SWEDISH GOVERNMENT ANNOUNCES TOTAL BAN OF AMALGAM DENTAL FILLINGS
SWEDEN

On 18 February 1994 the government of Sweden publicly announced the final timetable for the ban on the use of mercury/silver amalgam as a dental filling material. The use of amalgam will be totally banned for children and adolescents up to the age of 19 by 1 July 1995 at the latest and for adults by 1997.

Although the ban is not in immediate effect, it is widely believed that few people in Sweden will believe that dental amalgam fillings are harmless in 1994 but will be harmful in 1995 or 1997. Several counties (the Swedish equivalent of states in the U.S.A.) have already stopped the use of amalgam in the child/adolescent group and one county has also banned its use in adults.

The Chemical Inspection Agency and The Health and Welfare Board will supervise the discontinuation of the use of amalgam. The government will also implement measures to increase the knowledge of alternative measures and techniques both in the basic education and additional education of dental personnel.

The announcement by the Swedish government culminates a series of moves over the past several years. On 20 May 1987, the Swedish Social Welfare and Health Administration (Socialstyrelsen) announced the conclusions of an expert commission they had appointed in December of 1985 for the purpose of evaluating the controversy over the use of dental amalgam. The announcement was: "Amalgam is, from a toxicological point of view, an unacceptable dental filling material which shall be discontinued when a suitable dental filling material has been developed. As a first step in the process to eliminate the use of amalgam in dental fillings, comprehensive amalgam work on pregnant women shall be stopped in order to prevent mercury damage to the fetus."

The Socialstyrelsen division chief who issued the pronouncement also stated: "We realize now that we have previously made an error in our judgement of this question. Patients have suffered unnecessarily and we will now rectify our mistakes and in different ways try to solve the problem. It means no less than to give patients the best possible treatment." It was also estimated that it would take ten years to totally institute the ban and a caution was issued against the use of amalgam in children and pregnant females.

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At this point, the Swedish dental establishment exerted their considerable influence on the government. The government advisory against the use of amalgam in children and pregnant women did not result in a formal ban on that usage. On 24 January 1990 Hans Sundberg, the Chief Dental Officer of the Socialstyrelsen, proclaimed: "There is no proposal whatsoever to forbid the use of amalgam in Sweden as from the current year."

Before long, because of continued opposition from the Parliament and the Swedish public, the influence of the Swedish dental establishment had waned. They had, however, managed to convince the government to ban the use of amalgam for environmental concerns, rather than concerns over patient health, in spite of the conclusions of the Socialstyrelsen expert committee.

On 1 March 1990, the Government instructed the Swedish National Chemicals Inspectorate (KemI) and the Swedish Environmental Protection Board to develop a proposal for limiting the use of particularly hazardous materials, including the mercury-containing dental amalgam. Then on 28 August 1992, the Socialstyrelsen issued a press release announcing that the "discontinuation of amalgam for environmental reasons should proceed step wise", based on patient age groups.

Continued pressure from the Swedish Parliament, by now including support from all political parties, and the public has finally obliged the government to act on behalf of the health of patients, not for only environmental concerns. The government announcement was preceded by a dramatic public reversal by the Swedish Dental Association (SDA) on 17 January 1994.

Because of growing opposition to the use of amalgam within the ranks of dentistry, the SDA held a special meeting on the amalgam controversy on 18 December 1993. As a result of this meeting, the SDA announced a total reversal of their defense of the safety and use of dental amalgam, acknowledging that their leadership had previously been wrong on the subject. The Chairman of the SDA Committee for Methodological and Quality Issues acknowledged that the public reversal and admission was a severe lesson to the official leadership of Swedish dentistry.

Although a great many people contributed to the effort, the dramatic victory in Sweden is due in great part to the efforts of Dr. Mats Hanson (head of the Swedish organization of amalgam victims) and Elizabet Carlsson. The world owes a great debt of gratitude to these dedicated and determined individuals.

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GERMANY

The events that have occurred in Sweden are no less dramatic than those that have occurred in Germany. In 1987, the Federal Department of Health (BGA) of the German government issued an advisory warning against the use of dental amalgam in pregnant women. On 2 February 1992, following an extraordinary Congress on dental amalgam sponsored by the International Academy of Oral Medicine and Toxicology (IAOMT), the BGA banned the manufacture and sale of low-copper, conventional amalgam. Shortly thereafter, the BGA issued a document further restricting the use of amalgam, including the high-copper, non-gamma2-amalgam.

Then on 21 December 1993, Degussa AG, Germany's largest producer of dental amalgam announced that it would no longer provide the product. This was followed shortly thereafter, on 25 January 1994, by the public announcement of a research study conducted at the Institute of Forensic Medicine of the University of Munich by Professor Dr. Gustav Drasch. The study measured the mercury content of the kidneys, liver and brain tissue of deceased fetuses, newborn and young children. The mercury levels in the deceased fetuses, babies and children correlated directly to the amount of dental amalgam in the teeth of the mothers. These results clearly demonstrated that the mercury from the dental amalgams of mothers is inherited by their offspring. It confirmed previous findings in animals reported by scientists at the University of Calgary, Canada. The German BGA immediately repeated their warning that pregnant women should avoid dental amalgam treatments.

In spite of these events, the leadership of the German Dental Association and the Federal Dental Board continue to maintain that mercury exposure from dental amalgam is harmless to patients and the material of choice for dental fillings.

The Federal Dental Board of Germany recently fined a dentist who refused to use amalgam because he considered it to be poisonous. Determined not to
be coerced, the dentist appealed the punishment to the Supreme Court of Germany, which overturned the decision of the Dental Board. The Supreme Court ruled that the freedom of professional practice would be violated by forcing a practitioner to act against his knowledge and conscience.

Meanwhile, the leaders of German dentistry have organized a meeting to defend the safety of dental amalgam on the same weekend as the IAOMT Congress on Dental Amalgam to be held in Trier, Germany on 29 April-1 May 1994 (see "Forum" below). Should be an interesting week-end in Germany!

Here again, the tremendous progress in Germany has been due in great part to the efforts of Dr. Graeme Hall and Armin Remscheid of IAOMT Europe.

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CANADA

The amalgam controversy in Canada has also taken a dramatic turn. In late January of 1994, the Ontario government demanded a probe of mercury dental fillings. Ontario Health minister Ruth Grier asked Health and Welfare Canada to investigate the safety of mercury tooth fillings and restrict their use if warranted. Minister Grier warned that if allegations are correct that the dental profession is ignoring the fillings’ potential health hazards, the health of many Canadians could be at risk. These allegations have been made by medical researchers, dentists and citizen groups opposed to the mercury fillings.

A medical devices inspector has also recommended to Health and Welfare Canada that children and women of child-bearing age avoid the mercury fillings.

Minister Grier asked Ontario’s Royal College of Dental Surgeons for an initial response within 30 days and further stated that "if these suggestions are even partially true, then any dentists involved would clearly be putting their self-interests before the public interest".

The response was provided by the Ontario Dental Association (ODA) on 3 February 1994. The ODA provided the results of a study on 1,462 women with amalgam dental fillings for 20 years published in 1993 in the "Copenhagen Journal of Community Dentistry and Oral Epidemiology". According to the ODA, the study "did not provide any evidence for a correlation between amalgam fillings and cardiovascular disease, diabetes, cancer or early death". [BIO-PROBE NOTE: This "study" was an extension of one first published in 1988 by Ahlqvist and associates at the University of Gothenburg, Sweden. The sample of 1462 women was first gathered in 1968-9. The numbers of amalgam dental fillings were estimated from the assessment of panoramic radiographs. The women were divided into two groups; one with an estimated 20 or more surfaces of amalgam and the other with an estimated 0-4 surfaces of amalgam. There was no control group without amalgam fillings. Health status was determined by an unsupervised, self-administered questionnaire of symptom complaints. It should also be noted that any neurological pathology, well established to be attributable to mercury exposure, was not reported.]

ODA President Peter Hendrich stated: "Amalgam fillings have been used safely for over 150 years. That kind of track record and the conclusions of this recent study means that patients should feel secure about amalgam fillings."

The response of the ODA is a disgrace to the dental profession and, indeed, to science itself. Dr. Hendrich states that dental amalgam has been used "safely" for over 150 years, yet, can provide only one "study", published less than 1 year ago. What established the safety of dental amalgam prior to 1993? Worse, the study is epidemiologic without controls or medical investigation! Medical scientists, including those from the University of Calgary, have already formally questioned the "study" provided. One must wonder if the study would have even been published had it been submitted to an appropriate medical journal, rather than a dental journal that is hardly qualified to peer evaluate medical conditions.

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ABSTRACTS

Weiner, JA; Nylander, M.

ABSTRACT:

Samples from different tissues were collected from autopsies of individuals of the general
population of the Stockholm area, Sweden. The samples were analyzed for total mercury content using radiochemical neutron activation analysis. Average concentrations of mercury in occipital cortex, abdominal muscle, pituitary gland and kidney cortex were, 10.6 (2.4-28.7), 3.3 (0.9-5.4), 25.0 (6.3-77) and 229 (21.1-810) micrograms/kg wet weight, respectively.

Possible predictor variables for mercury concentrations were tested in multiple linear regression models. An effect of a number of tooth surfaces with amalgam was seen in occipital lobe cortex, abdominal muscle and pituitary gland, but not in kidney cortex. In occipital lobe cortex and abdominal muscle, concentrations of mercury increased with age.

Explanations discussed include: that a significant fraction of the mercury retained from amalgam fillings has a very long biological half-life; a decreasing capacity of mercury excretion with age; or higher fish consumption in the older individuals.

In kidney cortex mercury concentrations decreased with age. The reason for this remains unclear, but it might indicate a decreasing capacity of mercury excretion with age. Chronic alcohol abuse was associated with decreased concentrations of mercury in occipital cortex.

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Gerhard, I; Waldbrenner, P; Thuro, H; Runnebaum, B.
Diagnosis of Heavy Metal Loading by the Oral DMPS and Chewing Gum Tests.

ABSTRACT:

In 490 women in the hormone and sterility lecture course, besides the usual endocrinological diagnostic workup, the heavy-metal flushing test was performed with DMPS. Urine concentrations of mercury, lead, copper, cadmium and arsenic were determined by atomic absorption spectroscopy (AAS) and corrected for creatinine clearance. Zinc and selenium concentrations in baseline urine were also determined.

If an exposure to mercury was confirmed, and if at the same time the teeth had amalgam fillings, at a later point in time the chewing-gum test was performed. In saliva samples, the concentrations of mercury, silver, tin and copper were determined.

In all the women, an increased excretion of the heavy metals described above could be attained with DMPS. In terms of amount, the highest concentrations computed were of mercury and copper; the largest average amount being that of mercury.

Over 90% of all baseline mercury concentrations lay under 5 mcg/g creatinine; which is below the threshold level of exposure to mercury. After DMPS challenge, however, 25% of the women excreted over 100 mcg/g creatinine. No cases of spontaneous pregnancy occurred with a mercury excretion of over 500 mcg/g creatinine, and exceptionally good ovulations could be achieved only with the most diversified hormone therapies. Hyperandrogenous women in particular showed significantly elevated mercury values, as also did underweight women.

Because of the frequent urine mercury elevations of the patients, a relationship to mercury release from dental amalgam fillings was investigated. In the chewing-gum test, mercury release in the saliva increased significantly with increasing number of amalgam fillings. Very high mercury concentrations were found in women with 10 or more amalgam fillings. Maximal mercury excretion in the urine increased as number of amalgam fillings rose.

Salivary mercury concentrations rose with increasing number of amalgam fillings before as well as after gum chewing. Urinary excretion of mercury after DMPS challenge increased significantly with increasing number of amalgam fillings. Women with higher mercury excretion in the urine showed almost 5 times higher mercury values in the saliva after gum chewing.

For the whole population studied, we could not help but establish that heavy metal exposures were present in about half of the patients with infertility and hormonal disorders. Only in a few cases could a definite toxic source outside the body be proven. An occupational exposure to mercury could be determined in only 5 women (dental practice, thermometer manufacture). Salves or medications containing mercury were not used. Fish consumption in subjects was minimal and could not be related to mercury concentrations.
It is becoming increasingly evident that bodily exposure to heavy metals plays an important role in fertility disorders. As we have demonstrated, individual exposure can be proven by oral administration of DMPS in the form of a flushing-out test.

Gerhard, I; Runnebaum, B.
Toxic Materials and Infertility: Heavy Metals and Minerals.
ABSTRACT:
So far, the influence of lead, cadmium and mercury on human fertility has hardly been considered. First experiences by the authors with the chelating agent 2,3 dimercaptopropane-1-sulfonate (DMPS), which mobilizes heavy metals deposited in the body, seem to favor an association between the body load of heavy metals and complications during the menstrual cycle and during pregnancy.

By means of an extensive survey of references, the importance of heavy metals for reproduction is demonstrated. In addition, the deficiency of particular minerals and their interaction with heavy metals are considered. Indications are given for diagnosis and therapy of the exposure to heavy metals. The practical procedure is demonstrated by means of three case studies.

BIO-PROBE COMMENT: The relationship of mercury to infertility and birth defects was presented in 1987 in "Infertility & Birth Defects: Is Mercury from Silver Dental Fillings an Unsuspected Cause?" [Sam Ziff & Michael Ziff. Bio-Probe, Inc. 1987]. Many of the present study's "extensive survey of references" were discussed in the book. Bio-Probe is gratified that the issue has come of age.

The present study, along with the one immediately preceding, also helps to establish the propriety of usage of DMPS challenge urine mercury measurements as an accepted procedure for the medical diagnosis and treatment of mercury exposure. In addition, the therapeutic utilization of vitamin and trace mineral administration to counter the toxic effects of mercury exposure is further confirmed.

The three accompanying case histories dramatically demonstrate the effect of mercury on hormonal imbalances and infertility. The influence of dental amalgam fillings was also investigated through the chewing-gum/saliva mercury test. In one case, pregnancy could not even be achieved until removal of the amalgam fillings.

Zander, D; Ewers, U; Freier, I; Brockhaus, A.
Studies on Human Exposure to Mercury: IV.
Mercury Exposure in Male and Female Dentists and Female Dental Assistants. [Subtitle translates as: IV. Urine Mercury Levels in Dental Personnel.]
ABSTRACT:
Urinary mercury levels were determined in 22 dentists and 46 dental nurses and assistants working in 15 private dental offices in West-Germany. For comparison, urinary mercury levels of 29 subjects without occupational mercury exposure were studied.

On average, urinary mercury in dental personnel was higher than in the reference group. Individual mercury levels, however, were all significantly below present occupational exposure limits. Urinary mercury was significantly correlated with the number of amalgam fillings in dental personnel as well as in the reference group.

Following administration of Dimaval a significant increase of mercury excretion was observed in both groups. Regarding total exposure to mercury in dental personnel, the contribution of mercury exposure from the occupational environment is of the same order of magnitude as their exposure from their own amalgam fillings. Dental nurses were found to be more exposed than dentists. This finding seems to be related predominantly to the larger number of amalgam fillings in dental nurses.

BIO-PROBE COMMENT: "Dimaval" is the trade name for DMPS, which has been widely utilized in Europe for mercury detoxification for many years. This study investigated variables such as age and sex, number of years in the profession, smoking habits, fish consumption, work hours, numbers of amalgams installed per week, method of amalgam preparation, and number of own amalgam
fillings. The results confirmed other studies that challenge mercury excretion does not correlate to consumption of fish or smoking habits.

It is interesting that these investigators found that 55% of the dentists in the study had no amalgam fillings in their own teeth, compared to only 10% of the assistants. In addition, 57% of the assistants, but only 13% of the dentists, had more than 5 amalgam fillings. This is a confounding variable not considered when the American Dental Association conducted its epidemiologic studies on dentists compared to the general public. The authors also noted that the dental assistants are clearly more strongly exposed than are the dentists of either sex.

It is also interesting to note that the mercury exposure from the subjects’ own amalgam fillings was in the same range as that from occupational exposure. The authors stated that: "In relation to this, the background exposure through dietary and environmental means is clearly more slight."

The authors concluded that, in dental personnel, 40-45% of the variance of mercury excretion can be attributed to the number of amalgam fillings present in the subjects. Finally, it should be pointed out that pre-challenge urine mercury measurements are not reflective of body burden, as demonstrated by the post-challenge increases of mercury excretion.

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Zalups, RK.
Influence of 2,3-Dimercaptopropane-1-Sulfonate (DMPS) and meso-2,3-Dimercaptosuccinic Acid (DMSA) on the Renal Disposition of Mercury in Normal and Uninephrectomized Rats Exposed to Inorganic Mercury.
ABSTRACT:
The effects of the water-soluble chelating agents 2,3-dimercaptopropane-1-sulfonate (DMPS) and meso-2,3-dimercaptosuccinic acid (DMSA) on the renal disposition of inorganic mercury were studied in normal and uninephrectomized (NPX) rats injected (i.v.) with a nontoxic 0.5-mumol/kg dose of mercuric chloride (HgCl₂).
When a 100-mg/kg dose of either DMPS or DMSA was injected (i.p.) 24 and 30 hr after treatment with HgCl₂, the renal concentration and burden of inorganic mercury decreased markedly in both normal and NPX rats during the 24 hr after the first dose of the respective chelating agent was administered.

Treatment with DMPS was more effective that treatment with DMSA in reducing the renal burden of mercury in both groups of rats. The fall in the renal concentration and burden of mercury in both normal and NPX rats was due primarily to a decrease in the content of mercury in the renal cortex and outer stripe of the outer medulla. However, the decrease in the concentration of inorganic mercury in the outer stripe was significantly greater in NPX rats than in normal rats. Both chelating agents caused urinary excretion of mercury to increase significantly in normal and NPX rats. In association with the increased renal release of mercury in NPX rats, the urinary excretion of mercury per gram of kidney was significantly greater in NPX rats than in normal rats.

These data indicate that the renal handling of DMPS and DMSA may be altered significantly after a substantial reduction in renal mass. Findings from the present study also show that treatment with DMPS, but not with DMSA, causes the content of mercury in the liver and cellular fraction of blood to decrease in normal and NPX rats. These findings indicate that there are significant differences in the extrarenal handling of these two chelating agents.

The findings in the present study suggest that DMPS and DMSA are very effective agents in reducing the renal (and whole body) burden of inorganic mercury in normal and NPX rats.

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Flippo, T and Holder, WD.
Neurologic degeneration associated with nitrous oxide anesthesia in patients with Vitamin B12 deficiency.
This article reviews 5 cases in which patients who were unsuspected of having vitamin B12 deficiency developed subacute combined, degeneration of the spinal cord following nitrous oxide anesthesia. The authors note that vitamin B12 deficient patients are very sensitive to neurologic deterioration following nitrous oxide anesthesia. Nitrous oxide produces an irreversible oxidation to the Co²⁺ and Co³⁺ which makes the vitamin B12 inactive. The authors believe the surgeons should be aware of this
problem and should avoid the use of nitrous oxide anesthesia in patients with vitamin B12 deficiency. Preoperative vitamin B12 levels should be obtained in patients with increased mean corpuscular volume indexes or previous gastric or intestinal resection prior to surgery or anesthesia. (This review was taken from Clinical Pearls News. Jan-Feb 1994)

BIO-PROBE COMMENT: It would appear that the disadvantages of nitrous oxide are beginning to outweigh its advantages. The need to validate a patient’s vitamin B12 status prior to any oral surgery/operative procedures certainly makes the use of nitrous oxide an expensive and time consuming option.

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Burt, Brian A.
The case for eliminating the use of dietary fluoride supplements among young children. Presented at the Dietary Fluoride Supplement Conference; ADA, Chicago, IL. Jan 31-Feb1, 1994

ABSTRACT:

Fluoride supplements have been used for years to prevent dental caries, but there are three reasons why their use is inappropriate today among young children in the United States. They are (a) the evidence for the efficacy of fluoride supplements in caries prevention is not strong, (b) supplements are a clear risk for dental fluorosis, and (c) fluoride’s pre-eruptive effects in caries prevention are weak. There are many studies published on the caries-preventive efficacy of supplements, but few meet the standards for acceptable clinical trials. Well-conducted studies showing supplements to be efficacious have been conducted with school-age children in supervised programs, with chewable tablets or lozenges for slow dissolution to achieve topical effects. The evidence to show that supplements are a risk factor for enamel fluorosis is strong, and so is the evidence to show that fluoride prevents caries principally through post-eruptive effects. North American children are today exposed to fluoride from many sources: drinking water, toothpaste, gels, rinses, and a considerable amount in food and beverages. The additional cariostatic benefits that would accrue from supplement use is marginal at best, while the risk of fluorosis is strong. There is evidence that the public is more aware of the milder forms of fluorosis than was previously thought, so dental policies should be aimed at reducing fluorosis. The risks of using fluoride supplements in young children outweigh the benefits. Since there are alternative forms of fluoride to use in high-risk individuals, fluoride supplements should no longer be used for young children in North America.

BIO-PROBE COMMENT: As reported in the July 1993 edition of the Bio-Probe Newsletter, Assemblyman John V. Kelly of the New Jersey General Assembly, after conducting his own investigation, discovered that the use of fluoride drops and tablets had never been examined for safety or effectiveness, nor had they ever been approved for use by the FDA. On 3 June 1993, Assemblyman Kelly formally requested that FDA Commissioner David Kessler comply with United States Law by removing fluoride drops and tablets from the market.

Now some nine months later, it appears that the FDA and the ADA, are setting the stage to just stop the further use of fluoride supplements because the risks outweigh any possible benefits. It is also interesting to note that the abstract was presented by Brian A. Burt, BDS, MPH, PhD, School of Public Health, The University of Michigan, who was also a member of the National Academy of Science/National Research Council. After looking the other way for so many years, it will be interesting to see how the FDA, ADA, fluoride supplement manufacturers and recommending dentists will inform the public.

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FORUM

FLUORIDE FOE GETS EPA JOB BACK!
LABOR SECRETARY REICH ORDERS EPA TO REINSTATE SCIENTIST!

"In a precedent-setting ruling, U.S. Department of Labor (DOL) Secretary Robert B. Reich has ordered the U.S. Environmental Protection Agency (EPA) to reinstate toxicologist Dr. William L. Marcus." [From News Release, 10 February 1994: National Whistleblower Center. 517 Florida Ave. NW. Washington, DC. 20001-1850. Tel: (202) 667-7515.]
Dr. Marcus had been with the EPA for 18 years and was the Senior Science Advisor in the EPA's Office of Drinking Water. The EPA dismissed Dr. Marcus on 13 May 1992, on charges of improper use of agency information for private gain, being improperly absent from work, and engaging in outside employment which appeared to pose a conflict of interest.

The "conflict of interest" was actually public criticism and opposition to the EPA's policy on fluoride in drinking water, an opposition based on valid scientific data demonstrating adverse effects to water fluoridation.

Dr. Marcus took his case to the DOL Administrative Court. There it was revealed that members of the EPA's Office of the Inspector General (IG) investigating Dr. Marcus had deliberately falsified attendance records and shredded evidentiary documents, which are criminal acts.

On 3 December 1992, the DOL Administrative Law Judge (ALJ) vindicated Dr. Marcus and ordered the EPA to reinstate him, along with back pay, benefits, and damages. Since that time, the EPA has not obeyed the court order. Now they must!

Throughout this time, Dr. Marcus has been without income and under severe emotional stress. Meanwhile, the members of the EPA's Inspector General Office that committed the criminal acts are still employed by the EPA (at taxpayer expense)!

Moreover, the EPA still ignores the valid scientific documentation demonstrating adverse effects to water fluoridation!

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INTERNATIONAL SYMPOSIUM "STATUS QUO OF DENTAL AMALGAM".
Sponsors: IAOMT Europa e.V. and Biosynposia.

Chairs: Professor Lars Friberg (Karolinska Institute of the University of Stockholm, Sweden) and Professor Gerhard N. Schrauzer (University of San Diego, USA).

Date: 29 April - 1 May 1994.
Site: Europaeum at the European Academy of Otzenhausen. (Near Trier, Germany.)

Program: Murray J. Vimy, D.M.D. (Canada); Boyd E. Haley, Ph.D. (USA); Michael F. Ziff, D.D.S. (USA); James Masi, Ph.D. (USA); David Kennedy, D.D.S. (USA); Professor Dr. Gustav Drasch (Germany); Dr. Graeme Hall (Germany); Vera Steyskel, M.D. (Sweden); and others.

Contact: Biosynposia. Schomdorfer Strasse 32. D-70734 Fellbach. Germany. Phone: (0711) 575-32-00. Fax: (0711) 575-32-99.

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IAOMT SPRING REGIONAL BOARD MEETING

30 April-1 May 1994.
Pittsburgh, Pennsylvania.

Hotel Reservations: Sheraton Hotel Station Square. 7 Station Square Drive. Pittsburgh, PA. 15219. Phone: (800) 255-7488.

Program: Saturday, 30 April 1994. 8:30 am - 5:00 pm.

Jerry Bouquot, Ph.D.: "Diagnosis and Treatment of NICO (Neuralgia Inducing Cavitational Osteonecrosis)."

Robert McMahon, D.D.S.: "Root Canal Failures as a Source of Chronic Dental Neuritis and Referred Trigeminal Pain."

David W. Ganong, D.M.D.: "Alterations in Blood Microbiology Resulting from Dental Treatment."


Board Meeting: Sunday, 1 May 1994. 8:00 am - 12:00 noon.

Registration: IAOMT members= $95.00. Non-members= $175.00.


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IAOMT 1994 ANNUAL MEETING

San Diego, California.