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OF THE
NATIONAL DENTAL ASSOCIATION

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The AMERICAN DENTAL JOURNAL

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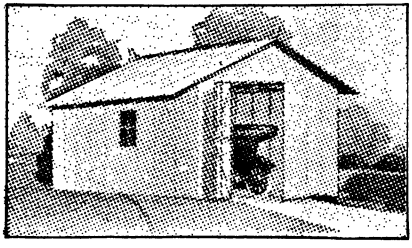

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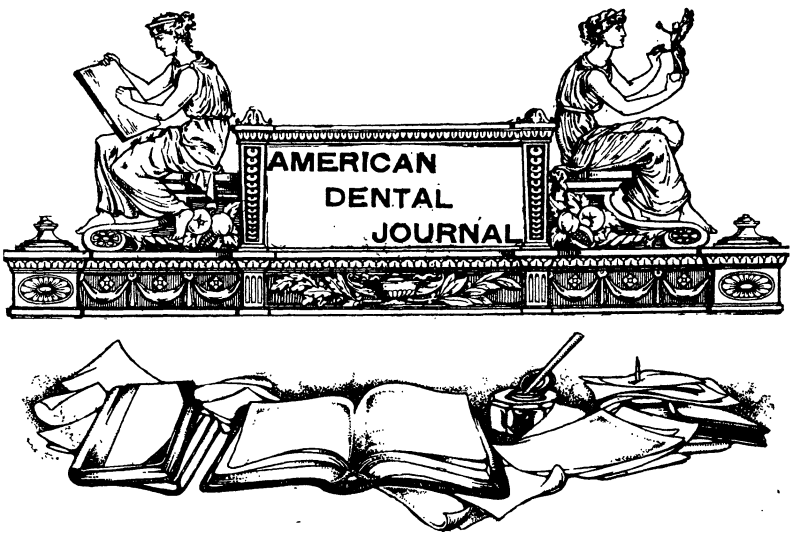


DR. BERNARD J. CIGRAND
EDITOR ** PUBLISHER ** PROPRIETOR
ENTERED AS SECOND-CLASS MATTER AT BATAVIA, ILL.

JANUARY FEBRUARY 15th Editorial and Comment 1915

DENTISTRY AS MILITARY STRENGTH

Of late one reads considerable about the recent success of instituting dental service into the army hospitals and military training schools and the idea exists that this is a matter of recent concern. I know it will be news to most of the readers when they read that as early as 1858, the famed, much beloved Dr. H. J. McKellops of St. Louis advocated such attention be given to soldiers and through the kindness of Dr. Charles W. Rogers, of Boston, I am able to give the readers of the American Dental Journal the resolution Dr. McKellops presented in 1858:

"From The Dental News-Letter, Vol. X, XI, XII.

"Vol. XII. Philadelphia, October, 1858.

"American Dental Convention, Fourth Annual Session.

"See bottom of page 37.

"Dr. McKellops offered the following preamble and resolution:

"Whereas, Owing to the great inconvenience of the officers

and soldiers in procuring competent dentists, when necessarily required, and knowing the difficulty in which they are placed, being stationed at distant posts, where it is absolutely impracticable for a regular practitioner of dentistry to visit them; therefore,

"Resolved, That this Society appoint a committee of five, for the purpose of memorializing Congress on the necessity of appointing dentists to be attached to the regular army, and that we recommend the same to the consideration of the American Dental Convention, and ask their co-operation with us.

"The resolution was adopted, and the following committee appointed: Drs. McKellops, Spalding, Forbes, Branch and Lewis. President Allport added by vote.

"See page 205, Vol. XII. The Employment of Dentists in the Army, where we find republished Dr. McKellops' resolution, etc., showing deep appreciation of the needs of the army for dental services."

GEN. LEE BELIEVED IN MCKELLOP'S IDEA

We are all pleased that finally some of the same ideas have born fruit, but there is still much to do along this same line. The boys who do volunteer into the service do not receive that high grade dental attention which they deserve and in the near future your editor will give you definite report on where the government might easily render more creditable dental work to those who are actually in the service. And may I ask that all practitioners who have performed dental service for soldiers or sailors, if you have observed how inferior is the dental attention they receive at the hands of the government practitioners and will you please communicate with me and give your findings.

The following shows that the Canadian dental inspectors are to pass prospective soldiers on less rigid examinations:

"Ottawa, Ont.—A new policy respecting recruits, it was announced today, has been adopted by the Canadian military authorities. Hereafter, men with poor teeth and other minor physical defects will not be rejected but will be accepted and sent to dental and surgical depots for treatment, after which they will be trained and sent to Europe. Two inches have been taken off the size standard and men below size in chest measurement will

IN TIMES OF PEACE PREPARE THE TEETH FOR WAR

be taken if the surgeons are of the opinion that training will give them the proper chest size.

"It is estimated that 15,000 more men than have been enrolled would have gone from Canada if these regulations had been in force a year ago."

From the pen of that splendid Italian dental authority, Dr. Arrigo Piperno, of Rome, I quote:

"They are telling us that the new active social life in the kingdom of Italy has brought us an increase of dental decay. In the levy of the military from the year 1863 to 1876, namely in thirteen years, there were 2,669 deformed young men, and from the year 1883 to 1893, that is in ten years, 4,400. Without any doubt, decay of teeth was a great factor in the deficiency of their organisms and health. Statistics tell us that the northern people of Italy have worse teeth than the southern. Researches in the elementary school children in Milan have demonstrated that there are 82 per cent of children affected by dental caries (Prof. Plattschick); in Genoa, 73 per cent (Dr. Ragazzi); in Berlin, 67, 79 per cent (Dr. Calcaterra); in Rieti, 64 per cent (Dr. Giannini); in Leghorn, 55 per cent (Dr. Salini).

"In Rome children who need dental treatment are sent by the school physicians to the Central Municipal Dispensary, where, in free dental clinic, I give, every Thursday afternoon, the necessary Treatment. On that work I follow Dr. George Cunningham's ideas: **"Temporary teeth; let them go. Temporize and assuage. Concentrate on the molars and a clean mouth."** As a filling material for the permanent molars I use copper amalgam.

"We have no dental surgeons in our army. The valuable services which they have rendered in the United States has proven their need. Still we have two very well equipped dental clinics in the military hospital of Monte Celio in Rome and in the post-graduate military school for physicians and surgeons of the army in Florence. In the first hospital, in the year 1907, Captain Dr. Perna treated 1,492 soldiers, giving about 4,327 visits. (**Dott. A. Perna, L'Odontoiatria nil 'Esercito.**) The number is increasing in later years. In Naples, Dr. Guerini offers his efficient help for the militars of the army. He has related his work in three interesting publications, one in the year 1898, one in 1904, and the last in the year 1910, in which he calls the attention of the superior military authorities to the necessity of a regular dental service in the army."

Since these people are following America, or rather the United States in this matter, does it not awaken us to become even a more faultless pattern for them to copy?

A report of the Red Cross worker shows:

"The work of dental surgeons of the American Red Cross in the great war abroad has attracted world-wide attention. Wounded soldiers brought to the American hospitals recovered more quickly and were better able to resume their places in the ranks than those treated by any other branch of the medical service. Investigation revealed that this was attributable to the fact that every wounded soldier was not only treated for his injury but was also given a thorough dental examination and treatment when necessary. Hundreds of men were brought from the trenches suffering from no wounds but from rheumatism, heart trouble, nervous shock, general debility and other affections. A very large percentage of these were cured by treatment of the teeth.

Any number of instances with varying symptoms could be given, but these are sufficient to show the nature and extent of disturbances caused by an unsuspected condition of the teeth. This does not imply, however, that all systemic disorders which do not respond to medical treatment, are directly traceable to an unhealthy condition of the oral cavity."

All this goes to show that we as dentists must be up and doing or the medical profession, the nurses and the scientific organizations which are researching eagerly along these oral lines will prod us to wake up. This is our field of work, and we should lead now, as we have for a century.

EXTRACTING MONEY INSTEAD OF TEETH

New York Herald

[The following sharp comment on how the public is defrauded by unscrupulous dentists should concern all well-meaning practitioners.—Editor.]

Of all the numerous ills that afflict humanity, toothache is, if not the worst, at least the most exasperating. So much so that Shakespeare said:

> For there was never yet philosopher
> That could endure the toothache patiently.

Because it is excruciatingly painful, demanding instant relief, and because relief can be afforded only by a professional practitioner, the dental profession has a larger hold on humanity than any other. It also has greater opportunities for concealing deceptions or mistakes.

Some of the physician's mistakes are disposed of by the undertaker, but an improperly treated patient who survives may ruin a valuable practice. The lawyer's errors are always liable to exposure in the appellate court. Mistakes in the newspaper call forth a flood of letters of protest and correction. But the mistakes of the dentist are covered with gold caps, concealed by some sort of filling or form an insignificant item in the bushel or so of extracted teeth that adorn many a dental office.

This condition of affairs affords abundant opportunities for fraud and deception on the part of unscrupulous dentists, and in that profession as in every other there are crooks, dishonest operators who take advantage of the ignorance or credulity of their customers. As there are shyster lawyers, physicians whose practice will not bear investigation, clergymen who place gain above godliness and publications that exist largely on systematic blackmail, so there are dentists who derive the bulk of their income from the extortion and deception they practice on their patrons.

"I don't want to say that there are any of that class in Boston," said a prominent dentist when questioned about this matter. "I know, as does every reputable dentist, that there are improper and unjustifiable practices among a certain class of dentists who have nothing but a temporary, transient business, who have not and do not seek a permanent clientele. These matters come up at dental conventions, they are exposed in the professional magazines, and the profession does all it can to weed out these undesirable practitioners; but most of the people who go to them for treatment either do not realize that they have been swindled or do not know how to go about seeking redress. So they flourish, for a time at least, on the theory that there is a sucker born every minute, and that they will get their share of the crop."

Further conversation with him and with other dentists revealed some of the practices by which these unscrupulous operators fatten on their uninformed patients.

One common method is to advertise from 25 cents up. The sufferer reads the advertisement, or sees a notice to that effect at the doorway leading to the dental office. He goes in and submits to an examination. "Yes," says the dentist, "that tooth needs filling. I can fill it as I advertised, for 25 cents (or whatever the price may be); that will be a silver filling. Now, if I use a mixture of silver and platinum it will be much more satisfactory and more likely to be permanent, as the platinum will have an antiseptic effect on the tooth."

He shows the patient two bottles. The contents of both look alike and in fact are alike, but the patient is led to believe that one is plain silver and the other silver and platinum. In most cases he pays the larger price for the sake of permanent work, but in reality he gets only the plain silver filling.

Whenever it can be done these sharks try to have the patient return for more work. Sometimes they operate in this way. They fill a tooth, saying "Maybe that filling will not be satisfactory. You had better come back in a few days and let me look at it." When the patient returns, if he seems able to pay for the work, the dentist tells him that the tooth will not retain the filling and that the only safe thing is to have a gold cap put on the tooth. These caps are often bought ready made and the crooked dentist takes no pains to fit them properly because he has other work in mind. Before putting the cap in place he puts a few grains of sugar in the cavity of the tooth. The moisture in the cavity causes fermentation of the sugar and excruciating pain results.

The patient returns to the dentist with his complaint and another examination is made. "I'm afraid that tooth won't stand a cap," says the dentist. "It's in worse condition than I thought it was. About the only thing we can do is to extract the tooth and put in a bridge."

Now all that is something that may (mind you, may) happen in the office of the most careful and reputable dentist. Conditions may develop differently from what appeared when the first examination was made. The crook takes advantage of that fact. He makes his customer pay in the first place for a more expensive filling than he intended to have, then for a gold cap, then for extracting the tooth and building a piece of bridge work. So that the man who went in intending to pay 25 or 50 cents for a bit of filling finds that his experience in that office has cost him about $15. This class of dentists demands payment in advance so he cannot save himself by refusing payment if he becomes suspicious; most of the patrons of such places do not know enough of dentistry to be suspicious, however.

It is not alone the dentists who advertise cheap work who lead their patients along from one expense to another. The reputable dentist often finds a patient who has neglected his teeth until there is much more requiring attention than he realized when he entered the office, but the difference between the reputable and disreputable practitioner is that the former merely points out the situation and advises that the work be performed,

while the other forces the issue and practically compels a larger expenditutre when once he has the patient in his clutches.

Advertising free extraction is another dodge of these sharks. When the victim reaches the office he finds that extraction is free only when he gives the dentist an order for artificial teeth, and these must be paid for in cash before the teeth are extracted. The crook will take no chances on contracts or promises of future payment. The artificial teeth may not fit, but the dentist has the money and the patient has no recourse.

Sometimes there is no excuse for putting in a full set of new teeth and the dentist compromises on a piece of bridge work for which he charges as much or more as the cost of a plate.

Some of these dentists advertise a full set of false teeth at a price so low that reputable dentists say they cannot afford to supply the material at the price. They may use inferior teeth and second-hand plates. Perhaps they do, for an occasional advertisement appears offering to buy second-hand false teeth. According to t. e price quoted to the representative of The Herald by one dentist, the cost of first quality teeth would be almost four-fifths of the price named for a full set of teeth. That would leave practically nothing for the other materials and the labor. "But then," he said, "while only registered dentists who have passed their state examinations, are supposed to do any work in the mouth of a patient, they may be employed in the laboratory, putting the teeth together, making and finishing the plates, and I have no doubt that some, perhaps many, of them actually do work at the chair. Of course they are not paid the wages of a registered dentist and the labor cost is thus reduced all around. Such a practice is in violation of law, but the patient who enters a dental office suffering from toothache is not likely to scrutinize the diplomas on the wall nor to insist on knowing the name of the operator. He is satisfied to secure relief.

That is where the dentist had advantage of the patient. The suffering that leads the average man to the dental parlor demands immediate relief. He believes in the ancient proverb that "Who hath an aching tooth has an ill tenant," and that "An aching tooth is better out than in." He doesn't go there to discuss the state of his health or the general condition of his teeth. He wants one particular tooth looked after at once.

(To be continued)

ABRAHAM LINCOLN PRACTICED ANALGESIA

By Dr. B. J. Cigrand

In the February month it is appropriate to render some consideration to Abraham Lincoln, but few indeed will be the readers who would associate the name of Lincoln with advanced dental practice, yet the fact clearly indicates the testimony supported by the best of witnesses.

Just now while we are considerably concerned about a leslening of pain in the performance of dental operations, I have completed an interesting investigation relative to the dread of dental pain by Abraham Lincoln.

The following from the correspondence of Edwin F. Bowers and corroborated by my personal investigation of the experience of Dr. Wolf of Washington, D. C., will interest all Americans:

"Since the introduction of anaesthetics it was believed and taught that it was improper and dangerous to perform surgical operations before narcosis (complete unconsciousness) had been induced. Even to operate during the stage of light anesthesia was not permitted: nothing short of deep unconsciousness was tolerated.

"So when first the tidings winged haltingly over the Atlantic that Sir James Young Simpson, in his clinics at Edinburgh Hospital, was using chloroform to dull the keen pains of childbirth, Dr. Austin C. Hewett of Chicago conceived the idea that the merciful fumes might be equally valuable in dentistry. Procuring a supply of chloroform from London, at a cost almost ruinous to his slender means, he began to experiment on animals with it.

"It happened that at this time he was suffering with an abscessed upper incisor tooth. So he took several inhalations of the chloroform vapor, and in that state of drowsiness which he afterward called 'obtundure' he forced a lance against that part of the gum covering the root of the tooth. When he withdrew the instrument he discovered, much to his amazement, that the point had penetrated a quarter of an inch or more, and no particle of discomfort had been experienced. He then took his courage in both hands, carefully adjusted a pair of forceps over the incisor, breathed deep of the sweet pungency, and pulled his own tooth—absolutely without pain!

"This was the first surgical operation ever performed under analgesia (if we except the mandragora and poppy of the ancients), and the first operation performed under chloroform in America.

"Naturally, Dr. Hewett was enthusiastic; but, like every medical or surgical innovation, dental analgesia met with a skeptical and frigidly discouraging reception. He continued to advocate and employ chloroform in his dental and surgical practice for over fifty years, operating under every possible condition with 'surgical analgesia,' omitting only four or five of the gravest and most complicated general operations, for which he used the anesthetic stage.

"But, except for the support of a few pioneers, the practice met with scant favor. It is only within a few years that analgesia has achieved general recognition. In fact, it is still in the swaddling clothes period, so far as any extensive use is concerned.

"Dr. Wolf of Washington, D. C., relates that sometime after the 'Hewett method' had been introduced a tall, raw-boned, awkward man, with a sad face and a kindly eye, came to his office to have a tooth extracted.

"Just as the doctor was about to operate, the stranger said, 'Wait a moment, please,' drew from his pocket a small vial, removed the cork, and inhaled deeply of a volatile substance for a minute. 'Now you may proceed,' he said, and opened his mouth.

"The tooth was removed painlessly. The substance was chloroform; the patient, Abraham Lincoln.

"Six years later (1868) Dr. Andrews of Chicago added pure oxygen to 'N_2O,' as dentists and surgeons prefer to call the laughing gas, and attempted to perfect a certain, safe method of producing analgesia. The results were fairly satisfactory, considering the crudeness of his invention; but the profession still held coyly aloof from the newfangled device."

This sure is interesting and it connects Dr. A. C. Hewett with this new method, though used by Lincoln in 1848.

HOW DEATH LURKS IN TEETH

By Kathleen Hills

[Leslies Weekly gave us a splendid article by Kathleen Hills and it is worth reading. The public press is supporting our professional service. Now and then an article is published

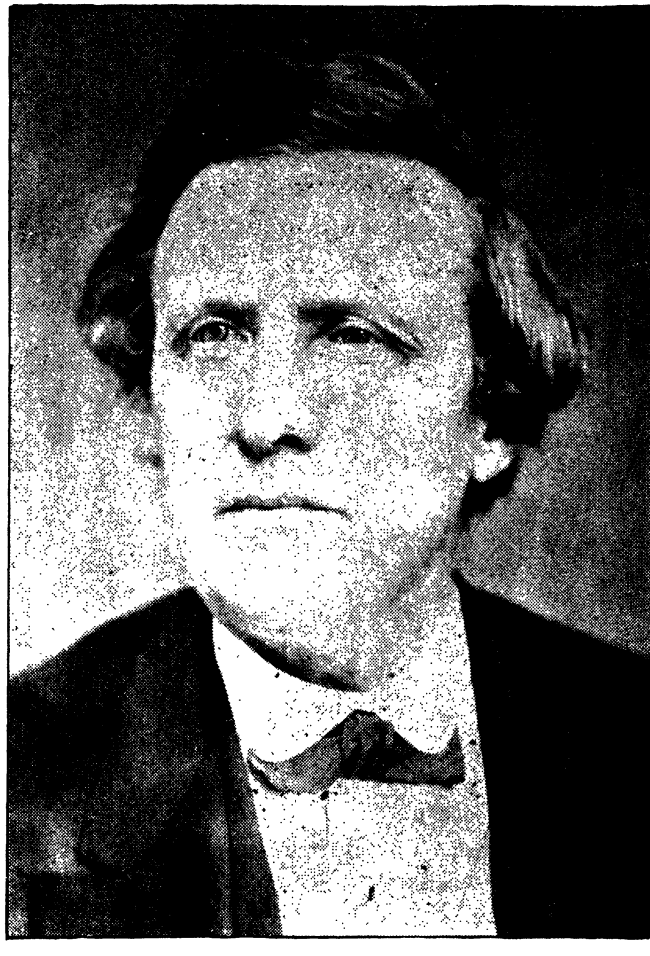
which has errors, but do not condemn the popular magazine or newspaper editor, he is not a dentist and is trying to educate the public. Don't condemn so freely—help to get the editor to do better by advising him not finding so much fault.—Editor.]

There is something new and startling in medicine every day. At one time it is a new serum, at another time it is twilight sleep, another it is a bacilli to prevent old age! But who would ever think for one moment of attributing rheumatism and other painful afflictions to a concealed and unrecognizable abscess at the root of a tooth? Yet this is one of the greatest scientific discoveries in dental surgery, and many a man who has suffered agonies from disturbances, not only in body but also in mind, is now sent to the dental surgeon for an X-ray of his jaws, though he may not have complained of any trouble with his teeth.

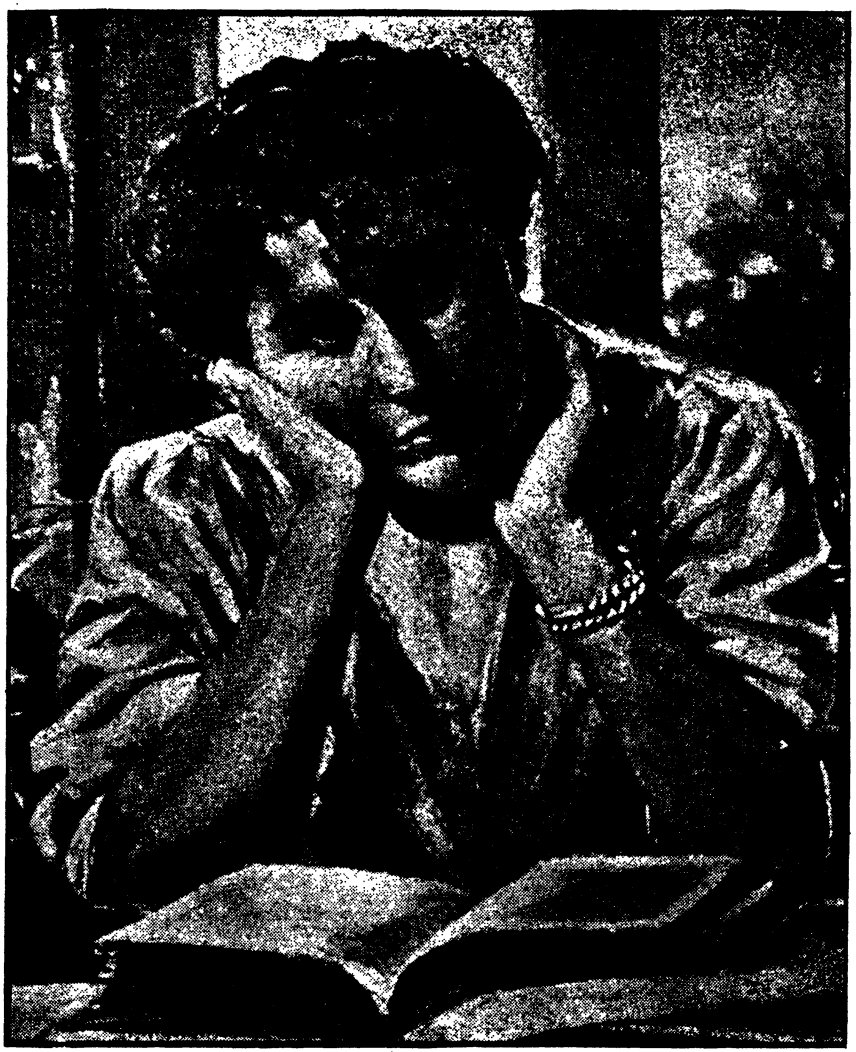
The human body is like any other delicate mechanism. It is a composite of separate units, all of which must be in good condition and perform their separate functions perfectly if one's health and mentality are to be the best. A watch will not keep correct time if the tiny hair-spring is bent; a compass will not be true if the needle becomes demagnetized, and one cannot be well if all the organs are not functioning harmoniously. It is an unrefuted fact that the general health depends largely upon the condition of the teeth and oral cavity. Almost any systemic disorder, such as stomach and intestinal trouble, anaemia and other blood disorders, diseases of the joints, heart and nerve affections, neuritis and neuralgia can arise from their neglect. Even appendicitis, impaired mentality, insomnia, melancholia and seizures simulating epilepsy have been traceable to pernicious root abscesses of the teeth which were not reveald by local pain, did not respond to pressure, the application of heat or cold and in most instances were absolutely unsuspected by the sufferer. These maladies, as Dr. Alonzo Milton Nodine, an eminent dental surgeon, says, "have been relieved and frequently cured when the dentist has discovered root abscesses, persistent irritation in or about the teeth and jaws, or removed impacted teeth and hidden roots and unhygienic and irritating crowns, bridge-work, plates and fillings and corrected warped and contracted dental arches."

How the Damage is Done

And how, one asks, can an abscess at the root of a tooth cause disorders in remote parts of the body? Generally, alveolar abscesses, as these concealed root abscesses are called, are formed on teeth which have been treated by the dentist. Usually the root canal has not been thoroughly filled, possibly due to a

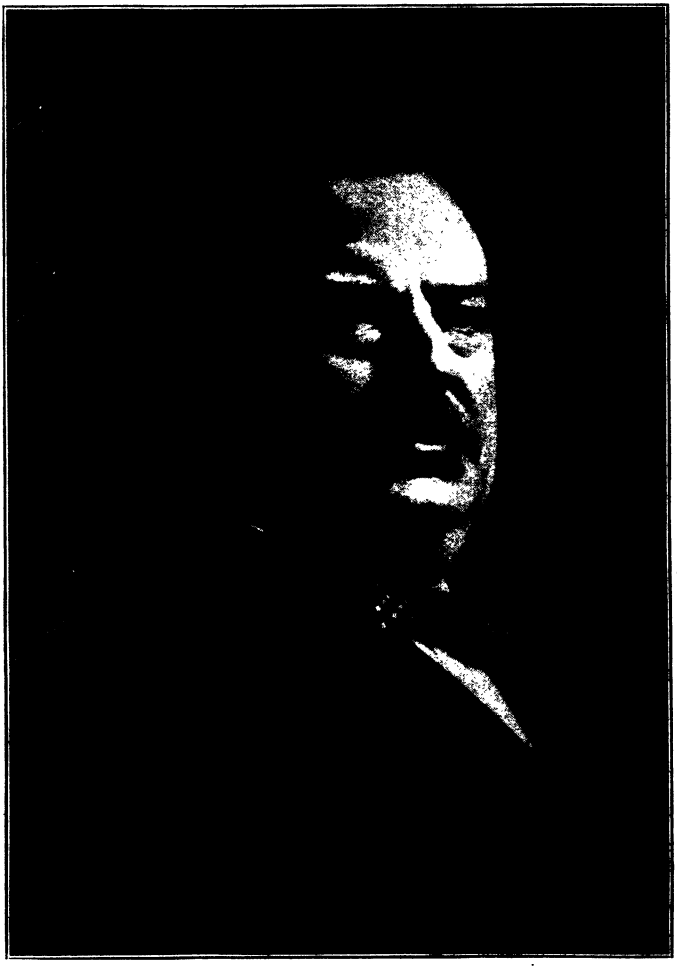


DR. C. E. CHAMBERLIN
First to practice oral hygiene in public schools—1876.



MRS. PIERRE CURIE, who gave us Radium.

"The Eagle has no teeth at all,
But he gets there just the same."
—BILLINGS



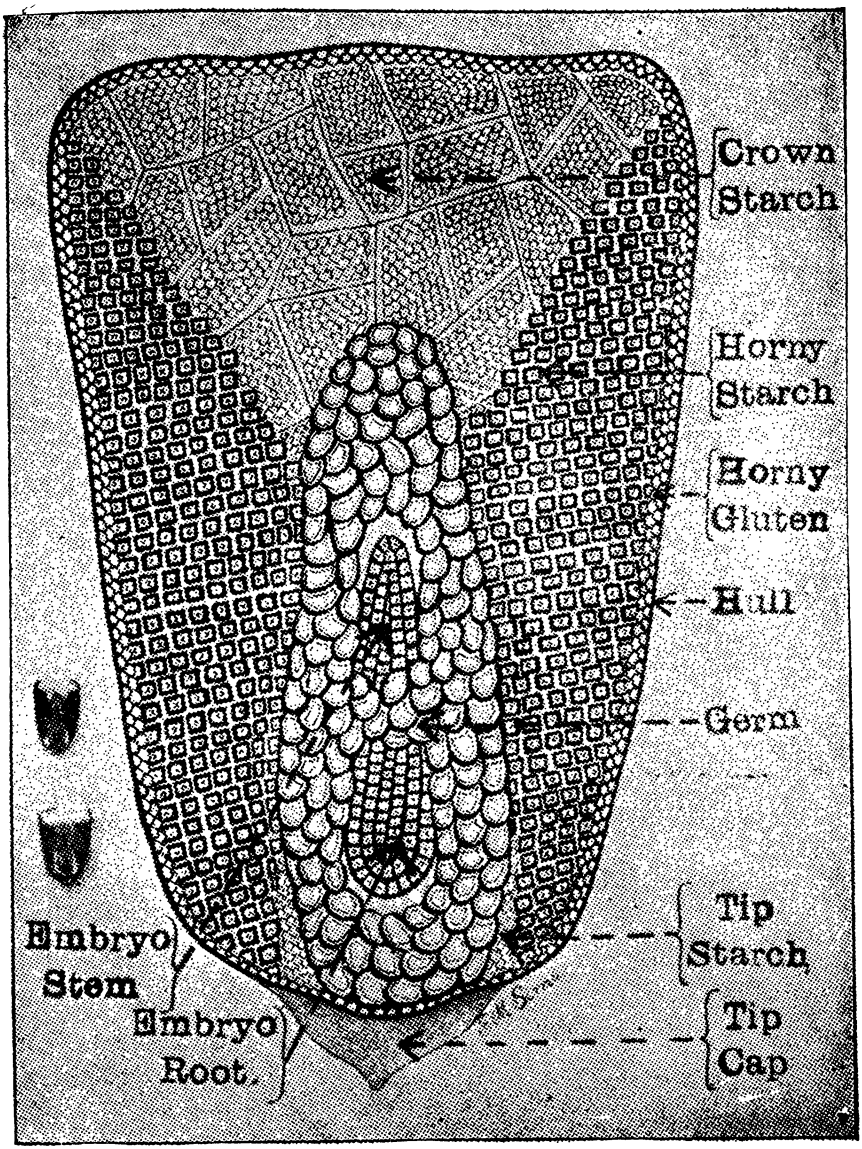
"That person has the best balanced mind who works with hands and brain." —CLEVELAND.

LAVATER, sketching dental and mandibular characters.

"I'll give you just a little drop,
Then that tooth-ache will quickly stop."

"Tooth-ache causes crime."—Riis.

"The rich should pay towards the relief of the poor."—Jusserand.



CORN, Staff of Life. Can you masticate it properly?

crooked root, from which it was impossible to extract all of the dead nerve, the remaining portion of which in a short time decays. There being no outlet, the pus works inward through the root of the tooth, an abscess forms at the apex in the bone tissue in which the teeth are set, and in advanced cases causes necrosis, or destruction of the bone tissue. Pus, no matter where it forms, seeks an outlet. It has a most extraordinary power of working through muscle or bone tissue, until at last it finds an outlet or is absorbed by the blood. Each tooth is supplied with tiny blood vessels as well as nerves, and the walls of the blood vessels absorb the pus around them, just as a blotter soaks up ink. This toxic poison is carried into the larger blood vessels and into the circulatory system. It then requires no great stretch of the imagination to see how any portion of the body, however remote, receiving the poison generated in the mouth, becomes the seat of affliction, or why, if the cause is removed, the patient recovers from his systemic disturbance of whatever nature.

If the abscess causes no pain and is not otherwise suspected it is only discoverable by means of the X-ray. Taking a roentgenogram of the teeth is a simple matter and is not accompanied with pain or any disagreeable feeling, and the picture is taken in about five seconds. The patient is seated in an ordinary dental chair, and a glass, cup-shaped portion of the X-ray apparatus is placed against the part of the face to be photographed. A small film, about an inch wide and an inch and a half long, is placed in the patient's mouth. He is instructed to hold it back of the teeth, not between the teeth and the flesh of the cheek. Then one sees a sudden flash and hears a noise like the familiar clicking and flashing of a wireless instrument and almost immediately the photograph is taken and the patient surprisedly exclaims: "Is that all there is to it?" He is further surprised, when, a few minutes later, the fully developed film is handed to him and he is told that that is his negative.

The histories of a number of cases which have been successfully treated by various dental surgeons are interesting, and to show the variety of systemic disorders which arise from alveolar abscess I will cite a few of them: Dr. C. Burns Craig, chief of clinic, Neurological Institute of New York, had a patient who complained of thumping of the heart at night, at first very slight, the attacks gradually increasing in severity and frequency until they were occurring during the day as well as at night. Finally Dr. Gilmer says that 25 per cent of devitalized teeth are affected with alveolar abscess. The dentist should become cognizant of the general condition of his patients as to systemic

tone, and should call attention to the foci of infection, and thus the physician and dentist should work together in the cure of disease. The useless and ruthless extraction of abscessed teeth—which are savable by surgical interference—as witnessed by the oral surgeon and specialist in extraction, is appalling. In my opinion any dentist who gives up the fight to save teeth in a majority of cases, without a radiagram and the careful study of canal and root formations, is derelict in his duty toward the welfare of his patients." The expression of such opinions leads to the belief that eventually dentists will be required to have a medical degree, and a more thorough knowledge of the oral cavity will be exacted of the medical graduate. In fact many of our most eminent dentists already are entitled to an M. D. after their names, and throughout the medical profession mouth conditions are being studied more than ever before.

In the United States there are about two hundred medical publications with a combined circulation of approximately 850,000. With our 100,000,000 population it is readily seen that comparatively few learn of the great advances in medical science. In no other profession is such secrecy maintained. In the realms of electricity, physics, astronomy and explorations every discovery is immediately given to the public, not through a professional journal, but through the magazines and newspapers, the greatest educators of the age.

BETTER KEPT TOOTH BRUSHES

Recent experiments show that the great majority of toothbrushes are in a disgusting state of uncleanliness and so laden with germs that they are capable of spreading all sorts of disease. A brief ablution under the tap or in a tumbler after using is all the cleansing the average tooth brush ever receives, and this is totally inadequate to render it reasonably clean.

In these experiments each of twelve sterile brushes was used once, rinsed ten times in a tumbler of water, and after standing for twelve hours all the bristles were removed with sterile forceps and examined for germs. In eight out of twelve cases more than a million organisms were found—a number comparable with that found in sewage.

The brushes examined were ones used by persons suffering from diseases of the teeth and gums. But four brushes used by persons with apparently healthy mouths revealed almost as large a number of bacteria.

Antiseptic powders and pastes are helpful in keeping brushes clean, but even they are not sufficient. Experiments with seven such preparations showed that there was an appreciable reduction in the number of organisms, with two others there was practically no change, while with three others there was no appreciable improvement.

What makes the toothbrush particularly dangerous is that each bristle point acts as an inoculating needle in carrying the microbes into the delicate membranes of the gums. As the toothbrush should be used at least twice a day, the gums get no chance to throw off one infection before another is forced upon them.

Dr. Ernest C. Dye of Greenville, S. C., has invented a tooth brush with a hollow handle to meet these difficulties. As soon as the brush has been used the bristle end is unscrewed and stuck into the hollow handle. In the inside of the handle a few drops of formaldehyde or some other powerful disinfectant are kept. The fumes of the disinfectant sterilize the brush before the next use. The same results may be obtained by keeping the ordinary toothbrush in a wide-necked bottle or fruit jar or any receptacle which can hold the brush and a few drops of sterilizer. Of course, it must be air tight.

TO YOUTH

O ye who have no aim in sight,
Who have no goal for which to fight:
O ye whose lives are lax and vain,
Who live but for the moment's gain;
And ye whose paths are vague and dim,
Get ye a God and worship Him.

Walk not the frivoling ways of mirth
That bind you to the sordid earth;
But in thy strength, the strength of youth,
Choose for thy God the God of truth.
Thy soul may mount on wings of fire
And to celestial heights aspire.

—By Charles Channing Allen, D.D.S.

HOW FAR CAN THE NATURAL DENTURE BE COPIED?

By Henry James Morris, L.D.S.

[This Englishman has something to say which may make you think.—Editor.]

In giving you a paper on this well-worn topic, I cannot hide from myself or you that I have nothing new to offer, and also that I am addressing many here whose experience is greater than my own. But I have found time to write the paper which some one else might have written, so perhaps that more experienced worker will enlighten us all at the end on how a denture really should be set up. But, gentlemen, there is one consolation which the readers of papers always have, it is this: A long experience has taught me that in every gathering there will be one or two who have not yet heard where Moses was when the light went out, so if a ray of mine should illumine their darkness, then I shall not have come in vain.

At one time, the perfect human denture was my model, but gradually one fact after another emerged which forbade the imitation and tonight I propose to go categorically through those facts, or as many as I can think of, and point out how, and why, and where they force us to diverge from our ideal.

In order also to help a discussion, I propose to say plainly what I think, so that those who object, will know just what they have to object to.

The first fact we are faced with is the necessity for stability in our work, and as the forces which would dislodge a denture cannot be altered, they must either be avoided or effectively opposed. Our dentures are not firmly anchored by roots in the alveolus.

What changes therefore must we make to obtain some degree of stability?

It seems to me that the main point to bear in mind is to get the resistance opposite to the stress and, in the case of much absorbed jaws, this means a reversal of the overbite and an arrangement of the lower molars outside the uppers instead of inside. In other words, to mount the teeth on both jaws on the tops of the ridges, quite irrespective of the normal arrangement.

Writers on the articulation of dentures have a good deal to say on the necessity of three-point contact, but it has always seemed to me that when a denture was at work there was really

no contact at all, and that unless the resistance was opposite to the stress the denture would be unstable.

The posterior surface of a canine really acts in much the same way as the slide of a piston in an ordinary reciprocating engine.

Dr. Gysi advises us to grind our artificial canines in such a way as to avoid this stress altogether, and I think it is good advice. This again is a divergence from the normal state of things.

Dr. Haskell's remarks on the necessity of using flat molars and premolars raises another point illustrating the difference between the natural and artificial conditions.

The question of cusps or no cusps for molars and premolars seems to be a highly contentious one. One thing we do know, and that is that teeth with cusps of the natural length are unobtainable and the present position seems to be one of compromise on the point.

What I mean by this is that increased skill and understanding and better materials are giving us better models, with consequently greater stability for our work, and this is permitting the use of longer cusps which will undoubtedly cut up food more effectively than the older and flatter teeth.

I think that it is a universal custom among bridge-workers to use teeth smaller and flatter than normal so as to avoid, as far as possible, any stress which might wreck their work.

The next point I should like to speak about is that troublesome condition known as **close bite** or what is worse, a closing bite. Its worst effects are to be seen in the mouths of those nervous, strong, square-jawed people, who are seldom found among the failures of life. It begins with the loss of some of the molars and an unfair distribution of stress on the others, which one by one are loosened and lost. As the muscles appear to shorten, the hopeless tragedy goes on, and I must confess myself powerless to deal effectively with it. Dentures are almost worse than useless, as in my experience it is a futule proceeding to "raise the bite," as it is called. I pointed the condition out once to a doctor who came to consult me, and at his request I raised the bite with a strong bridge. The history of that bridge was as follows: One of the abutments loosened twice and when it was re-inforced the other one was bitten through, and after that was mended, the bridge broke under the pressure and down went the bite again. This condition, therefore, implies a deviation from the normal, in the direction of increased depth of

overbite in partial restoration, and a compensating curve, which is functionless, and also the use of shallow bicuspids and molars.

The absence of wisdom teeth from artificial denture brings about yet another modification in our work in regard to the compensating curve.

In the perfect natural denture a compensating curve, which is functional, would seem to have the effect of preventing an undue stress from ever being thrown on the samewhat slender edges of the incisors, because in the perfect dentition the wisdom teeth would receive any extra stress.

Years ago I made a few lower dentures with the lower molars in normal articulation with the uppers, on **absorbed alveoli, remember.**

The upper teeth had to be on the top of the much absorbed and reduced upper ridges, so the lowers were put in an even smaller circle and to accommodate the tongue, I hollowed out the lower dentures thus—

The result was that the lower denture practically rested on the tongue and took a circular tour round the mouth whenever the patient moved that unruly member. Now, I should reverse the overbite and round out the lower denture on the inside so as to give the tongue no direct opposition to its movements.

At the end of my paper and by way of introduction to a demonstration of Dr. Gysi's articulator I should like to explain as well as I can what is meant by "the anatomical articulation of models," and also to say something about the movements of the human condyle.

The anatomical articulation of models briefly put means this —that they should occupy the same relationship relatively to the joint mechanism of the instrument, as do the jaws to the temporomandibular articulation. If models are mounted without due consideration of the proper levels and distances between the ridges and the joint of the articulator, it is obvious that the correct position is being guessed at, with the chances 1,000 to 1 against the correct one being found.

If the dentures are set up too far from the joint then the pressure in the mouth will be too severe in the molar region. If too near the joint then in the mouth they will only meet in the incisor region.

The average distance is, of course, four inches from the joint to the centrals.

But by means of the face bow much greater accuracy is obtainable with these distances and levels and with Dr. Gysi's in-

strument as I shall presently show—it is possible to obtain not only a tracing of the condyle path, but also to calculate the approximate angle of inclination of that path, as well as the varying positions (for each patient) of the vertical ones of rotation which control the triturating movement in mastication; finally, with regard to the movements of the condyle.

This very complicated matter is explained in the current number of the British Dental Journal; but as this Society may have members who do not belong to the B. D. A. and others who do not read journals, perhaps a brief explanation may help to make it easier to understand.

The horizontal axis of rotation is movable.

Dr. Bonwill, in his articulator, which was the first of the "anatomical" variety, emphasised the forward movement of the condyle in opening.

Next Dr. Walker discovered that the condyles also moved up and down, and both thought that these movements took place in straight lines which is not the case.

Finally, Mr. Norman Bennett showed that there was also a transversely directed movement of the condyles during trituration, so that the joint is a sort of compromise between a ball and socket and a hinge and a simple gliding joint.

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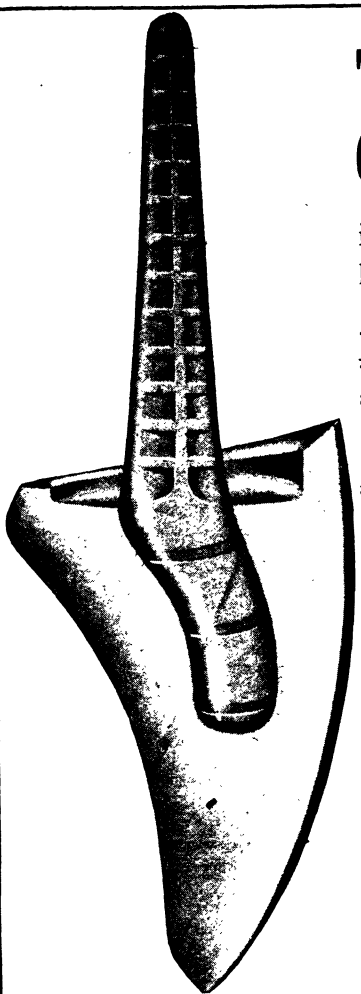

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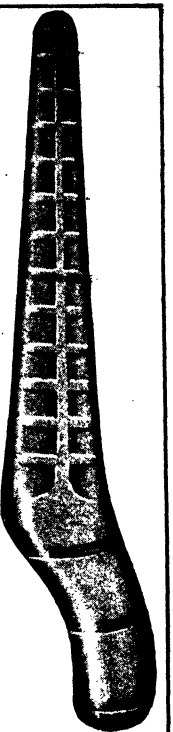

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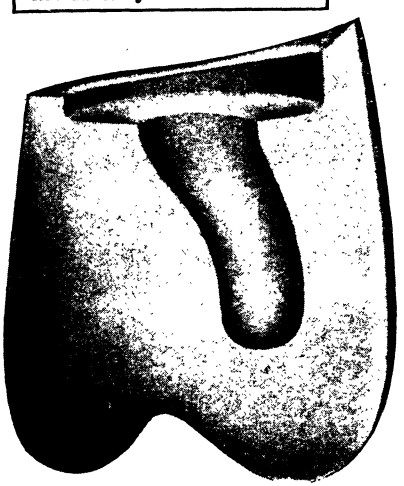

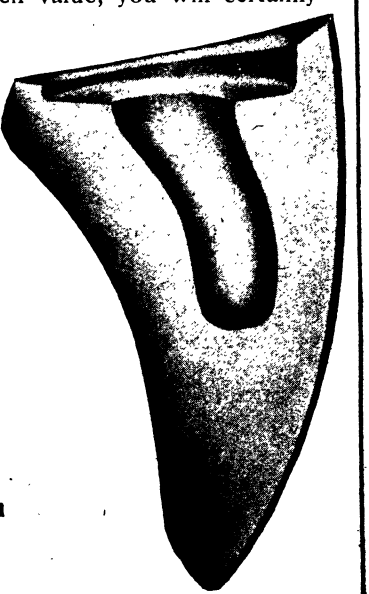

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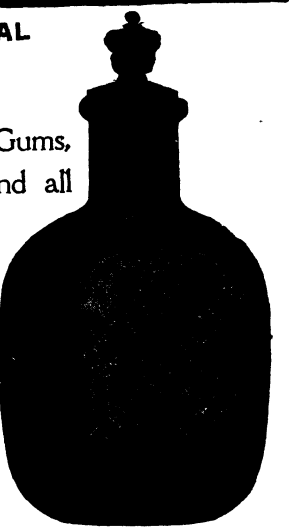

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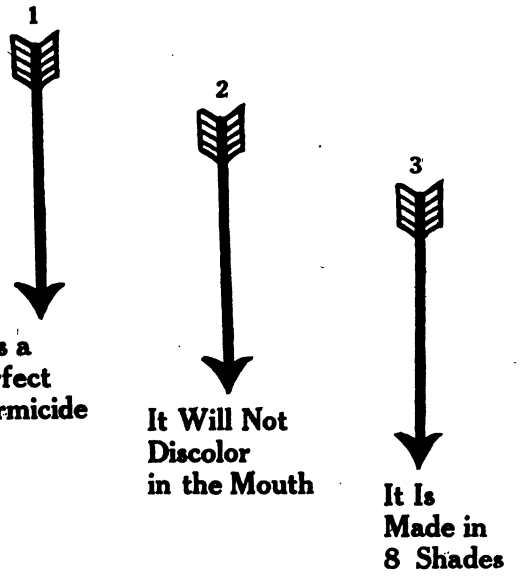

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