THE ADA, FDA, NIDR, AND THE 4TH AMALGAM WAR

Has the 4th amalgam war been joined in full battle?
It would appear so!

Isn't it interesting that a handful of dentists, physicians, research scientists, medical writers and lay people, advocating the elimination of mercury as a dental material, have precipitated a full blown war to counter such a radical proposal. To date, there have been several components to the war, starting first with a major effort by the ADA to counter the outpouring of newsprint, magazine, radio and TV articles and programs all raising or voicing some doubt about the safety of amalgam. This same effort of counter attack has been picked up by U.S. Government activities that have a responsibility in determining the safety of dental amalgam. One can only wonder at the timing of the government activities as one might well wonder about the timing of the latest Consumer Reports, pro-amalgam article titled "The Mercury In Your Mouth."

AMERICAN DENTAL ASSOCIATION (ADA)

The American Dental Association (ADA), has organized the largest media and political lobbying events in its history. The membership of the ADA should seriously question why their membership dues are being expended in ever increasing amounts to:

1) Perpetuate the official ADA concoction that amalgam is safe, utilizing every conceivable tactic.

2) To attack every research study published in the world that casts even a suspicion of doubt as to the safety of dental amalgam as a filling material.

3) To insure that selected spokespersons cast doubt on the character, qualifications, and objectives of anyone who speaks out against the use of mercury in dentistry. Such people can only be frauds.

4) To attack every legislative initiative in the United States that even tries to suggest that patients have some constitutional entitlement to informed consent and freedom of choice. What right does a patient have to question what material is implanted in his or her body?

5) Produce and distribute to over 1000 media sources, selected information proclaiming the safety of amalgam as a dental material.

6) Produce and distribute video news releases proclaiming the safety of amalgam dental fillings.

7) Produce and distribute patient literature providing answers (fabricated by so called experts) to normal questions from normal patients seeking the truth concerning any inherent danger there might be in implanting the toxin mercury in their body.

8) To lobby aggressively on the hill to insure that any congressional representative of the people doesn't get some weird idea that dental amalgam isn't safe.
9) To insure that political and corporate pressure is brought to bear on any media outlet that has the audacity to do a program or print an article indicating there is concern about the safety of dental amalgam.

10) To exert pressure and influence on the allocation of government grants, insuring that the bulk of money allocated goes only to those individuals and institutions with a pro-amalgam background.

11) To foster exchange of information with such organizations as the National Council Against Health Fraud, Consumers Union, so as to insure a steady onslaught of pro-amalgam rhetoric.

(12) Produce and distribute a special package to every dentist in the United States outlining the safety of dental amalgam and providing answers to questions about the safety of amalgam. This was a special mailing, that was sent out in January 1991 to counter the CBS 60 Minutes program aired in December 1990. All of this raises the question of the legality of expending tremendous amounts of funds from dues-paying ADA members to promulgate incomplete and misleading information to the dental profession and to the public.

WASHINGTON STATE DENTAL BOARD "GAG" RULE

Although I would like to make this (13) under the ADA game plan, I have no proof that the action of the Washington State Dental Board was precipitated by the ADA. The Washington State Dental Disciplinary Board has just held public hearings on proposals to change existing policy. The proposed changes would allow the disciplinary board to revoke the licenses of dentists who promote removal of fillings because of their mercury content. Further, the change would also allow the board to take action against doctors who tell patients that the fillings contain toxic material and may cause future health problems. In effect, because they have no scientific defense that amalgam is safe, the Washington State Dental Association, who is behind the proposal, would get their defense by governmental decree. Scientific data to the contrary, the proposed regulatory change would be imposing a "gag rule" calculated to silence dentists who warn their patients about the dangers of mercury/amalgam fillings and un-license dentists who may replace serviceable amalgam fillings. From a legal standpoint there are several constitutional and legal rights that would be violated - i.e., freedom of choice, freedom of speech, informed consent, and restraint of trade to name a few.

THE FOOD AND DRUG ADMINISTRATION (FDA)

The Food and Drug Administration, through its Dental Devices activity has effectively controlled all congressional, media, and personal inquiries related to the safety of amalgam as a dental device. Their latest effort being a public meeting of the Dental Products Panel of the Medical Devices Advisory Committee held on 15 March 1991. This panel concluded that there was insufficient evidence presented to take a position that dental amalgam is unsafe. However, sufficient unanswered questions were raised that should be answered by future research. What the panel didn't say is that the FDA has never approved amalgam as a dental device, and neither did the media reporting the event. The FDA has only approved mercury and the metal alloy to be combined with mercury to make amalgam, which is a clear violation of FDA Rules stating approved devices must be both safe and effective. Their position is quite clear. Dental amalgam is a reaction product manufactured by the dentist or the dental assistant when the mercury and the alloy are mixed together. Consequently, the FDA is saying to the dentists and the American people that it has no authority to classify a reaction product, containing a known poison, mixed in the dental office that is subsequently implanted into the human body. This is the same position stated by the ADA.

NATIONAL INSTITUTES OF HEALTH (NIH)

The National Institutes of Health recently (26-28 August 1991) sponsored a technology assessment conference to evaluate the effects and side effects of dental restorative materials.

The Panel's conclusions announced at the end of the conference were stated as "Although mercury vapor is released from dental amalgam, the quantities released are very small and do not cause verifiable adverse
effects on human beings." The press, of course, headlined this as "Mercury In Fillings No Threat." The Associated Press treatment of the conference avoided bringing up anything that was contrary to the headline other than a statement that the committee endorsed more research, noting that while studies so far have found no problems, "it must be recognized that the supporting data are incomplete." On the other hand Cox News Service and the Washington Post brought out interviews that strongly criticized the panel’s report and other negative aspects presented at the conference, including the fact that mercury waste from dental clinics is being seriously considered as an environmental issue by countries all over the world.

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I would now like to address some of the articles being presented by the ADA as representing the truth about the amalgam issue. The August 1991 Journal of the American Dental Association (JADA) was devoted in its entirety to Amalgam, Fluoride, and AIDS. Of the articles on amalgam the most comprehensive was titled "Dental Amalgam and Mercury" and was written by J. Rodway Mackert, Jr., D.M.D., Ph.D. Dr. Mackert, who, in my opinion, is the most knowledgeable and articulate spokesperson the ADA has describes in his article the internal conflicts that raged within the American Society of Dental Surgeons over the Society’s prohibition on the use of amalgam by its members; a conflict that saw the Society break up shortly after 1855. This conflict can be rightly termed the "1st Amalgam War." What Dr. Mackert doesn’t say is that the pro-amalgam forces brought the Society down and in its place started the American Dental Association which has been totally pro-amalgam ever since.

The ADA representatives who defend amalgam usually try to impugn the integrity of Professor Alfred Stock who began writing about the dangers of mercury and amalgam dental fillings in the 1930’s. Dr. Stock was a professor of chemistry at the Kaiser-Wilhelm Institute in Germany where his classical scientific experiments clearly demonstrated the release of mercury vapor from amalgam dental fillings, without the use of the advanced instrumentation available today. His writings attracted widespread attention and created considerable public concern. Paradoxically, Professor Stock’s findings were treated in much the same manner as the wealth of research data being published by the group of concerned scientists at the University of Iowa and the University of Calgary Medical School, i.e., attack and denigration by "establishment" and dental trade associations. With Professor Stock, his work was EVALUATED by committee and found lacking. Mind you, not REPLICADED, only evaluated and discounted by concluding that there was no reason to stop using amalgam in dentistry. This same evaluation by committee to arrive at a predetermined position is just as evident today. Perhaps the biggest outrage to the reputation of this brilliant scientist is the perpetuation of the fabrication that in a 1941 lecture in Sweden, Stock recanted his concerns over the potential toxicity of mercury vapor released from dental amalgam. Nothing could be further from the truth as evidenced by his published research.

Dr. Mackert implies that the 3rd Amalgam War started in 1973 after a Colorado dentist heard Dr. Olympio Pinto of Brazil speak on the subject of mercury toxicity attributable to amalgam dental fillings. For those readers who are not aware of Dr. Pinto he, and his father before him, conducted mercury-free dental practices in Brazil. Over more years than Dr. Mackert has been on this earth, they have dealt with the problem of mercury toxicity from dental amalgam on a clinical basis and have seen and documented the efficacy of amalgam removal and replacement in literally thousands of cases. I am of the opinion however, that the "3rd Amalgam War" started in 1957 with the Ph.D. dissertation of K.O. Frykholm who conducted a series of experiments and concluded that mercury vapor indeed escaped from amalgam dental fillings but only during the time they were being placed and then only until they hardened and were covered with saliva. Once covered with saliva, no further vapor escaped, and residual mercury from the dental procedure was eliminated from the body within 7 days. This conclusion was quickly embraced by the ADA and became their official position. It remained their position even in the face of scientific evidence reported in 1979 by Gay et al. and in 1981 by Svare et al., demonstrating the release of mercury vapor from amalgam dental fillings after chewing. It was not until 1984 that the ADA reluctantly modified its Frykholm
position and admitted that in fact amalgam fillings did release mercury vapor. However, this was immediately qualified as the amount was so small that it was of no consequence.

Dr. Mackert dwells heavily on various problems associated with using the Jerome Mercury Vapor analyzer to obtain intra-oral mercury vapor readings. Although there have been several studies published showing the release of mercury vapor from amalgam dental fillings under various conditions, this fact is confused with the great battle over the mathematical protocols utilized to determine exactly how much is being released. Dr. Mackert cites his calculations and those of Berglund and his colleagues in Sweden to validate his analysis that the results of Vimy and Lorscheider were in reality sixteen fold less than published. Conveniently, however, Dr. Mackert does not reference the rebuttal of Drs. Vimy & Lorscheider to both his and Berglund’s analysis or the fact that their interpretations and calculations were in error also. More importantly, Dr. Mackert makes no mention of any of the data contained in the 1991 World Health Organization (WHO) Environmental Health Criteria 118 document (EHC 118). This is especially puzzling since Dr. Mackert was present at the March 1991 FDA meeting where Dr. Lars Friberg and Dr. Thomas W. Clarkson presented critical data from the WHO EHC 118 document. More explicitly, the WHO EHC 118, Table 2 contains data showing that the largest estimated average daily intake and retention of mercury and mercury compounds in the general population, not occupationally exposed, is from dental amalgams, not from food or air. The estimated average daily intake from dental amalgams being 3.8-21 micrograms per day and of that amount it is estimated that the amount retained in the body is 3-17 micrograms per day. This far exceeds the levels Dr. Mackert brings out in his article from various references indicating an average of 1.3-1.8 micrograms per day. It is also of special interest to note that the WHO Committee that developed EHC 118 took into consideration the published studies of Mackert and Berglund prior to arriving at their conclusions that dental amalgams make the greatest contribution of mercury to body burden in non-occupationally exposed individuals.

Dr. Mackert also refers to a paper by Langworth et al published in 1988 that measured actual tracheal mercury concentrations for subjects with eight to fifty-four amalgam surfaces. However, Ulf Bengtsson, a Research engineer from Linkoping Sweden, in a letter to the authors brought out the fact that there is very little or no relationship between the measured values in the oral cavity and in the trachea. "One would expect that the subject with the highest mercury concentration in the oral cavity also would have the highest concentration in the trachea. The fact is that the subject with the highest concentration in the oral cavity had one of the lowest concentrations in the trachea whilst the subject with the highest concentration in the trachea had one of the lowest in the oral cavity. The author replied: "We are aware of the difficulties with the method, especially when it comes to the measurements in trachea. Our short letter is in no way a complete description of how to measure the uptake of mercury from dental amalgam but only a short account for a measurement that has been conducted." (This information was extracted from a letter sent to Consumer Reports by Ulf Bengtsson.)

In his next section of the article Dr. Mackert attempts to dismiss the concerns of amalgam opponents regarding the incidence of allergy or sensitivity to amalgams/mercury. He starts out by stating "...and one study that is frequently cited by opponents of amalgam use appeared to show that 16 percent of subjects with amalgam restorations had positive reactions to mercury. This latter study, however, used 1 percent mercuric chloride as the patch test agent, when even solutions of mercuric chloride as dilute as 0.01 percent produce a primary irritant response in control (non-allergic) patients. In addition, no double blind study design was used. This omission is a critical flaw in a study involving judgments as subjective as the reading of patch test results." I am surprised that Dr. Mackert would even bring up this study as the ADA and pro-amalgam advocates have avoided it like the plague. Rightfully so because it is so damaging to the totally fabricated position of the ADA and pro-amalgam advocates that the incidence of allergy to amalgam is less than one percent (1%).

Dr. Mackert is referring to a 1969 study that was of classical design done at the Dermatological Clinic at the Higher Institute of Medicine in Sofia, Bulgaria by Djerassi and Berova, and which produced some
very startling results. So startling, that in over 20 years neither the ADA, NIH, AMA or FDA have sought to have it replicated to validate and authenticate its results. There were 240 subjects in the study divided into four groups: 60 who were healthy and who had amalgam restorations; 60 who were sick (non-allergic diseases) and who had amalgam restorations; 60 allergic patients with amalgam restorations, and a control group of 60 subjects without amalgam restorations. Each of the participants in the study were patch tested for amalgam and all the components of amalgam. The positive reaction results by group were: Healthy with amalgams 8.3%; non-allergic with amalgams 13.3%; allergic with amalgams 26.6%. Average for the amalgam group 16%. SUBJECTS WITHOUT AMALGAM RESTORATIONS HAD NO REACTION TO ANY OF THE PATCH TESTS. The percentage of allergic manifestations by material were as follows: amalgam 16.1%; mercury 11%; copper 6%; zinc 4%; silver 3%; and tin 0%.

Dr. Mackert cites an article by A.A. Fisher as the authority for the statement that mercuric chloride solutions as dilute as 0.01 percent produce a primary irritant. However, in reading Dr. Fisher’s very biased pro-amalgam article (he even included a reprint of the ADA question and answer propaganda contained in the ADA News, Jan 2, 1984), there is no reference cited to support his statement concerning the 0.01 percent solution.14 In regard to the use of mercuric chloride for patch testing I would like to quote from a recent letter from Dr. Stevan Cordas, Director of Clinical Research at the Spectrum Medical Research Foundation in Bedford, Texas: "Because mercury converts to the mercuric ion in the nervous tissue, it appears to me that the mercuric chloride may in fact be a relevant test for potential sensitivity." I should think that Dr. Mackert, as a Professor of Dental Materials at the Medical College of Georgia, would be beating down the doors at the National Institute of Dental Research trying to get a grant to replicate this very important study rather than impugning the results of Djerrasi and Berova.

Dr. Mackert, in attacking overnight cures reported to result from amalgam replacement, goes on to say "...For example, some anti-amalgam dentists have intimated that mercury from dental amalgam can cause cancer, yet there is no evidence of a higher cancer incidence even in mercury vapor exposed workers." In response I would like to ask Dr. Mackert and the ADA, NIH, and FDA a question. How many people who have developed cancer do not have amalgam fillings or have never had amalgam fillings, regardless of whether or not they have been occupationally exposed to mercury? For that matter, let us not limit it to cancer. How many people who die from kidney disease, heart disease, diabetes etc. do not have amalgam fillings, or have never had amalgam fillings? Perhaps more importantly, why hasn’t anyone ever attempted to correlate dental status to any of the major killer diseases? After all, billions have been spent searching for causes!

With regard to the studies of workers exposed to mercury in chlor-alkali plants, not one of these oft cited studies have ever given any consideration to the published scientific research demonstrating that when chlorine and mercury are present in the same atmosphere the absorption and effects of mercury are greatly reduced.15

Dr. Mackert questions the integrity of any patient claiming substantial improvement in a health condition the day after amalgam removal. Further, he claims that this admission is proof that mercury could not have been the cause of their ailments because the process of removing amalgams exposes patients to additional mercury. It is unfortunate that Dr. Mackert is translating one documented case of Multiple Sclerosis, that ameliorated dramatically within 24 hours after amalgam replacement, as the norm. Nothing could be further from the truth, and it is certainly not a universal claim made by those who oppose the use of amalgam. Dr. Mackert evidently believes it important to try to totally discredit any clinical evidence indicating improvement as a result of amalgam replacement and devotes almost a full page of his article to the effort. He dwells heavily on creating the impression that most improvement attributed to amalgam replacement is in reality nothing more than a placebo effect based on the patient thinking they are receiving an effective treatment. This is not a new tactic on the part of the ADA and its pro-amalgam spokesmen. However, if in fact amalgam replacement only produces a placebo reaction, the question that must also be answered by the pro-amalgam critics is: How come it is effective when prior standard medical treatment was not?
It would appear that all of the pro-amalgam organizations (i.e. ADA, NIDR, FDA,) etc., will have to start changing their position regarding case histories. There have been almost 500 Amalgam Adverse Reaction Reports filed with the FDA during the last 6 months. Of this number approximately 96% are indicating some degree (10-100%) of improvement of pre-existing health conditions after amalgam replacement. It would appear prudent to begin listening and giving credence to case histories rather than summarily dismissing all individuals who claim any benefit from amalgam replacement as prime candidates for psychiatric evaluation.

One other point before leaving this subject, Dr. Mackert, as well as the ADA, cite and distribute an April 1983 Memorandum No. 115-83 from the National Multiple Sclerosis Society as proof that there is no connection between amalgam dental fillings and Multiple Sclerosis. I find it strange that an organization chartered to help those suffering from the disease, and who collects millions of dollars to accomplish this and fund research to find a cause and a cure, would summarily dismiss any consideration or exploration of amalgam as a possible etiological factor. Neither the National Multiple Sclerosis Society, nor for that matter the ADA, NIH, FDA or any Dental or Medical College, can cite one primary research study that has ever been done to explore the validity of the hypothesis that mercury/amalgam may be ONE of the cause factors of Multiple Sclerosis. In fact, it appears that the only studies being done were initiated in late 1990 and are being funded by individuals rather than by the MS Society or any other organization or government agency, although the MS Society is participating in one of them.

CONSUMER REPORTS MAY 1991

Next, I would like to present my evaluation of the Consumer Reports article titled "The Mercury In Your Mouth." As with all reporters who utilize partial facts to support the development of a predetermined conclusion to a story, you have to read it very carefully. For example "The question in the amalgam debate is whether the minute amount of mercury vapor thought to emanate from fillings has any health effect." The lay person reading that paragraph comes away with two things: 1) the amount of mercury being released from amalgam fillings is minuscule and 2) the implication that there is no proof that the mercury is escaping from amalgam fillings; it is only THOUGHT to be. However, the scientific facts are quite different: 1) As of May 1991, there have been over 8 scientific studies actually measuring the amount of mercury vapor being released from amalgam dental fillings under various conditions.\(^{(17-24)}\) 2) The most recent evaluation of all existing data from around the world is contained in the World Health Organization 1991 document titled Environmental Health Criteria 118 - Inorganic Mercury (EHC 118).\(^{(10)}\) The WHO Task Group, comprised of world class mercury toxicologists and scientists concluded that dental amalgams were the greatest source of mercury vapor exposure causing the daily intake and retention of 3-17 micrograms of mercury. This far exceeded the amounts attributable to fish & seafood of 2.3 micrograms per day of methylmercury and that derived from food other than fish of 0.3 micrograms per day of inorganic mercury.

In the next section with a sub heading of "A tale of six sheep" the Consumer Reports article then attempts to totally discredit the research being done at the Medical School of the University of Calgary in Canada. These were animal studies utilizing sheep in which amalgam fillings had been placed. In the initial 1989 study, radioactive mercury was utilized as a small component of amalgam fillings that were placed in the sheep.\(^{(25)}\) The migration and distribution of the radioactive mercury throughout the sheep's body could then be determined. The resultant X-ray photographs were startling to doctors and lay people alike because they scientifically demonstrated that the mercury vapor escaping from the amalgam dental fillings had been distributed throughout the sheep's body and was concentrating in almost every organ and gland. The highest concentrations being in the kidney, gastrointestinal tract and jaw. The next experiments (1990), again utilizing amalgam containing radioactive mercury were done to determine maternal-fetal distribution of mercury from amalgam dental fillings.\(^{(26)}\) These experiments demonstrated that mercury from dental amalgam will appear in maternal and fetal blood and amniotic fluid within 2 days after placement in the mother. "In the fetus the highest amalgam mercury concentrations appear in liver and pituitary gland during
the latter one-third of pregnancy when the placenta also progressively concentrates mercury as gestation advances to term. Finally, milk concentration of amalgam mercury postpartum can provide a potential source of mercury exposure to the newborn." An abstract of additional sheep experiments done in 1990 published in "The Physiologist 33(4), A-94, 1990" depicting a 60% loss of kidney function within 60 days after placement of amalgam fillings, was a "bombshell" throughout the world.

It is this last study that was immediately attacked by the ADA, NIDR, FDA and anyone else who could get media coverage. The objective of all this criticism was to discredit the research. The Consumer Reports article attempts to carry on this grand tradition: "...The first problem, say critics is that the sheep are an inappropriate model. Sheep have large, flat teeth that wear down and erupt anew." (Sorry Consumer Reports, all 12 teeth and fillings were intact at the conclusion of the experiment) "..."The amalgam placed in the sheep contained a higher proportion of mercury than that used in humans, giving it a softer, wetter consistency, like cake mix with too much water. As a result, says one expert, when a sheep with radioactive amalgams was placed in a scanner, its gastrointestinal tract 'lit up like a Christmas tree.' The sheep were rapidly swallowing their fillings. But no one contends that people swallow fillings: the concern is over inhaled mercury vapor, not ingested mercury."

I think it important for everyone to realize that the reporter was intentionally intermingling different experiments. The section starts out discussing sheep that had lost kidney function and then continues, without transition, to talk about 60 Minutes showing an alarming X-ray of a sheep's mercury-laced digestive tract. These are two different experiments. The X-ray experiment used radioactive mercury/amalgam and was done in 1989. The kidney experiment DID NOT USE RADIOACTIVE MERCURY/AMALGAM and was reported by abstract in late 1990 and the full peer reviewed study was published in 1991. It is apparent that whoever told the reporter that the amalgam placed in the sheep contained a higher proportion of mercury than that used in humans was telling a complete falsehood. The amalgam used was "Dispersalloy" manufactured by Johnson & Johnson, which is the same pre-measured amalgam used in humans. Further, as clearly established in the published study, the mercury content of each sheep filling was approximately 1/2 that contained in one average amalgam in humans.

The next gross misrepresentation is created by the reporter stating "The sheep were rapidly swallowing their fillings. But no one contends that people swallow fillings: the concern is over inhaled mercury vapor, not ingested mercury." The average person reading that statement would believe that the mercury depicted in the X-ray came only from swallowed fillings. The entire statement quoted is completely false. To start with, all 12 teeth and their amalgam fillings were intact at the conclusion of the study. Secondly, the reporter makes no reference in the entire article to the fact that it was radioactive mercury/amalgam used in the two distribution experiments. Moreover, she would have you believe that the X-ray pictures only depicted swallowed fillings; not any mercury vapor. NOTHING COULD BE FURTHER FROM THE TRUTH. The X-ray scanner was recording whole body distribution of radioactive mercury vapor transported from the oral cavity to cellular cites throughout the body, where it had accumulated and concentrated.

One thing I find so strange about all the negative comments on the sheep distribution studies is that neither the Consumer Reports article nor the critics at the ADA, NIDR, and FDA, take the trouble to mention the fact that two separate experiments (one done in Denmark) utilizing monkeys demonstrated the same distribution spectrum of mercury from amalgam fillings as that found in the sheep. From their omission, I suppose one could conclude that since the monkey is considered an excellent animal-model for humans, any mention of these experiments would cast doubts on their arguments about the sheep being a poor animal model.

Consumer Reports then goes on to quote a renal physiology specialist from the University of Michigan who served on the ADA panel to review the sheep study reflecting kidney damage. (I wonder if the litmus test for selection to the committee was being pro-amalgam?) His conclusion was that because the levels of urea did not rise in the blood, there could not have been any kidney damage. (Urea is a waste product of protein metabolism.)
The facts related to the experiment are very simple. "Twelve occlusal amalgam fillings were placed in each of six adult female sheep under general anesthesia, using standard dental procedures. Glass ionomer occlusal fillings (12) were inserted in two control sheep. At several days before dental surgery, and at 30 and 60 days after placement of fillings, renal function was evaluated by plasma clearance of inulin and by plasma and urine electrolytes, urea, and proteins. An average plasma inulin clearance rate of 69.5 ± 7.2 ml/min before amalgam placement was reduced to 32.3 ± 8.1 ml/min by 30 days and remained low at 27.9 ± 8.7 ml/min after 60 days. Inulin clearance did not change in controls."28 I would like Dr. Malvin, or any of the other experts used by the ADA, to explain how the inulin clearance rate dropped 60% in two months when the only change the animals experienced was the addition of twelve Dispersalloy amalgam fillings. I would also like to request that the ADA and its select group of critics do a little reading. One of the major toxicology texts is Casaret and Dour's Toxicology - The Basic Science of Poisons.31 Chapter 11 of the Third Edition published in 1986 is titled "Toxic Responses of the Kidney" and was written by Jerry B. Hook, Ph.D. and William R. Hewitt, Ph.D. Dr. Hook is Vice President, Pre-clinical Research and Development Smith Kline and French Laboratories, Philadelphia, PA and Dr. Hewitt is Assistant Director, Department of Investigative Toxicology, at the same facility. I would like to quote from the section in Chapter 11, identified as "Assessment of Renal Function" ..."Glomerular filtration rate is usually estimated from the clearance of inulin. The clearance of urea as estimated by BUN is not particularly definitive because urea is a by-product of protein metabolism and any toxic insult that would influence protein metabolism (poor nutrition, hepatotoxicity) could influence BUN. Clearance of the polysaccharide inulin provides information about glomerular filtration rate regardless of the state of protein metabolism." (BUN = blood urea nitrogen) (Mosby's Medical Dictionary defines inulin as "a fructose-derived substance used as a diagnostic aid in tests of kidney function, specifically glomerular filtration. It is not metabolized or absorbed by the body but is readily filtered through the kidney.")

Further corroboration of the results of the sheep study showing impaired kidney function comes from a study of humans done in Sweden by Molin and colleagues.32 The sheep study showed a significant decline in urinary albumin concentration by 60 days after amalgam placement. In the human study the author's stated: "Our study showed statistically significantly higher urinary albumin level 12 months after amalgam removal in the experimental group as compared with the pre-removal values. The possibility cannot be excluded that this increased urinary albumin level is a result of the amalgam removal." This data further proves the need and validity of animal studies. After placement of amalgam fillings in the sheep, the ability of the kidney to function normally was impaired causing a decrease in albumin excretion. The significance of the data in humans is that the pre-removal values of urine albumin were in all probability reflecting an impaired kidney function and that after removal of the amalgam fillings, kidney function improved resulting in a significant increase in urinary albumin levels.

Consumer Reports also cites a Swedish study of 1024 Swedish women as proof that amalgam dental fillings do not cause any health effects.33 The reporter closes the paragraph "Women with more than 20 fillings were no more likely to complain of these symptoms than women with few or no amalgams." The facts of that particular study by Ahlgqvist and colleagues are very dismal. The number of amalgam fillings were estimated from panoramic X-rays. The women were then divided into two groups, one group with four or fewer surfaces of amalgam and the other group with twenty or more surfaces of amalgam. The two groups were then compared to each other instead of being compared to a control group of women who had never had amalgam fillings implanted in their body. The authors further stated that "about 80% of the teeth of the participants in this study were restored." This of course suggests that many teeth that previously contained amalgams may have already been pulled. For example, some women with only four amalgams may have only had a total of six teeth remaining as indicated by the statement that 80% of the subject teeth were filled. Furthermore, mercury exposure from amalgam filled teeth that had been pulled was not considered. Another serious problem is the fact that existing crowned teeth most likely had previously contained large amalgam fillings or presently contained amalgam cores underneath the crowns and would therefore NOT have been counted as amalgam when reading the X-rays. In conclusion, it is hardly a study
that stands up under scrutiny and certainly not one to be cited as proof positive that amalgam fillings are incapable of causing health problems in humans.

In the next section titled "crunching the numbers" Consumer Reports delves deeply into the question of how much mercury is released from amalgam fillings. In response to this section, with the exception of the comments that follow this sentence, I would refer the reader to my previous comments on this subject in response to Dr. Mackert’s article. Consumer Reports makes a big issue about their data indicating that mercury urine tests of individuals with very extensive amalgam restorations are associated with a maximum level of only 4 micrograms of mercury per gram of creatine. To answer this I would like to again quote from the letter Ulf Bengtsson sent to Consumer Reports: 12

"Since 1988, Swedish patients with suspected adverse reactions to amalgam have been investigated according to a special health care program (2,3). This means among other things that a blood test is run. If this test shows a mercury level above 50 nmol/l, a second blood-test is run together with an additional urine-test. If the blood is still over 50 nmol/l or urine is over 75 nmol/l the patient is examined by a specialist in mercury toxicology. In a new regulation in 1991 (3) the tests of mercury in blood and urine have been abandoned since they proved to be of little diagnostic value. (Bio- Probe note: In 1984, the ADA arrived at the same conclusion and announced it in the Journal of The American Dental Association.) 5

During the years tests were used, a significant number of patients with urine mercury levels above 75 nmol/l had been found, a few of them having mercury levels over 200 nmol/l (4,5). The highest value recorded was 360 nmol/l (5) or approximately 14 times higher than the value Consumer Reports say is the highest possible resulting from very extensive amalgam restorations. All other mercury sources than amalgam had been ruled out.

To my knowledge the two Swedish papers (2,3) are the only attempts available today to really find the maximum mercury levels associated with the use of dental amalgam. I am absolutely sure it holds true that the mean urine-mercury in the population is below 4 micrograms per gram creatinine. The maximum level associated with the use of dental amalgam is however much greater.

Your statement on the maximum level of amalgam-related mercury in urine is highly incorrect." (Bio Probe note: References cited as 2-5 are listed as 49–52 in our bibliography)

As with Dr. Mackert and every other pro-amalgam article, Consumer Reports also addresses the lack of validity of case histories as a means of demonstrating the health benefits accruing from amalgam replacement. The response to this approach was made in providing an answer to Dr. Mackert’s statements on case histories. Additionally, it would seem to me that the entire practice of medicine and dentistry is based on case histories. The FDA approves a drug only to find out that in actual use in the general population it is killing people or causing side effects too serious to permit continued use. The medical profession embraces a protocol for treating a particular disease only to find out that with the passage of time the treatment has caused more problems than it has cured. Within dentistry a new product will be introduced and it is not until wide spread usage that it is discovered that the material used, can cause residual pain and sensitivity in a great number of people. All of the preceding situations are dependent upon the reporting and dissemination of case histories to cause the initiation of corrective action.

Amalgam is a perfect example of how the system should not work. Mercury is a poisonous heavy metal that has been utilized in dentistry for over 160 years. During that entire time the dental establishment has not produced one scientific experiment that proves the safety of amalgam. What they have done is respond to a handful of case histories reported because of allergic reactions experienced by the patient that corrected when the amalgam fillings were replaced. These were gross reactions that occurred at the time of placement or within a short time afterward that could logically be attributed to the dental procedure. How many latent health problems are there that develop at some future date as a result of dental procedures? Nobody knows, because nobody has ever looked for them with the thought in mind of seeing if they are dentally related. Its easy to understand why. When someone gets sick, they don’t go to their dentist, they go to see a medical
doctor, or go to the emergency room of a major medical facility. How in the world, is anybody going to connect a dental procedure accomplished two, five, or even 20 years previously with the symptoms presently being displayed? They won’t unless there is evidence that such a phenomenon can occur and the medical profession has been made aware of the possibility. The only way anyone will ever know the phenomenon exists is to report all case histories of health conditions that show improvement as a result of having the material causing the problem replaced. The approximately 500 adverse reaction reports, in the possession of the FDA, showing improvement of varying degrees after amalgam replacement should be catalyst enough for the FDA and the NIDR to fund whatever research is needed to resolve the issue.

In the interim, and based solely on the scientific evidence available today, the placement of amalgam dental fillings in pregnant women and in children should be totally prohibited. How can the practice of implanting a time-release poison in the teeth of a pregnant women continue after it has been scientifically documented that the poison mercury is released from the implant, passes the placenta, is taken up and retained by the fetus, and after birth is subjected to additional body burden of mercury, passed through the mother’s milk? The entire medical profession has reacted to the potential of lead poisoning in children, based essentially on one large scale study demonstrating learning deficits in children exposed to lead.34 Mercury has been shown to cause similar learning deficiencies in children and mercury and lead work synergistically in the human body, the effect being greater when both are present than the effect of each considered individually. I would like one valid reason why the dental profession should continue the placement of mercury in the teeth of two year old children. The child who has had in utero mercury exposure plus months or years of breast milk mercury exposure does not need the additional mercury exposure that results from implanting amalgam fillings. The medical profession stopped using mercury therapeutically over 25 years ago because of adverse effects; the EPA has banned the use of mercury in paint; the FDA is proposing that mercury be banned in all over the counter nonprescription antiseptic products;35 our rivers and lakes have become polluted with mercury to the point that EPA wants to impose strict regulations on the amount of mercury from dental offices permitted in the waste water effluent. It would appear that everybody but the ADA has discovered that mercury is a poison that can cause serious health effects.

As further evidence of ADA duplicity, they embraced the conclusion of the NIH Technology Assessment Panel concerning dental amalgam, but are aggressively taking action to subvert the Panel recommendation that "Dentists should install devices to recover waste amalgam residues in their offices for recycling to reduce environmental contamination." The ADA News, page 14, October 7, 1991 headlines an article "Amalgam separators provoke questions-No need to buy in haste" The article concludes "The NIH recommendation" said Dr. P.L. Fan, Ph.D., assistant director, ADA Council on Dental Materials, Instruments and Equipment, "was based on one presentation and, before it’s implemented, further evaluation clearly need to be done. We will continue to keep members informed as we learn more about the devices, but I certainly don’t think anyone should be running out to purchase one." It is evident from that statement that the ADA has conveniently decided that there major concern is not the potential of mercury waste from dental offices to seriously contribute to environmental pollution, but rather the efficacy of the amalgam separator devices. This, in spite of the facts: 1) Pima County (Tucson) Arizona Wastewater Management Department, working with the EPA, had determined that dental offices were illegally dumping mercury into treated sewer water; 2) Arizona is being sued by the Sierra Club over alleged water pollution; 3) Rivers and streams throughout the United States are becoming contaminated with mercury; 4) Germany will be attempting to evaluate dentistry’s contribution of mercury to waste water; 5) Amalgam separators are required in dental offices in Denmark, Germany, Sweden and Switzerland.

HARVARD HEALTH LETTER - SEPTEMBER 1991

The September 1991 edition of the Harvard Health Letter contains an article written by Robert Baratz who has become one of the official consultants and spokesman for the ADA on the amalgam issue. It is
truly unfortunate that an individual with a D.D.S., PH.D. and M.D. would reduce himself to fabricating evaluations of scientific studies that have no basis in fact or science. For example:

1. The amalgam placed in the sheep's teeth contained far more mercury than a dentist would ever really use. FALSE. Less mercury than that normally contained in a posterior occlusal filling placed in humans was used. See the published research reports.(25-28)

2. The dentist who placed the fillings in the sheep used poor technique, perhaps causing free mercury to linger on the amalgam surface. FALSE. The research objectives and protocol to be used considered the placement of the amalgam fillings in the sheep a critical part of the study. To avoid criticism, such as that being levied by Dr. Baratz, meticulous care was taken by the entire dental staff, to insure that in no way could the operative procedures in placing the amalgam fillings contaminate or cause unnecessary exposure. This is a totally unwarranted and unjustified attack. Could it be that there is personal resentment because the dentist who placed the fillings, Dr. Murray Vimy, is a world class scientific researcher with many experimental studies on mercury/amalgam published in peer reviewed dental and medical journals, while Dr. Baratz has yet to have a single article on the mercury/amalgam issue published in a peer reviewed journal. For the readers information, the Editor of the Harvard Health Letter does not demand references to substantiate statements made by participating authors. Essentially, anyone can say anything they want; it is just their opinion.

3. "What astonished experts was the claim that mercury exposure caused kidney failure in some of the animals, because the type of kidney damage reported was not the type that mercury is known to cause. This finding was also undermined by the fact that the researchers failed to take the next obvious step: if they thought mercury from amalgam caused kidney failure, they should have exposed other sheep to mercury alone to see if the problem recurred." FALSE. There have been over seven scientific studies published documenting that mercury has a deleterious effect on glomerulus and proximal tubule kidney function. Nowhere in the published report of the scientific study reflecting decreased kidney function was the term KIDNEY FAILURE used by the authors, nor have any of the responsible journalists reporting on the study. Further, by innuendo Baratz implies that it wasn't the mercury that caused the damage, it must have been some other component of the amalgam. This ridiculous statement flies in the face of categorical scientific proof in humans and animals that the kidney concentrates mercury, regardless of the source. Conversely, Baratz would be hard pressed to come up with any published scientific literature showing the same for the other metals in amalgam.

4. "Such fillings consist of mercury salts with no free metallic mercury." FALSE. There is scientific evidence demonstrating the presence of free liquid mercury on polished surfaces of amalgam.36

5. "A trace amount of mercury vapor is present in the air we breathe out. This appears to come both from the lungs and from decomposition of the amalgam when its temperature rises by several hundred degrees." FALSE. If this is the statement of a supposed medical scientist the medical profession is in serious trouble. The only situation I can visualize when the temperature of amalgams would rise by several hundred degrees is during cremation. It is my understanding that the hottest temperature of foods or liquids ingested by humans can on some occasions reach as high as 60 degrees above body temperature. Somehow, this doesn't translate to several hundred degrees elevation which if ever reached would cause third degree burns anywhere in or on the human body where contact was made.

6. "People obsessed with the idea that amalgam is a health hazard have promoted their cause with faulty assumptions and flawed measurements. For their estimates of mercury exposure to be true, fillings would have to be vaporizing fast enough to disappear from people's mouths." FALSE. The first sentence has been answered elsewhere in this Newsletter and is not worthy of further comment. The last sentence is totally without foundation. According to Craig's textbook on dental materials, the average amalgam contains 780 milligrams of mercury.37 Therefore, if you take the published scientific experiment with the highest daily dose of mercury vapor, which is 27 micrograms per day, it would provide 9,855 micrograms per year. 780 milligrams equates to 780,000 micrograms. If you divide 9,855 into 780,000, the result is 79.15. This
means that one amalgam dental filling could provide a person with 27 micrograms of mercury vapor for 79 YEARS.

Baratz closes out his article by stating that taking out a filling releases much more mercury than does putting one in or leaving it alone. It’s a sad testament to the scientific expertise of the Dental Establishment and the ADA when all they can do is say that replacing an amalgam filling will cause excessive mercury release. Their most recent advice contained in an editorial in the October 1991 issue of JADA\textsuperscript{38} was "...If questions arise about the release of mercury vapor—especially during early stages of amalgam placement—the use of rubber dam and high-volume suction may help alleviate those concerns." Although the statement dealt with placement and not replacement, they offer no additional advice. Conversely, mercury-free dentists concerned about unnecessary patient exposure to mercury vapor have devised protocols and procedures that drastically reduce the patient exposure. Some even going so far as to have external vacuum systems installed where the suction tube is held by the patient as close to the work area as possible. Mercury vapor analysis of this particular protocol has indicated very close to zero exposure external to the oral cavity. It would appear that some of the thousands being spent to fly Dr. Baratz all over the United States to defend the continued use of amalgam might better be used to develop protocols that protect the patient. Regardless of how the anti-amalgam portion of the dental profession feels, the simple fact remains that over 100,000 ADA pro-amalgam dentists are placing and replacing hundreds of millions of amalgam fillings every year. To not develop and disseminate suitable protocols minimizing patient and staff exposure to mercury is really criminal neglect.

**ADA - WHEN YOUR PATIENTS ASK ABOUT MERCURY IN AMALGAM**

One of the real advertising coups the ADA has enjoyed over the years is their patient information brochure on the safety of amalgam and their dental bulletins on how the dentist should respond to patient questions on amalgam. These are very innocuous documents that are updated as appropriate. Almost no one ever goes back to compare previous information and advice with the current in-vogue dialogue. Let's look at a few of the slight of hand changes:

Isn't mercury a poison?

1984: "When mercury is combined with the metals used in dental amalgam, its toxic properties are made harmless."\textsuperscript{39}

1985: "...Mercury is made virtually harmless when it combines with the other metals used to produce amalgam."\textsuperscript{40}

1990: "Not when used in dental amalgam. ...However, when mercury is combined with other metals, such as the silver, tin, and copper, it reacts with them to form a biologically inactive substance."\textsuperscript{41}

1991: "...It is important to note that mercury forms a biologically inactive substance when it combines with the other materials used to produce amalgam.\textsuperscript{42}

Bio-Probe Comment: From harmless, to virtually harmless, to a biologically inactive substance. The ADA and Baratz would have you believe that once mercury is combined into amalgam, it is no longer mercury. I guess that means that it is really not mercury vapor escaping from amalgam fillings but rather, some biologically inactive substance. If that is true, then all the scientists and research reports saying it is mercury vapor escaping from amalgam are in total error. Furthermore, if it is true then, I really can't understand why the ADA has gone to such lengths to insure that dental offices store all scrap amalgam in air tight containers under some type of liquid fixer.

Does the ADA have an acceptance program for dental amalgams?

1984: "Yes. To help dentists choose from among the various brands of dental amalgam on the market, the ADA has established an acceptance program to examine these products for safety and effectiveness. To date, more than 100 brands of dental amalgam have been accepted for the dentist's use."\textsuperscript{39}
1985: Various brands of dental amalgam are available. More than 50 years ago, the American Dental Association established a certification program to help dentists choose from among the safest and most effective of these brands. Currently more than 100 brands of amalgam have been certified for dentists’ use.40

1990: The ADA believes, too, that dental amalgam is safe and effective. And while the ADA continually evaluates dental materials, the Association believes that dentists should choose the best possible restorative material for each patient on an individual basis. The professional judgment of the dentist and the desires of the patient should be the foundation on which that choice is based.41

1991: No guidance given.42

Bio-Probe Comment: From acceptance program, to certification program, to continually evaluates dental material. The 1985 statement is the most gross fabrication of the lot. Yes the ADA does have a certification program, but not for amalgam. The ADA claims they can’t certify amalgam and the FDA claims they can’t classify amalgam because it is a reaction product manufactured in the dental office. Moreover, the 1990 statement puts the responsibility for using amalgam directly on the dentist.

Aren’t some people allergic to mercury?

1984: "In rare cases, a patient may experience an allergic reaction to mercury, usually in the form of dermatitis or skin rash."39

1985: "...In extremely rare cases, some individuals are allergic to amalgam. However, an allergic reaction to amalgam is so uncommon that it involves less than 1% of the general population."40

1990: "Allergies to almost anything are possible; however, allergic reactions to mercury are so extremely rare that fewer than 50 cases of allergic reactions to amalgam have been reported in the scientific literature since 1905. That’s less than one a year for the past 85 years. If an allergic reaction to amalgam occurs, it may be to any one of the constituents of the alloy-mercury, tine, silver, or copper."41

1991: No guidance given.42

Bio-Probe Comment: From in rare cases, to in extremely rare cases involving less than 1% of the general population, to fewer than 50 cases of allergic reactions to amalgam since 1905, to no guidance at all. Interestingly, major recommendations for future research to come out of the 1984 NIDR/ADA Workshop On The Biocompatibility of Metals In Dentistry, were "Epidemiological studies should be initiated to assess the prevalence of mercury allergy from dental amalgam," and "studies should be initiated to develop more definitive tests for determining the hypersensitivity to metals used in dentistry.5 Neither of these studies have been reported as yet, nor do I believe any funding has or ever will be allocated to accomplish them.

Does mercury escape from amalgam fillings?

1984: No guidance given.39

1985: No guidance given.40

1990: "Recent advances in both equipment and measurement techniques have allowed researchers to detect extremely low levels of mercury vapor in patients’ breath after they have chewed vigorously. Very small quantities of this mercury vapor are absorbed by the body instead of being exhaled. But no evidence exists that associates this minute amount of mercury vapor with any toxic effects. Actually, a tuna fish salad may be a greater mercury source for you than your dental fillings."41

1991: "While very small amounts of mercury vapor can be released from your restorations, there is no scientific evidence that this miniscule amount of mercury vapor has any adverse health effect."42

Bio-Probe Comment: Published scientific reports document periodontal disease in humans as a direct result of mercury from amalgam fillings.43 Animal studies document kidney disease resulting from mercury from amalgam fillings. One case of mercury (from amalgam fillings) induced anaphylactic reaction to exercise has been published.44 Published clinical evidence demonstrated the therapeutic efficacy of
amalgam filling removal in twenty-two patients with multiple severe sensitivities. Additionally, studies from all over the world confirm alarming rates of allergy to mercury and other components of amalgam fillings. Exciting research in progress at the University of Kentucky on the cause of Alzheimer’s Disease (AD) has documented mercury as a probable cause of the disease and has noted dental amalgams as the most likely source of the mercury in AD brain tissue. Research in progress in Sweden is showing a positive correlation between the presence of amalgam dental fillings and suppression of immune function. Research in progress in Norway is investigating a relationship between mercury from amalgam dental fillings and mental diseases. Research in Sweden with patients having Crohn’s Disease have demonstrated high levels of mercury in the gut lining. Research, which neither the ADA, FDA and NIDR are mentioning in their pro-amalgam rhetoric, has been reported from the University of Georgia at Athens, demonstrating that "silver" fillings provoke an increase in mercury and antibiotic resistant bacteria in the mouth and intestinal normal flora. The significance of this research, utilizing stool samples derived from monkeys after placement of amalgam fillings, is that mercury resistant gut bacteria can also be resistant to antibiotics, creating a serious problem in the medical treatment of a variety of infections/diseases. Finally, there are thousands of case histories testifying to the efficacy of amalgam replacement with non-mercury containing materials. Consequently, one must seriously question the validity of the establishment position on the safety of amalgam dental fillings.

REFERENCES

22. Svare CW et al. Ibid.


42. ADA News, August 12, 1991.


FORUM

INTERNATIONAL ACADEMY OF ORAL TOXICOLOGY AND MEDICINE (IAOMT)
The winter regional meeting of the IAOMT will be held at the Travelodge Resort Hotel in Orlando, Florida on 1-2 February 1992. Special room rates of $89.00/night have been arranged. Rates are good for 3 nights before or after the meeting. The hotel is located in the Walt Disney World Village, within walking distance of the Disney Village Market Place. Free transportation is available to all Disney functions. Room availability is limited. Make reservations as soon as possible by phoning (407) 828-2424 or FAX (407) 828-8933. Be sure to specify IAOMT when making reservations. The mailing address is: Travelodge Resort Hotel; Walt Disney World Village; P.O. Box 22205; Lake Buena Vista, FL 32830.

Registration fees: IAOMT members free; non-member doctors $75.00, with staff $100.00. Checks payable to IAOMT should be sent to Peggy Ziff; 5025 Bermuda Circle; Orlando, FL 32808.

PROGRAM
Saturday, 1 February 1992.
- 8:00 A.M.: Registration.

SCIENTIFIC PRESENTATIONS
- 8:30 A.M. Murray J. Vimy, D.M.D.: Renal pathology resulting from mercury exposure from dental amalgam.
- 10:30 A.M.: Break
- 12:15 P.M.: Break.

PANEL PRESENTATIONS AND DISCUSSION:
12:30-2:00 P.M.: The basics of mercury-free dentistry.
- Sam Ziff: Mercury detoxification/Urine challenge diagnosis.
- IAOMT Attorneys: Medico-legal considerations.
- [Each panelist delivers a 5-minute overview presentation and a 1-page synopsis of the topic outlining IAOMT position. Attendees receive handout of position papers at beginning of Forum. Discussion period follows completion of presentations.]

- 8:30 A.M.-12:30 P.M.: IAOMT Board Meeting.

IAOMT EUROPE CONGRESS HUGE SUCCESS!
The first IAOMT meeting in Europe was held in Dusseldorf, Germany on 19-20 October 1991. Organized by Dr. Graeme Hall, the conference was attended by 144 people from Germany, Sweden, Denmark, Norway, Finland, United Kingdom, Ireland, France, Switzerland, New Zealand, and the United States. IAOMT speakers were Dr. David Kennedy and Dr. Michael Ziff from the U.S.A. and Drs. Mats Hanson, Fredrick Berglund, and Jaro Pleva from Sweden. Guest speakers were Dr. Max Daunter, Koch, and Tappora from Germany.
The press was well represented and favorable coverage on television and in print followed the Congress. Additionally, a Professor of Dentistry in Germany, who is also a prominent member of the dental boards of the German government, attended the meeting. Professor Knolle and all others in attendance were highly impressed with the volume of documented scientific research unfavorable to mercury amalgam presented by the IAOMT speakers.
The presentations were so impressive that groups of health professionals from Sweden, Germany, Norway, Denmark, Finland, and United Kingdom expressed their desire to become affiliated with the IAOMT.