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DECEMBER 1946

Journal of Endodontia

Volume 1

DECEMBER, 1946

Number 4

EDITOR

BALINT ORBAN

180 No. Michigan Avenue
Chicago 1, Illinois

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Editorial

The Veteran's Administration recently published a schedule of dental fees to be paid by the V. A. to dentists working in cooperation with them. According to this pamphlet (10-12, July 1946) the fee for "Extirpation of Pulp, Treatment, Filling of Root Canal, Radiograph, for single rooted tooth" is \$20.00. "Radiograph showing completed root canal therapy must be submitted" according to Note 6.

This fee seems to be quite adequate in certain cases of teeth with vital pulps but no provision has been made for teeth with non-vital pulps where longer treatment might be necessary or a root resection might be indicated. Such treatment must be discussed with the patient and carried out under an agreement between the patient and dentist (Instruction No. 25).

At this time the first editor of the Journal of Endodontia would like to make a few suggestions for the future conduct of the A. A. E. and its Journal. It has been a great pleasure to start this magazine on its journey which, we hope, will be a long and successful one.

However, a permanent editor has to be appointed. Editors, elected each year, cannot preserve the continuity necessary for a good journal. This Journal which started out with twelve humble pages must and will increase in time and will require a more efficient editor than the present who accepted the job for one year only. But also, the members of the Association must take more interest in their publication; more manuscripts have to be sent to the editor along with reviews of books, papers, items of interest, etc. One man alone cannot write the Journal!

The Journal of Endodontia seems to have been favorably received. Most of the libraries of the dental schools have sent in their subscriptions and have asked for continuous mailing of subsequent issues. A large number of other subscriptions have been received; unfortunately our supply of the first issue of the Journal has been exhausted. The quarterly appearance of the Journal should be changed to January, April, July, October, instead of March, June, September, December.

There is another office in the Association which should be more or less permanent—that of secretary. The main business of the Association is in the hands of the secretary and it is disrupting to the organization when this officer is changed every year.

All these duties, of course, are additional burdens on the shoulders of the men involved but they must be performed in the interest of the Association, the profession and the public.

On behalf of the Association and himself, the editor would like to take this opportunity to express his gratitude and appreciation to Mr. F. C. Wild of McCormick and Henderson, our printers, for his valuable help, suggestions and always willing support.

Suction Apparatus Used In Treatment of Gangrenous Root Canals

By SIEGFRIED SEIDNER, M.D., Tel-Aviv, Palestine

In 1934, an apparatus was constructed by the author for the treatment of gangrenous root canals. Root canals may be easily and quickly cleaned by this method and there is no danger of pushing infectious matter beyond the apex of the tooth, thus the possibility of apical periodontitis is reduced.

After the pulp remnants are removed with instruments, the root canal is rinsed well and suction is applied. The canal is then enlarged beyond the apex and rinsed once more, followed by suction. If a periodontitis is present, the condition can be greatly improved by using the suction method; in most cases it can be completely eliminated in a short time. This apparatus may be used also after extirpation of non-infected pulps.

The apparatus consists of a double-metal tube, bent at a right angle near its end, (Fig. 1a-2), a vacuum pump (saliva pump, water pressure or electric pump), a container for rinsing solution (Fig. 1b) and rubber tubes (Fig. 1c and 1d).

The bent end of the double metal tube (Fig. 2) consists of one narrower and longer tube (Fig. 2b) for the introduction of therapeutic agents and one wider and shorter tube (Fig. 2a) for the application of suction. The first tube is connected to the container (Fig. 1b), the second tube (Fig. 1d) is connected to the suction pump.

The double pipe is placed in the pulp cavity and is fastened with a rubber or plastic stopper (guttapercha). When suction (vacuum) is applied, gas, tissue remnants, etc. are removed from the root canal through the wider tube. If the cock of the container is opened, the liquid from the container flows into the root canal through the longer narrower tube and is sucked out through the suction part of the

double pipe. Different drugs may be used: H_2O_2 , Iodine solution, Acroflavin and others.

The treatment lasts from five to ten minutes and may be repeated as often as necessary. The technique is very simple and the results are very satisfactory.

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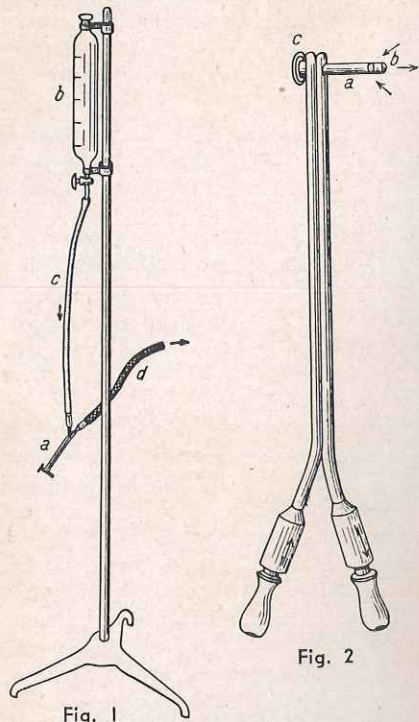


Fig. 1
 FIGURE 1. General view of the apparatus.
 a. Double tube for insertion into the pulp chamber.
 b. Container for therapeutic solution.
 c. Rubber tube connecting container with longer tube (a in Fig. 2).
 d. Rubber tube connecting shorter tube (b in Fig. 2) with suction pump.
FIGURE 2. Enlarged details of a in Fig. 1.
 a. Shorter and wider tube for suction.
 b. Longer and narrower tube for rinsing.
 c. Screw to be removed for cleaning tubes a and b.

*An Appraisal of the Focal Infection Theory With Special Reference to Arthritis**

By RICHARD LYONS, M.D., Univ. of Michigan

I approach a discussion with you of this difficult problem of the role of foci of infection in the manifestation of systemic disease with a sense of humility, and at the same time enthusiasm. Humility because it is a difficult subject which is unsettled in everybody's mind and one about which conclusions have been made too often from faith rather than from controlled scientific clinical observation.

I am enthusiastic about such a discussion with you because of my great regret that the pathways of dentistry and medicine, which were once directed along similar and parallel lines, have become so divergent that the dentist and physician meet too infrequently to discuss their mutual problems. There is no subject that illustrates this divergence better than the problem of foci of infection. The dentists in the second and third decades of this century were reluctant to accept the theory that systemic disease might arise from foci about the teeth, but some physicians, in the enthusiastic acceptance of the theory, gradually forced general acceptance of this concept. The situation at present is somewhat reversed. Physicians are beginning to abandon the theory while some dentists cling to it tenaciously.

Though the theory of foci of infection might be considered to be an old one, stemming from the time when Benjamin Rush in 1818 reported the case of a woman with chronic rheumatism who was cured by the removal of a tooth, it has been widely applied only in the last thirty years. With the discovery of bacteria and the finding of tubercle bacilli in tuberculous joints, gonococci in gonococcal arthritis, other organisms were sought in patients with chronic rheumatism. These were found, but they were varied in character, ranging from cocci to bacilli, and un-

fortunately, there was no agreement concerning the specific type of organism that might be recovered from the arthritic joint early in the investigations and still no agreement at the present time. No concise concept of the theory of foci of infection was produced, however, until in 1912 when Dr. Frank Billings, a respected teacher and physician, popularized the concept that arthritis deformans might arise from distant infections in the alveolar process, tonsils, sinuses, appendix, gall-bladder, prostate, or cervix.¹ Such statements coming from a respected teacher were broadly accepted as an explanation not only of the etiology of arthritis, but also of many other diseases. A further impetus for the theory of foci of infection was given by the amazing work of Rosenow² who reported that he was able to culture streptococci from teeth which had a specific affinity to localize in the joints of experimental animals he found other types of streptococci which would produce other systemic infections. Thus there was apparently good reason to accept tentatively the theory of foci of infection and to give it a thorough clinical trial.

Obviously, this has been done. After a thirty year period we should now take stock of the theory in light of modern knowledge to see if it has stood the test of time. If we are to limit our remarks to the problem of foci of infection arising from teeth we must then, in all probability, deal with diseases which might be produced by the aerobic non-hemolytic streptococci which on culture develop the characteristic greenish tinge by which they are called *Streptococcus viridans*. These organisms may be found in the mouths of young infants and are always present about the alveolar process and teeth of the healthy as well as the sick.

*Paper read at the 2nd annual meeting of the A. A. E., Feb. 14, 1946, Chicago, Ill.

At times they can be grown in pure culture from teeth, even in teeth that are healthy as judged by direct and radiographic examination. Such organisms are present in high concentration in association with periodontal disease, and are usually present in infected pulps. In the same way, however, non-hemolytic streptococci grow freely in the gastro-intestinal tract of normal people and they also may be cultured from the vagina and the cervix. The ubiquitous character of these organisms and the lack of tissue reaction to them would certainly suggest that they are not pathogenic to man under the ordinary circumstances.

The clinical experience of the dentist is the best evidence of the non-pathogenicity of the streptococci viridans in the region of the teeth. The fact that the tissues around periodontal disease, though in close contact with pure cultures of streptococci viridans, fail to show a significant inflammatory reaction in contrast to the pronounced inflammation that may be present in the presence of staphylococci or hemolytic streptococci infection is strong evidence against their pathogenicity. Other evidence for the relatively benign character of these organisms can be obtained by noting the high incidence of benign transient bacteriemia that occurs following the extraction of teeth. Bacteriemia is said to occur in between 12³ and 75⁴ per cent of the extractions. It is obvious, however, that the large majority of these patients do not suffer any systemic reaction as a result of such bacteriemia. Chills, fever, malaise, and prostration, the usual systemic symptoms of a pathogenic bacteriemia, uncommonly develop. When such symptoms are present, other organisms may often be found in the traumatized area to account for the symptoms rather than streptococcus viridans. Then, too, it has been found that chewing or manual massage of the gums in the presence of periodontal disease may be associated with tran-

sient bacteriemia and again it is noteworthy that systemic symptoms are not associated with periodontal disease.

Further evidence against the role of such infections producing systemic disease is the fact that foci particularly about the teeth and tonsils may be found in 60 to 75 percent of all people over the age of forty. In one interesting survey,⁶ 239 psychiatric patients who were very carefully examined and evidence of so-called foci were found in 63 percent of the cases. The majority of these patients had three or more distinct foci. On the other hand, this group was entirely free of any disease that had been attributable to foci of infection. There was no evidence of arthritis, nephritis, ocular disease, or dermatitis.

If the foci of infection theory is to be accepted, one must explain why foci present in the body for years will suddenly cause disease or, on the other hand why such diseases develop in young children or in adults in the absence of demonstrable foci. I have been unable to find an answer that is satisfactory. The concept of bacterial toxins will not answer the problem because no toxins can be demonstrated. Neither is the explanation of bacterial allergy acceptable since it too cannot be clearly demonstrated in many disease states.

With the recent development of potent antibiotics such as sulfonamides and penicillin which will sterilize an infected blood stream of *Streptococcus viridans* and which in the same sense should sterilize a focus of infection, we have a potent agent for the removal of these foci. We have not been able to bring about clinical and symptomatic improvement in many of the diseases alleged to be due to foci of infection. The trials of sulfonamide or penicillin in rheumatoid arthritis or acute rheumatic fever⁷ have failed to alter the course of the disease.

Further evidence that is not in favor of the theory of foci of infection is the change in the interpretation of re-

sults reported after the removal of foci. It has been found that a high percentage of patients with chronic rheumatoid arthritis will improve if given good care and nutrition. The extensive removal of foci of these patients has not significantly improved their clinical state.

The theory of foci of infection has been applied by many unthinking men too widely and too extravagantly so that it is obvious that in the light of newer knowledge of medicine such claims could not possibly be true. Even recently claims have been made that the extraction of teeth and the elimination of foci may prevent hemorrhage in patients with pulmonary tuberculosis. Some of the diseases commonly alleged to be of streptococcal origin, coming from foci of infection, such as poliomyelitis, herpes zoster, or encephalitis, are now known to be due to a virus infection. No disease alleged to come from foci of infection has been specifically proven to be due to the localization of streptococci. It is true that there have been many claims made that in patients with chronic rheumatoid arthritis that there is a high incidence of streptococci that can be cultured from the blood stream or from the joints. It is equally true, however, that other investigators have been unable to demonstrate this high incidence of positive culture. In one instance the same investigator⁸ repeating his work ten years later was unable to confirm his original observations and now believes the streptococci which he formerly thought to be present represented a contaminant from unsterile pipettes.

In spite of this negative evidence, you and I have occasionally seen "miracles" performed following the removal of a focus of infection. These are infrequent, however, and probably remain etched more clearly in our memory because of the extraordinary and dramatic effect. Without doubt some may be on a psychogenic basis where the change may be too marked

for even the most enthusiastic proponent of the theory to accept. I have in mind the story of a professor who was suddenly and rather dramatically afflicted with contractures at his elbow, forcing him to carry on a limited existence with his elbows in a rigidly flexed, immovable position. Because he was convinced of the theory of foci of infection he first consulted a prominent otolaryngologist. In due time a tonsillectomy was carried out under local anesthesia. The patient delights in recounting the facts of his operation. Immediately, as the right tonsil was removed he was able to extend his right arm freely and without difficulty. Then as the left tonsil was removed, the left arm relaxed and he could again extend this arm without pain, so he left the operating room restored to his normal vigor and has fortunately remained well ever since. Other dramatic episodes may be recalled by all of you; perhaps not as ridiculous, but some nearly as dramatic.

Our problem in evaluating the role of foci of infection may then rest in part with the problem of explaining some of these dramatic occurrences. Too frequently, vague pain in one part of the body or another, particularly in the extremities has been assumed to be associated with foci and following the removal of such foci, pain may gradually clear. On the other hand, many of us have had occasional pain in the body which when given time will also spontaneously clear without the removal of foci of infection. The explanation of a pain may never become apparent. The pain of psychological origin may disappear with the acceptance of the religion of foci of infection and the sacrifice of some part of the body as it may also disappear with the resolution of a conflict.

There are, however, some cases which exhibit an acute exacerbation of their symptoms following interference with a foci of infection. Others who have relatively acute and apparently infectious onset of symptoms may recover

with the eradication of a recently acquired infection. Probably the most dramatic areas where such changes occur may be found in the eyes where iritis may tend to clear as the infection in the prostate is eradicated, or with the removal of infected teeth or tonsils. Though such cases are seen, the definite relationship to foci, though difficult to evaluate, appears to exist.

It is my belief that the dentist should have more concise information concerning the diseases he may attempt to treat by the eradication of foci. Let us briefly consider some of these diseases.

Without any doubt, the most common disorder that has been attributed to foci of infection is that of diseases of the joints. The fact that foci of infection have been alleged to cause joint disease has been so widely accepted that I am sure it is not uncommon for you to have a patient with joint pain come directly to you for the removal or care of his teeth rather than consult a physician. In a like sense the often ill considered advice given by many physicians to their patients to have all their teeth out in an effort to ameliorate their joint disease should be looked upon with great skepticism by the dentist.

There are many types of joint disease which are not related to foci of infection. The dentist who is attempting to treat the disease by treating foci should be aware of these differences if he is to consult with the physician in the management of these disorders. I should like to outline to you the types and character of joint diseases that we may often see.

It is obvious that no one would attempt to remove or treat foci of infection in an effort to bring about the relief of pain of a joint such as the ankle that has been injured as a result of direct trauma. In the same sense, one may have specific infections of joints due to various organisms such as tubercle bacilli, vacilli, gonococci, pneumococci, etc.

Joints may suddenly become swollen, red, and painful in allergic disorders, the classical example being serum sickness. They may also be involved when there is a loss of nerve supply.

Some joint disease may be due to metabolic defects, such as gout which is associated with a high concentration of uric acid in the blood stream, and the development of uric acid deposits in the bones. Unfortunately, the possibility of gout is often overlooked during the early development of the disease and the patient may be treated without benefit by the sacrifice of healthy teeth or tonsils. The important characteristics of gout are: 1) It occurs almost entirely in males, usually in middle age. 2) The initial attacks are nearly always monoarticular in character, usually associated with redness, swelling, and increased heat in a single joint. 3) The disease is characterized by attacks rapid in onset which are at first limited to a few days and increase in frequency and duration as the patient grows older. 4) Uric acid deposits called tophi may develop in the joints or in the subcutaneous tissue.

Disorders of the joints are at times associated with other diseases of known or unknown etiology where the joint manifestation is only part of the generalized disease process. These may be difficult to distinguish from chronic rheumatoid arthritis, but in general the disease process causing the joint difficulty is more important to the patient from a long range point of view than the disability of the joint itself. For example, some patients develop clubbing of the terminal phalangeal joints and stiffness of the knees, ankles or wrists as a result of chronic suppurative lung disease or carcinoma of the bronchus. They may initially complain only of their joint difficulty. Those who have diffuse vascular diseases such as periarteritis nodosa or disseminated lupus erythematosus may complain chiefly of joint trouble though this is

only a single manifestation of a generalized disease process. At times, patients with vascular insufficiency of the extremities believe they have arthritis.

We are also just beginning to appreciate that all people who have joint complaints may not necessarily have joint disease *per se*. In a study of 450 soldiers presenting themselves with joint difficulty, 34 per cent were found to have a state which might be termed psychogenic rheumatism, in which there were complaints referable to their joints, but no objective evidence of muscle or joint disease.⁹ This diagnosis was based on the gross incongruities between the quality and severity of the symptoms and the structural change, the persistence of the disability, the qualitative functional characteristics of the presenting complaints, and bizarre postures or limps in the association with other hysterical or psychoneurotic manifestations. In the past, many of these states have been mislabelled, either as an acute arthritis or a fibrositis. It is obvious that under these circumstances if the emotional conflict has been solved at the time or in connection with the removal of foci of infection then there may be dramatic relief of the joint disease. Even in chronic rheumatoid arthritis there is a very distinct relationship between the course of the disease and the psychological or social problem involved in the patient's illness.¹⁰ Thus the onset of the disease may bear a very definite relationship to the development of social problems, and the progression of the disease may be closely related to the environmental influences.

Finally we come to the two large groups with arthritis of unknown etiology in which the role of foci of infection has been most seriously considered—chronic rheumatoid arthritis and hypertrophic or degenerative arthritis. Here, again the different character of the disease is such that most of us at least have been able to discard the role of foci in hypertrophic arthritis

which does not seem to be associated with infection in any sense. The patient is always well physically, but as age develops he may begin to have excessive proliferation of bone about the joints, particularly the joints receiving trauma. In part this may be associated with obesity and the elderly fat lady complaining of progressive stiffness of her knees or shoulders or fingers will ordinarily not be relieved by the efforts of removing foci of infection. The finding of nodules at the terminal phalangeal joints is suggestive of hypertrophic changes in other joints.

In chronic rheumatoid arthritis, on the other hand, the clinical course is often suggestive of a low-grade infection and the evaluation of the role of foci of infection is more difficult. This is usually a disease of young people, associated with spindle-like deformities of the proximal interphalangeal joints, stiffness, loss of joint cartilage, atrophy of the interosseus muscle, swelling, increased heat in the joints and the involvement usually tends to be remarkably symmetrical, both hands, both elbows, both knees, ankles or feet may be involved. The onset is often insidious and may be associated with fever, elevated sedimentation rate, and at times slight elevation in the white blood count. Though such systemic manifestations suggest infection, we may see the fever and elevated sedimentation rate associated with tissue destruction from other causes such as cancer, allergic states, or with diffuse vascular disease.

It is in these cases that positive cultures of *Streptococci viridans* have been discovered and it is in these cases that the pros and cons of the theory of foci of infection are still unsettled.

Unfortunately the removal of foci has in general failed to bring about improvement. In one series of 300 cases, those patients who were not subjected to operation such as removal of their teeth and tonsils have in general done better than the patients whose teeth

were removed. In Cecil's¹¹ series of 200 cases only temporary benefit was experienced in seven cases after tonsillectomy and none after treatment of the teeth and sinuses.

We are still at a loss to explain this disease etiologically, but it would appear that the best attack is an attack directed toward the general health of the patient and physiotherapy to the joints.

We might next consider the role of foci of infection in the production of acute rheumatic fever. This is a disease of young children, generally the highest incidence occurring at the age of eight. We know that this disease which produces red, hot, swollen, tender joints and a high fever, will often follow infection, particularly infections of hemolytic streptococci. The recent experience among the soldiers in large Army concentrations has shown that rheumatic fever will often follow in the wake of epidemics of hemolytic streptococci infections. Unfortunately, the removal of tonsils or teeth has not decreased the incidence of recurrence of the disease though at times one has had exacerbations of infection associated with the operative interference. Its close relationship with hemolytic streptococci would not suggest that foci about the teeth would produce exacerbations of the disease. The prophylactic use of sulfonamides has been successful in decreasing the incidence of positive throat cultures of hemolytic streptococci in these children and in decreasing the incidence of recurrent attacks.

Since acute rheumatic fever is apt to produce defects of the heart valves, considerable caution should be taken in consideration of dental operations in these afflicted patients. It is obvious that such operations on the teeth or tonsils may be associated with a transient bacteriemia. In these cases when there is valvular disease the organism introduced into the blood stream may settle out on the damaged

heart valves and produce a disease state known as subacute bacterial endocarditis. Prior to the advent of penicillin, subacute bacterial endocarditis was almost 100 percent fatal. Often the dentist is unaware of the danger to which he exposes a patient who has had rheumatic fever and who may have rheumatic valvular disease. I do not permit any patient whom I have under my care who has rheumatic heart disease to have any dental work done other than simple fillings without careful preparation at the present time with penicillin or sulfonamides in order that he may avoid in so far as possible the danger of the bacteriemia and the development of acute bacterial endocarditis. Physicians often see patients who develop this disease following the extraction of teeth. It has been estimated that somewhere around 25 percent of the patients who develop subacute bacterial endocarditis have recently had surgery of some sort about the mouth. These usually uneventful procedures have produced sufficient bacteriemia to permit the organisms to settle out on the heart valve. Several days or weeks later the patient becomes ill with a potentially fatal septicemia, usually due to *Streptococcus viridans*.

Nephritis is another disease which is assumed to be related to foci of infection. We are aware that acute nephritis occurs after infections of the hemolytic streptococci and exacerbations of nephritis are associated with re-infection with hemolytic streptococci. Occasionally one may see nephritis arising as a sequellae to other infections such as with the pneumococcus, the staphylococcus, the meningococcus. These are quite rare. Because of the close relationship with hemolytic streptococci it is indeed difficult to see how the teeth which chiefly harbor *Streptococcus viridans* are necessarily involved. After the nephritis is well established and albuminuria is persistent it is difficult to see how the removal of teeth will alter the course of the disease. There are many spontaneous

changes in this disease, but it is probably unjustified to believe that such spontaneous changes are necessarily the result of the removal of foci of infection.

In conclusion let me state that I am sure that the statements that I have made may not be acceptable to you. Some may have accepted the theory of foci of infection so completely that to them it has become a fact. It was proposed as a theory and as such must await proof. I can only say that I, as a physician, cannot agree that the evidence that has been presented over the past thirty years is sufficient proof of

the theory in the light of our present knowledge; nor can I find evidence to support the theory in the change in health of patients I have treated by the removal of foci. It is true I see the failures and you hear of your successes. Many of my colleagues also believe as I, that the theory has had its test and failed. There has been a sufficient sacrifice of healthy or only slightly abnormal teeth for us to learn that in the management of arthritis, rheumatic fever, or nephritis, little is to be gained by the application of such a theory. Like a religion—it must be taken in faith.

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The Nominating Committee presents the names of the following members
for officers of the coming year.

PRESIDENT: Maynard K. Hine, Indianapolis, Ind.

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VICE-PRESIDENT: E. A. Jasper, St. Louis, Mo.

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3. A. T. White, Pasadena, Cal.

Tentative Program for the
Third Annual Meeting of
The American Association of Endodontists

February 13-14, 1947

Chicago, Stevens Hotel (West Ball Room)

Thursday, February 13

6:30 P. M.

DINNER AND BUSINESS MEETING

Friday, February 14

GENERAL SESSION

10:00 A. M.

"Critical Analysis of the Problems of Arthritis"

by

RICHARD FREYBURG, M. D.

Associate Prof. of Clinical Medicine

Cornell U. Medical College

Director of Medicine for Hospital for Special Surgery
 New York City

Dr. Richard Freyburg is an outstanding authority in the field of Rheumatic Diseases, having been director of the Arthritic Clinic at the University of Michigan Hospital for a number of years. His clear, concise presentation of a subject so vitally interesting to dentists should be enthusiastically received.

(Please be on time for this presentation)

11:00 A. M.

"Mechanism of External and Internal Resorption of Teeth and their Repair"

by

BALINT ORBAN, M. D., D. D. S.

University of Illinois

School of Dentistry

Chicago, Illinois

Resorption processes in the pulp have intrigued practitioners as well as research workers for many years. This presentation, which deals with the subject from both angles, is the result of a combined effort by G. Warner, M. K. Hine, B. T. Ritchey and the speaker.

1:30 P. M.

"Therapeutic Agents of Interest to the Endodontist"

by

F. D. OSTRANDER, D. D. S., M. S.

Associate Prof. of Therapeutics

School of Dentistry

University of Michigan

This report is an evaluation of the sulphonamides and antibiotics, with a brief resumé of the significance of hypnotics and analgesic drugs for premedication and post medication. Dr. Ostrander, a member of the American Council of Dental Therapeutics, is well qualified to speak on the subject.

2:30 P. M.

"Electro-sterilization in the Treatment of Various Types of Periapical Lesions"

by

HARRY B. JOHNSTON, D.D.S.
Atlanta, Georgia

This presentation is an illustrated lecture on the response of various types of periapical involvement to ionic medication. Dr. Johnston has done extensive work in the use of electro-sterilization and should make his subject most interesting.

In order to make it possible for everyone to see all clinics, each clinician will give his material to a separate group three consecutive times. In this way smaller groups can come into closer contact with each clinician.

3:00 P. M.

"Symposium on Endodontia"

by

MONTREAL ASSOCIATION OF ENDODONTIA
Montreal, Canada

DR. H. H. PEARSON	— Asepsis	Montreal, Canada
DR. M. B. ARCHAMBAULT	— Operative Procedures	Montreal, Canada
DR. A. D. RICHARDSON	— Surgical Aspects	Montreal, Canada

The Montreal Association of Endodontia has through its enthusiastic members gained the enviable distinction of being a consulting body by the Provincial Government of Canada on all matters pertaining to dental health. Its well organized study club could well serve as a pattern for other similar groups

3:00 P. M.

"The Uses of Penicillin in Endodontia"

by

MAURICE BUCHBINDER, M.D.
New York City

Dr. Buchbinder has written extensively on the use of penicillin in the field of Endodontia and his contribution should be of value.

3:00 P. M.

*"The Management of Teeth with Wide Open Apices
and
Restorations for Devital Teeth"*

by

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Exhibit of the Armamentarium used in Endodontia at the University of Michigan and W. K. Kellogg Foundation Institute for Graduate and Postgraduate Studies.

LITERATURE

ROENTGENOGRAPHIC AND MICROSCOPIC EVIDENCE
AND THE PULPLESS TOOTH

By *G. R. Lundquist, M.S., D.D.S., and D. E. Kellogg, M.S.D., D.D.S.,*

Chicago, Illinois

J. A. D. A., 28; 580; 1941

As the disposition to be made of the pulpless tooth is still a problem, it seems wise to consider the fact that all rarefied areas as viewed on the basis of radiographic evidence are not necessarily infected. Root-canal therapy often makes possible a healing and repair process which results in saving of the tooth and the elimination of the apparent infection.

It is obvious that neither the attached soft connective tissue, nor the epithelium, is revealed radiographically. They appear only as radiolucent areas. The general assumption is that all rarefied areas around root apices are hopelessly infected and therefore require the removal of the tooth.

The elimination of a rarefied area is not so much a case of reattachment and rebuilding as of eliminating irritating elements from the root-canal so that the apical tissues already attached but not radiographically discernible will, when rid of such factors, again rebuild the bone around the root apex. Therefore, rarefied areas, as long as they exist, should be considered as pathologic defects and on this account should be eradicated.

It becomes increasingly clear that the radiogram does not accurately define the consistence of the radiolucent zone; and because it merely reveals defects of contour of hard substances, namely tooth and bone, and not of the soft connective tissues or epithelium, no absolute diagnosis should be based on it.

Root-canal therapy offers definite possibilities for eradicating many radiolucent zones. Statistics based on cases treated and studied present several in-

teresting facts: (a) The method used, has not been 100 per cent successful. (b) Improvements do occur even when teeth showing apical rarefaction are treated.

It has to be concluded on the basis of evidence presented, that root-canal therapy has definite possibilities and is not so hopeless as it is generally considered to be. Many teeth have undoubtedly been extracted because the radiogram is supposed to afford absolute evidence. On the contrary, such teeth are probably extracted because the radiographic evidence is so inadequate that it does not differentiate between attachments, epithelial and soft connective tissue; detachment and liquefaction; necrosis and pus.

W. B. Ingersoll.

A NEW BOOK

The second edition, thoroughly revised, of "Root Canal Therapy" by Louis I. Grossman has been received. The author is to be congratulated on this splendid piece of work. This book will be reviewed in the next issue of the Journal.

NEWS

Dr. J. R. Blayney was presented the Callahan Award at the Ohio State Dental Society meeting in Columbus, Ohio, November 11, 1946. This award, presented to outstanding men, is a tribute to the memory of the late Doctor John R. Callahan, an authority in root canal therapy. The Callahan Memorial Award Commission selected Doctor Blayney for this honor on the basis of, not one particular work, but his service, as a whole, to the profession.

1946 *Standing and Special Committee Members of the
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