

## The Dental Amalgam Controversy\*

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The toxicity of amalgam fillings has been under discussion in Scandinavian countries,<sup>1, 2</sup> Germany,<sup>3, 4</sup> and the USA<sup>5</sup> since the late 1970s. Initially, symptoms were thought to be due to galvanic currents ("oral galvanism"). Clinical studies did not, however, show any correlation between the quantity of electricity generated and the severity of symptoms,<sup>6</sup> which, of course, does not exclude the possibility of individual hypersensitivity. Later on, attention focused more on the release of mercury and its potential toxicity.

### Mercury from dental amalgam<sup>7</sup>

The following has been established beyond doubt:

Amalgam fillings corrode, resulting in the release of mercury ions which can be detected in saliva, gingiva, oral mucosa, dental enamel, and dental pulp. Acidic foods, the use of copper amalgam, different metals in contact with each other (e.g. amalgam and gold) increase corrosion.

Metallic mercury vapor can be detected both in exhaled air and introrally. Mastication increases mercury evaporation by a factor of 6.<sup>8</sup> People with amalgam fillings have about 10 times higher nonstimulated Hg vapor concentrations in the oral cavity than people without them. Mercury release is also greatly increased at the time when amalgam fillings are made or removed.

The inhaled mercury vapor ( $\text{Hg}^0$ ) is partly oxidized to  $\text{Hg}^{++}$  ions in erythrocytes. These ions only penetrate biological membranes to a limited extent. Part of the mercury vapor apparently enters into the brain, other organs, and placenta, however, prior to oxidation, and this may result in accumulation of mercury in these organs.

In post-mortem investigations on individuals not subject to occupational exposure, concentrations of 10–30 ng of Hg/g of tissue were found in the brain and 20–800 ng/g in the renal cortex, and these figures showed correlation with the number of amalgam fillings. Blood and urine mercury levels also showed correlation with amalgam exposure, both without stimulation and following exposure to the chelating agent DMPS (Dimaval).

The World Health Organization<sup>7</sup> estimates daily mercury retention in individuals not subject to occupational exposure to be:

- Hg vapor (from amalgam fillings): 3.1–17 ug Hg,

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- methyl Hg (from foods): 2.3 ug Hg,
- inorganic Hg compounds: 0.3 ug g Hg.

Nevertheless these data cannot be said to offer direct proof of mercury intoxication in "amalgam patients". Workers subject to occupational exposure have far higher mercury levels in the blood, urine, brain and other organs,<sup>9</sup> and yet there has been no demonstrable correlation between mercury exposure from amalgam (determined in blood, urine or by number of amalgam fillings) and the severity of symptoms, with one exception. Particle-induced X-ray emission was used to examine a group of Swedish patients suspected of having "amalgam disease". The median erythrocyte Hg level found by the method was 1.6 ug/g, the median granulocyte Hg level 2.5 ug/g (n = 25). No mercury was detected in the blood cells of the control group (n = 64), the lower detection limit being 0.5 ug/g.<sup>10</sup> The absence of a gradual transition suggests redistribution due to pathological causes rather than a general increase in mercury exposure.

In animal experiments, immunological reactions such as glomerulonephritis may be triggered by exhibiting mercury, sometimes in relatively low doses.<sup>11</sup> Some mouse and rat strains react, others do not. In Sweden, a hypothesis currently under investigation is that in humans such immune reactions occur only in certain HLA (human leukocyte antigen) groups. It would explain the variable sensitivities to the widespread exposure to dental amalgam.

Using the "double bookkeeping" method recommended by Rudolf Steiner, an attempt will be made below to use research findings made in anthroposophic spiritual science to throw light on the dental amalgam issue. The author is, of course, fully aware that the picture is not consistent nor yet complete.

### **Clinical picture of amalgam intoxication**

Patients reported chronic symptoms that generally proved treatment-resistant, e.g.

*Neurosensory system:* poor short-term memory, poor concentration, vertigo, headaches, tinnitus, skin eruptions, aggravation on exposure to electromagnetic fields, e.g. working at a video display terminal.

*Rhythmic system:* anxieties, sensitivity to odors, breathing difficulties (breathing rhythm held), intermittent tachycardia or palpitations.

*Metabolic-limb system:* depression, extreme tiredness, inner restlessness, burning tongue, poisonous or metallic taste in mouth, toothache and in-jaw pain, all kinds of digestive disorders, muscle and joint pain, aggravation or triggering of symptoms when taking certain

foods.

The symptoms would improve or disappear (gradually or suddenly) on removal of amalgam fillings. Retrospective<sup>12, 14</sup> and prospective<sup>15, 16</sup> studies confirmed that such effects were regularly seen with 30-90% of the listed symptoms.

The symptoms are only partly in agreement with the toxicological and the homeopathic<sup>17, 18</sup> mercury picture. They are often nonspecific, and the diagnosis can only be made *ex juvantibus*, by removing the amalgam fillings. To date there is no reliable diagnostic test. Thus Daunderer, who introduced routine determination of urinary Hg following an i.v. challenge to 250 mg of Dimaval,<sup>19</sup> has never been able to provide satisfactory proof that his limiting value of 50 ug Hg/g in the urine can establish the difference between normal and pathological.

Non-medically qualified practitioners in continental Europe often use potentized mercury or silver amalgam to provoke a reaction. Care is, however, indicated with the use of mercury in high potencies such as the 200x, as these may cause a disastrous, long-lasting aggravation. At the other end of the scale the removal of all amalgam fillings may also result in considerable aggravation that often proves treatment-resistant. Healthy people will normally cope well with the procedure, but the mercury level in blood plasma increases by a factor of 3 or 4 for a period of 1 month.<sup>20</sup>

In the author's experience, some of these patients have the psychological characteristics of an "exaggerated mercury type,"<sup>21</sup> with a tendency to rush at life and some degree of instability. Occasionally one also sees lung-determined compulsive types. In my opinion it is not, however, possible to make the general statement that the lives of all or most of these patients were influenced by mercury problems.

The syndrome partly reflects these extremes, often with a remarkable number of individual symptoms that come up and go away again at any moment, and also hypersensitivity to both conventional and potentized medicines. On the other hand we have the persistent loss of flexibility, with exhaustion, poor memory and concentration difficulties that often prove treatment resistant.

The author and some of his Scandinavian colleagues had their attention drawn to the problem by patients whom we have treated anthroposophically for some time without getting results and who only began to respond once their amalgam fillings had been removed. The aggravation or occurrence of new symptoms often seen within hours or a few days of removing the fillings can also provide important pointers if one knows the phenomenon and asks about it. Another indication is the onset of symptoms shortly after making new amalgam fillings, or making gold fillings when amalgam fillings are also present.

### **The power to overcome mercury**

Steiner spoke of metals which human beings "made part of their own development" (iron, magnesium),<sup>22</sup> and others which they must overcome (lead). The above example of mercury found in blood cells of sick but not healthy people may be taken as an indication that the powers to overcome mercury in the blood are too weak.

Physiologically, the body is able to eliminate toxic foreign matter or encapsulate it. Did Steiner refer to these processes when he used the word "overcome", or did he mean that the organism is able to "completely ... destroy" the metals, and "... remove them from the area", as he put it with reference to carbon?<sup>23</sup> Speaking of lead (above reference to this), he referred to "elimination of the lead process" ... "the organism... seeks to drive out the lead."

The difference may be important, for both the sulfuric amino acids unithiol (dimercaptopropanesulfonate, DMPS) and succimer (dimercaptosuccinic acid, DMSA) and selenium are used in modern anti-amalgam therapy. DMPS and DMSA chelate heavy metals, increasing their elimination.<sup>24</sup> Selenium combines with mercury, and relatively high doses of it probably result in the production of slightly soluble and relatively nontoxic Hg-Se compounds.<sup>25</sup> What is probably more important is that selenium is incorporated in the antioxidative enzyme glutathione peroxidase (GSH-Px). *In vitro* inhibition of GSH-Px causes increased mercury uptake by red blood cells.<sup>26</sup> Another indication for weak mercury-overcoming powers was the detection of high selenium levels together with mercury, silver and tin in the vicinity of amalgam fillings in healthy subjects, compared to 12 patients with "amalgam disease" in whose gums no selenium was detected. The patients also showed lower levels of GSH-Px activity in the blood than the healthy subjects.<sup>27</sup>

### **Mercury and the ether body**

"Mineral toxins cause the physical body to draw into the ether body."<sup>28</sup> With reference to syphilis, where "the ego organization is more powerful than the etheric organization" in the metabolism,<sup>29</sup> Steiner stressed that the mercury therapy then in vogue could only contribute to the healing process insofar as "the whole enters into the blood circulation, whereas any of it that does not enter into the blood but... is taken up and carried along in etheric channels that follow... the nerve strands, for instance, is entirely harmful."

This statement is borne out by the observation that inhaled mercury metal is initially nontoxic (in the blood). Oxidized to mineral Hg<sup>++</sup> it gains access to the ether body and is able, for instance, to attack the sulfhydryl (SH) or disulfide (SH-SH) groups in protein molecules.

Two issues that have not yet been clarified are part of the problem.

Animal experiments have demonstrated retrograde axonal transport ("following the nerve strands") of metals:

- from the nasal mucosa to the brain (aluminum)<sup>30</sup>
- from the dental pulp to the ipsilateral trigeminal ganglion (HgCl<sub>2</sub>)<sup>31</sup>
- into the nuclei of motor ganglia in the spinal marrow and brain stem (following i.m. exposure to HgCl<sub>2</sub>).<sup>32, 33</sup> This phenomenon may play a role in the pathogenesis of amyotrophic lateral sclerosis<sup>34</sup> and multiple sclerosis<sup>35</sup>

Another way of making mercury accessible to the ether body is to methylate it to methylmercury. This is almost completely absorbed by the gut, easily penetrating all biological membranes, and may cause nerve damage. Bacteria gain natural protection from mercury by methylation.<sup>36, 37</sup> *In vitro*, streptococci from the normal oral flora are able to methylate mercury from amalgam fillings, for example.<sup>38</sup> Intestinal bacteria are able to methylate HgCl<sub>2</sub>.<sup>39</sup> In animal experiments, this methylation may be suppressed by giving antibiotics.<sup>40</sup> Fecal matter from people with amalgam fillings contains 20 times more mercury on average than their urine.<sup>41</sup> Uptake of finely dispersed mercury from the intestine, the extent of it so far unknown (and omitted from WHO calculations), would increase considerably with adequate methylation.

### History of amalgam

Early references to amalgam for dental fillings are found in seventh-century Chinese textbooks. The first reference in the European literature is by the German physician Johannes Stockerus in 1528. Towards the end of the eighteenth century, French dentists experimented with different combinations of bismuth, lead, tin, silver and mercury. The French brothers Caw-cour promoted their amalgam in London in 1831 and in New York in 1833. Their Royal Mineral Succedaneum, a product of powdered silver coins mixed with mercury, was widely advertised and soon became a great success in the USA. Though commercially successful, the brothers used the wrong method, not being dentists. This, and the fear of mercury poisoning, soon led to violent controversy.

The first "amalgam war" broke out shortly before the materialistic image of the human being gained acceptance in medicine – see the famous oath sworn by W. Bruecke and E. du Bois-Reymond in 1842, that "all forces active" in the organism "are physical and chemical".<sup>42</sup> The war was fought mainly in the USA, where dental associations fought each other until in the late 1870s the organized pro-amalgam movement gained the upper hand. G.V. Black in the USA (1895) and A. Witzel in Germany (1899) had the final word on amalgam.

The first and major part of the first amalgam dispute on earth thus coincided almost exactly with the fight between Michael and the dragon in the heavens.<sup>43</sup> This was from 1841 to 1879, one of the outcomes being that humanity became subject to materialistic influences.

After an interval of about 33 years – which also covered the period of Rudolf Steiner's work in anthroposophy – the second amalgam war broke out in 1926. It was triggered by a report published by the German chemist, Professor Alfred Stock, in which he described his own case of mercury poisoning.<sup>44</sup> He had been subject to occupational mercury exposure and also had amalgam dental fillings, and this made him aware of the fact that amalgam released mercury.

### **The historical Mercury impulse on earth**

In a lecture he gave in Berlin on March 13, 1911,<sup>45</sup> Rudolf Steiner showed how the Christ is symbolized in direct sunlight, and Jahweh-Jehova uses the Moon to reflect the sunlight. The Christ has incarnated only once on earth. Jahweh came before the Christ, during the Egypto-Chaldean period. Evolution was in periods of about 600–650 years at the time. 650 years after Christ Jahweh was reflected in Mohammed and his Islamic faith. Both are Moon religions. Islam did away with all the old, atavistic clairvoyance, took no account of the Christ, and 650 years later gave the impulse for modern materialistic science. Instances of this are the emphasis on heredity in medicine and Darwinism.

After the Moon came Mercury. The Mercury impulse was very powerful in Gautama Buddha, who was active before Jahweh. In the world of the spirit, Buddhism later came together with Christianity. The transformed Buddhism emerged again as another, secondary current, making its presence felt in the works of Goethe and Schopenhauer. It presented the idea of reincarnation and that of karma in a new form.

R. Steiner's presentation of this ends with an image: if a fish is transferred from water (Moon) to air (Mercury), the swim bladders must change into lungs. The old materialistic ways of thinking are like fish, unable to make the change and which must therefore die from lack of air.

### **Questions for the future**

In view of the above, the following questions arise. Does filling the teeth with amalgam represent a Mercury impulse that has become physical and ahrimanic? If the powers that overcome mercury are not strong enough to deal with the mercury from amalgam, the individual falls ill. Amalgam disease may be more likely to develop if for karmic reasons the individual has an abnormal relationship to the Mercury sphere. Could it also be that there is a collective karmic element that favors the disease because humanity is unable to find its way to a new, spiritual Mercury impulse? This would

cause the impulse to turn into its ahrimanic, physical counter image.

The obvious objection to this would be that a number of other chemical substances and environmental toxins were also introduced in the second half of the nineteenth century. What is more, hypersensitivity to foods or chemicals, reactions that are also in dispute,<sup>46,47</sup> do to some extent provoke similar syndromes, though with less emphasis on neurological symptoms. Those reactions may, however, be connected with the negative effects of amalgam.<sup>48</sup>

According to B. Lievegoed,<sup>49</sup> the "second" Mercury impulse points to the future and will help to bring about a true encounter between individuals and between human being and environment. Would it be true to say, therefore, that the whole problem of increasing hypersensitivity in soul and body that is making people ill also reflects an abnormal Mercury impulse?

Other issues that have to be considered are the following:

- Oral galvanism from the anthroposophic point of view.
- What does it signify to have metal in our teeth?
- Anthroposophic adjuvant and follow-up treatment of amalgam disease.

### Summary

Amalgam fillings cause mercury to cumulate in the body. This is connected with a number of persistent, treatment-resistant symptoms, some of them serious.

The problem is considered in the light of recent conventional medical research findings and of statements made by Rudolf Steiner. The question is, does amalgam exposure and disease represent a physical, ahrimanic counter image of a future, spiritual Mercury impulse?

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