Towsley, Charles A.,**  
218 Reinhart Building,  
Midland, Mich.
- Trager, Jesse,**  
3300 Garrison Boulevard,  
Baltimore 16, Maryland
- Trobo, Luis Alberto,**  
592 General Artigas,  
Las Piedras, Uruguay, S. A.
- Turkenkopf, Samuel,**  
195 Montclair Avenue,  
Newark, N. J.
- Urelus, R.,**  
5154 N. Clark Street,  
Chicago 40, Illinois
- Van Valey, E. G.,**  
38 E. 61st Street,  
New York 21, N. Y.
- Vaughn, George W.,**  
2334 N. Central  
Phoenix, Ariz.
- Vielmetti, Henry M.,**  
300 Whitmore Street,  
Detroit, Mich.
- Waas, Milton J.,**  
235 So. 15th Street,  
Philadelphia, Pa.
- Wach, Edward Charles,**  
University of Illinois,  
808 Wood Street,  
Chicago 12, Illinois
- Walcott, Harold I.,**  
254 Main Street,  
Marlboro, Mass.
- Walker, Alfred,**  
420 Lincoln Road,  
Miami Beach 39, Florida
- Walters, A. L.,**  
604 Medical & Dental Arts  
Building,  
Tulsa 2, Okla.
- Weaver, S. M.,**  
1815 Republic Building,  
Cleveland, Ohio
- Weiner, Leonard**  
2720 E. Broadway  
Tucson, Arizona
- Werther, Raymond,**  
Medical Tower,  
255 S. 17th Street,  
Philadelphia 3, Pa.
- Weston, Paul E.,**  
University of Tennessee,  
718 Union Avenue,  
Memphis 3, Tenn.
- White, Arthur T.,**  
345 Parkway Building,  
117 E. Colorado Street,  
Pasadena 1, Calif.
- White, Charles M.,**  
350 North Park Avenue,  
Warren, Ohio
- Whitney, Frank T.,**  
612 Second National Bank  
Building,  
Saginaw, Mich.
- Wiley, R. T.,**  
1401 First National Bank  
Bldg.,  
Salt Lake City, Utah
- Willis, S. S. (Capt.),** 0519624  
Hq. & Base Sq.,  
558th Air Sv. Gs. AAF,  
Grand Island, Nebraska
- Willis, W. C.,**  
8005 W. Jefferson Street,  
Detroit 17, Mich.
- Wolfsohn, Bertram L.,**  
450 Sutter Street,  
San Francisco, Calif.
- Wolfsohn, Meyer D.,**  
131 Linwood Avenue,  
Buffalo 9, New York
- Woodrow, L. J. (Lt.),**  
DC Clinton PoW Camp,  
Clinton, Miss.
- Wright, Thomas R.,**  
4000 West North Ave.,  
Chicago 39, Illinois
- Yates, Morton F.,**  
15 Holyoke Street,  
Cambridge 3, Mass.
- Ynsfran, Pierpont,**  
España 523,  
Asuncion, Paraguay



## Editorial

Despite some difficulties the first issue of the Journal of Endodontia appeared a few weeks ago. Time does not permit any conclusions to be drawn as to how this publication was received. We know of many of the childhood diseases of which this youngster suffers but all indications point to an improvement.

The editor invites all readers to send in their criticisms, suggestions, and contributions; they will all be considered.

*This second issue contains a membership roster. Please make all necessary corrections, because this is our mailing list. Send in zone numbers of your postal district to avoid future delays in mailing.*

We intend to keep the contents of this journal on a high level and hope to have the cooperation of the entire membership.

"Freedom of intercourse and discussion and the publication of results, not only within a nation but across all boundaries, are essential conditions of fundamental research."

"The search for truth, the experimental method, the eager application of new discovery to human ills—these speak a language which meets with universal understanding. These constitute perhaps the strongest link between intelligent people in all countries, no matter what flag flies over their frontiers," wrote R. B. Fosdick, president of the Rockefeller Foundation in his report on the activities of the organization in 1943. These statements are of general interest and of fundamental truth. Our aim in editing this Journal is to bring those who are interested in the progress of our special science and art closer together and thus to promote general welfare.

If we want to contribute our little share to an international understanding, a more careful study and recognition of the work of foreign scientists and clinicians is of prime importance. Difficulties of language and of access to the literature of foreign countries should not and will not absolve us from sliding into a kind of scientific isolation. At least a reading knowledge of foreign languages, especially Spanish, French, Italian, and German, should be cultivated by scientific workers, preferably in some sort of cooperation. More extensive reviewing of foreign literature should also be an aim of all editors of scientific journals. If we fail in this respect, years of scientific endeavor will be lost in 'rediscovering' facts which we could have learned in a few hours by reading and studying competent literature.

Balint Orban

### EXECUTIVE COMMITTEE of the American Association of Endodontists

- To. 1949: Frank Inskipp, San Francisco, Calif.  
John R. Pear, Detroit, Mich.  
M. D. Wolfsohn, Buffalo, N.Y.
- To 1948: L. I. Grossman, Philadelphia, Pa.  
R. R. DeKruif, Los Angeles, Calif.  
E. A. Jasper, Milwaukee, Wis.
- To 1947: Edgar D. Coolidge, Chicago, Ill.  
George C. Sharp, Pasadena, Calif.  
Morton F. Yates, Cambridge, Mass.