

THE

Journal

OF THE ✓

PHILIPPINE DENTAL ASSOCIATION

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"NATIONAL CHILDREN'S DENTAL HEALTH DAY"

Dental science, within the last few years, has made tremendous progress that today various drugs and procedures with which to combat dental diseases are now available. The advent of sodium fluoride and other means in the prevention of dental caries has focused the attention of dentists to the dental care of children.

We should be glad about this concern over the dental health of the child population, to which little attention has been paid in the past, if it was not altogether neglected. It is our responsibility to see to it that our children possess clean and healthy mouths in order that they may fully enjoy the joys of life. These little citizens of today, who are the country's leaders of tomorrow, rightly deserve the growing interest which we are showing to them.

The Federation Dentaire Internationale, realizing the importance of paying particular attention to the dental health of children, approved a resolution at its 37th annual session held in Milan, Italy, last year, "That widespread treatment programs for the adult population of any nation should be instituted only after proper provision has been made for the adequate dental care of the child population."

In the Philippines, however, not so much interest is displayed by the people and the profession in children's dental health as is the case in the United States. As a step towards arousing more interest in dentistry for children in this country, the idea of launching a "National Children's Dental Health Day", may be worthy of consideration. This will focus public attention on dental health and inculcate on the minds of our children the value of having healthy and well-functioning masticatory apparatuses. It will be an effective weapon in the local dental profession's fight against dental disease as it has proved to be in the United States, where a similar program was launched a year ago on a nation-wide basis. This year, President Truman has proclaimed February 6 as "National Children's Dental Health Day" in America.

We feel that a Presidential Proclamation for the nation-wide observance of National Children's Dental Health Day" will be the key that will unlock the latent interest of the people in dental health, particularly for our children, and we look forward to the time when this program will be a regular annual celebration in this country.

THE PRESIDENT'S PAGE

We inaugurated this column last month with an intimate discussion on the tremendous responsibility which falls upon a person who heads any organization. We also stressed the fact that in order to justify the existence of an association it must have a noble purpose to achieve and a definite mission to fulfill.

Our choice as president-elect of the Philippine Dental Association in October 1948 came at a time when the heated controversy between the Secretary of Health and the Association over the abolition of the practical tests in the dental board examination was at its height. Our election, therefore, may be considered as an aftermath of said controversy.

Whether our elevation to the presidency was our good fortune or not is not for us to judge. Suffice it to say, however, that we never sought the position. As a matter of fact, we never even dreamed, in all sincerity, that at this early stage of our professional life we shall already be heading a large organization, professional in nature and national in scope.

Of course we have been active in Association work for many years. We joined the National Dental Association (now the Philippine Dental Association) immediately after our graduation from college in 1937 because we considered it the obligation of every new dental graduate to help the profession build a strong national organization. We have always taken great interest in the affairs of the Association. Either as an officer or as a simple member we tried to serve the Association as faithfully as we could; we always made it a point not to miss any of its activities and when a special task was assigned to us we were always ready to perform it for the good of the profession. We had remained loyal, as we still are, to the cause of organized dentistry in the Philippines.

The war had put a stop to all Association activities and the occupation of the country by the enemy had somehow brought brothers of the profession closer to each other to the end that petty differences were almost entirely forgotten. Taking advantage of this situation we took immediate steps after liberation in 1945 to lay the groundwork for a unified dental association, with no other purpose in mind than to serve the best interests of the profession.

We have always maintained the belief that only through a united front could the dentists of the country expect to achieve more with relatively less efforts. A great many of our colleagues in the profession shared with us the same view but what mattered most then was how to achieve it.

The battle for liberation resulted in the destruction of our towns and cities, and most of our colleagues could not be found in their former addresses. Some were unfortunate victims of the war, others who survived were busy rehabilitating themselves. Notwithstanding this, we undertook the task of walking through the ruins of the city in an effort to locate our colleagues.

We negotiated with Dr. Joaquin Ladao, pre-war president of the National Dental Association of the Philippines, and Dr. Ermeio Vergel de Dios, pre-war head of the once-defunct Sociedad Dental de Filipinas,

(Continued on page 12)

FOR OUR CHILDREN—LESS TOOTH DECAY

By Bienvenido B. Eraña, D.M.D., F.I.C.D.

A young child, in the middle of her meal, suddenly screams at the top of her voice, refuses to eat any further, keeps on moaning throughout the whole night until the wee hours of the morning, keeping the whole household — at least the parents—awake, all because of a tooth-ache! Another child starts to develop a swelling of the face, to the extent of running a high fever and chills, possibly blood poisoning, necessitating doctors, "Miracle Drugs" and even hospitalization—all because of a cavity on a tooth which led to the death of its pulp and subsequent infection. A father of a family may complain of frequent headaches; dizziness, arthritis, rheumatism, or some types of heart trouble or skin disease, which tend to persist despite continued medical attention. This father of the family may be the only bread-winner and if he is laid off from work due to any of the above complaints, his whole family suffers economically and otherwise.

All the above incidents and similar ones could be attributed to dental trouble; principally and basically from dental caries or decay of the teeth. The father of the above family has experienced symptoms of secondary infections, the focus or foci of which may be due to devitalized or dead teeth. A dead tooth is one whose nerve or pulp has died, pathologically or intentionally, thus the term: dead, devitalized, or non-vital. Ordinarily, with a few exceptions, death of the pulp or nerve of a tooth is brought about by an untreated dental cavity, which leads to the continued decay of the

tooth structure extending to the nerves of the tooth, consequently bringing about its death, thereby causing putrefaction and abscess formation.

The question therefore arises: Must the people of the civilized world keep on suffering from caries? Can something tangible not be done to reduce, if not to completely avoid or eliminate, the decay of our teeth?

There have been so many methods and so many theories concerning the control of this universal disease: decay of the teeth, which has become one of the vital problems of modern dental practice. The most hopeful method of preventing decay of the teeth that has come to the limelight and which has been seriously considered and investigated by scientists and researchers is the use of Fluorine. Even the American Dental Association, which is very conservative in its recommendations, reports that Fluoride solutions when properly applied to the teeth are capable of a limited inhibiting effect on tooth decay in children and that this method is deserving of attention as a public health measure of potential importance. As we all know scientists are very reserved in their expressions, statements, and recommendations. The mere fact that they consider this fluorine question seriously and not only as a passing fad or fancy, is enough for the laity to realize that, definitely, fluorine solutions with regards to partial control of dental decay is here to stay.

The method employed by the dentists is known as the "Topical" or direct application of fluorine solutions to the teeth. Dentists must know enough about the subject before attempting to put this method into practice, in view of the fact that fluorine, when not diluted correctly for topical applications, may produce

This article was originally intended for a lay magazine, hence it was written as less technical as possible. It appeared in "This Week", Sunday Magazine of the Manila Chronicle, Dec. 19, 1948.
Regent, District No. 30, International College of Dentists; and former chairman, board of dental examiners.

harmful results. It is best to remember that fluorine like chlorine and iodine, is a member of the chemical family known as the halogens, and is very pungent and corrosive; that it is used commercially for etching glasses and therefore can not even be kept in glass containers.

The question may arise: Of all elements or drugs, why was fluorine chosen? Dr. Frederick S. McKay of Colorado Springs, Colorado, wrote a historical survey which led to the discovery of fluorine in relation to teeth.

He traces it way back to 1908, when the Colorado Spring Dental Society decided to investigate the cause of what was then known as the "Colorado Brown Stain." This was a name given to the conspicuous phase of the lesion—a brown discoloration on the labial surfaces of the upper front teeth. The first step taken was to "screen" the people who had it. The result of the classification of the cases was that only the people who spent their childhood in that community had the lesion, and that the adults who moved into the community never contracted the stain. Some people who spent their childhood in this particular community and later on moved to some other parts away from this region also had the stains. The communities around Colorado Spring were examined, and from all aspects, they were identical with Colorado Spring except that these communities did not share the same source of drinking water because Colorado Spring got its drinking water from the Pikes Peak water shed, while others did not. It was discovered that the Pikes Peak water shed was rich in cryolite, a mineral containing large amounts of fluorine.

One of the most important phases of this investigation was the association of Dr. G. V. Black, who became very interested in this new dental pathological lesion, that he decided to go to Colorado Spring in 1909. Dr. Frederick S. McKay and Dr. G. V. Black joined forces in directing the series of investigations which lasted for more than 20 years and not confined to Colorado alone. The in-

vestigations were so thorough and so broad in scope that carried Dr. Frederick S. McKay and Dr. G. V. Black to other afflicted areas in other American States and to some countries in Europe such as Italy, Holland, Poland, and France.

One of the conclusions derived from these investigations was that teeth with the "Colorado Brown Stain" or mottled enamel were less liable to decay.

In the community of Oakley, Idaho, the inhabitants noticed that something was happening to the teeth of their children. It was discovered that several years before, water was piped from a spring in the hills to supply the town as a help to the inadequate shallow wells. A few years after, the erupting teeth of the children started to show signs of mottled enamel. However, children of the surrounding ranches whose water did not come from the town's water supply, were free from the defect. The town decided to change the source of water supply. Eight years afterwards Oakley was again visited and examined and by that time there were new teeth that have erupted after the change in the water supply. These new teeth did not show any sign of mottling and appeared to be normal.

A similar incident occurred in Bauxite, a community of Arkansas, where a new water supply was piped into the town. Ten years after, another examination was conducted in this community. Teeth of young children who were born after the installation of the new water supply which was free from fluorine, were examined and a very surprising conclusion was derived. Again it was discovered that these new teeth were not mottled but as a whole there was higher rate of dental decay or dental caries than in the last examination of the mottled teeth, which was conducted ten years previously.

One must bear in mind that throughout these series of investigations, samples of the different waters were being constantly analyzed and the conclusion from these series of experiments and the

For Our Children—Less Tooth Decay—Eraña

results of various analysis were: Fluorine is the element responsible for the production of the "Colorado Brown Stain" or mottled enamel and that fluorine is also the element responsible for the resistance of the teeth to dental decay. It is very interesting to note that the very agent or element that causes one ailment—"Dental Fluorosis" or mottled teeth, could prevent another ailment which is dental caries. What, then, is the proportion or amount of fluorine that causes one malady and prevents another?

Dr. H. Trendley Dean of the United States Public Health Service, and his co-workers tackled this problem with the result that the effectiveness of trace-quantities of fluorine in drinking water is fairly well established. The optimum concentration of fluorine in potable water which affords this protection without apparent effects of dental fluorine (mottled enamel) is 1.0 part per million, while a fluorine content of 2½ parts per million could cause the lesion. According to the standards for drinking water as established by the United States Public Health Service, a concentration of 1.0 part per million of fluorine in potable water has been specified as the maximum permissible concentration. It is in the concentration that artificial fluorination of various water supplies of some communities in the United States are being conducted. It is unfortunate that no actual results and findings can be obtained until about 1950 or 1955 when ten years or more will have passed since the start of this artificial fluorination of water supply. It will be only then when the teeth of the children who will have been born and will have grown up in these communities could actually be examined and positive results and data obtained. However, the different authorities on the subject are most enthusiastic about adding fluorine to drinking water and are of the conviction that individuals or inhabitants who will have drunk this fluorinated water since early childhood will

have teeth very much more resistant to decay.

At the ninety-fourth conference of the New York Institute of Clinical Oral Pathology held in October 1944, Dr. Arthur G. Merrit, Chairman, stated in part, "—For years there has been an increasing interest in the relation of fluorine to dental caries. The possibility of immunizing an entire community against dental caries, by the addition of sodium fluoride to the public water supply, has a dramatic appeal. Professional and lay publications, alike, have given the matter wide publicity. More recently, public attention has been focused on the experiments now in progress at Newburgh, New York, at Grand Rapids, Michigan, and Brantford, Ontario—" Similar experiments are being conducted in Midland, Michigan; Sheboygan, Wisconsin; and Evanston, Illinois.

Dr. David B. Ast, Chief of the Dental Bureau, Department of Health, State of New York, has worked out a plan to determine the practicability, efficacy, and safety of fluorinating a communal water supply, deficient in fluorine, to control dental caries. He states, in part, that fluorine is a poison like iodine or chlorine; and like the latter drugs, if used in minute quantities provides life-saving and health-improving measures. An example of this is chlorine. Despite the fact that it is potentially poisonous, it is almost universally added to public water supplies to make them safe. Another example is iodine, which has been used for many years in drinking water—and in food, such as common table-salt—as a prophylactic to prevent goiter.

His plan has already been put into effect in the various cities mentioned above. Newburgh, in the state of New York, is one of them. After a series of consultations and conferences with the different city, waterworks, health officials as well as medical and dental professionals; and after a series of analysis of the water supply it was found that 51 pounds of fluoride was needed daily for the city's 30,000 population

whose water consumption was 3 million gallons a day.

Let us take Manila. According to the estimate of an official of the Metropolitan Water District, Manila's 1,500,000 inhabitants consume 80 million gallons of water daily. Presuming that Manila's water has a fluorine content similar to that of Newburgh's, the daily amount of fluorine necessary would be 1360 lbs. And since the current market price of sodium fluoride is about ₱16.00 per hundred pounds, it will cost Manila's inhabitants of 1,500,000 only ₱217.60 daily or ₱79,424.00 yearly—or 5½ centavos per capita a year!

By 1950 or 1955, when these authorities can positively say that these various projects are successful beyond any doubt a nation-wide fluorination of drinking water is liable to take place in the United States. As Manila's water is chlorinated, so can it be fluorinated—at the insignificant cost of less than 6 centavos per capita per year! Isn't it wonderful to vision our children grow up with teeth free from decay—become healthier citizens?—And their children's children after them?

But what about our present children? Is there no way of preventing further decay of their teeth? Yes, there is; and that is where this "Topical" or direct application of sodium fluoride to teeth comes into the picture.

It seems that fluorine reacts readily with highly mineralized substances like bone or teeth and that fluorine is absorbed by the enamel of newly erupted teeth upon contact, rendering them more resistant to

acids in the mouth. But here are some words of caution. We must not expect our children to be completely immune from dental decay after the application of sodium fluoride to their teeth. The children cannot afford to neglect their teeth after these treatments and neither can the parents, because these treatments can reduce only 40% of dental decay as observed by the results of the extensive clinical experiments on this phase of the fluorine question.

Doctors Basil G. Bibby, J. W. Knutson, W. D. Armstrong, F. A. Arnold, Jr. D. E. Singleton, T. H. Dean and some other scientists have done meritorious work on this part of the subject.

Whether fluoride solutions have any effect on teeth of grownups is not yet fully known. But, as a whole it is recommended that a series of direct applications of sodium fluoride solutions be made at the time when the teeth will have just erupted, normally at the ages of 3, 7, 10, and 13 years.

Various research work and experiments are being conducted to discover some methods to give us, including grown-ups, more immunity to decay of the teeth.

There have been some very encouraging results, but so far, they are still in the experimental stage. So, we grown-ups, will just have to wait a few more years and in the meantime, "resign ourselves to the torture of the dental chair!"

References: Various articles on Sodium Fluoride as published in J.A.D.A., among which were by: Philip Jay, D.D.S., F.A. Arnold Jr., B. G. Bibby & others.

WANTED: SUPERIOR LIVING

By Paul Packer, ° Ph.D.

No one need pause to comment upon the immediate professional future of 1949 graduates of the University of Oregon Dental School. It is enough to say that the professional services you can render are in great demand. Nor need one devote paragraphs to the character of the school from which you are graduating. Your dean is one who has exercised distinctive leadership not only in Oregon but in the national councils of your profession; your faculty is competent; your school is fully accredited by your official standardizing associations; your plant is one that we expect to replace in the relatively near future, although I am sure the present facilities have not been permitted to lessen the quality of your instruction.

In short, the only handicap, if there is any, under which you will begin the practice of dentistry will be of your own making.

Because of this I want in these few moments to visit with you about some overtones of living which I believe to be of particular concern to all college and university graduates in all fields this commencement time.

In the midst of a world that is confused and uncertain, a world in which conflicting ideologies are daily rubbing elbows, a world that is searching for answers that will insure a reasonable degree of great, generous, and exacting living, each individual who has enjoyed the privileges which have been yours is especially obligated over and beyond his business and professional activities to contribute his bit, wherever he may be, to the society of which he is a part. Under such conditions it is no exag-

geration to say that, if there is to be developed a world in which the flow of commerce will be untrammled, armed conflict relegated to the past, freedom of the individual attained and maintained, you and those like you must learn and teach us how we may play effectively in a world arena. With valleys of isolation erased and each and every society impinging upon each and every other society, this represents a challenge which is new in its extent and which demands greater leadership than has yet been discovered in the realm of human endeavor.

As you well know, many proposals, schemes, and organizational setups have been advanced to resolve our present dilemma. Concerning these various suggestions I do not care to comment. Rather, I want to bring the issue directly back to the individual, for no matter what type of organization we may develop its success is dependent upon the quality of living of the persons who are a part of it. It is our individual performances, no matter how humble our place in life may be, that will in the long run determine how well ordered the world may become.

As I intimated in the beginning, the single most important factor that society needs today, has needed in the past, will need in the future, is to achieve individually the goal of great, generous, and exacting living. This concept drives us over into the spiritual realm of living. Let me hasten to say when I use the word "spiritual" that I do not have in mind some form of orthodoxy. Rather, it is the "something-more-than" of mere living and doing the tasks which happen to be the stint of our days. This extra touch which may seem to some a mere margin of living is really the warp and woof of life. It is the only touchstone

An address delivered at the Commencement Exercises of the University of Oregon, June 16, 1949.
°Chancellor of the Oregon State System of Higher Education.

that, in the long run, will make us great enough to pay the price necessary to insure a world in which a reasonable living harmony may reign.

Prior to World War I, the activities of the United States were in the main confined within our own borders. Oh, of course, we traded with many countries of the world and our people contributed liberally when some great tragedy, such as a famine, occurred in some distant place. But, as far as the general public was concerned, it was interested and busy with its local affairs. Only a few were sensitive to the fact that ever increasing ease of communication was gradually but surely erasing the isolated regions throughout the world. Even after actual conflict started in Europe, many felt that it was no affair of ours. More amazing still—after we had participated in the war which was to end all wars, we still cherished the thought that we could maintain our previous policy of isolation. We even elected a President on the slogan, "Back to Normalcy." Then, regardless of whether or not this idea had any merit, almost overnight we abandoned it and went on a materialistic binge. The national headache which followed this spree needs no review for you, because you experienced it. As you well know, before it was over we had skirted the edge and were soon deep in the midst of another World War—a war which was to shake the very foundations of every known society. The impact of this second World War was so great, not only upon the economy of this nation but upon the individual citizenry, young and old, that anyone with the least insight was jarred into the consciousness that possibly the "Gods of the Market Place," of which Kipling wrote and in which we had so largely placed our faith, might be false ones. For today, even after unbelievable expenditure of human and material resources in the maw of war in an effort to maintain freedom for the individual, powerful forces are at work to destroy it. It would be tragic indeed if this invaluable

treasure, despite the recent price which was paid plus the heavy investment of the past generations in this idea, should be destroyed in the societies where it exists and not be permitted to flower in the slave societies.

Under such circumstances the concept, "Wanted: Superior Living," loses its flamboyancy and becomes a hard-boiled, realistic need. It literally forces us to bring into focus and to put into practice the essential values of life. You are all aware of what these are. You need not be reminded that unless they are practiced individually no society, in the long run, can achieve a poised degree of living.

I want to pay my respects to a few of these values, or overtones, or the "something-more-thans"—call them what you may—that are essential if we are to attain the superior living which ultimately will be our only insurance of maintaining any society worthy of human record. For the purpose of the moment I have chosen to comment on the following three values: integrity, tolerance, and security.

Noah Webster defines integrity as "Moral soundness; honesty; freedom from corrupting influence or practice; sp., strictness in the fulfillment of contracts, the discharge of agencies, trusts, and the like." For convenience and brevity I want to bundle all this into the quality of keeping obligations.

Fifty years ago the expression, "His word is as good as his bond," really represented a state that most individuals, no matter how far they fell short, wished to attain. Over the years this quality, though still prevalent in the public mind, has lost not a little of its sharpness. As a result, the highways of the world are strewn with broken obligations and promises, not only on an individual basis but on national levels. To illustrate specifically, we need only recall the bank failures of a few years ago which reminds us that it came to be almost respectable to try to settle our obligations on fifteen or twenty-five cents on the dollar—even

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for those who, by sacrifice, could have paid in full.

Is it necessary to add that if we form the habit of dodging such obligations individually it would set the stage for the development of a society which would do exactly the same thing on a national level?

You, your children, and your children's children have been handed a public debt of no mean proportions, plus an exceedingly heavy demand for ever increasing public services. Both the debt and the public services necessary to effective living can be met only if the quality of individual integrity is maintained on a high level. Taking the long view, it is necessary to see that the youth of the nation are disciplined in the quality of keeping obligations. Unless we can achieve a generation that is intellectually and spiritually tough enough to meet this challenge on a high level, the type of life this country has enjoyed is in no little danger.

The second concept I want to discuss is tolerance. You remember that Voltaire said in effect that he would defend with his life the right of any-one to express his point of view but would, at the same time, reserve the right to battle to its death any idea with which he disagreed. Isn't it amazing how far away we have drifted from this concept? Daily we are being urged to be tolerant about this, that, and the other thing with few if any exceptions being made.

To counteract the misconception which is beginning to weaken the moral fabric of our society, I enter a plea for intolerance—intolerance, if you please, of poor work in any field of endeavor, intolerance of destructive gossip not only on an individual basis but upon a national and international level, intolerance of those who choose to make temporary popular decisions when they know them to be wrong, intolerance of such matters as poor sportsmanship and poor manners. This may sound like a play on words, but I assure you it is not so intended.

It is but another way of giving emphasis to the necessity of recapturing the fine quality of tolerance in its true meaning. It means taking the flabbiness out of our approach to living so that we will not degenerate into a society that resembles a dish rag—and a pretty wet one, at that.

One other concept to which I wish to direct your attention momentarily is security. In the past, society has thought of security as something that is associated primarily with individuals nearing the sunset side of life. During this century, however, the idea of security seems to have grown so rapidly that the spirit of adventure, formerly the dominant tone of the youth of this country, has been a bit dulled. In a recent issue of *Fortune magazine* there appeared a report of a survey of the most sought-for objectives of this year's college and university graduates. The survey indicates that only in the states of Texas and Oklahoma does there seem to remain among the college graduates of 1949 any marked interest in gambling on the future. In all other sections of the country the majority of votes were cast for security.

Now I am quite aware that we have no comparable measure of the attitude that existed as respects the graduates of twenty-five or fifty years ago. However, the testimony of individuals who have experienced this period indicates that the present apparently overwhelming ambition of youth for security rather than adventure is something new. It may be that the defeating days of the thirties contributed greatly to developing the thought of security as a life goal of youth; or it may be that the recent war, in which so many of you and your millions of associates played so large a part, has temporarily reduced the zest for adventure. As someone has said, "Youth feels himself as a survivor in a long series of routs and massacres. Insecurity is his portion, and doom and death are to him familiar neighbors." Ah these and many other comments might be made respecting the issue of security versus adventure.

The important thing, however, about the whole matter is for us to recapture the age-old truth that security is an accompaniment of effort and sacrifice and not an end in itself. The days ahead will demand in even greater degree than in the past a sufficient quota of rugged, intelligent, generous, imaginative, gambling individuals who will once more give vitality to the spirit of adventure in our society. Unless these spark plugs arise in our midst—and I believe they will—we may well drift into a state none of us cares to contemplate. The heavy inheritance and the challenges that are the portions of the youth of today—and they were never greater—demand that adventure in living be made primary and security its accompaniment. You and the other '49ers throughout this country have an especial responsibility for bring-

ing to pass great, generous, and exacting living in this area as well as in the other lasting values of life because of the opportunities that have been yours.

Integrity, Voltaire's type of tolerance, and an earned security are but illustrations of living values which must be kept in constant focus if society is to develop a living poise. It is in areas such as these that the world is somewhat poverty-stricken. In science, the professions, industry, and business affairs this country, as everyone knows, has shown great prowess. Can we be as successful in developing the spiritual overtones of life?

In the long run these fundamental values of life will determine the degree of real achievement that is ours. Nothing short of superior living on the part of individuals has a chance in the days ahead.

THE PRESIDENT'S PAGE

(Continued from page 4)

for the formation of a solid and unified national association of dentists, the Philippine Dental Association. We succeeded in our venture.

We served faithfully and conscientiously as executive secretary from 1945 until 1947, when we thought it best to relinquish our position from the Association in view of our disagreement with certain acts of some officers of the Association. However, we did not entertain the idea of organizing another association, which we could have done very easily. There were suggestions to this effect but we dismissed the idea for the cause of organized dentistry.

The life of an organization should be regarded as a cycle. Not all members can be leaders, but all leaders should also know how to be good subordinates. When some persons are voted into office their prerogatives should be respected and those who have not been voted upon should remain loyal, although they may be inactive, instead of resorting to the formation of another association merely because they want to be officers all the time. We hold this view and that was the reason why we desisted from forming another association at that time.

REVIEW ON THE COMPARATIVE EFFECTS OF ATOMIC, ROENTGEN, AND RADIUM RADIATIONS ON GINGIVAE AND TEETH

By Domingo T. Tolentino,* D.D.S.

Like any other part, tissue, or organ of the human body, the gums and teeth are susceptible directly or indirectly to injuries by exposure to the biological effects of atomic bomb explosion, x-ray or radium radiation. This depends on the relative degree of directness or indirectness of contact or degree of effective radiation on vital tissues. The effects are a distant manifestation of a morbid or syndrome of blood condition, in which paleness of gingivae and weakened bony structures of the teeth and subsequent incidence of caries indicate impending blood disease or existence of the same, burns as the result of direct radiant energy, or trauma as inflicted by the mechanical force of the explosion, either as a blast or indirect injury from flying debris; or a combination of all of these.

Report of Cases

To make an intelligent comparative study of these effects by exposure to such super-hazard as the biologic hazard of injury from atomic bomb explosion, the researcher is expected to have at hand actual or factual cases, survivors or victims. He might have gathered data from cases of victims of an actual bomb explosion from the test fields of the first New Mexico desert test on July 16, 1945; or data on actual Japanese specimen from either of the two atomic bomb explosions on Japan from U. S. aeroplanes, the first (with more power than 20,000 tons of dynamite) on Hiroshima on August 6, 1945, after which Japan surrendered on August 14, 1945 (which action of Japan, by way of quoting former British Minister Winston Churchill's es-

timate, shortened the war and saved the lives of 1,000,000 U.S. soldiers and 250,000 British soldiers).

Gleanings might also be available from data on human guinea pigs if there were any, from the two more atomic bombs exploded in tests held by joint Army-Navy task force 1 of the U. S. in manoeuvres known as "Operation Cross Roads" at Bikini lagoon in the Marshall Islands, the first of which was detonated in the air on July 1, 1946 (Bikini time), the second exploded under the waters of the lagoon on July 25, 1946 (Bikini time). Or, secure thru super-intelligence work whatever available data on test victims of the recently reported atomic bomb explosions somewhere in the Red Lands, of the Union of Soviet Russia, the explosion or explosions which were supposedly recorded in some highly sensitive seismographic instruments in the U. S. A.

Data on the actual victim, victims or exposees of the above explosions except that or those of the Russian test or tests are abundantly available as to medical and general systemic effects on the human structure or anatomy; but, very scanty and as scarce as the proverbial drop of milk from a chicken's breast as to details of the effects on the gums, teeth and other vital tissues of the oral cavity. Our National Library, newspaper accounts, school magazines, pamphlets and medical and dental literature in the Philippines almost negatively provide information on the specific effects but efforts exerted were however rewarded with no more than the following:

1. "The hemorrhagic and necrotizing lesions were comparable to those seen in aplastic anemia and agranulocytosis and

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occurred in the gums and respiratory and gastro-intestinal tracts."

2. "In those who survived, the granulation tissues improved following recovery from radion sickness associated with the purpuric spots on the skin. After the onset of the purpura of the skin, hemorrhages were also found in the gingivae and from the rectum, nose, urinary tract, and respiratory passages in that order of frequency. The lungs were frequently involved in a necrotizing and hemorrhagic process."

Actual Case of X-Ray and Radium Handler Cited.—Data on an ionization victim or exposee to the radiation of X-ray and radium are actual, being intimate and careful painstaking observations on a person, who was actual handler of Roentgen machines of high frequency of kilo-volts, the astray gamma rays, alpha, beta and neutron particles which were her environment in lead insulated room for almost fourteen years, day in and day out, with a minimum daily exposure hazard of eight hours from 7:00 a.m. to 3:00 p.m. in the X-Ray, Radium and Physical Therapy Department of a government hospital.

In presenting the case apology is offered to our brother-professionals, the physicians, as the venture taken is a bold order, so to speak, and not without running the risk of being dubbed presumptive, if not perilous of being indicted for assuming a too forward professional conduct. But, discussion shall be confined to the professional sphere of the dentist, quoting only the medical men for the wider latitude of facilitating arrival at a conclusive diagnosis in the actual handling of the case, which necessitated reference to the MD for complaints and manifestations not within the scope of the dental profession.

Dental Case Turned Medical.—The patient, female, 28 years at the time of consultation (in 1933), who married a year before, was examined for complaints of tooth-ache, the first she ever

experienced in many years. During the past five years of her single blessedness prior to 1933 she had been in close contact with the astray rays of x-ray and radium as nurse, later headnurse and then as supervisor-nurse of the x-ray, Radium and Physical Therapy Department of a government hospital. She continued as such for six years more until about the outbreak of the war in December, 1941, when she fortunately had a change of work and kept away from the confines of the lead-insulated rooms of the X-Ray Department, and inducted into the service of the USAFFE as army nurse for the Visayas-Mindanao Force General Hospital with station in Bukidnon, Mindanao.

At the time she complained of tooth trouble (in 1933), further examination revealed incidence of caries occlusally on the second bicuspid of the lower right mandible, the grade of which threatened involvement or exposure of the nerve and blood supply of the pulp chamber. Restorative treatment was instituted in spite of the patient's impatience at long and repeated sittings at the dentist's chair, as extraction of the tooth was contraindicated at the time, due to systemic conditions which necessitated reference to a physician; namely, first, the gingiva was very pale, indicating anemia of some kind; second, her blood coagulation time was very high being 6-1/2 minutes; and, third, the dental lesion was classified as falling under the class necessitating extended treatments.

She was therefore referred to an endocrinologist, not only for her anemic condition but also for the unusual complaints of pharyngeal pain and constriction of the aesophagus in the course of swallowing food, which was suffered as a difficult and painful act, and considered, however irrelevant to the dental complaints. Even liquids, at certain times of her nervous condition, could not pass thru and a feeling of nausea followed the successful intake of anything not without the accompaniment of a rip-

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ping pain extending from the pharynx as the food descended thru the length of the muscular canal of the aesophagus. Being then a bride of just one year on her sixth year as handler of X-ray and radium, the foregoing complaints were taken as a matter of course and as a variety in the eccentric physiological life of a conceiving female during the initial months of her pregnancy; but, which came out to be very disappointing to the couple by subsequent consultations with renowned obstetricians and gynecologists that she was not pregnant at all. The feelings of nausea were followed, more frequently than not, by actual vomiting of whatever little amounts of food she could successfully take per orem, whether liquids, semisolids or solids. She lacked and gradually lost appetite for food because of the upset condition of her stomach. She could only systematically take but little food with the aid of many glasses of water, so that she became greatly emaciated. These affected her health adversely, believed at the time to be due, among other things, to under-nourishment, and was forced to be on long vacation and sick leave of absence. Then followed the period of parenteral administration of pertinent vitamins, drugs and medicines. She was hospitalized for an extended period of time during which the following findings were revealed; namely, abnormally low basal metabolic rate, very low level of red cell count, subnormal hemoglobin count, deficient leucocyte count, negative for Kahn test, and other findings by which the attending physician made the diagnosis of "Aplastic Anemia".

For the complaints of esophagus constriction, feeling of deficient salivation and other abnormally deficient glandular secretory manifestations, the endocrinologist prescribed tincture of belladonna taken by mouth in correct doses of ten drops for the first dose and diminishing accordingly. This had to be discontinued on the second dose because of unfavorable reaction of the patient after

the first dose. She continued being treated for her anaemic condition and was under the care also of famed gynecologists in her desire to bear children. It was believed that the effects of her work with X-ray and radium were only temporary, if ever, because, why were the other handlers apparently not affected, except the Chief of the Department who was a perfect case of alopecia?

Later, she had bleeding thru the rectum for sometime, believed then as an accompaniment of hemorrhoids but the hemorrhages, especially during bowel movements, disappeared eventually without medication.

The surgeon-gynecologist performed dilatation and curettage on her. The obstetrician advised her on nightly performance of the "knee-chest position" before going to bed and the radiologist gave her a series of electro-medical treatments to stimulate her apparently dormant potency. Notwithstanding these treatments, however, adverse effects in her health ensued and she had four abortions in as many years with the age of pregnancy not going beyond two and a half months accompanied by dangerous and repeated loss of blood; until, convinced that the longer she stay on the kind of job she had been on for about fourteen years already, she finally succeeded in quitting from it in 1941.

When she separated from contact with x-ray and radium she had a rising temperature, the skin of the back of her hands and arms extending from the tip of her fingers to above the elbow not covered by the sleeves of her uniform darkened by characteristic burns and loss of hair, rendering the exposed skin overtanned, shiny and hairless similar to the atomic age description of "walnut stain" or "mask of Hiroshima" effects of the atomic bomb explosion.

Patient's Manner of Handling X-Ray Apparatus and Radium.—"In man it is said that radiologists and workers exposed to x-ray in chronic radiation show

an incidence of leukemia resulting from exposure to doses ranging from the tolerance levels to about 10 roentgens a day. The quantitative unit of radiation is measured in r's or roentgens or quantity of x-ray or gamma radiation that will produce in 1 cc of air, under standard conditions, ions carrying 1 electrostatic unit of electricity of either sign."

How she handled the roentgen machines for therapy (a male technician handled the diagnostic) and the platinum or lead insulated radium cubes, radium needles and other devised radium containing applicators, were in accordance with strict precautionary measures. Hazards, however, in the form of radiation of astray rays from the highly perfected x-ray machines although provided with filters, and the so-called gamma, alpha, beta and neutron particles of the radium could not be entirely eliminated.

All she used to do was to prepare the patients one after another on the treatment table after warming up the machine. She then directed the roentgen rays on the diseased part or parts of each patient, one after another, as indicated by the doctor and then watched for the prescribed duration of exposure, otherwise over-exposure might result in x-ray burns. (Automatic devices have been perfected, however, in later manufactures of x-ray machines whether for therapy, diagnostic or radiographic and fluoroscopic.) She used to go back to the patient's side immediately after each exposure to remove the insulating gadgets, such as rubber and leaded paraphernalia she had covered the patient with, except the diseased part under treatment. Then she used to prepare the next patient, repeating the identical operations on a daily average of twenty four patients scheduled for deep or superficial x-ray therapy as the treatment for each case or cases were prescribed. This continued throught the day for no less than eight hours daily and at the intervals between patients for roentgen therapy, she attended to radium patients.

It has been correctly said that radiation is not a new problem believed to have been recently introduced by atomic explosions for obvious reasons, because Madame Sklodowska Curie, Polish chemist in Paris, (1867-1934) discovered radium many years ahead. Comparing the foregoing data with those of the so-called radiation sickness, being effects of atomic bomb explosion on victims of the Hiroshima and Nagasaki incidents, the foregoing actual case manifested striking similarity with those of the effects of atomic bomb radiation, as follows:

"Radiation Injury.—Skin. Epilation (or the removal of hair by the roots) was frequently observed in persons who had been close to the bomb and who had survived for more than 2 weeks. At 500 meters the incidence was about .75 percent and fell off sharply at 1,250 meters. The time of the onset of epilation reached a very sharp peak between the thirteenth and fourteenth days after the bombing. The hair suddenly began to fall out in bunches on combing or general plucking, or it was found in considerable quantities on the pillow in the morning. This process continued for one or two weeks and then ceased. In most cases the distribution was that of an ordinary baldness, involving first the frontal and then the parietal and occipital regions, and sparing the temporal regions and the scarf of the neck. The eyebrows and even more so the eyelashes and beard were relatively resistant. In one group of patients coming to autopsy, 48 had epilation of the head, 8 of the axilla, 6 of the pubic region, 4 of the eyebrows, and 2 of the beard. Complete epilation is not necessarily correlated with a bad prognosis. Of all individuals who died of radiation effect at about fourth week fourteen percent had no epilation. In no case reported was epilation permanent.

"Gastro-intestinal Tract.—In many patients, severe nausea and vomiting occurred as early as thirty minutes following the detonation. In others it did not

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occur until the next day. Thirty two percent of those within a radius of 1,000 meters and 23 percent at a distance of 1,100 to 1,500 meters suffered from vomiting on the day of the bombing. The incidence fell sharply to 6 percent to 2,000 meters. In many patients diarrhea, sometimes sanguinous, occurred within the first few days.

"Testes.—Histologically, radiation effects on the testes were discernible as early as the fourth day and were profound in all fatal cases in individuals who had been within 1,500 meters of the bomb. Only three of the 23 patients studied who had been within 1,500 meters had a sperm count in excess of 40,000 (lower limit of normal). Of 39 who had been within 2 km., 13 had counts below 40,000. It is unusual for pregnancy to occur if the sperm count is below 40,000. Several of the patients complained of a loss of libido or even loss of potency following the bombing. According to Japanese physicians the return to normal has been slower in the male than in the female.

"Ovaries.—Histologically, the ovaries showed less striking high incidence of amenorrhea, increasing from 4.3 percent in 1932, to 12 percent in 1944. In 1944, the incidence among 3.6 nurses of Tokyo University was 13.3 percent. According to Japanese gynecologists, this was due to malnutrition, overwork and anxiety associated with bombing. Thirty six percent of the women in Hiroshima and 29 percent of the women in Nagasaki, between ages of 15 and 49, who were within a distance of 5,000 meters, experienced menstrual disorders. The majority of these had one normal period following the bombing and had cessation for an average of three to four months. A year later no patients were found complaining of menstrual disorders attributed to the bombing.

"Purpura.—In the skin, purpura was almost always manifested in patients

dying on the third to sixth week, inclusive. Its incidence at various distances from the blast center run almost exactly parallel to that of epilation and fell off sharply beyond 1,250 meters. Purpuric spots appeared at about the same time as fever. Their peak was between the sixteenth and twenty second day, about five days later than the peak epilation. Associated with their onset, there was an increased tendency to bleed from lacerations, fractures, and burns. Healing of wounds was prolonged, coincident with the appearance of radiation sickness. The growth of granulation tissue improved following recovery from radiation sickness associated with the purpuric spots on the skin. After the onset of the purpura of the skin, *hemorrhages were also found in the gingivae* and from the rectum, nose, urinary tract, and respiratory passages in that order of frequency. The lungs were frequently involved in a necrotizing and hemorrhagic process.

"Clinical Syndrome In Radiation Sickness.—*"Patients dying the third, fourth, fifth, and sixth weeks or surviving severe symptoms.*—In this group, the anatomic and clinical results of radiation attained their acme. Epilation and hypoplasia of the bone marrow were marked. The hemorrhagic and necrotizing lesions were comparable to those seen in aplastic anemia and *agranulocytosis occurred in the gums* and respiratory and gastrointestinal tracts. Petechiae of the skin were almost always present. The sequence of symptoms was as follows: In a typical severe case, the first evidence of the disease was nausea and vomiting on the day of the bombing, followed by a feeling of malaise. The patient then began to improve and felt fairly well until about the beginning of the second week when epilation began. A few days later he again experienced malaise and a steplike fever developed. At about the same time pharyngeal pain frequently appeared. Sanguineous diarrhea was a prominent symptom. The leucocytes

and platelets reached very low levels, and a profound anemia was present.

"In a third group in whom bone marrow failed to recover, the symptoms described in the second group continued and the patients died of extreme emaciation after a prolonged illness. In others, concomitant with partial or complete recovery of the marrow, most of the striking manifestations classed as anemia disappeared, but they succumbed to such complications as lung abscess and tuberculosis."

Conclusion

In concluding a summary I must live up to the pledge of confining the discussion of the subject to the ionization effects on the gums, teeth and other vital tissues of the buccal cavity. This leads me again to quote an authority as follows: "*Mechanism of Ionization*.—The radiation with which we are concerned are gamma rays, and alpha, beta and neutron particles. The effect they produce on living cells is known as "ionization. A ray or particle strikes an atom within the cell, breaks off a negatively charged electron, and results in a positively charged atom which, with the negative electron, is known as an ion pair. It is the formation of the ion pair that produces the biologic changes in the cell. The different radiations act differently to produce ionization. Beta and alpha particles directly ionize by applying their kinetic energy in striking and dislodging an electron from the orbit of an atom. Gamma rays and neutrons must pass through an intermediate step. Gamma rays strike a free or lightly held electron and impart kinetic energy to that particle which, in turn, ionizes the tissue. Similarly, neutrons collide with nitrogen or hydrogen atoms in the tissue and strike off a proton which, as a secondary particle, ionizes the tissue. The end result in either case is the formation of ion pairs in the cell."

The bone marrow, as may be recalled, is the source of the blood cells. The ionization effect upon the bone marrow there-

fore, may be expected to manifest itself in the destruction of the blood cells resulting in anemic condition of any specific character detectable objectively on the gums, skin or other mucous membranes as under the lower eyelids. The nerve and blood supply of the teeth are in the pulp chamber, the weakened condition of which are reflected in the gradual if not acute disintegration of both the soft and bony tissues that the weakened blood supply negatively nourishes. Paleness of gingivae and weakened bony structures of the teeth are therefore distant effects as resulting from radiation thru and to bone marrow; while like any other part or organ of the human body the gums and teeth may also be injured in the form of burns as a result of direct radiant energy or as a sequela to maxillo-facial injury as inflicted by the mechanical force of the explosion, either as a blast or indirect injury from any flying objects, set in pierce motion by the tremendous force after explosion.

Acknowledgment

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THE SELF-CURING FILLING PLASTIC

By Ralph Howard Brodsky, D.M.D.

This era in history will probably be known as the atomic age. In dentistry, a new era is at its inception and will most likely be referred to as the plastic period. During the last decade or two, many forms of plastic materials have been employed for dentures and restorations but they have failed to meet some of the essential requirements, and one by one have largely been eliminated. We are now on the threshold of new developments in denture acrylics, and for many years we have been waiting, hoping, and occasionally have been stimulated with some premature report that a plastic filling, which could be placed in the tooth cavity and polymerize at body temperature, had been found—only to be later informed that it had not been consummated. An example is the German resinous material Palapont S.H. which is described in the Fiat Final Report No. 1185, Recent German Developments in the Field of Denture Resins (Department of Commerce, Washington, D.C.). However, I think that I can state we now have available a material which can be used in this manner successfully.

During the past year I have been conducting laboratory and clinical studies in the use of a methyl methacrylate compound (a monomer and polymer mixture which sets or polymerizes in the mouth in 10 minutes) to be used for fillings and tooth restorations, with rather startling results. In the course of the various laboratory tests, it was observed that the sorption and solubility figures obtained are about ten times less than the specified maximum values in the A.D.A. Specification No. 12 for denture acrylics. (There are no specifications as yet for a filling plas-

tic.)

Being satisfied with the virtues of the material, I then commenced the study of devising methods for clinical usage which would not be difficult, which would produce uniformly good results, and which could be employed in a simple manner by the profession. To date, I have worked out several satisfactory techniques, but I am sure that as the profession has time to work with this material, or similar materials which may ultimately follow, many new techniques and possibly shortcuts will be devised.

By way of caution, however, I should like to state that good dentistry cannot be practiced through slovenly methods. Penicillin therapy, for example, has made it possible for even the incompetent doctor practicing minor or even major oral surgery to cover up his surgical deficiencies in many instances by relying on the action of the antibiotic to compensate for his bad surgery. With the use of this new plastic, the technique is so simple, and its application so extensive—for it can be used in almost every type of tooth restoration (either by itself or in combination with metals)—that there may be a resultant tendency on the part of some to become lax in cavity preparation, sterilization, or in the adequate condensation or finishing of the restoration. Such laxities would ultimately catch up with the delinquent operator in some form.

Field of Usage

My experience with this methyl methacrylate, involving more than several hundred restorations, includes the following:

1. Restorations involving any or all surfaces of the teeth such as cervi-

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als, oclusals, mesials or distals, mesioclusals, mesiocclusodistals, et cetera.

2. Plastic inlays made by the indirect method. Undercuts then were prepared in the cavity and the inlay cemented with the same shade of this plastic material which formed a bond with the inlay and was locked in by means of the undercuts.

3. Facings on inlays, cast crowns (new and old), or bridges (both in or out of the mouth).

4. Jacket crowns—either direct or indirect. One of the difficulties with acrylic jackets and inlays in the past has been their occasional popping out of position. Here I was able to employ undercuts and lock them in position. (In the indirect method, I used the same material and shade for the cementation instead of the other types of cements.)

5. Windows in metal restorations (gold or silver amalgam).

6. Acrylic bridges or repairs (either in or out of the mouth).

7. Splints (either surgical or periodontal).

8. Bite-opening restorations.

9. For cementing inlays, crowns or bridges.

10. Replacing broken or lost teeth from dentures or bridges.

11. Where acrylic restorations have worn down, I believe they can be built up in not many minutes with this plastic. There is still some question as to how hard a filling should be. Some wish it to be harder than gold, some softer, while others are dissatisfied with the various golds. Actually, there are instances in which a very hard material is desirable, and similarly, many instances in which a softer material might be advantageous. For example, many of the periodontists seem to favor the latter, for the occlusal impact against the softer filling reacts more kindly toward the tooth supporting tissues. However, the relative simplicity in building up the occlusal surface on a restoration made of this new plastic ren-

ders the question less important, regardless of whether this may be required in six months or ten years.

Cavity Preparation

I have employed cavity preparations similar to those employed for the synthetic silicate restorations. Undercut or retentive areas are desirable. The margins should not be featheredge. The pulp should be protected with adequate cement or insulating medium.

Sterilization and Insulation

Any satisfactory method of cavity sterilization, provided no oily or other residue remains. Oils or fluids which come into contact with this plastic will interfere with its polymerization or setting. Vital teeth should be protected with adequate insulation, either with a good cavity lining, an oxyphosphate cement, or a gold foil pellet flattened and held in place with cavity liner.

Contact Point

Where teeth are in apposition (mesially or distally) and the filling is to contact the adjoining tooth, it is advisable to wedge in order to separate the teeth to allow for a slight excess of the plastic so that, after polishing, an adequate point will be established.

Matrix

In employing any plastic material, in order to avoid porosity the material must be compressed. So it is in dental restorations, the harder we compress the plastic, the better the result will be. Several methods have thus far proved satisfactory. (Do not use celluloid, for it combines with the surface of the plastic, unless it is to be used only as a temporary restoration.)

(a) .36 gauge aluminum, gold, copper or stainless steel bands or shell crowns are easily adapted. The metal should be thoroughly cleaned, and preferably polished. If a band is employed, contour it to fit the gingival or subgingival area. Burnish or adapt it to the remaining part of the tooth,

The Self-Curing Filling Plastic—Brodsky

and for contact. If an aluminum or other metal crown is to be used, select the shape and size, and adapt it to the tooth for gingival, mesial or distal and occlusal.

(b) A sectional matrix of a hard plaster or stone may be employed to mould the filling or restoration.

(c) A cellophane hand (not celluloid) may be employed.

Control of Sublingual Hemorrhage

It is essential that the cavity be perfectly dry and maintained so until the plastic has set or polymerized. Where bleeding occurs, this must be adequately controlled before inserting the filling. The ordinary hemostatic agents, I have found, produce hemostasis for only a short time, permitting a serum ooze which can be detrimental to the plastic. I have, therefore, experimented with a relatively unknown substance, the chemical formula of which is: 1-(m-p-dihydroxyphenyl)-1-keto-2 methylaminoethane hydrochloride $(\text{OH})_2\text{C}_6\text{H}_3\text{COCH}_2\text{NH}(\text{CH}_3)\text{HCL}$, and have found that it produces a vasoconstriction which is estimated to last as long as two hours. This is decidedly advantageous for the purpose. (Incidentally, it will have wide usage in oral surgical procedures.) I have used it in the powder form and on cotton impregnated with it.

Shade Selection

Shades are selected in a manner similar to that employed for porcelain restorations. A translucent mix can be used for incisals (to which some of the body color may be added if desired). One should use the incisal on the shade guide for thin or superficial fillings, whereas in deep or extensive restorations, the thicker part of the shade guide will be a better index of the color or colors required. There is a difference in color effect between very thin and very thick plastics.

Mixing of the Plastic

Having selected the shade or shades, apportion the correct amount of the powder (polymer), according to the size of the cavity, and place in a mixing jar. Using a medicine dropper, apply the monomer (liquid) drop by drop until the powder is wetted. (The proportion should be approximately three parts of polymer to one part of monomer.)

Cover and allow to stand for 3-4 minutes, then spatulate gently with a stainless steel or agate spatula. The plastic is ready to use when it no longer feels crystalline to the touch of the spatula. I routinely plan my time so that while the plastic is mixing in the mixing jar, I am preparing the tooth for its reception, so that no time is lost. There are cases in which one may wish to stain just a part of a tooth. This can be done directly in the mouth before the plastic sets.

Process of Filling

The rubber dam is valuable but not absolutely essential. The matrix should be in position (do not hold it with a wax ligature, for the wax may come into contact with the filling material). Pack the plastic into the cavity and compress it as much as possible. If a hand is employed as a matrix, use some tinfoil or cellophane on the occlusal to compress the plastic. The harder it is packed, the less porous it will be. The use of heat (hot air syringe, infra-red or ultraviolet radiation) will hasten the setting.

Be certain that the excess material, gingivally and interproximally, is removed before it sets. Once it hardens, it is rather difficult to remove much excess of this material from the interproximal or subgingival regions.

Polymerization or Setting

At body temperature this plastic should polymerize in approximately 10 minutes. (Allow a little longer for large masses.) Do not remove the matrix until the plastic is completely

set. The matrix will then peel or slip off. (If the matrix is not thoroughly clean it may affect the coloration of the restoration.)

Polishing

The plastic can then be disked and polished. (Do not use high speed for plastics, in or out of the mouth.) The occlusal can be carved with burs or stones. Polish with rubber discs and then felt wheels, using whiting or tin oxide as the polishing agent. This should produce a hard glossy surface.

Many modifications can be effectuated. For example, processed acrylic teeth may be used by selecting the correct size, mould and shade tooth, hollowing it with a bur, and adapting it to a tooth already prepared for a jacket crown. Select the correct color of the plastic filling material and fill the acrylic tooth with a thin mix of it. Plunge into place over the prepared tooth and exert continuous pressure until the plastic sets, removing, meanwhile, the excess at the gingival. (The stump can be prepared with undercutts so as to lock the jacket in place, and the plastic will form a bond with the acrylic tooth, so that there is little probability of the crown becoming loosened.)

Similarly, in some instances, it was found advantageous in direct jacket crown restorations made of this material, to remove carefully the jacket while it is hardening—but not yet completely set. Finish the margins out of the mouth, and polish the jacket on the lathe. Then after preparing undercutts on the prepared tooth, cement the jacket with a thin mix of the plastic, employing the correct color or colors. We might term this the direct-indirect jacket crown.

Conclusion

This new material with its many uses undoubtedly will replace at least some of the methods we have used in operative and restorative dentistry for many years. It will make possible, with relatively simple procedures, the saving of teeth in clinics and hospitals, where in the past, by virtue of the time required and expense involved, we were forced to elect exodontic procedures. It should permit many patients who could not in the past afford jacket and other more costly restorations to enjoy the benefits of these restorations through the simplification of technique, the saving of time and the reduction of involved expenditures.

This type of plastic has already manifested its benefits to some patients who through some accident fractured teeth at or close to the gingival margins, and unfortunately were either sailing abroad, going on extended trips or giving concerts the following day or so. Usually these teeth are anteriors, and create much concern to both the doctor and the patient. I have found the soldering (and then roughening) of a button of gold at the end of a metal post which is then cemented in the root canal, a satisfactory base on which to build a self-curing jacket in order to cope with this problem. The entire process does not consume a great many minutes, and the patient leaves the office in a quite happy mood.

Sufficient time has not passed to permit an evaluation as to durability of this material. It can only be stated that during the past year, it has been subjected to extremes, clinically, and it seems to be standing up well. What will happen five years hence, one cannot say. I am certain that as time goes on, we shall find harder or softer acrylics with different techniques, but, at least for the present, a start has been made.



SAINT APOLONIA

(Patroness of Dentists and Dentistry)

February 9

In the year 249 A.D. in the city of Alexandria, a virgin of advanced age was imprisoned for becoming a Christian. Her teeth were broken down with sharp iron points and the roots were extracted with tongs. During her terrible agonies she prayed to the Lord that any person suffering from toothache who would invoke her name would be immediately relieved. The prayer was answered by a voice from heaven which said:

"Bride of Christ, thou hast obtain from God what thou has prayed for."

Later when her tormentors offered to spare her life if she would renounce her newly acquired faith she refused, preferring the death of a martyr and it was said that 500 people who witnessed her fortitude and martyrdom immediately joined the new religion. Saint Apollonia became the patron saint of Dentist and Dentistry and as the years passed by, her story became more popular.

Apollonia was a young and beautiful maiden, the daughter of a senator. Then

her father became an emperor thus making Apollonia a princess. Throughout the middle ages, a number of churches were built and shrines erected in honor of this saint, where many of her teeth were preserved as holy relics. Judging from the molars, centrals and cuspid teeth exhibited at the different places, it would seem that the martyred lady must have had at least half a dozen set of teeth. How the poor saint must have suffered. No wonder that she had chosen toothache as her special field of operation. Several incantations or word charms for the relief of toothache invoking her name have come down to us like the following:

Apollonia, Apollonia
See my pain in yourself
Free me from evil pain
For my toothache may torture me
to death.

This was supposed to be specially effective if it is pronounced on her day, the ninth day of February.



J. Horacio Yanzon, D.D.S.

TOPNOTCH SOCIAL AND RELIEF LEADER

By Pacifico V. Noroña, D.M.D.

There are few men who make good in a field other than in their own profession. To these few belongs Dr. J. H. Yanzon, manager of the Philippine National Red Cross, who holds the distinction of being the first Filipino manager of the Philippine Red Cross during the time it operated as a chapter of the American Red Cross and later as an independent chartered national organization. On his shoulders lie, in some measure, the success of the financial campaign which the Red Cross is presently conducting, the period from February 15 to March 15 having been proclaimed by the President as the time for "Red Cross Fund-Raising Campaign" this year.

J. Horacio Yanzon was ushered into the Yanzon family on August 5, 1903, in the town (now City) of Legaspi, province of Albay. His mother, Luisa Martinez, comes from the Ermita district of Manila, while his father, Primo Yanzon (deceased), hailed from his place of birth.

A product of a private elementary school in Manila, Dr. Yanzon later took his secondary education at the Albay Provincial High School, where he finished the course in 1922. Subsequently, having decided to study dentistry, he enrolled at the Philippine Dental College and in 1925 was conferred the degree of Doctor of Dental Surgery.

After passing the dental board examinations, he entered the Red Cross service, which organization he was destined to manage some day. Starting as a Junior Red Cross dentist in 1925 and later as fieldman in various capacities, he rose to become manager of the Philippine National Red Cross on December 1, 1946, a position which he rightly deserved after a long and faithful service of more than 20 years.

After 11 years as fieldman, he was promoted in 1936 to supervisor with jurisdiction over the Mindanao and Sulu area of the Red Cross. In 1940 he was given another promotion, that of assistant director of the Junior Red Cross and its dental service, Philippines Chapter, American Red Cross. From 1941 to 1944 he was assistant director of the organization.

As assistant director of disaster relief, "in charge of evacuation service," at the outbreak of the war in December 1941, he had the tremendous responsibility of large-scale evacuation of civilians from densely-populated Manila to places of safety in the nearby provinces.

A man who has dedicated his life to service to his fellowmen, he has done outstanding exploits in the performance of his duties. During the battle for the liberation of Manila in 1945, Dr. Yanzon, with a few Red Cross workers, stuck to his post notwithstanding its attendant great danger. For his heroic services, he was awarded on November 27, 1946, along with eleven other Red Cross workers, the Silver Medal, highest award of the American National Red Cross. The presentation, which was held at Malacañan, was made by the late President Manuel Roxas.

The citation for Dr. Yanzon's award reads:

"On 3 February 1945, Dr. Yanzon had under his charge 27 children in the Red Cross Children's Home No. 3, ranging in age from 2 to 10 years. These children were placed under the care of the Philippine Red Cross by their poor parents who could no longer feed them because of the very acute food situation. Most of the children were weak from starvation. When the American liberation forces entered

Manila, these children were housed in the Harris Memorial Building on España Street, between Santo Tomas Camp three blocks away and the Far Eastern University where the Japanese garrison was, a block distant from the Home. In the ensuing battle that lasted throughout the night of Saturday, 3 February, the Children's Home was between the fires of the opposing armies, and with the neighboring house on fire, the children were in great panic, and so were some of the attendants. Dr. Yanzon calmed them down and with courage and admirable presence of mind, led them out to the street and across to the Manila Hospital Building, which was thought safer than the Harris Memorial Building. As the line of children was crossing the street, the big Red Cross emblem on our ambulance which was preceding them on the march could be distinctly seen in the light of the burning building, and just at that moment the firing from the American line ceased for a while until the children reached the hospital. The exchange of shelling and machine gun fire continued throughout the night and the roof and top floor of the hospital were hit. Realizing this danger, Dr. Yanzon, before dawn the next morning, gathered all the children and attendants together, put them in the ambulance and a Red Cross car, and transported them to a place some distance away from the firing line. Thus twenty-seven young lives were saved. Not a child was lost, killed or hurt."

Dr. Yanzon was initiated into the noble task of aiding suffering humanity when, as a medical student at the Tokyo Imperial University, he answered the call of the Red Cross to help the unfortunate thousands of victims in Japan as a result of the most terrible earthquake in that country on September 1, 1923. Since he joined the Red Cross in 1925, he has figured prominently in no less than twenty

disaster relief operations. Among the great disasters where he had displayed his leadership were the ferocious typhoon which struck the Visayas and Southern Luzon in 1929, the Mayon Volcano eruptions in 1928 and 1938, the disastrous flood in Cagayan in 1940, and the two great fires in Tondo in 1937 and 1941.

Upon the reconstitution of the Philippines Chapter of the American Red Cross after the liberation, Dr. Yanzon was appointed its administrator on February 13, 1945. Then followed successive promotions for him: assistant to the manager, May 30, 1945; assistant manager, July 1, 1945; and manager, December 1, 1946.

When he was appointed to the top position of manager, he succeeded Mr. Glen Whisler, the last American manager of the Philippine Red Cross. On April 15, 1947, when the Philippine National Red Cross was proclaimed an independent Society, he was named its general manager.

As manager of the country's biggest and foremost national welfare organization, Dr. Yanzon has his hands full, considering the manifold activities that the Red Cross undertakes in connection with its vast humanitarian program of service.

According to the records of the Red Cross, it "operates 36 chapters and 13 sub-chapters serving practically every part of the Philippines." Dr. Yanzon reports that "from the time it was reconstituted in 1945 to November of 1947, the organization rendered Home Service assistance to no less than 163,000 families of various nationalities all over the Philippines. This help consisted of consultation, guidance and information concerning legislation and government benefits; assistance in the actual preparation of claims for government benefits and in procuring necessary documentary evidences; and referring needy individuals to appropriate welfare agencies. During the emergency period when normal means of communication were not available, thousands of location and welfare in-

quiries concerning persons were processed by this service, thus reuniting family members separated during the war."

Added to these great tasks is the fund-raising campaign which the organization conducts annually in order that it may be able to carry on successfully year after year.

As a pioneer in various health activation, the Red Cross operated a dental service before the war which attended to the dental health needs of public elementary school children all over the country. Originally with one clinic, its dental service gradually expanded that at the outbreak of the war in 1941 it had 181 clinics scattered from the northernmost part of Luzon to the southernmost part of Mindanao.

In 1945, the U.S. government, realizing that activities which are properly governmental should be handled by the Philippine government, turned over this dental service of the Red Cross to the latter. All its assets, including ₱122,000.00 in cash, were included in this transfer. While the Red Cross somewhat felt this as a loss, yet the organization was consoled in the fact that the Philippine government had realized that it was its responsibility to attend to the dental health of school children. Today this phase of work is being handled by the dental service of the Bureau of Public Schools which is headed by Dr. Felix Angeles.

One of the ranking social workers in the country, Dr. Yanzon is also president of the Council of Welfare Agencies. Besides the Red Cross, this council counts among its membership the following well-

known welfare agencies: Boy Scouts and Girl Scouts of the Philippines, National Federation of Women's Clubs, the PACSA, Salvation Army, Social Welfare Commission, the YLAC, and the YMCA and YWCA of the Philippines.

Dr. Yanzon's activities, however, have not been confined to social and welfare matters alone. He still continues to be an active member of the Philippine Dental Association, and he has the distinction of being one of its original members upon its organization in 1925. In 1947, he was named executive secretary of the Association, a position which he held during the presidency of Dr. Gaudencio R. Ocampo. It may be recalled here that the abolition of the practical examination in the dental board arose during his incumbency as secretary. He spared no effort in fighting against said abolition and, together with his colleagues in the Association, vigorously worked for its restoration.

Deeply interested in organizations, he is also a member of the Manila Rotary Club and of the board of directors of the Philippine Motors' Association.

Dr. Yanzon has cast his lot with the Red Cross and he is there to stay; its success or failure, whichever it is, will also be his.

A man of boundless energy, he has a ready smile for anyone even after a day's hard grind.

The former Amada Zarco, of San Rafael, Bulacan, whom he married in 1929, is the mother to his three daughters—Lilia, Fe, and Belen—who are all Red Cross enthusiasts.

CURRENT NEWS ITEMS

Occidental Negros Chapter Holds Election of Officers

Dr. Gregorio Improgo was elected president of the Negros Occidental Dental Society, chapter of the Philippine Dental Association, at an election meeting recently held in Bacolod City. He succeeds Dr. Gil Montinola, onetime vice-president of the former National Dental Association of the Philippines.

Other officers elected were: Dr. Ricardo Jamora, vice-president; Dr. Roberto Juson, secretary-treasurer; Dr. Leopoldo Bañares, assistant secretary; Dr. Robustiano Ramos, auditor; Drs. Gil Montinola, Josue Agustin and Pedro Consing, members of the board of directors.

Batangas Dentist-Politician Shot To Death In Sto. Tomas

Dr. Maximino Maloles, vice-president of the Batangas chapter of the Philippine Dental Association, was shot to death on the night of January 25 in Sto. Tomas, Batangas, his hometown.

According to press dispatches from the scene of the crime, it was intimated that the assailant, who up to this time has not yet been apprehended, must be a political adversary of the deceased. Dr. Maloles was a political figure in his hometown, having been at one time municipal mayor of Sto. Tomas. A rabid Nacionalista, he accompanied Presidential Candidate Jose P. Laurel during most of his campaign trips last year.

The late Dr. Maloles has helped the Philippine Dental Association in its effort to introduce and seek passage of the present dental law. He was the one who arranged the conference of the PDA officers with Rep. Jose B. Laurel, jr., who was made to sponsor the new dental law.

Resolution of condolence was sent by the Association to the family of the deceased.

Rep. Ladrado Named Member Of Commission on Appointments

Rep. Ricardo Y. Ladrado, dentist-congressman from the 4th district of Iloilo, was recently chosen member of the powerful commission on appointments of Congress.

The commission on appointments is composed of 12 senators and 12 representatives, and presided over by the President of the Senate. Presidential appointees, like those of cabinet members, justices of the supreme court, provincial and city executives, bureau directors and other important appointments requires confirmation by the commission on appointments. Membership in this body is equivalent to a chairmanship in other legislative committees and it is considered a position of distinction.

Besides his designation as member of the appointments commission, Rep. Ladrado was also named member of the committee on health and the committee on education of the House of Representatives.

E. R. Squibbs & Sons Company Inaugurates New Intramuros Site

A new concrete building located at Sta. Potenciana street, Intramuros, which houses the E. R. Squibbs & Sons Company was inaugurated last February 17.

Leading physicians, surgeons, dentists, pharmacists, and other professionals were present during the inauguration. The guests were shown the modern offices of the personnel of the company as well as the conference and display rooms.

Dr. Paulino Tangingco, manager of professional services of the company, has offered to the Philippine Dental Association the use of the air-conditioned conference and projection room of the company.



Photo above shows part of the presidential table at the testimonial banquet given by the Philippine Dental Association in honor of Congressman Ricardo Y. Ladrado at the Manila Hotel last January 29. Left to right: Lt. Col. Agustin L. Zarate, Dean Victorino G. Villa, Dr. Pedro A. Bañez, Dr. Germanico A. Carreon, Rep. Ricardo Y. Ladrado, Dr. Regino Padua, undersecretary of health, and Dr. Gervasio Eraña, dental board chairman.

P.D.C. Alumni Association Elects Officers For 1950-1951

Dr. Gaudencio R. Ocampo, former president of the Philippine Dental Association and at present member of the PDA board of trustees, was unanimously elected president of the Philippine Dental College Alumni Association at an election meeting held February 12.

Other officers elected were: Dr. Felipe Sabater, vice-president; Dr. Concepcion Gutierrez, secretary; Dr. Trinidad Babista, treasurer; Drs. Ceferino Escarte, Ricardo T. Laviña, Santiago Escarte, Irene L. Simbol, Severiano G. Huerto, Roman Reyes, Alejo Perez, and Lt. Col. Miguel Fernandez, members, board of directors.

An alumni homecoming will be held by the Association on March 12, in conjunction with the college day celebration of the Philippine Dental College, with Rep. Ricardo Y. Ladrado as guest of honor.

Dr. Ceferino Escarte is the outgoing president of the association.

Dental Teachers Association To Hold Election Next Month

The Philippine Association of Dental Teachers, an affiliate of the Philippine Dental Association, will hold its meeting and election of officers on Sunday morning, March 5, at the Carbungco Restaurant. A call for said meeting has been issued by Dr. Joaquin Ladao, temporary presiding officer.

Dean Francisco Benitez, of the College of Education of the University of the Philippines, has been invited to be the after-luncheon guest speaker.

Organized about a year ago upon recommendation of the PDA committee on dental education, the Philippine Association of Dental Teachers devotes its activities to the discussion and formulation of educational policies intended to elevate the standard of the dental profession in the country.

The constitution and by-laws of the Association will be discussed and ratified during the forthcoming meeting.

PDA Honors Rep. Ladrido At Testimonial Banquet

Decrying the seeming indifference in our body politics and among aspirants for public offices to the dentists' role as public officials, Rep. Ricardo Y. Ladrido, of the 4th District of Iloilo, sounded the warning that we are beginning to deviate from the fundamentals of democracy and that fascism may take root in our midst if the nation's lawmaking body becomes a hunting ground for politicians and if it is converted into a dumping joint for fanatical adherents dyed hard in the ways of selfish party interests.

Occasion was the testimonial banquet given in his honor by the Philippine Dental Association on Sunday, January 29, at the Rotary Room of the Manila Hotel, with Acting Secretary of Health Region Padua as special guest.

"Fortunately for us," Rep. Ladrido observed, "we still have in this country a conscientious electorate who voted into office during the last elections men from various professions to compose the second Congress of the Republic."

Rep. Ladrido remarked that there is an erroneous belief that lawyers and professional politicians are the only individuals eligible to public office, forgetting that more heads are better than one.

"If a legislative body is composed of men and women coming from various professions," he added, "the prospects of public service through effective and wise legislation are given a wider berth and a more palpable security."

Rep. Ladrido, in his speech, recalled that his opponents, having no material or moral issue against him, raised the issue that he is a mere dentist.

"But the popular will," he said, "could not be thwarted by such an issue and the people, knowing that dentists can go a long way, voted me into an unprecedented victory. I hope that my political adversaries would sit up and take notice of dentists and the dental profession."

Expressing his gratitude for the Philippine Association's contribution to his triumph in the last election, Rep. Ladrido

Villarama Delays Release Of December Exam Results

Up to press time, Health Secretary Antonio Villarama has not yet affixed his signature on the results of the dental board examination held last December.

Dr. Gervasio Eraña, dental board chairman, when asked why the release of the board results has been delayed stated that it is still in the hands of the Secretary of Health. As far as the members of the dental board is concerned, Dr. Eraña further stated that they have faithfully complied with the provision of Section 17, Republic Act No. 417 which requires that the ratings obtained by each candidate be reported "within sixty days after the examination."

do promised to help the dental profession through proper legislations and to win for the Association an adequate and high recognition for its valuable contribution to public service.

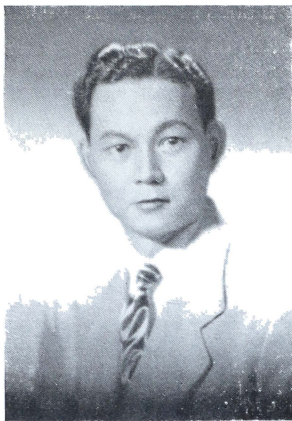
Acting Secretary Padua, in the remarks he gave, underscored the value of dentistry in the health of the country.

"The dental profession," he said, "is a cog in the progress of the nation and it is as important as the medical or any other profession."

Other speakers at the banquet were Dr. Gervasio Eraña, chairman of the dental board, Dr. Pedro A. Bañez, president, Manila Dental Society, Col. Agustin Zarate, chief, Army dental corps, Col. Miguel Fernandez, chief, P.C. dental corps, Dr. Victorino G. Villa, dean, U.P. College of Dentistry, Dr. Miguel Arevalo, dean, M.C.U. College of Dentistry, Dr. Luis Antonio, dean, Philippine Dental College, Dr. Joaquin Ladao, Dr. Alfonso Salcedo, and Dr. Antonio Oliveros.

The banquet was attended by members of the Board of Dental Examiners, deans and faculty of dental schools and colleges, members of the Philippine Association of Dental Teachers, members of the Manila Dental Society, and representatives of provincial chapters of the Association.

Dr. Germanico A. Carreon, PDA president, introduced Rep. Ladrido and acted as master of ceremonies.



Dr. B. B. Eraña

Letter to the Editor

INDIANA UNIVERSITY
School of Dentistry
1121 West Michigan Street
Indianapolis 2, Indiana

February 3, 1950

Dr. Germanico A. Carreon
Office of the President
Philippine Dental Association

Dear Dr. Carreon:

Thank you for your cooperation in supplying us with back issues of the *Journal of the Philippine Dental Association* and in adding our name to your mailing list.

Your Association has been added to our mailing list for the Official Bulletin of the School of Dentistry and for its *Alumni Association Bulletin*. I trust you will find these publications helpful.

Very truly yours,
(Sgd.) Rita Lee Downing
Librarian

**Eraña Elected President
Of Manila Dental Society**

Dr. Bienvenido Eraña, prominent Manila dental practitioner, was unanimously elected president of the Manila Dental Society, chapter of the Philippine Dental Association, at an election-meeting held February 12 at the Carbungco Restaurant.

Dr. Eraña took post-graduate course in dentistry at the University of Pennsylvania and was senior dental resident of the Episcopal Hospital in Philadelphia. He was chairman of the board of dental examiners in 1946-1947. A fellow of the International College of Dentists, he is also its regent for District No. 30 comprising the Philippines and Guam. Dr. Eraña was one of the organizers of the Manila Junior Chamber of Commerce and is a member of its board of directors. He is also a Rotarian.



Elected to the position of executive vice-president is Dr. Donato Dionisio, practicing dentist and, during the last year, member of the MDS board of directors. He has been an active member of the Philippine Dental Association for many years.

Other officers elected were Dr. Irene L. Simbol, vice-president, north district; Dr. Arsenio Ustaris, vice-president, south district; Dr. Daniel Pineda, secretary; Dr. Julia Sian, treasurer; Dr. Jose S. Valte, auditor; Dr. Severino Huerto, Trinidad Babista, Jose Rodriguez, Diosdado Sabando, Godofredo Tiongson, Victor S. Fernandez, Cipriano Ochoa, and Alejo Perez, members, board of directors.

Rep. Ricardo Y. Ladrado, guest at the meeting, appealed for full cooperation of all members of the profession during his incumbency as a legislator.

ABSTRACTS

Dry Sockets—The Prevention of Delayed Healing by Providing Adequate Nourishment for the Blood Clot. By Ellsworth A. Bruce, D.M.D., B.S., LL.B., *Dental Items of Interest*, Vol. 72, No. 1, January 1950, pages 18—23.

Various reports were made regarding the efficacy of compounds that are used as socket dressings after the advent of the sulfonamides. Sulfas, in the form of solutions, pastes, powders, etc., have been tried singly and in combination.

Other socket medicaments which have recently been advocated are tyrothricin cones and chloropyl, the former possessing the additional merit of filling dead space and reducing the size of the clot.

These products, no doubt, have certain merits but their use, however, will not produce uniformly good healing in every case.

The sulfonamides, for example, have several disadvantages: (1) used topically, they are not effective in the presence of free pus; and (2) even in the small dosages administered in topical application, they may produce a sensitivity reaction. This may be due to the fact that, because of sulfas' popularity, most patients have had received sulfa therapy in subminimal doses.

The best protection for the socket following extraction is a normal blood clot, which fact is too often forgotten in enthusiasm for the newest panacea. Excessive medication is not required by a normal socket, except in the presence of extensive infection.

The methods which may be employed to secure and maintain a good clot are:

1. Provide sufficient raw surface on the mucosa.—The gingival mucosa should be freshened to provide a raw surface in isolated extractions by using a small gum scissors and cutting off a thin strip of mucosa around the circumference.

2. Provide for circulation through the

alveolar bone.—This is accomplished by using a small round drill to puncture the lamina dura in several places and thus create artificial channels to the cancellous bone.

3. Use sutures without tension.—Sutures are helpful if properly placed and tissue flaps should be brought together only enough to reduce the normal width of the socket by about one-third.

Drugs From Molds Used in Dentistry. By John B. Street, Jr., D.D.S., and Richard T. Street, M.A., D.D.S., *Dental Items of Interest*, Vol. 72, No. 1, January 1950, pages 24—27.

Man has long been utilizing yeasts and molds to give him a better life and they have been employed to make cheese, bread, age meats. As a climax to their usefulness, drugs are now produced from molds that will save life and cure diseases that other drugs will not do. Bacitracin, penicillin, and streptomycin are some new drugs of this kind, the first being one of the newest among them.

Bacitracin was discovered by Dr. Frank L. Melency and Miss Balbina Johnson of Columbia University, New York City. Since it has come into use, carbuncles, boils, abscesses, styles, and ulcers of patients will not have to be lanced or cut. This anti-germ chemical saved sixty-two out of 100 patients from having to undergo surgery since its first trials. Bacitracin was originally obtained from a badly infected wound from a girl who had broken the bone on the inside of the leg. The drug was given the name "bacitracin", taken from the girl's last name, Tracy, and the germ being a bacillus.

Originally, bacitracin was used only locally by injecting it into an abscess or boil or applying it as a salve; recently it has become available in a form suitable for injection into muscles, as penicillin is given.

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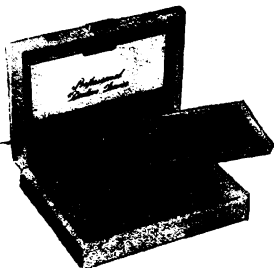
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ITS **50th** *Anniversary* *Package*

TRUBYTE NEW HUE TEETH ASSORTMENT No. 949

30 x 6 Trubyte New Hue Anterior Teeth
30 x 8 Trubyte New Hue Posterior Teeth
in popular moulds and shades

AND... An attractive durable cabinet. Valued at \$5.00, the cabinet is included in Trubyte New Hue Assortment No. 949 without charge.



HERE'S WHAT THIS ASSORTMENT WILL DO FOR YOU:

- Increase your earnings in denture work.
- Simplify the presentation of denture service.
- Enhance your reputation as a denture specialist.
- Facilitate the selection of suitable teeth.
- Minimize resets and remakes.
- Save you time and money.

Plus...



The album
**PROFESSIONAL
DENTURE SERVICE**
Contains a large number of "before and after" pictures of denture patients.



**THE HARPER
ADJUSTABLE TRAY**
Takes an accurate impression in one operation of the upper and lower anterior teeth in centre position.



**TRUBYTE TOOTH GUIDE
TRUBYTE SELECTION
RIM and TRUBYTE
NEW HUE SHADE
GUIDE**



**HOW TO BUILD
A DENTURE PRACTICE**
10 practical suggestions for building a denture practice.

An assortment of 32 finishing wheels and points in various grits and sizes and one mmndrel.

**THE GREATEST VALUE IN TEETH, ACCESSORIES AND PATIENT-
EDUCATIONAL MATERIAL EVER PREPARED BY ANY MANUFACTURER**