

LEAD Action NEWS

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The journal of the Lead Education and Abatement Design (LEAD) Group. The LEAD Group, PO Box 161, Summer Hill NSW 2130 Australia.

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Friday, January 29, 1993 3
Sydney Morning Herald

Ban on lead in petrol urged

By JENNIFER COOKE
Medical Writer

The Government should ban leaded petrol to cut lead contamination in children, a paediatrician has advised.

Dr Garik Alperstein, the community paediatrician with the Central Sydney Community Health Service, said this would be more effective than leaving parents to ensure that homes were free of lead dust.

At present, 64 per cent of petrol sales contain lead. Rising lead levels was the responsibility of the Government.

Community prevalence survey of children's blood lead levels and environmental lead contamination in inner Sydney

THE MEDICAL JOURNAL OF AUSTRALIA Vol 157 October 5, 1992

Michael J. Pett, Michael Milia, Jason Smith, Gerni Alperstein, Jane Casser, Tim Brakenridge, Dr and Simon Cannata

Move to cut lead in petrol

By MARK COULTAN State Political Correspondent

The State Government is considering a quicker phasing-out of lead in petrol in NSW.

fall victim to mines slump

WHO warning of lead dangers in pregnancy

By science and technology writer JULIAN CRIBB 45 THE WEEK END Jan 30-31, 1993

Petrol blamed for kids' high lead levels

By MART BOSON

It is not just the lead that is emitted from exhaust today that ... within World Health Organization limits. The executive direc...

'Government will not take responsibility to prevent lead poisoning. They want women to keep houses dust- and lead-free. Putting the responsibility on the victims of pollution will not make our cities cleaner; we must attack the problem at source. The lead in petrol must go.'

Elizabeth O'Brien
The Lead Education and Abatement Design (LEAD) Group
1993-01-29

The meeting, at Ashfield Town Hall, was told children would continue to be exposed to high levels of lead pollution because of "bureaucratic buck-passing".

Call to ban all lead petrol

Editorial by Elizabeth O'Brien,

National Co-ordinator Lead Education and Abatement Design Group



Welcome to the new style journal of the LEAD Group.

This issue contains much information on lead from petrol, because the accelerated phase-out of lead from petrol has presented itself as the No 1 priority issue for 1993. I hope this issue also conveys the scope of the work of the LEAD Group, i.e. from the level of working with the affected individuals and their families, to dealing with organisations within society, local councils, state and federal governments and international organisations. It's all in a day's exhilarating work - changing the world to make it better for our children's children.

I have been on a rapid learning curve since I discovered lead contamination in the soil in Summer Hill in inner Sydney in December 1990. As a co-founder of the LEAD Group I have been involved in the exciting process of finding my environmentalist's wings and taking flight. If you would like your own local lead action group, we're here to help you. 'If enough people lead the leaders will follow' is the slogan which inspires us.

Our latest lobbying effort has been directed at the Federal Environment Minister Ros Kelly asking her for action within the Commonwealth Environment Protection Authority (CEP A) and at the Australian & New Zealand Environment and Conservation Council (ANZECC); and in addition to press for changes within the National Health and Medical Research Council (NHMRC) and at the level of the OECD. All requested actions are aimed at rapidly reducing petrol lead levels in Australia and in

ensuring that the community's voice is heard on the lead issue.

your say



Here at the Community LEAD Information Centre, we await your letters, phone calls and faxes containing queries, suggestions and encouragement. The combined resources of our library, advisory service and Technical Advisory Board are available to members and non-members alike.

Now that we have a journal, your input is especially sought for the various sections - letters, articles, literature (your own or someone else's whom we can ask for permission to reprint), cartoons, graphics, tips and facts, news, calls for volunteers, assessments of lead abatement products or processes, ideas for funding or donations of equipment.

Acknowledgements/thanks

To last year's members who renew their membership - and to new members. Your support is vital to our continued pursuit of our community group's aims.

Cartoons Augustina Jones, Ann Brennan, Bronwyn Halls, Simon Kneebone and Judy Horacek. (Please ring The

LEAD Group to ask about printing any cartoons or graphics.)

Graphics Augustina Jones and Vivien Carson.

Permission to reprint extract Rae Desmond Jones.

Contributors

Amanda Kirk, Cameron Plummer, Brian Gulson, Chris Winder, Joy Jealous, Janine Flynn.

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Margaret Alvares, Leanne, Deirdre Meissl and Rebecca Peters.

Inspiration

- for 'Keeping the Outside Out', thanks to Morris Gleitzman, Dr Chloe Mason and Karl Kruszelnicki.
- for publishing our own journal thanks to Jean Tsembeis. An especial thanks to Rebecca Peters for her skilful consultant editing and publishing for nearly 24 hours in a row.

Distribution

Thanks to everyone who photocopies, distributes or promotes this journal or the information in it.

Office Equipment Tara McGee is donating a filing cabinet and Canon is donating a photocopier (yay!) to our otherwise empty looking office. Here's to our success!



Strategies for eliminating childhood lead poisoning

How does your state measure up?

by Amanda Kirk

Last October the LEAD Group wrote to Health and Environment Ministers outside NSW asking about their lead abatement and management strategies. The letter sought to ascertain how each state and territory's lead control strategy measures up to our objectives (listed pp 18-19).

The responses we received are summarised below, along with a summary of the situation in NSW, where the LEAD Group has been consulting with the EPA and the Health Department.

Perhaps the most striking feature of the responses is that all states except NSW appear to be merely passing the buck to the National Health and Medical Research Council (NHMRC).

Victoria

The strategies of the LEAD Group (as outlined in the letter) are 'under consideration'. The ministers are awaiting the results of the NHMRC's review of levels of concern for blood lead levels and management strategies for lead in blood and air. The Victorian government considers these issues to be best dealt with at the national level.

South Australia

The SA health department will review the Port Pirie program to reduce children's exposure to lead III 1994, and take into account advice provided by the NHMRC's review of levels of concern.

The environment department said any decision to change the specification for lead in petrol will be based on review at the national forum, i.e. the NHMRC.

Western Australia

The WA health department also said it would be guided by the NHMRC in establishing levels of concern. A small survey by the department showed the average blood lead levels in children surveyed was below the US recommended community intervention level. Therefore WA sees no need to introduce universal screening of 6-12 month-old children. They do state, however, that they would support improved training for health care workers.

The WA EPA cited its regulation which controls the lead concentration in petrol supplied in WA. The EPA's policy on leaded petrol requires that the concentration be lowered to 0.40g of lead per litre by 1 January 1996.

Queensland

The Queensland department of health outlined its procedures which include notification of blood lead levels above specified limits, restrictions on the use of lead in paint on buildings accessible to children, public information on the safe removal of lead paint and the targeting of children at risk for screening. Blood lead screening of pre-schoolers is not routinely undertaken. In February 1993, Queensland Health will host an international meeting on lead which will determine, amongst other issues, and international consensus on

blood lead levels and ambient air levels.

By January 1994, Queensland petrol will have a maximum of 0.40g lead per litre. The environment department only monitors ambient levels and regulates lead in fuels. There are specific regulations for hazardous operations and contaminated sites.



It is proposed that controls governing the emissions of lead should be guided by NHMRC recommendations.

ACT

The ACT has no policies for eliminating childhood lead poisoning because 'there is no significant lead related industry in the ACT and the introduction of lead free petrol has significantly reduced levels of lead in the air'. Again the ACT is expecting to comply with nationally set standards and guidelines, set by the NHMRC by mid 1993.

Northern Territory

There has been no response from the Northern Territory.

Tasmania

There has been no response from Tasmania.

NSW

The Environment Protection Authority (EPA) is producing a position paper on lead which contain a range of policy options for consideration by the government. Once the preferred policy is adopted, the EPA will set a framework for community participation in development and implementation of strategies to bring the policy into effect. They will seek the LEAD Group's input at stage.

The EPA's response emphasised the achievements already made in the reduction lead levels, eg in paint and food containers.



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Compelling arguments showing the need for action on lead

by Cameron Plummer

Did you know that:

- Lead is a potent toxin that affects virtually every system in the body.
- Impaired cognitive development and abnormal behaviour in preschool and school children (hyperactivity, distractibility, impulsivity, disorganisation, non-persistence, inability to follow simple instructions and overall poor functioning) have been observed at blood lead levels below 25 micrograms per decilitre ($\mu\text{g}/\text{dl}$). There is no obvious threshold below which no effects have been seen.
- Detrimental effects of low blood lead levels ($\ll 25 \mu\text{g}/\text{dl}$) in infancy on cognitive development are probably permanent.
- The National Health & Medical Research Council (NHMRC) recognises that there are no benefits of human exposure' to

lead, and that all demonstrated effects of exposure are adverse. But their 'level of concern' remains at $25 \mu\text{g}/\text{dl}$

- A national review of public exposure to lead has estimated there are 21,000 1-4-year-old Australian children who may have blood lead levels above $25 \mu\text{g}/\text{dl}$, and 446,000 who may have levels above $10 \mu\text{g}/\text{dl}$
- Lead is still present in significant quantities today. Leaded petrol accounted for 64 % of petrol sales in 1991, resulting in thousands of tonnes of highly bio-available lead being released into the environment. The Hazardous Substances Branch of the NSW EPA believes the average lead content in inner Sydney soils is $600 \text{ mg}/\text{kg}$ - double its level for further investigation.
- Over 130 models of pre-1986 cars could run on unleaded petrol - if only their drivers knew!

- Australia is the OECD country which allows the highest levels in petrol. Permissible levels of lead in Australian petrol are given in the table below. In areas where permissible levels are not set, the figure is what the petrol refiners purport to supply.

NSW metropolitan	0.4g/L
NSW country	0.84
Qld metropolitan	0.4
Qld country	0.84
NT	0.84
SA	0.65
WA	0.84*
Tas	0.4
ACT	0.4
Vic	0.3

- to be reduced to 0.4 by 1996

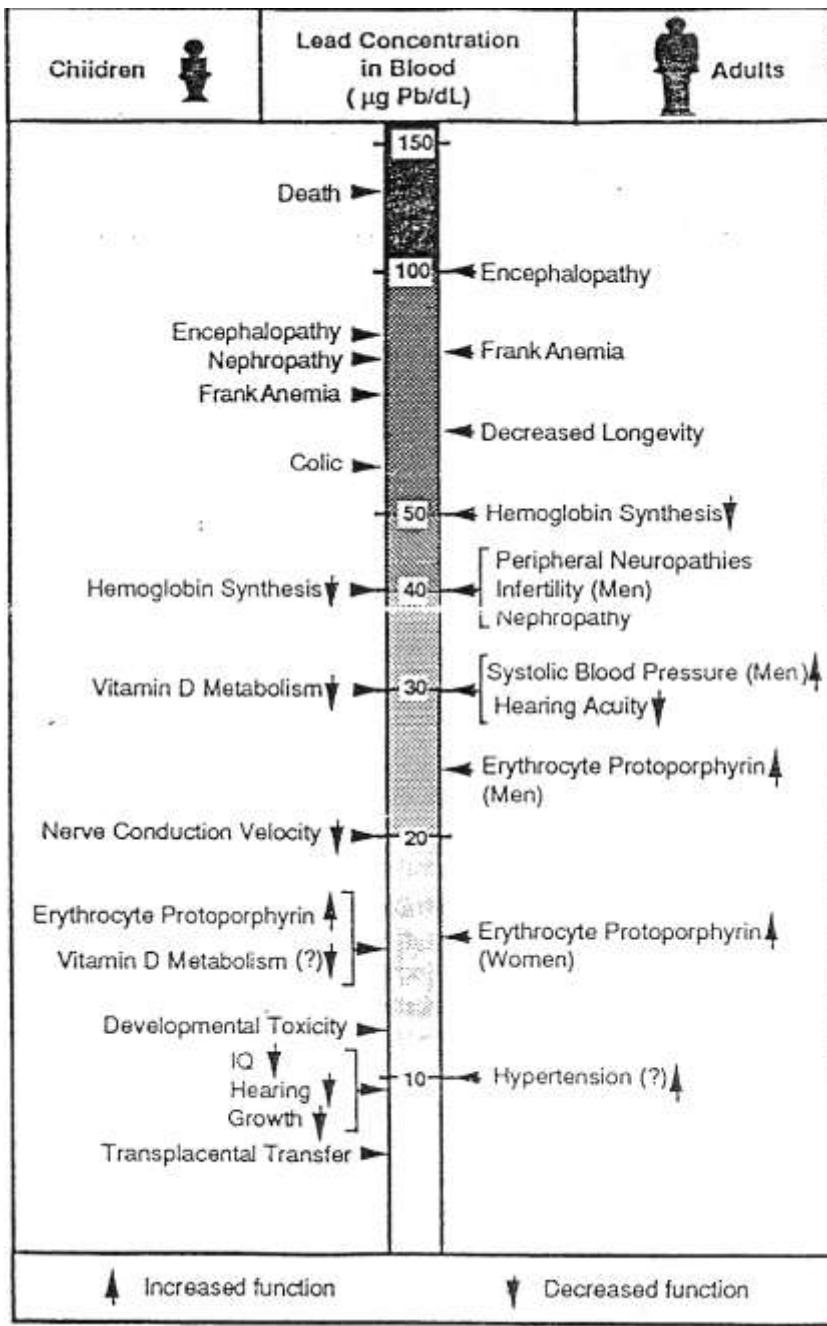
Compare these with $0.15\text{g}/\text{L}$ for most European countries and $0.026\text{g}/\text{L}$ in North America. Any amount above $0.15\text{g}/\text{L}$ is in excess of the vehicle's needs.



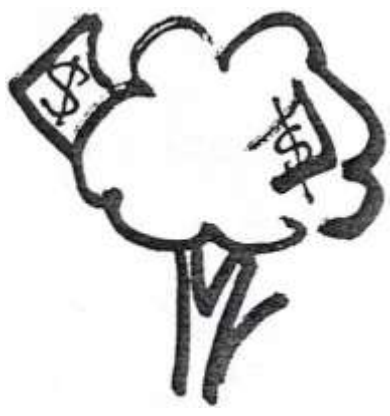
Health effects of inorganic lead on children & adults

- lowest observable adverse effect levels

News



- Effects in children generally occur at lower blood lead levels than in adults.
- The developing nervous system in children is affected adversely by blood lead levels of less than 10ug/dl.



International meeting

The LEAD Group will be represented by Prof Geoffrey Duggin at an international scientific consensus conference in Brisbane in early February.

The meeting aims to determine what health effects occur at what blood lead levels. This will hopefully remove some question marks and add some detail to the chart on this page.

From the determinations of the conference, governments around the world will be able to set their own blood lead levels of concern for action, on the basis of what level of health effects they are prepared to tolerate.

Miners sacked

503 Broken Hill lead and zinc miners were sacked at the end of January when Pasmenco's North mine was closed. The closure was due to the international slump in the mining industry.

Funding in Australia

The LEAD Group has successfully applied for a \$500 grant from Burwood Municipal Council to ensure that lead poisoning education is carried out in the municipality in 1993.

... and in the US

Our counterpart in the US, the Alliance to End Childhood Lead Poisoning, and the Enterprise Foundation were recently named the joint recipients of \$US5.5 million to establish the National Center for Lead-Safe Housing. The grant is the largest ever by a philanthropic foundation to prevent childhood lead poisoning.

tips and FACTS



Driving like a hoon increases lead emissions

Where does all the lead from petrol go within the car, and when is it emitted?

In low-speed city driving, the lead emitted from the exhaust may be as low as 20% of the lead content of the petrol being consumed. This is because some lead is retained in depositions or 'hang-up' in the vehicle's engine and exhaust pipe.

This deposited lead may, however, be emitted later during acceleration. During extreme acceleration (as in hooning), emitted lead may rise as high as 2000 % of lead consumed.

Also at high speeds a higher proportion of lead is emitted as the finer particles, i.e. less than 0.1 micron in size. These particles are easily dispersed over large distances; this size is also the most dangerous to human health as below 0.1 micron can pass into the lower parts of the lungs.

Octel Ltd, the largest manufacturers of lead for petrol, have estimated that over 50,000km of driving, about 73 % of total lead input will be emitted. Of course the rest of the lead does not just disappear.

Sump oil is heavily contaminated with lead and so are old engines and exhaust systems, which are

often dismantled by hand and sometimes melted down as scrap iron thus further adding to airborne lead emissions.

(From Lead in Petrol: An Environmental Case Study by Peter Newman and Jeffrey Kenworthy, Murdoch University, March 1985.)

Comparing your blood lead test results

Blood lead results usually come expressed as um/L (micromoles per litre). But media reports and the medical literature usually use µg/dL (micrograms per decilitre.) To convert, simply multiply the figure in your test results by 20.7.

Where does all the sump oil go?

Because it is insoluble and persistent, wasted oil has the most



negative impact of all automotive products. It contains toxic chemicals and

heavy metals, and is slow to degrade and evaporate.

Used oil is the largest single source of oil pollution in the US (over 40 %). Most is dumped by 'do-it-yourselfers'. In 1960, 90 % of oil changes were done by service stations; this figure is now only 40%!

Most used oil is dumped in stormwater drains, poured on the ground, or sent off to landfill by do-it-yourselfers. It contains toxic chemicals, carcinogenic hydrocarbons and heavy metals (lead, cadmium, zinc, arsenic, chromium).

600mls of oil produces a one acre oil slick on water!

- * Plankton die on contact with oils and oyster beds are contaminated.
- * 300 parts/million ruins the taste of fish;
- * 1L fouls 640,000L of water.
- * Making 3L of new oil requires 200L of crude oil - or just 4.5L of used oil. This is a very obvious reason to recycle used oil! (Source: Recycling brochure of Seattle).

Changing the oil in your car?

When changing your own oil, never pour it down the drain. Enquire at your local councillor service centre about oil recycling facilities. Ask for recycled oil to be used in your car. It is of a very high quality.

Creating a demand for the recycled product will encourage more recycling.

- Mina Sirianni (from The Home Environmentalist, Winter 1992).



LEAD n. 1. Chem. a heavy, comparatively soft, malleable bluish-grey metal, sometimes found native, but usu. combined as sulphide, in galena. Symbol: Pb; at wt: 207.19; at no.: 82; sp. gr.: 11.34 at 20" C. 2. Something made of this metal or one of its alloys. 3. A plummet or mass of lead suspended by a line, as for taking soundings. 4. Heave the lead, Naut. to take a sounding with a lead. 5. Swing the lead, to be idle when there is work to be done. 6. Put lead in one's pencil, (of a male) to increase sexual capacity. 7. Bullets; shot. 8. Black lead or graphite. 9. A small stick of it as used in pencils. 10. Also, leading. Prim. a thin strip of metal or brass, less than type high, for increasing the space between lines. 11. Frames of lead in which panes are fixed, as in windows of stained glass. 12. (pl.) Sheets or strips of lead used for covering roofs. 13. See red lead, white lead. -v. t. 14. To cover, line, weight, treat, or impregnate with lead or one of its compounds. 15. Prim. to insert lead between the lines of type. 16. To fix (window glass) in position with leads. -adj. 17.



Containing or made of lead. 18. Go down like a lead balloon, to fail dismally; fail to elicit the desired response. [ME lede, OE lead, c. D lood, G Lot plummet]. (Macquarie Dictionary 1982)

PLUMB, n, Ball of lead, esp. attached to mason's plumb-line (string for testing perpendicularity of wall etc) ... ad (fig) downright, sheer, as plumb nonsense
adv *(sl.) quite utterly, (plumb crazy, clean mad). [ME; f. OF plumb f. L plumbum lead] (Concise Oxford Dictionary 1964)

PLUMBAGO n. Black lead, graphite, a form of carbon used for pencils etc & mixed with clay for making crucibles; leadwort, plant with greyish-blue flowers. Hence plumbaginous a. [L, gen. -ginis, f. plumbum lead] (Concise Oxford Dictionary

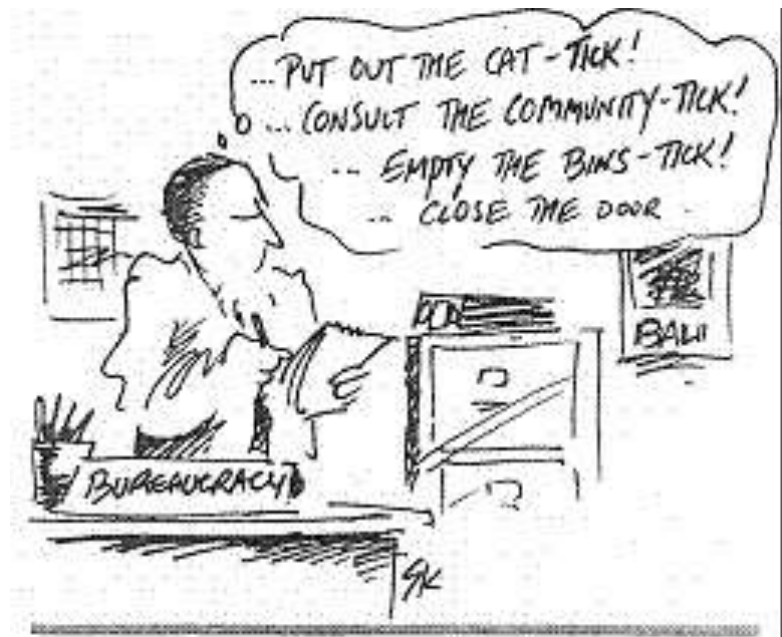


1964)



Q. The Elite Maintenance Service's carpet cleaning system is the only one we know of that actually removes all the lead particles from carpets, soft furnishings and drapery (under tests by the SA Department of Environment & Planning). Does anyone know of any other effective system?

Q. Does anyone know how the plumbago plant (also called leadwort) got its name? Is it just the blue-grey colour of the flowers - or was the plant once used to treat lead poisoning?



Letters

to the Community lead Information Centre



Should kids pump petrol? What's worse, the lead or the hydrocarbons?

I work as a safety consultant to industry in Queensland. I have been asked to find out if the filling of a motor car with petrol by a child can cause adverse health effects.

To the best of my knowledge you are the only organisation that studies lead contents in products.

Could you give me some advice on whether the practice of filling by children should continue, and the extent of health risks?

Michael Hampson

Reply 1.

To get to the meat of your request, the area of lead exposure from handling petrol is problematic. As you rightly point out, the main hazard would be from hydrocarbons. Organo-lead compounds are quite dilute in petrol and as they are not particularly volatile, I would imagine inhalation to be a minor problem. Indeed, I would be more worried about skin exposure, where the lead absorption would probably be assisted by the hydrocarbons it would be accompanied by.

Having said that, I recall talking to someone in the NT Health Service a couple of years ago, who told me that Aboriginal petrol sniffers can get extremely high blood lead values (sufficient

to cause encephalopathy, and in some cases fatal), so the picture is not clear. Interestingly, he also told me it was quite rare to get hospital cases of petrol sniffers from communities who sniffed unleaded petrol. Perhaps we should promote the safety of the sniffing of unleaded petrol.

Dr Chris Winder, Dept of Safety Science, University of NSW



Reply 2.

We are currently undertaking a major study in the Broken Hill mining community to determine the source of lead in humans using the Pb isotope fingerprinting method and speciation of minerals in dusts using SEM, XRD and chemical methods.

The dominant source of Pb in children is from mining activity but there are others, usually minor, which include Pb from air, food and water. The Pb contents of water are low (usually < 3 µg/L) and contribute insignificantly to body burden. Likewise, the Pb content of food is low, based on our estimates from Port Pirie and Adelaide; but we are currently measuring a 6-day duplicate diet from 5 families at Broken Hill to confirm this. The other source, air, can have contributions from the mine and also petrol. We have shown from the Pb isotope analyses of high volume filters in three locations

in Broken Hill that, at least in the central location, most of the Pb is from petrol.

Of relevance to your query is that we have shown at least one child (and probably 3 children), has blood Pb derived mainly from petrol. This child helps his father at the service station and Dad admits the child would easily be exposed to petrol fumes. The Pb reading of the child is about 20 µg/L. This is double the US Centres for Disease Control recommended level of concern for children; i.e. the level at which Pb is thought to have an impact on health, especially IQ.

Because of the potential health impacts and the fact that small children are more at risk because of their height with respect to the filler cap and the apparent increased density of fumes and deposition of Pb on the ground, petrol-filling by small children is not a practice to be encouraged.

Dr Brian Gulson, Chief Research Scientist, CSIRO Division of Exploration Geoscience,¹ & technical consultant to the LEAD Group.



Should my child be blood tested for lead?

I recently watched a story on the Midday Show about the dangers of lead poisoning in children under four years old.

I would like some more information on this. Specifically, how would I know if I need to get my child tested? Are there any specific symptoms to watch for? Our car has been letting in fumes for the past few months and this has made me concerned. My daughter is 2½.

I would also like to be more

aware of sources of lead in the environment.

Yvette Simpson

Reply

There are no noticeable symptoms of low-level lead poisoning. Lead is a widely dispersed neurotoxin present in household dust, soil, air, paint and to a lesser extent, in water and food.

Your child is at risk if they:

- are 9-48 months old and live in an urban environment affected by leaded petrol exhaust fallout; especially if they live or attend day-care near a busy road;
- are 9-48 months old and live, regularly visit, or attend day-care in a pre-1970 building with flaking, chalking or peeling paint;
- were present during home renovations, especially if it is a pre-1970 building (other occupants should also be tested);
- live in a pre-1970 home which was once renovated by sandblasting, dry sanding, heat gun or blow torch, or practices which dispersed accumulated dust, eg demolition of ceilings and removal of flooring, without meticulous clean-up before rehabilitation;
- have marked hand-to-mouth activity, eg constant thumb sucking, placing toys in mouth; OR have a tendency to eat non-food items, especially dirt and paint;



- live near other sources of air and soil lead contamination, eg

past and present lead industry, battery breaking yards, market gardens sprayed with lead arsenate, municipal incinerator, structures being continually stripped of lead-based industrial paint (like the Sydney Harbour Bridge) or cars being stripped of lead-based automotive paint, etc;

- live with a person whose work or hobby involves the use of lead, and who brings home lead on their shoes, clothing, kitbag, hair or skin, eg paint removalist or petrol bowser operator; maker of toy soldiers, fishing sinkers, leadlight and ceramics;
- have a diet low in iron or calcium or eat lots of fatty foods;
- are a foetus of a mother with previous high lead exposure. In this case, mother's blood is best tested in the 1st & 3rd trimester, and cord blood tested at birth.

What can a parent do?

1. The only way to know whether your young child or foetus is being affected by lead, is to have a whole blood lead estimate performed at a reputable pathology clinic, after referral by your GP. If your child is at high risk of poisoning, the doctor may also request iron studies to be carried out on the same blood sample.
2. Discuss the results with your doctor bearing in mind the action levels set by the Centers for Disease Control in the US:
 - a) Community prevention activities should be triggered by blood lead levels greater than or equal to 10 $\mu\text{g/dL}$ (0.48 $\mu\text{mol/L}$).
 - b) Medical evaluation and environmental investigation and remediation should be done for all children with lead levels at or above 20 $\mu\text{g/dL}$ (0.965 $\mu\text{mol/L}$).
 - c) All children with levels at or above 15 $\mu\text{g/dL}$ (0.72

$\mu\text{mol/L}$) should receive individual case management, including nutritional and educational interventions and more frequent screening.

d) Furthermore, depending on the availability of resources, environmental investigation (including a home inspection) and remediation should be done for children with blood lead levels of 15-19 $\mu\text{g/dL}$, if such levels persist.

(from CDC, Strategic Plan for the Prevention of Childhood Lead Poisoning, Oct 1991, p2. Copies available from Community Lead Information Centre.)

3. Act according to the blood lead result keeping in mind that the lower the average blood lead level is over the first few years of life, the lower will be the IQ loss and other effects due to lead.

4. Ask your local public health unit for a brochure on behavioural guidelines for reducing children's blood lead levels.

5. Ask your state Environment or Health Department for the name of a certified environmental assessor who can inspect your home and sample the vacuum dust, ceiling dust, soil and old paint if this becomes necessary.

6. Ask for the Department's guidelines for soil remediation, dust and paint removal.

7. Ask the Environment Dept what they are going to do to support your efforts to lower your child's blood lead level. Eg what is their timetable for the rapid phase-out of leaded petrol? How are they going to prevent your neighbours recontaminating your land by sandblasting leaded paint off their walls'?

Childhood lead poisoning in the 1950s living with the consequences

by Joy Jealous, Queensland

Having seen the LEAD Group on the Ray Martin Show, I decided to write and share my experience of having children who suffered from lead poisoning from old paint back in the '50s at Yeppoon, Queensland.

I was in flats in 1953 when my neighbour said to me one day, 'I had my 3 to the doctor and he said they have lead poisoning, so you should take yours and get them tested.' I had not ever heard of lead poisoning so ignored her advice, which I regretted about 15 months later when in the middle of the night my 2½ year old daughter Susan started crying in agony and passed almost pure blood urine.

Next morning I took her to the Doctor, who said it was only a kidney infection. Three days later she was in a coma, but thanks to God our family Doctor came back off holidays, did tests and started treatment. He said he did not know if he could save her as one kidney was so perforated it was not working at all and the other one nearly as bad, but it was working in short spasms. 3 months she was in hospital. Doctor also said to bring my other 3 children, Raymond, Bruce and Brenda, for tests.

Bruce had been ill off and on for ages, would seem good and within a few minutes would go blue in the face and have vomiting and diarrhoea, both ends going together, and would be ill for a couple of days. The turns were getting more frequent; he had gastroenteritis at about 18 months and the doctors until then thought it was a germ from that left in his stomach. He proved positive as did Raymond, who had swollen joints, aches and pains. All were tired and listless.

Brenda, who was a finger sucker, did not show up as lead poisoned in tests. But the Doctor said when she started periods at nine and suffered terribly (had to have injections every month when they started as she would pass out), that he suspected the lead didn't show up in the joint x-ray tests because hers had gone to developing organs.

Ray and Brenda were average learners but have done well. Ray is with the Fire Brigade and has become an officer. Brenda worked in shops and does dressmaking and part-time work in a Doctor's surgery. Both suffer leg, arm aches and pains in bones but do not miss work because of it, but wonder if it could be a carry-over from the poisoning.

Sue was extra bright at school, left after junior and worked in a chemist's until she married, had a baby at age 16. Doctors thought she may not live through it but under a gynaecologist came through with a lovely daughter. She had two more daughters but lost a male baby by miscarriage around 4 months. As well, she had meningitis in late '74 and about mid '80 developed a blood condition that required the removal of her spleen. She is perfectly (or seems to be) healthy except she is an asthmatic. She has worked as a Cashier/Bookkeeper in a travel agency for quite some years now after having done part of an accountancy course. She is 40 now.

Bruce had great learning difficulties and could not read a book properly when he left school at 14½. Doctor said his memory retaining had slowed right down. He sat every evening

after he came home 'from work on the farm and read comics, and each time he came to a word he didn't know I would help him break it into syllables and spell and repeat the word. It wasn't long before he started to progress to other books. At 19 he joined the railways and passed his fireman exams in his 20s, and by the time he was 30 was a train driver and is still. He has bad ulcers (stomach) and also suffers back pain, but he too rarely misses a day's work.

The doctor did not test me until last year when, after years of back pain and other problems, x-rays showed crushed vertebrae. I can't do much to what I've always been used to doing. I've been to a specialist and he says they can't do anything and I can only get worse. Still there are others so much worse off than me. But I wonder if I had lead poisoning too. The health inspector who tested said paint on the roof and building showed 95 % lead. It was burnt off and we raked it up and put it in our garbage bin.



My two boys had courses of tablets to seal the lead into the bones if! remember correctly.

I hope my story will help you in your research and hopefully a proper clean-up for following generations not to have to worry.

Treating lead poisoning - an alternative therapist's view

by Janine Flynn, herbalist

Since the pioneer article on the effects of lead poisoning appeared in *Lancet* in 1972, much has been written about ways of treating the problem. Alternative medicine has much to offer in the treatment of lead poisoning, both prophylactically and to reduce accumulations already in the body.

The Bulgarian scientist Vesselin Petkov published a paper in 1960, entitled 'Prophylaxis and therapy with garlic of lead poisoning in the industry.' He found that garlic can bring about detoxification in cases of chronic lead poisoning, and even has a significant effect in this regard if used prophylactically. His experiments showed that basic basophilic stippling in red blood vessels was significantly less when garlic was given, and that workers in lead works who took garlic regularly showed neither stippled cells in the blood nor uroporphyrin.

The great amount of active sulfuric compounds in garlic inspired Petkov to examine it as a remedy in the prophylaxis and therapy of chronic lead poisoning. His first experiments with guinea pigs and rats showed garlic had significant results in reducing the toxic effects resulting from repeated application of lead acetate. Armed with this preliminary experimental data, Petkov began to examine the effect of a garlic preparation on a large group of workers endangered by chronic lead poisoning or with evidence of presaturnism.

Clinical-pharmacological tests, lasting from one to three months, showed that under the effect of a garlic preparation, the number of workers presaturnism (punctured erythrocytes and porphyrin in the urine) decreased by 83 %.

Furthermore, the amount of porphyrin still remaining in the urine of some of the workers treated with the garlic preparation was much decreased. In workers with evidence for presaturnism, the garlic preparation caused a statistically significant increase in the number of erythrocytes and in the amount of haemoglobin.

The favourable effect of garlic on chronic lead poisoning might be explained by the fact that a part of the lead powder in the gastrointestinal tract reacts with the active sulfur components in garlic, and is then excreted by the faeces in the form of insoluble sulfides without being resorbed. The evacuation of a part of garlic polysulfides with respiratory air may also restrict



the resorption of fine lead powder in the respiratory tract, transforming it partially into insoluble and so unresorbable lead sulfides. The chemical interaction between the resorbed sulfide compounds in garlic and the resorbed lead is likely to play a certain role in the antitoxic effect of garlic.

(Children who will not eat garlic in cooking or salads can take low dosage garlic pills or garlic pearls on a daily basis. Garlic is quite safe but can be too strong for some stomachs. The one rule is never to take the

odourless garlic, as the valuable constituents are in the oils.)

As well as garlic, calcium has also been found effective in preventing the accumulation of lead in body tissues. This mechanism has been investigated by several university research teams. K.M. Six and R.A. Goyer found that reducing dietary calcium in rats greatly enhanced the body burden of lead, evidenced by increased levels in blood, bone and soft tissues.

C. Snowdon found that in calcium-deficient rats given water containing lead, lead replaced the lacking calcium in bones and teeth. Studies on rats (by L.G. Lederer and F.C. Bing) and on pigs (by F.Hsu and colleagues at Cornell University) indicate that adequate dietary calcium prevents re-accumulation of lead in body tissues by reducing absorption of ingested lead from the intestinal tract. Such evidence supports the view that calcium protects both water and body tissues from lead contamination.

The philosophy of homoeopathy states that 'like cures like'. Accordingly, the homoeopathic treatment for lead poisoning is *Plumbum metallicum* which is a homoeopathic form of lead. In any therapy dealing with heavy metal poisoning, alternative medicine concentrates on treating the liver, since it is the main organ of detoxification in the body. So herbs such as *St Mary's Thistle* and *Dandelion* play a significant role in managing lead poisoning.

Finally, the herb *Red Clover*, a traditional blood-cleansing herb, is reported to enable the body to eliminate heavy metals.

Lead: it's everywhere

Partial listing of the sources of lead contamination in soil, dust, sediment, water, air and living creatures by use:

Paint



Paint on old interior or exterior walls, floors, ceilings, boats, old furniture, toys, playground equipment, pencils, and on modern steel structures such as bridges and tanks, vehicles, farm machinery, whitegoods, etc. Lead compounds in paint include:

- white lead (lead carbonate) as the prime white pigment
- lead compounds as anti-corrosive pigments:
 - red lead (60% lead in dry film)
 - universal pink primer (red lead + whitelead)
 - orange lead
- lead compounds as coloured pigments:
 - lead chromate pigment (yellow): 56 % lead
 - lemon chrome pigment (lead chromate + lead sulphate)
 - scarlet chrome pigment (lead chromate + lead molybdate)
 - orange chrome pigment
 - metallic lead pigment
- lead compounds as driers:
 - litharge paint drier
 - lead naphthenate paint drier

Transport applications

- octane enhancer for automotive fuels
- valve lubricant for pre-1986 automotive valves
- lead-acid batteries for generators and automotive use



- train brakes
- aviation fuel for spark ignition engines
- cable sheathing on marine vessel

Building materials

- sheet lead flashings
- dampcourses
- old gas and water pipes
- lead solder for plumbing
- lead in bronze or brass alloys for plumbing valves or fixtures
- cable sheathing for telephone and power cables
- red lead as a sealant on the back of old lino
- sound insulation
- wrought iron
- leadlight
- putty
- caulking
- lead compounds as pigments, catalysts, lubricants and heat stabilisers in plastic resins, eg PVC piping
- pipe fitting and collapsible tubing
- earthquake dampening materials



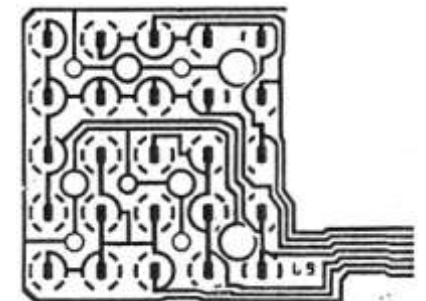
Other uses

- lead arsenate (previously used as an agricultural insecticide)
- some foil tops covering the corks of wine bottles
- canned food seals (excluding baby food)
- lead crystal
- old jewellery
- dry cleaning
- old crockery
- old cutlery
- old metal toothpaste tubes
- lead glazed pottery
- sheet lead for radiation shielding

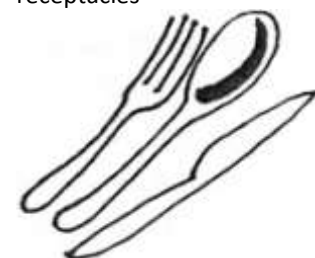
- Lead oxide in glass making and leaded glass for radiation shielding such as in TV tubes
- fresh fruit and vegetables (natural lead levels are especially high in spinach and silver beet)
- light bulbs



- fishing sinkers
- ammunition
- lead shot
- jockeys' and divers' weights
- lead solder in circuit boards in electronic goods



- electronic capacitors and superconductors as a component of concrete typesetting
- packaging inks and some coloured inks in newspapers
- asphalt
- lead for lining tanks and process vessels
- nuclear waste containment receptacles



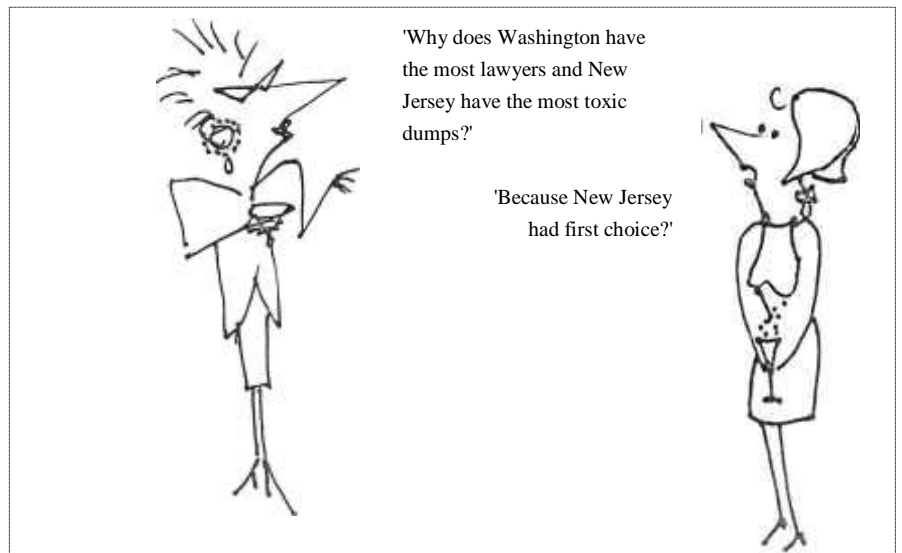
How lead poisoning occurs

Partial listing of the sources of lead contamination in soil, dust, sediment, water, air and living creatures, by pathway

- Lead can be inhaled, ingested or absorbed through the skin.
- The main pathway for young children is from leaded petrol fallout, paint and other sources, via ingestion of dust and soil due to normal hand-to-mouth activity.
- Lead from paint contaminates as chalking or flaking and as paint dust, ash, fumes or flakes when leaded paint is removed by dry sanding, heat gun, blowtorch or scraping respectively. Paint removal from -bridges, tunnels and elevated roadways has high potential for ecosystem contamination, while automotive paint removal may also affect young children living near former automotive workshop sites.
- Industrial wastes, effluent from lead mining, smelting and refining and manufacturing industries, as well as atmospheric fallout and dumped sewage sludge, all contaminate aquatic ecosystems and surrounding land.
- Demineralisation of the bone, eg during pregnancy and in old age, brings bone lead stores back into blood circulation to wreak more damage in soft tissues. The foetus is then poisoned via the placenta.
- Lead building materials, toys, jewellery, ammunition discarded in the environment are available for small creatures to eat. Fishing weights and lead shot are major sediment contaminants available to waterfowl.
- Human food sources of lead include eggs, fruit and vegetables grown near traffic, or smelting or mining activity, some fish and prawns, whole grain products grown with lead-contaminated superphosphate, ham, lead-

- soldered tinned acidic foods and beverages including cow's milk, infant formula and breast milk.
- Lead dust on skin, hair, shoes, clothes, kitbags and cars of lead workers.
- Pottery kiln emissions.
- Crematorium emissions.
- Petrol exhaust emission fallout is a major contributor to lead contaminated dust in ceilings and other building cavities which is released into the environment during renovation or fires.
- Household dust containing lead is re-entrained for inhalation, by vacuuming, sweeping or dusting. Renovation and other activities contaminate houses, especially carpets and soft furnishings, where it is available to young children.
- Incinerator emissions and ash when lead-containing products are burnt instead of being recycled, eg lead flashings, lead acid batteries, painted wood, etc; or when it is not economical to retrieve the lead from the product, eg lead-soldered electronic goods, packaging inks, light bulbs, leaded paint waste.
- Burning of wood and coal and other fossil fuels.

- Volcanic eruptions.
- Car battery recycling, if poorly regulated, may involve tipping lead-laden acid onto the ground.
- Burning or indiscriminate dumping of sump oil.
- Seepage of leachates into water table from poorly managed municipal or toxic waste landfill site.
- Lead in air or dust which is washed down, and lead leached by rain from lead flashings and deposited in gardens if pipes or gutters are damaged or contaminating waterways via street run-off.
- Lead is a contaminant in cigarette smoke (due to the use of lead arsenate as an insecticide) and children inhale smoke or chew cigarette butts.
- Domestic animals may be lead poisoned in a variety of ways, eg young dogs may chew old red lead-backed lino, cats ingest lead dust during grooming and horses and cows lick wrought iron or lead paint on metal machinery.
- Lead-contaminated sewage sludge used on agricultural land may contaminate the food chain.



VOLUNTEERS WANTED!

Pregnancy, lead and bone mobilisation study

To understand more about lead in pregnancy, an Australian-US team is asking for help from immigrant females, especially those who intend to have children in Australia. They are using a method which enables them to determine the source of the lead - a lead isotope 'fingerprinting' method (this is not a radioactive method). They want to see if most of the lead in blood has come out of the women's bones, or from environmental sources such as air, food or water.

The researchers have found the lead isotope profiles in the southern Australian population (mainly females) are relatively uni-form but quite different from those in most other countries of the world. As lead in the body appears to change in its 'fingerprint' when a person moves from one environment to another (eg from Europe or Southeast Asia to Australia), they wish to monitor mothers-to-be from other countries - especially Poland, Romania, Russia, Czechoslovakia and Lebanon.

To minimise variables such as differences in the source of lead in food, air and water, they wish to enlist females from one or two countries, or even better, from the one region in each of those countries. Their results will be compared with Australian-born females whose parents originally came from the same countries.

To understand more about bone mobilisation during pregnancy, the team will be making measurements

of bone density and other tests.

By participating in this study you will assist in understanding more about bone mobilisation and lead during pregnancy. This information will help not only in producing healthier children but also in lessening potential health problems for mothers during childbirth.

Reasons for the study

During pregnancy, the bones of the mother can be dissolved (mobilised) to assist in the development of her child. Under some rare circumstances, the mobilisation of bone can result in spinal weakness (degradation).

Lead is mainly stored in bones, and with mobilisation of bone during pregnancy, the lead is thought to be released from the skeleton and transferred across the placenta to the foetus. Lead has no useful function in the body and can result in diminished intellectual development and behavioural problems in children, even at low levels of exposure.

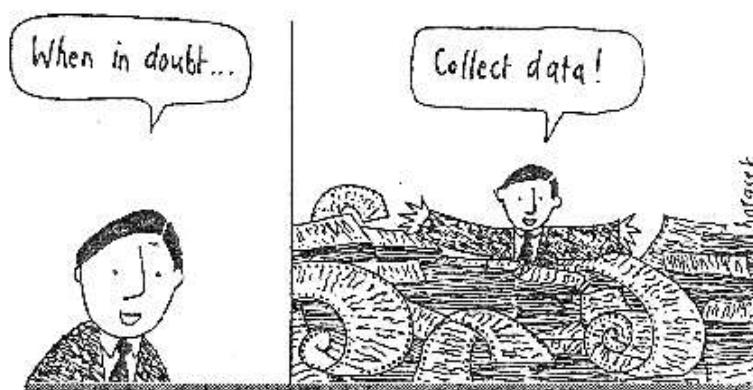
The mechanisms of bone mobilisation and the timing and amount of lead released from the skeleton are

poorly known. It is very important to know more about bone mobilisation and lead, especially for women of child-bearing age and for those who may have been exposed to high levels of lead in their workplace and their home environment.

Pb isotope fingerprinting in environmental and health studies

The lead isotope fingerprinting method was developed by Dr Brian Gulson and his team at the CSIRO for application in the minerals industry. The same fingerprinting approach is an extremely powerful and sensitive method for determining the source of lead (and associated metals such as zinc) in the environment and in animals.

Besides a major study to determine the source of lead in humans in the Broken Hill mining community (funded by CSIRO and the NSW Government), Dr Gulson is heading the project on lead and bone mobilisation during pregnancy, titled 'Biokinetics of Lead in Human Pregnancy'. The Biokinetics project is funded dominantly by the US National Institute of Environmental Health Sciences.



Lead has four isotopes - 208, 207, 206 and 204 - which vary in abundance depending on their geological and or industrial source. The abundances ('fingerprint', signatures or profiles) are generally expressed in terms of ratios such as $^{206}\text{Pb}/^{204}\text{Pb}$; a $^{206}\text{Pb}/^{204}\text{Pb}$ value of 16.0 found, for example in the Broken Hill mines, means that the abundance of ^{206}Pb is 16 times that of ^{204}Pb .

The lead isotope fingerprinting method makes use of the fact that the abundance of the isotopes of Pb from one geological source is different to that of another geological source.

For example, the Pb from the Broken Hill lead-zinc-silver ores has a totally different profile (a $^{206}\text{Pb}/^{204}\text{Pb}$ of 16.0) to that of Pb, from say, the Rosebery ores on the west coast of Tasmania ($^{206}\text{Pb}/^{204}\text{Pb}$ of 18.3). The profiles or abundances of the Pb ores are also usually quite different from those of Pb in the common rocks which surround the mineral deposits.

In using the fingerprinting method for determining the source of Pb in people, the researchers compare the Pb isotope profiles in the blood and/or urine (but can also use nails and teeth) with those found in the potential environmental sources such as air, food, water and dust.

In simple terms, the closer the similarity in isotope profiles between that in blood and environmental source or sources indicates that the environmental source may be a significant contributor to the Pb in blood.

Obtaining Pb isotope profiles requires exacting and sophisticated analytical procedures. Because of the very low amounts of Pb in most samples (in the parts per billion range), Pb is separated from the materials in 'clean' laboratories and the isotope abundances or profiles are measured (as ratios) using a thermal ionisation mass spectrometer.

... More volunteers wanted (children)

Five volunteers under 7 years of age are needed to help measure the before and after effects of a product that removes lead and heavy metals from the bloodstream.

This product is a very safe and well known detoxifier called Sun Chlorella. It is widely used and recommended by leading naturopaths. Sun Chlorella is Japan's favourite health food supplement and extensive research around the world on this product has shown it to be effective in cleaning the blood and removing heavy metals like lead, mercury and cadmium.

Volunteers who are interested will be given several books describing the product and

the Chlorella research conducted in hospitals and laboratories around the world. It is completely safe and 100 % natural. The product is in tablet form and samples will be given free of charge. In order to measure its effectiveness, the subject will need a before and after blood test. The product will need to be taken over a 21 day test period.

The Telegraph Mirror are keen to report on the results to a wider group of people interested in lead poisoning in children. This test will be newsworthy and will draw more media attention to our cause as well as being of great interest to other parents in the group.

Please contact Elizabeth O'Brien if you are interested. Phone 02 550 0095.



Literature: extract from THE LEMON TREE

by Rae Desmond Jones.

'The skimp dumps over there.' He indicated with a finger the direction of the black mountains of waste that ran through the centre of the town and dominated the skyline. 'They set hard a couple of years ago, so we stopped getting that black dust on everything with the wind. Now the unions are weak. The companies been moving in trucks and hauling it away. You remember how big they was?' John stared. The dumps did look altered.

'The old ones they're taking away. But if you look over the side, they're building a new one.' There was another mountain, rising almost as high as the first. New gunmetal-coloured sand, glittering and dull.

'The dust is worse now than it was in the old days. The lead gets into the tank water.'

'Lead?'

'Mrs Keenan down the road, the old woman although she wasn't that old then if you remembered her, she kept on blowing the fuse in her electric jug. Every month or two she had to get a new fuse. Once she had enough of that so she brought in an electrician to look at it. He looked at it and said, "You're using rainwater eh." "How did you know?" She asked. "It's the best water. Come out of the sky, got nothing in it, no problems." "Problem is the dumps," says the electrician. 'Ts not supposed to say it because nobody's proved it yet and the mining companies, they all say it can't happen. Healthy enough so babies can live on it, they don't need mother's milk, they reckon. But take it from me Missus since those dumps been shifted and those trucks been working, anybody who uses rainwater in

their electric jug gets trouble." "How does that work?" asks the old woman. So he holds up the



core, where it's all corroded. "See that," He says, "if you take that down and get it analysed I'd take a bet they'd say it's lead." "They can't do that, lead's poison," she says. "Don't get angry with me, I didn't put it there," the electrician reckons. Mrs Keenan, she went up and down the street telling everyone, but they don't care. All scared of losing their jobs. For me, it don't

they got everything on time payment. They can't afford it. When she come up to me she looked real shitty, "They can't do that, it's not legal." She waves this piece of paper at me. "They're doin' it though, and there's not much you can do about it." She always was a bit funny, Used the tank water because she doesn't like fluoride only now the tap water is healthier.'

While the old man was speaking John ran his eye along the top of the dump. Trucks moving slowly along the top of the skimps, and dust.

(pages 355-357)

Rae Desmond Jones was born in Broken Hill in 1941, and left there in his mid teens. The Lemon Tree is his first novel, after 3 books of poems and one of short stories. He has been involved with a number of urban environmental issues.

Significant Speeches

— the best current thinking on the environment

Journal CONTRIBUTIONS sought

Significant Speeches has a wide reading audience, interested in the best current thinking on the environment. The response is restricted to a wide range of federal, state and local government departments, business, economic and professional institutions, business, community organisations and the general public.

As a matter of common policy, we do not "commission" essays in these terms to include the full range of agencies that make up the Australian environment in the 1990s.

The criteria for inclusion are the authority of the author and the level of the material. Each contribution will be assessed on its merits. If accepted, speeches will be included without restriction. Although the publisher reserves the right to provide a local introduction and to condense speeches for reasons of length, we request contributors to find copy on, also on computer disk. We seek a 1000 x 600 (8.5 inch) in Microsoft Word - preferably on a suitable floppy disk.

As you may know, Significant Speeches was officially launched on Friday 11 December 1989 by the Premier of Tasmania, and the response has been very encouraging. We look forward to your response.

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matter, I retire in two years. But

Keeping the outside out

by Elizabeth O'Brien

My baby's got lead poisoning just from living in the city. With a mop in one hand and a sponge in the other, I wander around saying 'The floor is never clean, just remember that.' How could they forget - I tell them every day. 'Even when it's just been washed the floor is never clean.'

Early on I struck upon it shoes at the door, it had to be the answer. One day I caught the big kids inside with their shoes on. 'But we climbed through the window,' they said. Nobody mentioned taking: shoes off at the window - how were we to know?' 'Alright, alright, I said, 'but did you have to try to pass the baby through the window?'

Life was hard back then - there was always a new fad they had to contend with. First it was the lead factory. 'Don't breathe when you're near it,' I instructed them. 'That's a bit difficult considering it's across the road from the school, mum.' So we educated each other.

'The baby will have to have a new room,' I declared. 'There are cracks in the ceiling in the old bedroom and we can't have all that lead-laden ceiling dust falling on us in our sleep, can we?'

Then it was the paint on the buildings on the way to school. 'Don't touch that wall, don't put your hand in your mouth', I had to tell them. 'Has everything got lead in it?' they wondered, when they got home. 'Practically.'

'It's because of the dust. The stuff just keeps falling out of the sky - don't climb up on that windowsill - it's filthy, it hasn't been sponged down for at least an hour.' 'But mum,' the big kids said, 'don't you think the baby's been stuck in the window long enough?'

Next it was the car. Aside from not breathing when crossing busy roads and putting up all the car windows to avoid the lead in the petrol fumes at the service station, we haven't changed our inhalation habits much at all.

'We should use the car less,' I lectured. 'It'll only take an hour to walk to your music class.' 'No, mum - let's just try putting unleaded petrol in the car.' I had to admit they had a point there.

'Ping ping ping' went the car. 'That's only a matter of tuning for unleaded petrol,' said the man from the motoring authority. 'But I've just paid \$108 for the car's annual check-up,' I said. 'Ah, but you didn't go to one of our approved repairers, did you? It'll only be another \$46.'

It may have sounded cheap to him but when I added it to the cost of trialling every mop on the market even though no-one would give me a trade-in on the now useless broom, running a Med-

Line search on the latest grisly research findings on the effects of lead on children, buying ten new floor mats, removing all the carpets in the house and putting down patterned cork tiles called 'Land, Sea and Wind' from Portugal - it came to a grand total of \$10,000. 'You could have moved house for that,' he chided, 'Sounds like you should have some of our personal indemnity insurance for when someone slips on a floor mat, falls on their head and suffers permanent brain damage.' I hung up.

'Yeah mum', the kids said, 'We could have bought some real land, sea and wind at Helensburgh and been outside the Sydney and Wollongong lead bubbles.'

'Instead we get,' they chorused in unison: ""Wash your hands and feet!"



"Clean under your nails!"
 "Don't put the baby down on the floor! "
 "Don't play with the floor mats!"
 "Keep your feet off the furniture!"
 "Finish your milk or you'll be calcium deficient and absorb more lead!"
 "Mind the wet floor!"
 "Don't crawl under the bed, the baby will follow you and I haven't mopped there for three days. ""
 (Don't you hate it when they chorus in unison?)

I threatened to discontinue their music lessons so they tried a new tack. They told me to take pity on the fishes in the sea and stop washing all that lead dust down the gutter. I tried to explain that every mother's instinct is to protect her own baby first but they lectured, 'The earth's not flat mum, you can't just push your pollution off the edge -fishes have babies too.'

'Mum,' they went on, 'you'll lose all your marbles if you keep mucking around with mops. Why don't you just go and get the lead out of petrol?'

So I am.

The Lead Group's Technical Advisory Board

- Prof Geoffrey Duggin, clinical toxicologist
- Dr Brian Gulson, isotopic fingerprinting
- Dr Chris Winder, toxicologist, occupational health & safety
- Dr Garth Alperstein, community paediatrician
- Assoc Prof Peter Newman, science/technology policy, urban planning
- Dr Ian Irvine, pollution research
- Dr Louis du Plessis, environmentalist, incinerator and landfill specialist
- Dr Chloe Mason, public health, environmental protection & public interest
- Dr Val Brown, environment, consumers
- Dr Jill Maddison, veterinary research
- Graeme Waller, pathology, environmental assessment
- Shirley Gibson, lead lighter
- Fred Salome, industrial chemist, paint
- Peter Caldwell, automotive engineer

Aims & Objectives of the LEAD Group



Aims:

- to eliminate childhood and foetal lead poisoning within one decade, starting now (tick. tick. tick....)
- to reduce the exposure to lead of all organisms by reducing a) future lead pollution such as from industry and lead in petrol; b) the effects of past lead uses such as in paint; c) the effects of current lead contamination.

Objectives:

- 1.0. to convince the National Health and Medical Research Council (NHMRC) to change, at the June 1993 meeting, from recommending a blood lead 'level of concern' of 25 µg/dL (micrograms per decilitre) to recommending blood lead standards in line with the US Centers for Disease Control's intervention levels 10 µg/dL to spark community prevention activities, and 15 µg/dL as the intervention level for individual children.
- 2.0. to convince employers in lead and lead-related industries, and government agencies dealing with them, to foster responsible employment practices in accord with the principles of ecologically sustainable development and the rights of all workers, their children and future children to protection from the health hazards of the working environment.
- 3.0. to raise awareness among parents and health care providers, and/or to bring about legislative and policy changes, in order to achieve targeted- blood lead screening of all 'at risk' 12-48month-old children by the end of 1994. Knowing a child's

blood lead level provides the motivation for lowering it.

4.0. to raise awareness within the community and the various environment protection agencies, and/ or to bring about legislative, policy and behavioural changes in order to achieve 3-monthly average air lead levels on major roadways and adjacent to stationary point sources of lead emissions, below 1.0 ug/m³ by 1995 and below 0.5 ug/m³ by 2000.

5.0. to convince environment protection agencies:

5.1. to lower the maximum allowable lead content of leaded petrol to 0.3 g/L immediately, in line with the 1983 Victorian standard and to 0.15 g/L in line with Europe, by June 1993;

5.2. to organise the public education campaign required to achieve parts a), b) and c) of the second aim above, by for instance, informing motorists who unnecessarily use leaded petrol, why they should convert to unleaded petrol or other fuels, informing employees in all lead related industry how to prevent lead poisoning in their children.

5.3. to train and provide as a service to householders and proprietors of premises frequented by young children, environmental health officers to perform environmental sampling and/or interpretation of the results in order to list what steps should be taken to reduce the risks of lead exposure for children at that property;

5.4. to facilitate the assessment of the efficacy of products and processes which claim or are perceived to aid in lead hazard abatement;

5.5. to oversee the training of lead abatement workers and inspectors;

5.6 to ban or otherwise

eradicate the use of unsafe lead paint removal practices and other practices which may increase lead hazards (eg indiscriminate dumping of sump oil from leaded petrol cars);

5.7. to limit new uses of lead and facilitate research into replacements for current uses;

5.8. to maintain a register of lead-contaminated domestic and childcare properties as well as parks, and ensure that contaminated sites have their lead risks abated before sale of the property;

5.9. to map the information contained in such a register, as well as all other available information on past and present land use (eg the locations of premises licensed to emit lead) for use in directing resources for testing for other contaminated sites and for blood lead screening of preschoolers;

5.10. to oversee the purchase and hire to the public of lead testing and abatement equipment.

5.11. to fund a Lead Information Centre and advisory service for parents in the Central and Southern Sydney Area Health Service, operated by the LEAD

Group.

6.0. to convince health agencies:

6.1 to train paediatric health care providers to ask parents at each visit about any changes in their child's behaviour or circumstances which may increase the child's lead poisoning risk (eg child has started to crawl, or was present during removal of carpet) and by informing parents of the appropriate nutritional, hygiene, housekeeping, gardening and renovating measures required to reduce the risks of lead poisoning;

6.2 to achieve the goal of universal blood lead screening of all 6-72-month-old children by the year 1995;

6.3 to produce educational material which supports the above objectives, for dissemination by doctors (through liaison with continuing education authorities, curriculum development units, doctors' organisations and media aimed at doctors), early childhood centres, day-care centres, playgroups, Nursing Mother's Association groups, antenatal classes, local councils (similarly through organisations which have input into these groups such as the Australian Institute of

Environmental Health, Australian Community Health Association, Kindergarten Union Children's Services, local government etc, and through the media aimed at these groups).

6.4 to investigate other sources of lead exposure with a view to legislating against them or otherwise lessening their effects. For example, to investigate the level of lead in packaging and its contribution to heavy metal fallout around municipal incinerators.

7.0 to convince health and environment protection agencies to cooperate:

7.1 to set up lead task forces which steer lead poisoning prevention activities and further research, with the involvement of community groups and;

7.2 to set up and operate community lead centres to carry out the relevant above objectives.

7.3 to form a strategy to achieve the elimination of childhood and foetal lead poisoning within one decade.



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