

OREGON HEALTH & SCIENCE UNIVERSITY

ORAL HISTORY PROGRAM

INTERVIEW

WITH

David Mahler, Ph.D.

Interview conducted November 19, 2009

by

J. Henry Clarke, D.M.D.

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TABLE OF CONTENTS

Biographical Information	1
Military Service	1
University of Michigan	2
University of Oregon Dental School	2
Teaching and Research	3
Department of Biomaterials	4
Dental Amalgam Research	5
Professional Associations and Awards	7
Changes in Biomaterials	8
Engineering background	10
Family life	11

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Interviewed by J. Henry Clarke, D.M.D.
November 19, 2009
Site: Mackenzie Hall 2201, Marquam Hill campus, OHSU

HENRY CLARKE: This interview with Dr. David Mahler was conducted on November 19, 2009 in Mackenzie Hall, on the campus of the Oregon Health & Science University in Portland as part of the Oral History Program of the University Library. The interviewer is Dr. Henry Clarke; and this is tape number one.

CLARKE: Dr. Mahler, you were one of my first professors at what was at that time the University of Oregon Dental School; and I was lucky to have you. At the beginning, I'd like to start with a few questions. Could you tell us a little bit about where you came from, where you were born and raised, and what things were like at that time?

MAHLER: Well, I was born in Yonkers, New York, which is a city located just next to New York City and went to high school there. After graduating, I was looking for a college program to continue my education. I was pretty good in math, so I moved toward an engineering type of program. Although there are several types of engineering programs available for study, I decided on aeronautical engineering. At the time, there were only a few schools that offered such a program and had the physical facilities to teach aeronautical engineering such as a wind tunnel. The University of Michigan was one of these and I entered there as a freshman student in 1940.

World War II was going on at that time and I wanted to get involved in the war in some way. The US Navy had a program called V-12, whereby you could enlist in the Navy, finish your college program and then be available for duty. I had to dress in navy garb, do a few exercises each day and do that sort of thing during my senior year. When I graduated, they sent me to various other institutions to get the type of training that would be required for what they had planned for me which was the maintenance of naval aircraft.

Initially, I was sent to Notre Dame for 3 months to learn about the basics of being in the Navy. This is why they called people going there ninety-day wonders because they received an officer's rank in ninety days. They would teach them the difference between port and starboard, and where the head was, which is the term for bathroom in the navy; as well as other vital information. After that I went to several other programs learning about the specific engines and structures of naval aircraft. Apparently, I was being trained in the direction of aircraft maintenance because of my background in aeronautics.

After I got through all of these programs, I was sent to a CASU unit stationed in San Francisco. You might say that this was a unit of a bunch of nuts, but actually it was an acronym for Carrier Aircraft Service Unit. Despite my protest, because I wanted to join a lot of my friends who were going overseas, I was stationed in California at a small airport in Livermore, California. My job there was to direct the operation of attending to

the aircraft that were used in training pilots in bombing and gunnery as well landing on a strip equal to the size of the landing surface on an aircraft carrier.

I stayed there until the war was over and then went back to Michigan, by virtue of the GI Bill, and continued my studies in aeronautical engineering. I got my master's degree and was working toward my doctorate when I heard of a part-time student position at the Dental School. Always looking for a little extra money, for survival purposes, I inquired about the position. The Dental School had a research project in place that was supported by the National Institute of Dental Research and they were looking for someone to help on that program. I had done quite a bit of testing when I was an engineering student so they hired me on a part time basis. The people who were directing the project were in the Department of Dental Materials, now called Biomaterials. The field looked so interesting that I found it to be much more appealing than aeronautics. I thought that when I completed a program in aeronautics, I'd probably be hired by Boeing to research an aileron or some other part of the airplane for the rest of my life. In the field of biomaterials, I could take an entire problem and apply all of my skills to that problem alone. I changed course and entered a PhD program in Biomaterials and Biomechanics, at Michigan.

When I got my PhD, I was looking around for a position. At a meeting of the International Association for Dental Research, I was approached by a gentleman from Oregon, Dr. Kenneth Cantwell, who was Chairman of the Department of Operative Dentistry at the Dental School at Oregon. He described the school and told me that they were looking for someone to start a program in biomaterials. I had been a fisherman from a very early age and I knew of the great fishing in the state of Oregon. Zane Grey wrote a wonderful book about fishing in Oregon on the Rogue River. In those days, to take a book from the library, you'd have to write your name on a slip in the back of the book. Whenever I went back to take that book out, all I saw on the back-slip was my name, repeatedly. So, when he said Oregon, I didn't tell him that this was something that was very close to my heart. I contacted Dr. Harold Noyes, who was the Dean of the Dental School at that time, and our conversations proved very compatible. Subsequently, I threw the family into the car and headed out to Oregon.

CLARKE: Was there a biomaterials or dental materials department before that? You said that they wanted you to initiate one.

MAHLER: No, there was not. They brought someone in from a school close by to teach a little something about materials, but there was no program. So I had an opportunity to set up a program exactly the way I would like.

CLARKE: Your doctoral dissertation was "Photo -Elastic Analysis of the Stresses Developed in a Restored Primary First Molar Tooth When Subject to Forces of Mastication". Could you tell us a little bit about that study?

MAHLER: Well, to remove decayed tooth structure caused by caries and to prepare the tooth to receive the restoration, the preparation has to be carefully done to

avoid endangering the pulp, particularly in primary teeth because the pulp extends high in these teeth. Because of this problem, a number of people have proposed various designs for the primary first molar tooth, which is an important tooth in the final positioning of both the primary and permanent dentition. However, the designs proposed were controversial. The purpose of my PhD thesis was to determine exactly what form was best for a primary first molar to resist the forces of mastication as well as to avoid encroaching on the pulp. A stress analysis procedure was used, called Photo-Elasticity, which shows where stresses are in a structure that is subject to loading. Using this technique, I was able to actually show the stresses present for the various different cavity forms and to select the best one. Not having the funds to purchase a commercial instrument for this purpose, I built one for this project.

CLARKE: So basically you were trying to find out what design of cavity preparation in a primary tooth was best suited to resist the forces of mastication without endangering the pulp.

MAHLER: Yes.

CLARKE: You know that a lot of scientists in a university have some conflict between their obligations to teach and to do research. You were a wonderful teacher. Do you have any feeling about which you prefer, or do you like them both?

MAHLER: Well, they have their own pluses and minuses, but I was quite interested in research when I came here, and actually have been quite well funded up until the time that I retired. I liked teaching as well because I had certain ideas about teaching dental students that I wanted to promulgate. I believe there is so much information in the current literature and with so many demands on their time; students don't have a lot of time to search through the literature on the latest things that could have a significant influence on their practice of dentistry. Therefore, I felt that it's up to a teacher to synthesize these findings in a form which does not take an inordinate amount of time, but at least gets the information across.

CLARKE: So to you, research and teaching just dovetail and become one unified process.

MAHLER: Yes.

CLARKE: That's wonderful. Can you tell us a little bit about your experience and your feelings about the different presidents of the university? You've been here with Drs. Bluemle, Laster and Kohler. Can you tell us a little bit about that?

MAHLER: Well, when I first came to the Dental School, The Dean of the Dental School and the Dean of the Medical School sat on the Board of Higher Education along with the Presidents of the other Oregon universities. Under those circumstances, the Dental School did quite well because they could present their needs and problems to the entire board. It was a unique situation. Usually in most universities, the dental and

medical schools are under the jurisdiction of the university, not separate entities. So, under those circumstances, I think we did quite a bit better both financially and otherwise before the Health & Science University changed to it's the present administrative structure.

My only association with the University was being on two search committees for selecting new presidents. Actually, I was so busy with what I was doing, both in teaching and research that I was not significantly involved in what was going on in the university.

CLARKE: What about your department, can you tell us a little bit how that has evolved? How it has grown?

MAHLER: Well I was the only person in the department initially, and I ran the whole show, both teaching and research. Then Jack Mitchem, who was a dental student at the time, worked in my laboratory on several projects. When he graduated with his dental degree, he came on board the department as an additional departmental member and we had that structure from then on. Because of the lack of financial resources, we weren't able to grow beyond that point. We were doing the job, and both Dr. Mitchem and I were able to establish a department which became known for its excellence, both nationally and internationally. When I retired and Dr. Ferracane came to take over the chair, he was able to get a lot more staffing into the department. So I would say that he was a little more successful than I was in growing the department.

CLARKE: Where did Mr. Adey fit into the Department?

MAHLER: Jerry Adey came aboard as a research assistant. His background was in chemistry and he worked on one of my research grants and was paid from that grant. Actually he did quite a bit of the lab work in developing the data for all of the research projects that we were doing. Sometime back, at the beginning of the program, I was able to apply for and receive an electron probe micro-analyzer, which is a very unique instrument and very expensive. We were the first dental school in the U.S. to obtain such an instrument. This instrument allowed us to study dental amalgam in great detail. Jerry did most of the scientific work on that instrument as I was busy writing papers and applying for new grant funds. When you get on the grant "treadmill", you're constantly busy with not only getting the data to demonstrate that you've been efficacious in this regard, but also to get data to support new projects for study. So it's quite a process to stay funded.

CLARKE: What about Lou Terkla, a previous Dean of the Dental School? You mentioned that you're a fisherman; and he does a great deal of fishing. Also, he was involved in several research projects with you.

MAHLER: When I came here, Dr. Louis Terkla was in the pre-dental laboratory program where students were taught how to prepare cavities and place restorations. Dr. Terkla is an extremely intelligent person, very capable and was very interested in doing

research. We got together to work on several projects and became close friends in the process.

CLARKE: Did you go fishing together?

MAHLER: Oh, yes. Lou Terkla always out-fished me and whoever joined him in this endeavor. No matter what he did, Lou Terkla did it very successfully.

CLARKE: Interesting man. A lot of your research has been with dental amalgam. I know that you did a lot of work on marginal integrity; and then, of course, the high copper content amalgam alloys. Can you tell us a little about the developments that you were involved in with all this?

MAHLER: Back in the early sixties, a paper was presented at a meeting of the International Association for Dental Research by a professor from one of the Canadian universities. He had a brother teaching at a Canadian dental school, and this brother challenged him to come up with an improved alloy for amalgam. In any event, he came up with the idea of adding more copper. Serendipity prevails in so many areas of science and this was a classic example of serendipity. He added copper, thinking it would improve the amalgam's strength. Actually, it was not very effective in this regard but what it did do was to eliminate a tin-mercury reaction phase which was very prone to corrosion. By eliminating that phase, amalgam performed better by exhibiting significantly less marginal breakdown with time in service. This resulted in a greater longevity of amalgam restorations in the mouth. My contribution here was two-fold. First, I conducted extensive clinical trials in which restorations were placed made from many different amalgam alloys in the mouths of eighth graders and it was quantitatively determined that the performance of the new higher copper content alloy was indeed superior in clinical service. Second, I was able to demonstrate exactly what was happening from a metallurgical standpoint whereby, on the basis of this information, amalgam manufacturers were able to modify their formulations accordingly. Today, almost all commercial dental amalgam products available are of the high-copper type.

CLARKE: What's meant by dispersed phase alloys? I know they came up with the brand of Dispersalloy after your research, I think.

MAHLER: Actually, this new alloy was marketed before we started working on it but its superior clinical performance was not well established until our clinical research was underway. The term dispersed-phase alloys is just a description of how the alloy is physically formulated. Basically it was how the additional copper was added to the alloy. In the case of Dispersalloy, the copper was added in the form of a silver-copper metallic phase, which was dispersed throughout the amalgam alloy prior to mixing with mercury, hence the term dispersed-phase alloy.

CLARKE: Were the economic factors in your research a lot different back in the time when you were doing this as well as years later? Has that changed a lot as far as being able to get funding?

MAHLER: Well, I think it's probably more difficult to get funding now. I was fortunate in not really having any trouble at that time because we were at the forefront of amalgam research in showing by quantitative clinical research that this improvement did indeed take place and then finding the exact metallurgical mechanism responsible for its taking place. Other researchers confirmed our findings but we were at the forefront of this whole event.

CLARKE: I've heard people say that since your research, the average life of amalgam restorations in the mouth has significantly increased. Has that actually been researched?

MAHLER: Yes, longitudinal studies have confirmed this.

CLARKE: What is the difference? Is there an average length of time?

MAHLER: Well, the length of time benefit varies according to the study but most studies show significant improvement when using the higher copper content alloys which eliminate the corrosion-prone tin-mercury phase. Of course we did a whole series of alloys on the clinical project to show this to be true.

CLARKE: So now an amalgam can last perhaps twenty-five years in the mouth.

MAHLER: This longevity is not unusual for amalgam restorations. I have some in my molar teeth that were placed when I was in high school. I won't tell you how long ago that was [laughter], but it's an excellent material that is very long-lived. Even if it breaks down a little bit, it can be adjusted by the dentist to last even longer. There have been other studies that have compared the longevity of amalgam to newer materials, such as the so-called composite resins, which look like teeth. However, amalgam always wins that battle.

CLARKE: How do you feel about the controversy about mercury in amalgam?

MAHLER: Well, that controversy has been studied and reported by hundreds of studies that demonstrate that there's no health problem with mercury in amalgam. It is important to know that the mercury in amalgam is not in the form of pure mercury; rather, it is combined with silver in the form of a compound. An analogy would be sodium and chlorine which, individually, are very harmful ingredients. However, if you put them together in the form of a compound, it's the stuff you put on your steak when you want to improve its flavor. So it's the combination of mercury with silver that actually limits the amount of mercury that's available for any bio-compatibility concerns. The Federal Food and Drug Administration has just completed an extremely comprehensive review of all the literature on the biocompatibility of amalgam; and they have agreed that it is a very successful and biocompatible material to use.

CLARKE: I remember once you were introduced as an international authority on amalgam materials and because you'd been introduced that way, you would tolerate no questions. [laughter] You've received a whole lot of honors. You were past president of the Dental Materials Group of the International Association of Dental Research and you have received the Souder Award, the Hollenbeck Memorial Prize, the Japanese Fauchard Academy Award and your name appears on the Ryge-Mahler Award which is given to the leading clinical researcher each year for excellence in clinical research.

MAHLER: The Japanese Fauchard Award proved most interesting because they paid me to go to Japan to get it and I had a wonderful trip on the basis of that. I believe that it is recognized that based on the work that I've done, I'm considered to be the leading amalgam authority in the world. Whether that's good or bad, I don't know. But anyhow, that's the way it's been.

CLARKE: What kind of growth have you seen in the International Association of Dental Research? What was it like when you first became involved? And what's it like now?

MAHLER: Well it's gotten a lot bigger, and I don't particularly like that very well. Back in those days, there were fewer people involved, and when you went to a meeting to present a paper, you would have twenty minutes to present the paper and lively discussions shortly followed. Well as more and more people became members of the organization, there wasn't enough time to allow for individual speakers, so they came up with the idea of putting up posters. Now the meetings are filled with posters everywhere which are not screened for scientific value and there is no venue or time for group discussions which are really the way that can move the frontiers of scientific knowledge forward.

CLARKE: Are you still involved in the organization?

MAHLER: Yes, I haven't gone to some of the meetings lately because of my health but I'm still involved with committees and other interactions.

CLARKE: Are you still doing any fly fishing?

MAHLER: Yes, [laughs] still doing some of that. Usually every summer my son and I take off for the lakes outside of Bend, and of course it's all catch and release now. It used to be we'd catch fish and smoke them, and they were wonderful. But now we very carefully release the fish back. My son has a Fisheries Biology degree from Oregon State University and he knows exactly what water-borne insects the trout are interested in at the time of our presence in their environment.

CLARKE: Can you think of any other interesting aspects of your career, or your relationship with OHSU?

MAHLER: Well, I've always had a good relationship with the deans at the dental school. So that, of course, was my closest association. As far as OHSU, per se, is concerned, I really didn't have that much to do except being on two OHSU presidential search committees. In a way, I've been sort of a big fish in a little pond.

CLARKE: [laughs] I think you're a big fish in a big pond. It's a delight to know you and I was glad to be one of your students. Furthermore, it's been fun to have shared your career with you today.

MAHLER: Well, students think I'm a little bit hard on them. But usually when I meet dentists who have been practicing for years and who have been trained at our dental school, they always appear to be very happy to see me and say, "Well that was the best course I ever had."

Of course when a dentist comes up to me that I meet somewhere and pays me that compliment, I always ask them in what year they graduated; and when they reply, I always say "That was one of the best class years there was;" So I get even with them on that. [Laughter]

CLARKE: Well thank you very much. This has been delightful. Going back to the early days, you grew up in Yonkers during the Depression. Can you tell us a little bit about what life was like in the Great Depression? Was this a big deal for your family?

MAHLER: Well, although we were financially depressed, as most people were at that time, my dad was still working. He was in a fruit and vegetable business that supplied these things to restaurants, so he was always able to pay the rent and supply our basic needs. We didn't have many amenities. I remember wanting to join the Boy Scouts, but the family couldn't afford the uniform. I always wanted a two-wheel bicycle, but we never could quite get that. So there were a lot of things that kids nowadays take for granted and don't have to do without.

CLARKE: And was going to college a very big thing?

MAHLER: Yes, it was.

CLARKE: Okay, can you tell us a little bit about what you've seen in the changes in dentistry; sort of the history of dentistry that you've observed.

MAHLER: With respect to biomaterials, I think a couple of things have come along over a period of time. One was the use of a material, called silicate cement, for anterior restorations. This material looked like teeth but unfortunately had the characteristic of dissolving over a period of time. Some people were harder on these materials so that restorations made from his material often had to be replaced quite frequently. Now we use what are known as composite resins which do not dissolve and are very effective for anterior teeth. So we not only get aesthetics now, but performance as well. However, for posterior teeth, composites have some problems. They shrink on

hardening that can cause crevices between the tooth and the material and because these materials are not resistant to caries-causing bacteria, recurring caries can occur in these crevices.

Amalgam has been used effectively ever since 1900 when a Chicago dentist by the name of G.V. Black, who was Chairman of the Dental Materials Department at Northwestern University, came up with what he called a “balanced formula.” Prior to that time, amalgams were basically mercury and silver that expanded excessively and did all kinds of funny things. But from 1900 on, it was a pretty successful material. Then in the early sixties, when the introduction of more copper came into the picture, it was a very significant step upwards in clinical performance and longevity.

The other thing that is relatively new has been the use of implants to replace missing teeth. When a tooth is missing, you can implant a structure that will hold a prosthetic tooth very nicely. Other than that, I don’t think we really have gone much further from a materials standpoint.

CLARKE: I can remember that when I was in the service, a lot of dentists used to put the silver amalgam mixture, after it had been mixed with a mortar and pestle, into their hand; and they would mull it with their finger. Is that something that you saw change?

MAHLER: Yes, now all amalgams that the dentist uses come in a pre-dosed capsule, which has both the mercury and the alloy particles in an enclosed capsule. This capsule is then placed in a device that mixes the mercury with the alloy powder to form a plastic mass which does not need to be touched and can be placed directly into the tooth cavity. The reason for the so-called mulling procedure was that mortar and pestle mixing was not very effective in getting the mix homogenized. However, mulling produced its own problem which was that people who perspired more than others could introduce moisture into the amalgam mix. This produced a delayed expansion on the part of the amalgam, which could get quite high; so, there were significant problems associated with the mulling procedure.

CLARKE: Okay, let’s take a look at the future. With the experience you’ve had, what do you think we’re looking at for dental materials from here on?

MAHLER: Well I think we’ll probably stay with most of the materials that we have right now. In the implant area, there will be some greater use of this technique; and of course, there’s always the possibility of remineralizing parts of the tooth that have been lost due to caries. There’s a lot of work going on in that direction now, but no breakthroughs yet. The idea to develop materials which would impart the ions and chemical elements needed to remineralize lost tooth structure would be a big plus, if it were ever to come to pass.

CLARKE: Have you been involved in any work with the noble metals such as compositional changes in the gold and silver alloys.

MAHLER: No, but I've done some work on the technical procedures associated with the casting of those alloys. However, I believe we'll always have the gold alloys as they are presently composed and we'll also always have the present base-metal alloys being used on the basis of cost. There haven't really been any breakthroughs in the area of casting alloys.

In general, the problem with placing a dental biomaterial in the oral environment is that it must satisfy certain unique requirements. A material must be resistant to the forces of mastication, it must not corrode due to interactions with the oral fluids and it must be biocompatible with living tissues. So there are significant limitations to the materials we can use in the mouth and these limitations will always be there. If there is a next major change, once again, I believe it would be in the remineralization area.

PIASECKI: So you have worked with many of the deans and we know them from the catalogs and from their papers, but we don't know them as people. Do you have any stories or anecdotes or your personal interactions with the deans from Noyes through Clinton.

MAHLER: None that readily come to mind. I was so occupied with teaching dental students, dental hygiene students and graduate students as well as maintaining a very active research program that I kept to myself pretty much.

One little story that may fall within this category of mentor interaction was during my tenure at the University of Michigan Dental School as a student assistant. The project I was working on had to do with testing, would you believe, dental amalgam? At that time, we didn't have the sophisticated testing machines to test the small specimens needed for biomaterials applications. We had big machines that could test the strength of steel and aluminum used for buildings and other large structures but none for small specimens, particularly in the area of a controlled rate of load application. I returned to the labs at the engineering school and found a motor that I could use to slow the rate of loading of the large machine that was in the Dental Materials Department of the Dental School. I installed this motor and conducted a number of tests on my own to see the effect of this reduced loading rate on the properties of amalgam. I found that the strength of amalgam was significantly influenced by loading rate, being higher at faster rates. When my mentor asked me to run a few tests on some amalgam specimens he gave me, I asked him whether he wanted lower or higher values. Being a physicist and skilled scientist, he showed his surprise by saying "What do you mean by asking me what kind of values do I want?" I said, "Well, I can give you high values or low values." When he saw the results, he was so impressed that he told this story many times at dental research meetings which "blew my horn" very effectively and enhanced my early scientific status; so that was another example, perhaps trivial, but very satisfying; and still finds a presence somewhere in the retrievable corners of my brain which have become fewer in number with advanced aging.

CLARKE: Did this loading of the amalgam become a useful concept? What do you mean by the rate of loading?

MAHLER: To measure the strength of any material, it is placed into a testing machine that grips the test specimen and applies force until the specimen fractures. The rate of loading is the speed with which load is applied to the specimen. For most materials, the rate of loading does not influence the final strength. In the case of amalgam the rate of loading strongly influences the final measured strength. Its importance is when different labs are testing the same amalgam and their results are not confirmatory because they are not using the same loading rate. In the business of science, the validity of a test result can only be established if another investigator can get the same result.

A similar trivial event was when I was in the Navy. Pilots complained that on one of the airplanes under our care, the wheels would not come up into the wings after takeoff, which is what they are supposed to do. I was working with another person on this project and we concluded that the movement of the wheels was being hindered by a structural defect in their structural mounting which allowed the rushing wind to prevent the wheels from moving up after the airplane took off. After several misguided attempts, we modified the mounting to resist the effect of the wind. When the airplane took off to confirm our diagnosis, the wheels worked perfectly. We cheered that success, much to the concern of other persons in the vicinity who wondered what the cheering was all about when all they could see was an airplane taking off in a routine way. Those are the little things in life, although trivial, stay in your brain because they are so satisfying; and this was one of those things.

CLARKE: Can you tell us who some of the people were that were influential in your life, not only your career?

MAHLER: Well, when I was at Michigan, the two professors that were conducting this project on amalgam were very influential as far as my going into the biomaterials field was concerned. Then, when I came to Oregon, Dr. Cantwell, who initially talked to me about the position, and also Dean Noyes, were both very interested in my setting up a department in biomaterials at the Oregon Dental School. They were able to get me the instruments that I would require to initiate my research program; and then Lou Terkla, when he became dean, was always encouraging and very helpful. In addition, the biomaterials people in the field at that time were very supportive. Although some of those people are gone now, their influence continues to linger in my thoughts.

CLARKE: What about your family? They must have been very supportive to somehow help you to get into college and support you?

MAHLER: Although our family resources were very limited, the help that they could provide plus my working at various jobs allowed me to scrape through. When I came back to Michigan after the war, I met a girl from Ann Arbor where I was going to school, and we married and had two sons who are still surviving. One is a fisheries biologist whose knowledge serves to give me the correct fly to use for the fish we are

trying to entertain during our fishing trips, and the other son is a graphic artist. So, presently, that's the family. Prior to that time, I didn't have many close relatives. My mother and dad were far away when I went to Michigan and served in the Navy and I just got back for visits on occasional vacations.

CLARKE: You went from aeronautical engineering into dental materials science. Do you long for the aeronautical field?

MAHLER: No. My chairing a department and being allowed to engage in research subjects of my choice in the field of biomaterials was very satisfying. The major factor was that I could identify the existence of a problem; to not only describe the nature of its existence, but to find out why it works that way. In all of my research activities, my emphasis has always been trying to find out why something is happening. Whenever I talk to Japanese researchers, they always say, "Well, we read your articles very carefully because you are always providing the answer to why something is happening."

CLARKE: So you found that a very satisfying part of dental material science.

MAHLER: Yes.

CLARKE: Sounds like even more than in aeronautical engineering.

MAHLER: Well even in the research I am conducting today, it's not a matter that I can observe that something is happening, but to find out why it is happening is a very exciting thing for me.

CLARKE: Okay. You mentioned the importance of materials not having a corrosive property in the mouth, and so forth. Have you observed anything regarding diet or oral hygiene that has had an effect in the mouth over the years of your career?

MAHLER: Well, actually, caries, as you know, is a result of the presence of sugar in the mouth. Too much sugar and sugar containing food and drinks will always present a problem as far as caries is concerned. At one time it was thought that a preventive inoculation could prevent or inhibit caries. This has just not come to pass. I don't think our diet has changed that much to change what's happening in the mouth. Of course good home care, which has the ability to subdue the level of bacteria that are creating caries to low levels, is critical. And of course fluoride in the water, which is resisted here and other places, can increase the resistance of teeth to bacterial end products. Both of my sons were born in Ann Arbor, which had fluoridated water; and although they are now in their fifties, they have very few cavities at this time.

SIMEK: Why is fluoridation resisted? I don't understand why the thought of fluoride just turns people off. I don't really get it.

CLARKE: Politically, if you can scare people about anything, it tends to prevent common sense from prevailing.

MAHLER: There is one other little event that might be of interest.

CLARKE: Let's hear it.

MAHLER: You know the university gives an award, for every five years of service. The award consists of a small lapel pin containing a precious stone which is repeated after each successive 5 years of service. When I was here at OHSU for fifty years, they were wondering whether there was something more substantial that they could give to me. One suggestion was a nice leather chair, to go at my desk. After thinking about this a little bit, I thought "Well, when I'm gone, my sons will probably put it up in a garage sale"; and that didn't impress me as being something that was of great note.

Dr. Ferracane, who is presently chairman of the department, came up with the idea of naming the laboratory in which I work with a suitable plaque mounted at the entrance. This was very acceptably received by me and reminds me that someone is watching over me. It also serves as a reminder to foreign students who take programs in the department. Students in other countries know of me through the courses in dental materials they took when they were dental students in other countries. One student noticed my name was on the door of one of the offices in that laboratory and thought it was strange that they would leave that sign up there. When she peeked in my partially opened doorway and saw me sitting at my desk, she exclaimed "my god, he's still alive" [laughter]. I thought that was a pretty neat little situation.

SIMEK: Did we get your birth date in? [glitch]

MAHLER: February 3, 1923.

CLARKE: Okay, this has been an interview with Dr. David Mahler. It was conducted on November the nineteenth, 2009, in Mackenzie Hall, on the campus of the Oregon Health & Science University in Portland, Oregon, as part of the oral history program of the University Library. The interviewer was Dr. Henry Clarke; and this is tape number one of one.

[End Interview]

INDEX

A

Adey, Jerry, 4

B

Bluemle, Lewis (Bill), 3

C

Cantwell, Kenneth, 2, 11
changes in dentistry, 8-9

D

dental amalgam research, 5-6
Department of Biomaterials, 2, 4
Depression, Great, 8

E

Effect of diet on dental health, 12

F

Ferracane, Jack, 4, 13

H

Hollenbeck Memorial Prize, 7

I

International Association of Dental Research, 7

J

Japanese Fauchard Academy Award, 7

K

Kohler, Peter, 3

INDEX

L

Laster, Leonard, 3

M

Mahler, David

doctoral dissertation, 2-3

early life, 1

family life, 11

graduate education, 2

professional affiliations, 7

professional awards, 7

recruitment to faculty, 2

teaching vs. research, 3

World War II service, 1

Mitchem, Jack, 4

N

Noyes, Harold, 2, 11

R

Ryge-Mahler Award, 7

S

Souder Award, 7

T

Terkla, Louis, 4-5. 11

U

University of Michigan, 1-2