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Technical Advisory Board**

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*isotopic fingerprinting*
- **Dr Garth Alperstein**  
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- **Assoc Prof Peter Newman**  
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*public health and environmental  
investigation*
- **Dr. Mariann Lloyd-Smith**  
*international toxics campaigning*
- **Carol Bodle**  
*lead assessment and  
occupational hygiene*



**The Lead Education and Abatement Design Group**  
Working to eliminate lead poisoning globally and to protect the  
environment from lead in all its uses: past, current and new uses  
ABN 25 819 463 114

## President's Annual Report FY2016

*Compiled by Elizabeth O'Brien, LEAD Group Co-Founder,  
for Professor Mark Taylor, LEAD Group President*

What does The LEAD Group have to be proud of this 2016 Financial Year?

- A grant of \$25,000 from the NSW Environment Protection Authority (EPA)
- Influence via lots of LEAD Group Kits sold, web hits, information distributed and advice given, as well as four editions of *LEAD Action News* online at [www.leadsafeworld.com](http://www.leadsafeworld.com) and [www.lead.org.au](http://www.lead.org.au)
- Our biggest Volcano Art Prize to date, and the largest attendance at the Award Ceremony – held during International Lead Poisoning Prevention Week of Action (23<sup>rd</sup>-29<sup>th</sup> October, 2016) and listed on the World Health Organisation's website, as well as an article notifying the academic community of the WHO Lead Week of Action at <http://www.mq.edu.au/thisweek/2016/10/17/high-income-nation-still-risk-lead-exposure/#.WA1OTKOr0Y3> (see photo)
- media events and journal publications of Professor Taylor and his Macquarie University students

**Dread the lead: The poison risk still facing our communities**



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The LEAD Group Inc. PO Box 161 Summer Hill NSW Australia 2130

Phone: +61 2 9716 0014 Email: [www.lead.org.au/cu.html](http://www.lead.org.au/cu.html)

Web: [www.lead.org.au](http://www.lead.org.au); [www.leadsafeworld.com](http://www.leadsafeworld.com); [www.volcanoartprize.com](http://www.volcanoartprize.com)

*PHOTO caption: Professor Mark Taylor recently visited Indonesia with Bret Ericson of [Pure Earth](#) to test lead contamination levels in vulnerable communities. Despite it being one of Australia's closest neighbours, the situation is markedly worse there. Jakarta is home to some 1,000 informal used lead acid battery recycling plants that cause significant human and environmental lead contamination.*

Due to the work of LEAD Group Vice-President Michelle Calvert-Kilburn reviewing the 1990's Lead Safe series of publication in consultation with all relevant stakeholders, the NSW Environment Protection Authority (EPA) has in May 2016 published the following series of fact sheets at [www.epa.nsw.gov.au/lead](http://www.epa.nsw.gov.au/lead)

NSW EPA distributed 70,000 copies from the first print run to hardware stores and childcare centres in NSW. They promise to list our freecall number correctly as 1800 626 086 in the second edition of the fact sheet series!

The NSW EPA lead fact sheet series 2016:

- Fact Sheet: Lead, your health and the environment - <http://www.epa.nsw.gov.au/resources/pesticides/lead-health-environment-fact-sheet-150719.pdf>
- Fact Sheet: Lead safety at home - <http://www.epa.nsw.gov.au/resources/pesticides/lead-safety-home-fact-sheet-160085.pdf>
- Fact Sheet: Old lead paint - <http://www.epa.nsw.gov.au/resources/pesticides/lead-old-paint-fact-sheet-150700.pdf>
- Fact Sheet: Lead and home renovations - <http://www.epa.nsw.gov.au/resources/pesticides/lead-renovations-fact-sheet-150716.pdf>
- Fact Sheet: Lead in ceiling dust - <http://www.epa.nsw.gov.au/resources/pesticides/lead-ceiling-dust-fact-sheet-160087.pdf>
- Fact Sheet: Working safely with lead - <http://www.epa.nsw.gov.au/resources/pesticides/lead-workplace-fact-sheet-160086.pdf>
- Fact Sheet: Lead hazard management in children's services - <http://www.epa.nsw.gov.au/resources/pesticides/lead-childcare-fact-sheet-160209.pdf>

During FY 2016 The LEAD Group did not gain any Australian Federal government funding which provided for one full time waged staff member (Elizabeth O'Brien) and two part time waged staff members to run the Global Lead Advice and Support Service (GLASS) in FY2013.

Professor Taylor has been a world-class media star raising awareness of lead poisoning and lead contamination in Australia and beyond.

## **Professor Mark Taylor – Publications & Media Hits**

According to <http://web.science.mq.edu.au/directory/listing/person.htm?id=mataylor> "Mark Taylor is a Professor of Environmental Science at Macquarie University. His research program investigates environmental pollution and risks to human health from aerosols, dusts, sediments, soil and water. He works in a range of locations across Australia, including Broken Hill, Darwin, Mount Isa, Port Pirie and Townsville."

Professor Mark Taylor is also the President of The LEAD Group's Committee and a Member of the Technical Advisory Board of The LEAD Group [ <http://www.lead.org.au/lk.html> ]. He's The LEAD Group's media star and we've put together a list below of just a fraction of the media hits he's garnered and his journal publications in the 2016 Financial Year or thereabouts.

## Publications and Presentations extracted from Mark Taylor's Macquarie University webpage

<http://web.science.mq.edu.au/directory/listing/person.htm?id=mataylor>

### Recent research stories and videos:

[Eliminating Toxic Exposures in Australian Communities](#)

[New recommendations for Australian blood lead levels](#)

[Australian towns where the tap water's toxic - ABC 730](#)

### Recent Conference Presentations

Keynote talk - [Goldschmidt 2016](#) (June) conference, Yokohama, Japan.

An odyssey of environmental pollution: the rise, fall and remobilization of industrial lead in Australia - [American Geophysical Union](#), Dec 2015.

Atmospheric lead emissions: association with poor educational outcomes and aggressive crime - Contemporary and Future Crime Trends Conference, University of Sydney, 5th November, 2015.

Atmospheric pollutants: unnatural sources and impacts on human health. Keynote talk, Gordon Research Conference, Atmospheric Chemistry, Waterville Valley, NH, USA, August 2nd-7th, 2015.

Evaluation and Assessment of the Efficacy of an Abatement Strategy in a Former Lead Smelter Community - International Conference of the Society for Environmental Geochemistry and Health, Texas, United States: [Urban Soils and Metal Contamination: Issues — Remedies](#).

Unravelling the 'miners myth' that environmental contamination in mining towns is naturally occurring - International Conference of the Society for Environmental Geochemistry and Health, Texas, United States: [Urban Soils and Metal Contamination: Issues — Remedies](#).

### VEGESAFE

For people interested in our community orientated VegeSafe soil metal analysis program please click [here](#).

### ONLINE articles

[Click here for \*The Conversation\* articles by myself and colleagues on environmental pollution and human health](#)

### RECENT JOURNAL PUBLICATIONS

#### 2016

- Kristensen, L.J., **Taylor, M.P.**, Evans, A.J. 2016. Tracing changes in atmospheric sources of lead contamination using lead isotopic compositions in red wine. *Chemosphere*. DOI: 10.1016/j.chemosphere.2016.03.023.
- [also in press but submitted June 2016: Reply to Gulson's comments on: 'Tracing changes in atmospheric sources of lead contamination using lead isotopic compositions in red wine.' *Chemosphere* 2016]
- Kristensen, L.J., **Taylor, M.P.** 2016. Unravelling a 'miner's myth' that environmental contamination in mining towns is naturally occurring. *Environmental Geochemistry and Health*. DOI: 10.1007/s10653-016-9804-6.
- Rouillon, M., **Taylor, M.P.** 2016. Can field portable X-ray fluorescence (pXRF) produce high quality data for application in environmental contamination research? *Environmental Pollution*. <http://dx.doi.org/10.1016/j.envpol.2016.03.055>.

- **Taylor, M.P.**, Forbes, M., Opeskin, B., Parr, N., Lanphear, B.P. 2016. The relationship between atmospheric lead emissions and aggressive crime: an ecological study. *Environmental Health*. 15:23, DOI: 10.1186/s12940-016-0122-3.
- **Wu, L., Taylor, M.P., Handley, H., Gulson, B.L.** (accepted 10 May 2016). Insights into past atmospheric lead emissions using lead concentrations and isotope compositions in historic lichens and fungi (1852-2008) from central and southern Victoria, Australia. *Atmospheric Environment*.

## 2015

- Dong, C., Taylor, M.P., Kristensen, L.J. Zahran, S. 2015. Environmental contamination in an Australian mining community and potential influences on early childhood health and behavioural outcomes. *Environmental Pollution*, 207, 345-356.
- Forbes, M. and Taylor, M.P. 2015. A Review of Leadership on Environmental Lead Exposure and Management in Queensland. *Reviews on Environmental Health*, 30 (3), 183–189
- Hart, B.T., Taylor, M., Iles, M. Kyle, G. and Sinclair, G. 2015. Resolving long-term issues related to surface water management and monitoring associated with the Ranger Uranium Mine, Northern Territory, Australia. *Australasian Journal of Environmental Management*. DOI: 10.1080/14486563.2015.1028487.
- Harvey, P.J., Taylor, M.P., Grant-Vest, S., Kristensen, L.J., Rouillon, M., Wu, L., Handley, H.K. 2015. Evaluation and Assessment of the efficacy of an abatement strategy in a former lead smelter community, Boolaroo, Australia. *Environmental Geochemistry and Health*. DOI: 10.1007/s10653-015-9779-8.
- Harvey, P.J., Taylor, M.P., Handley, H. 2015. Identification of the sources of metal (lead) contamination in drinking waters using lead isotopic compositions. *Environmental Science and Pollution Research*. 22(16), 12276-12288.

## Annotated list of assorted Mark Taylor media hits, social media and Macquarie University publications

**1 Jul 2015:** Paul Harvey (Mark Taylor's PhD student) from the Department of Earth and Planetary Sciences was featured in an article in the *Narrabri Courier* about his research tour of regional NSW to test lead levels and other heavy metal contamination in Australian communities. As part of his research, in conjunction with the Country Women's Association of NSW, he will visit Narrabri soon.

**13 Jul 2015:** Paul Harvey was featured in an article in the *Wee Waa News* about his research tour of regional NSW to test lead levels and other heavy metal contamination in Australian communities.

**15 Jul 2015:** Paul Harvey has been featured in the *Narrabri Courier* for his research tour of regional NSW to test lead levels and other heavy metal contamination in Australian communities.

**21 Jul 2015:** Professor Mark Taylor from the Department of Environmental Sciences provided comment to *ABC Rural* on the clean up of lead contamination in regional towns.

**22 Jul 2015:** Professor Mark Taylor provided comment to the *Newcastle Herald*, on the results of blood-lead testing in Lake Macquarie.

**23 Jul 2015:** Paul Harvey was featured in the *Milton Ulladulla Times* on the testing of metal contamination in household drinking water in the region.

**27 Jul 2015:** Paul Harvey was interviewed on *ABC New England North West's news* on his study of drinking water across regional NSW.

**5 Aug 2015:** Paul Harvey was featured in a follow-up story in the *Narrabri Courier* on his study of drinking water

across regional NSW.

**14 Aug 2015: Paul Harvey** spoke with *ABC Radio* about the quality of drinking water in the northeast of Tasmania.

**17 Aug 2015: Professor Mark Taylor** was featured in *2UE News Talk* and the *Townsville Bulletin* about the high levels of lead in children.

**18 Aug 2015: Paul Harvey** was featured on *ABC Radio* about the high levels of lead and copper in the drinking water supplies of rural properties around Narrabri.

**19 Aug 2015: Paul Harvey** was featured in *The Sydney News* about the high levels of lead and copper in the drinking water supplies of rural properties around Narrabri.

**26 Aug 2015: Professor Mark Taylor** was featured in the *Canberra Times* and the *Nyngan Observer* on the soil testing program VegeSafe.

**26 Aug 2015: Paul Harvey** was featured in the *Narrabri Courier* in ongoing coverage on the high levels of lead and copper in the drinking water supplies in Narrabri.

**28 Aug 2015: Professor Mark Taylor** was featured in the *Adelaide Advertiser* and *News.com.au* on claims SA Health has tried to hide the extent of lead poisoning in Port Pirie children in a recent scientific report.

**3 Sep 2015: Professor Mark Taylor** was featured on *ABC* for his research into elevated lead levels in children from remote communities in the Northern Territory.

**7 Sep 2015: Paul Harvey** was featured in *The Northern Daily Leader* in ongoing coverage on the high levels of lead and copper in the drinking water supplies in regional NSW.

**8 Sep 2015: Paul Harvey** was featured in the *Milton Ulladu Times* in ongoing coverage on the high levels of lead and copper in the drinking water supplies in regional NSW.

**10 Sep 2015: Professor Mark Taylor** was interviewed on *ABC 702's Evenings* program on the soil testing program VegeSafe.

**17 Sep 2015: Professor Mark Taylor** is leading a review of the management of contaminated land following a health scare involving chemicals at the RAAF base at Williamtown. He was featured in several media outlets, including *News.com.au*, *ABC*, *Yahoo*, *Brisbane Courier-Mail*, and the *Newcastle Herald*.

**23 Sep 2015: Paul Harvey** was featured in the *South Coast Register* in ongoing coverage on the high levels of lead and copper in the drinking water supplies in regional NSW.

**8 Oct 2015: Professor Mark Taylor** spoke to *ABC News 24*, *ABC Broken Hill*, *ABC Eyre Peninsula and West Coast*, *2SERFM*, and provided comment to *EducationHQ*, *International Business Times Australia*, and *North West Star*, about how exposure to toxic metals could be affecting childhood development.

**9 Oct 2015: Professor Mark Taylor** was featured in the *Sydney Morning Herald* and the *Canberra Times* in further coverage about how exposure to toxic metals could be affecting childhood development.

**12 Oct 2015: Professor Mark Taylor** was featured in the *North West Star* in further coverage on the link between exposure to toxic metals and childhood development.

**19 Oct 2015: Paul Harvey** provided comment to *The Northern Daily Leader* on his research that found high lead levels in rainwater tanks belonging to residents from the Narrabri and Wee Waa areas.

**20 Oct 2015: Research by Professor Mark Taylor** was featured in further coverage in *Australian Rural Doctor* on the link between exposure to toxic metals and childhood development.

**26 Oct 2015: Paul Harvey** spoke to *ABC New England North West News* on the study of water quality in areas of rural NSW.

**27 Oct 2015: Paul Harvey** was featured on *ABC Online* in ongoing coverage of his research into water quality in areas of rural NSW.

**28 Oct 2015: Paul Harvey** featured in *Milton Ulladulla Times* in ongoing coverage of his research into water quality in areas of rural NSW.

**11 Nov 2015: Professor Mark Taylor** was interviewed on *ABC's PM* program on the environmental concerns following a dam burst in Brazil last week.

**24 Nov 2015: Paul Harvey** was interviewed on *ABC New England North West* on his research into water quality in the Tamworth and Armidale areas of NSW.

**25 Nov 2015: Paul Harvey** was interviewed on *Prime7 Tamworth* in ongoing coverage of his research into water quality in the Tamworth and Armidale areas of NSW.

**23 Dec 2015: Prof Mark Taylor** contributed the piece "Toxic chemicals and pollutants affect kids' brain development" to *The Conversation*. He then spoke with *2UE Mornings* about this topic.

### **Lead answers are elusive**

Bombala Times by Ron Aggs 13 Jan 2016 5:05 PM

<http://www.bombalatimes.com.au/story/3662496/lead-answers-are-elusive/?cs=12>

Confirmation of NSW-wide problem of lead entering the consumer's glass of water, researcher says.

Lead in drinking water researcher Paul Harvey says testing elsewhere in NSW confirms significant contamination compared to what he has discovered in Milton-Ulladulla.

"Similar levels exist in northern inland NSW but less on the North Coast," Mr Harvey said.

Mr Harvey's study is now being peer reviewed before submission for publication.

### **Growing evidence of lead in water**

[Milton Ulladulla Times, Ulladulla NSW](#), General News 20 Jan 2016

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[Same topic as the above newspaper article.]

### **Soil testing service**

[Sunday Canberra Times, Canberra](#), Letters 24 Jan 2016

The announcement by the ACT government that it will develop regulations that will encourage the planting of fruit and vegetables on nature strips has resulted in considerable commentary, both for and against, in articles and letters in *The Canberra Times*. Jackie French (Relax, January 17) worries about lead levels in soil originating from lead in petrol; and Alan Robertson writes: "Residents with existing home or community gardens or proposing to plant on their nature strip should know that they can have their soil tested for levels of arsenic, cadmium, chromium, copper, manganese, lead, nickel and zinc. This free service (donations welcomed) is provided by Macquarie University through its VegeSafe program, run by ProfessorMark Taylor who some may have seen on the *Catalyst* program on lead last year."

### **Link between lead in the air and aggression in adults**

[2CC, Canberra, 05:30 News](#) 17 Feb 2016 5:32 AM

A team of researchers from Macquarie University has found a link between lead in the air and children growing up to be aggressive adults.

Interviewees

Professor Mark Taylor, Macquarie University

Also broadcast from:

2CA (Canberra),

[Smooth FM 95.3, Sydney, 06:00 News, Newsreader](#) 17 Feb 2016 6:00 AM,  
[5AA, Adelaide, 06:00 News, Newsreader](#) 17 Feb 2016 6:02 AM,  
5CS (Port Pirie),  
5RM (Berri),  
[POWER FM Illawarra, Wollongong, 06:00 News, Newsreader](#) 17 Feb 2016 6:03 AM,  
[3AW, Melbourne, 06:00 News, Newsreader](#) 17 Feb 2016 6:03 AM,  
2AY (Albury),  
3BA FM (Ballarat),  
3CS (Colac),  
3NE (Wangaratta),  
3SH (Swan Hill),  
3WM (Horsham),  
3YB(Warrnambool),  
Coast FM (Warrnambool),  
Light FM (Melbourne),  
Magic 1278 (Melbourne),  
Mixx FM Hamilton (Hamilton),  
Mixx FM Horsham (Horsham),  
SEN (Melbourne),  
TR FM (Traralgon)

**Australian researchers say children living in suburbs with higher levels of lead in the environment are more likely to show aggressive behaviour when they are older.**

Professor Mark Taylor, Macquarie University, looked at lead levels in six NSW suburbs and rates of assaults in those suburbs more than 20 years later. Taylor says those suburbs with the highest lead concentrations had almost one third higher rates of assault than they did 20 years ago.

[105.7 ABC Darwin , Darwin, 06:30 News, Newsreader](#) 17 Feb 2016 6:31 AM

Samantha Donovan reports on research by Macquarie University scientists, which ...

[Radio National, Canberra, AM, Michael Brissenden](#) 17 Feb 2016 7:23 AM

Samantha Donovan reports on research by Macquarie University scientists, which reveals a link between childhood lead exposure and a propensity to violent crime in adult Australians. Brissenden says the scientists note that the link was particularly clear in the heavily populated states of NSW and Vic. Donovan says the researchers analysed environmental lead data and compared it to crime statistics.

Mark Taylor, Professor of Environmental Science, Macquarie University, says the results show consistent patterns. Taylor says impulsive behaviours are associated with crimes of aggression and murder. Taylor says the study looked at six different suburbs in NSW, with four, including Rozelle, being driven largely by lead emission from petrol. Taylor says Port Kembla and Boolaroo were driven by emissions from smelters. Taylor says there are still parts of Australia where high levels of lead in the air are of a concern, such as in Broken Hill, Port Pirie, Mt Isa and parts of Tas. Donovan says the research is being published in the journal Environmental Health.

**Interviewees**

Mark Taylor, Professor of Environmental Science, Macquarie University

**Also broadcast from:**

Radio National (Sydney),  
Radio National (Melbourne),  
Radio National (Brisbane),  
Radio National (Perth),  
Radio National (Hobart),  
Radio National (Adelaide),  
Radio National (Darwin),  
Radio National (Newcastle)  
ABC Western Victoria (Horsham)

**Samantha Donovan reports on research by Macquarie University scientists**

Samantha Donovan reports on research by Macquarie University scientists, which reveals a link between childhood lead exposure and a propensity to violent crime in adult Australians. Brissenden says the scientists note that the link was particularly clear in the heavily populated states of NSW and Vic. Mark Taylor says the study looked at six different suburbs in NSW, with Rozelle, Earlwood, Lane Cove and Rydalmere, being driven largely by lead emission from petrol. [Rest similar to above broadcasts]

**Also broadcast from:**

105.7 ABC Darwin (Darwin),  
612 ABC Brisbane (Brisbane),  
702 ABC Sydney (Sydney), 7  
20 ABC Perth (Perth),  
774 ABC Melbourne (Melbourne),  
891 ABC Adelaide (Adelaide),  
936 ABC Hobart (Hobart),  
ABC Alice Springs  
(Alice Springs),  
ABC Ballarat (Ballarat),  
ABC Broken Hill (Broken Hill),  
ABC Capricornia (Rockhampton),  
ABC Central Victoria (Bendigo),  
ABC Central West NSW (Orange),  
ABC Coffs Coast (Coffs Harbour),  
ABC Esperance (Esperance),  
ABC Eyre Peninsula and West Coast (Port Lincoln),  
ABC Far North (Cairns),  
ABC Gippsland (Sale),  
ABC Gold Coast (Gold Coast),  
ABC Goldfields WA (Kalgoorlie),  
ABC Goulburn Murray (Wodonga), ABC Great  
Southern (Albany),  
ABC Illawarra (Wollongong),  
ABC Kimberley (Broome),  
ABC Midwest and Wheatbelt  
(Geraldton), ABC Mildura - Swan Hill (Mildura),  
ABC New England North West (Tamworth),  
ABC Newcastle (Newcastle),  
ABC North and West SA (Port Pirie),  
ABC North Coast NSW (Lismore),  
ABC North Queensland (Townsville),  
ABC North West Qld (Mt Isa),  
ABC North West WA (Karratha),  
ABC Northern Tasmania (Launceston),  
ABC Riverina (Wagga Wagga),  
ABC Riverland SA (Renmark),  
ABC Shepparton (Shepparton),  
ABC South East NSW (Bega),  
ABC South East SA (Mt Gambier),  
ABC South West WA (Bunbury),  
ABC South Western Victoria (Warrnambool),  
ABC Southern Queensland (Toowoomba),  
ABC Sunshine Coast (Sunshine Coast),  
ABC Tropical North (Mackay),  
ABC Upper Hunter (Muswellbrook),  
ABC Western Plains NSW (Dubbo),  
ABC Western Queensland (Longreach),



ABC Western Victoria (Horsham),  
ABC Wide Bay (Bundaberg)

**Australia researchers have established a link between breathing lead in the air and ...**

[Smooth FM 95.3, Sydney, 07:30 News, Newsreader](#) 17 Feb 2016 7:31 AM

Australia researchers have established a link between breathing lead in the air and children growing up to be aggressive adults. Professor Mark Taylor, Macquarie University, says the evidence is clear.

**Researchers claim to have found a link between lead in the air and aggression.**

[2GB, Sydney, 07:30 News, Newsreader](#) 17 Feb 2016 7:32 AM

Interviewees

Professor Mark Taylor, Macquarie University

Also broadcast from:

2BS (Bathurst),  
2GN (Goulburn),  
2LT (Lithgow),  
2MAX (Narrabri),  
2QN (Deniliquin),  
2UE (Sydney),  
2XL (Cooma),  
2YOU FM (Tamworth),  
Coast FM (Gosford),  
Great Lakes FM (Taree),  
Magic 2CH (Sydney)

**Researchers are concerned about lingering lead in the air**

[5AA, Adelaide, 07:30 News, Newsreader](#) 17 Feb 2016 7:32 AM

Researchers are concerned about lingering lead in the air after claiming to have found a link between the metal and aggression. Macquarie University researchers have found areas in Australia where there have been high lead emissions have also got high crime rates. Mark Taylor, professor, Macquarie University, says some suburbs are still at risk.

**A new study from Macquarie University has found children living in suburbs with higher ...**

[702 ABC Sydney, Sydney, 07:45 News, Newsreader](#) 17 Feb 2016 7:54 AM

A new study from Macquarie University has found children living in suburbs with higher environmental lead levels are more likely to show signs of aggression later in life. Prof. Mark Taylor, Macquarie University, is calling for measure to be taken to reduce lead exposure. A Macquarie University team looked at the level of lead and compared them to crime rates 21 years later.

Also broadcast from the following 11 stations

ABC Central Coast (Erina),  
ABC Central West NSW (Orange),  
ABC Coffs Coast (Coffs Harbour),  
ABC Illawarra (Wollongong),  
ABC New England North West (Tamworth),  
ABC Newcastle (Newcastle),  
ABC North Coast NSW (Lismore),  
ABC Riverina (Wagga Wagga),  
ABC South East NSW (Bega),  
ABC Upper Hunter (Muswellbrook),  
ABC Western Plains NSW (Dubbo)

[774 ABC Melbourne, Melbourne, 07:45 News, Newsreader](#) 17 Feb 2016 7:55 AM

ABC Ballarat (Ballarat),  
ABC Central Victoria (Bendigo),  
ABC Gippsland (Sale),

ABC Goulburn Murray (Wodonga),  
ABC Mildura - Swan Hill (Mildura),  
ABC Shepparton (Shepparton),  
ABC South Western Victoria (Warrnambool),  
[5AA, Adelaide, 08:30 News, Newsreader](#) 17 Feb 2016 8:32 AM,  
[666 ABC Canberra, Canberra, 09:00 News, Newsreader](#) 17 Feb 2016 9:01 AM,  
[Triple J, Sydney, 09:00 News, Newsreader](#) 17 Feb 2016 9:01 AM,  
Triple J (Perth),  
Triple J (Melbourne),  
Triple J (Canberra),  
Triple J (Brisbane),  
Triple J (Adelaide),  
Triple J (Hobart),  
Triple J (Darwin)  
[2GB, Sydney, 10:00 News, Newsreader](#) 17 Feb 2016 10:01 AM,  
2BS (Bathurst),  
2EC (Bega),  
2GN (Goulburn),  
2LT (Lithgow),  
2MAX (Narrabri),  
2NUR (Newcastle),  
2QN (Deniliquin),  
2UE (Sydney),  
2XL (Cooma),  
2YOU FM (Tamworth),  
Coast FM (Gosford),  
Great Lakes FM (Taree),  
Magic 2CH (Sydney),  
[WAVE FM, Wollongong, 11:00 News, Newsreader](#) 17 Feb 2016 10:59 AM,  
[HO FM, Hobart, 11:00 News, Newsreader](#) 17 Feb 2016 11:04 AM,  
7LA (Launceston),  
[ABC Broken Hill, Broken Hill, 12:00 News, Newsreader](#) 17 Feb 2016 12:01 PM,  
ABC Eyre Peninsula and West Coast (Port Lincoln),  
ABC North and West SA (Port Pirie),  
ABC Riverland SA (Renmark),  
ABC South East SA (Mt Gambier),  
[6PR, Perth, 12:00 News, Newsreader](#) 17 Feb 2016 12:02 PM,  
6iX (Perth),  
[ABC Upper Hunter, Muswellbrook, 12:00 News, Newsreader](#) 17 Feb 2016 12:03 PM,  
[5AA, Adelaide, 12:00 News, Newsreader](#) 17 Feb 2016 12:06 PM,  
5CS (Port Pirie),  
[ABC Newcastle, Newcastle, 13:00 News, Newsreader](#) 17 Feb 2016 1:02 PM,

### **Cordeaux says Professor Mark Taylor's research at the Macquarie University has found a ...**

[5AA, Adelaide, Afternoons, Jeremy Cordeaux](#) 17 Feb 2016 1:53 PM

Cordeaux says Professor Mark Taylor's research at the Macquarie University has found a definitive link between lead pollution and criminality. Cordeaux says magazine Environmental Health has released an article on the research today.

### **Interview with Professor Mark Taylor, Macquarie University. Bradfield says new research ...**

[ABC Southern Queensland, Toowoomba, Drive, Elly Bradfield](#) 17 Feb 2016 4:24 PM

Bradfield says new research by the Macquarie University says kids living in places with high lead levels are more likely to commit violent crimes later in life. Taylor says parents around the Mt Isa area need to be worried about raising violent kids. He says those exposures causes brain damage. He says lead exposure should be limited as much as possible. He discusses how they came up with the data.

Also broadcast from:

ABC Capricornia (Rockhampton),  
ABC North West Qld (Mt Isa),  
ABC Tropical North (Mackay),  
ABC Western Queensland (Longreach),  
ABC Wide Bay (Bundaberg)

### **A new Macquarie University study has found that children living in suburbs with higher ...**

[ABC Newcastle, Newcastle, 17:00 News, Newsreader](#) 17 Feb 2016 5:06 PM

A new Macquarie University study has found that children living in suburbs with higher lead levels in the environment are more likely to show signs of aggression later in life. Professor Mark Taylor says the findings show that measures need to be taken to reduce lead exposure. The research is being published in the journal Environmental Health.

Also broadcast from:

ABC Upper Hunter (Muswellbrook)

### **Interview with Professor Mark Taylor, Macquarie University, about whether there is a link ...**

[702 ABC Sydney, Sydney, Drive, Richard Glover](#) 17 Feb 2016 5:07 PM

Interview with Professor Mark Taylor, Macquarie University, about whether there is a link between childhood lead exposure and violence in Australia. Taylor's research assesses the lead levels in Rozelle, Burwood, Lane Cove, and Rydalmere 20 years ago and levels of violence in the suburbs now. Taylor says the findings they have drawn from a population study are consistent with the broad psychological literature that shows the outcomes affected by lead exposure are entirely predicted.

Mentions

[Vegesafe](#)

Also broadcast from:

ABC Central Coast (Erina)

### **Woods explains that the ABC story details a Macquarie University study that found ...**

[2UE, Sydney, Drive, Bill Woods](#) 17 Feb 2016 5:34 PM

Woods explains that the ABC story details a Macquarie University study that found children living in suburbs with high lead levels are more likely to commit violent crimes later in life. He adds that Prof. Mark Taylor was able to connect air lead levels with crime statistics in NSW suburbs.

Higher lead levels point to violence

[Courier Mail, Brisbane, General News](#) 18 Feb 2016

CHILDREN living in suburbs with higher lead levels are more likely to commit violent crimes in early adulthood, Australian research suggests. Previous studies have linked childhood lead exposure with later life antisocial behaviours, including delinquency and crime.

### **Study links lead to crime**

[Illawarra Mercury, Wollongong NSW, General News, Angela Thompson](#) 18 Feb 2016

CHILDREN who grew up in the shadow of Port Kembla's heavy industry are more likely to commit violent assaults as adults, new research suggests. The Macquarie University study, published on Wednesday in the Journal of Environmental Health, probes the relationship between atmospheric lead emissions and aggressive crime.

### **A new study from the Macquarie University has uncovered a link between childhood lead ...**

[ABC Western Queensland, Longreach, 06:30 News, Newsreader](#) 18 Feb 2016 6:31 AM

A new study from the Macquarie University has uncovered a link between childhood lead exposure and aggressive behaviour in adults. Prof Mark Taylor, Macquarie University, says the data show the rate of assaults in areas with high lead concentration levels rose by almost a third. He says while the research didn't take areas like Mt Isa into account, those living in the mining city should still take note of the findings. In a statement, Queensland Health says there is insufficient evidence about links between lead exposure and behavioural issues, and many other contributing factors would influence criminal behaviour such as socio economic status, education, parenting style and diet.

Also broadcast from:  
ABC North West Qld (Mt Isa)

**New research from Macquarie University is linking children living in suburbs with higher ...**

[4WK, Toowoomba, 06:30 News, Newsreader](#) 18 Feb 2016 6:32 AM

New research from Macquarie University is linking children living in suburbs with higher lead levels to committing violent crimes later in life.

**Researchers have found that children who are exposed to high environmental led levels ...**

[ABC Western Queensland, Longreach, 07:30 News, Newsreader](#) 18 Feb 2016 7:32 AM

Researchers have found that children who are exposed to high environmental led levels are more likely to show sign of aggression later in life. Qld Health says there is insufficient evidence about links between led exposure and behavioural issues.

Also broadcast from:  
ABC North West Qld (Mt Isa)

**New research from Macquarie University is linking children living in suburbs with higher ...**

[2SM, Sydney, 07:30 News, Newsreader](#) 18 Feb 2016 7:32 AM

New research from Macquarie University is linking children living in suburbs with higher lead levels to committing violent crimes later in life.

Also broadcast from:

2AD (Armidale),  
2DU (Dubbo),  
2EL (Orange),  
2GF (Grafton),  
2MG (Mudgee),  
2MO (Gunnedah),  
2NZ (Inverell),  
2PK (Parkes),  
2RE (Taree),  
2TM (Tamworth),  
2VM (Moree)

**News Headlines...**

[ABC North West Qld, Mt Isa, Breakfast, Emma Cillekens](#) 18 Feb 2016 8:30 AM

News Headlines- Professor Mark Taylor from Macquarie University says children exposed to higher lead levels more likely to show signs of aggression later in life.

**Cillekens says new research from Macquarie University reveals a link between lead ...**

[ABC North West Qld, Mt Isa, Breakfast, Emma Cillekens](#) 18 Feb 2016 8:32 AM

Cillekens says new research from Macquarie University reveals a link between lead exposure to children and their likelihood to commit violent crimes. Taylor says they measured the rates of aggression through reported assaults to the police in NSW. Taylor says they accessed the NSW community because it was where the best sets of data were available for crime and assault information. Taylor says they also considered socio-economic factors like age, income and education levels. Taylor says for Mt Isa residents, he clarifies that there was only 10 years of crime data they accessed from the Queensland Government. Taylor says the Queensland Government doesn't have lead in air data since the 1970s, which creates a limitation. Taylor cites a New Zealand study studying lead in teeth.

**Interview with Professor Mark Taylor, Author, Macquarie University. Bennett says a new ...**

[ABC North and West SA, Port Pirie, Breakfast, Tim Bennett](#) 18 Feb 2016 8:33 AM

Interview with Professor Mark Taylor, Author, Macquarie University. Bennett says a new study has revealed a correlation between lead exposure and violent crime later in life, by testing levels of lead exposure before and after the introduction of unleaded fuels in east coast suburbs and in different states. He says a similar result was found in a state-based analysis. Taylor says the study looked at the relationship between environmental lead and later-life aggressive crime, and was carried out at suburb, state and

national level with a range of data sources, adjusted for socioeconomic co-variants. He says it was predominantly carried out in NSW, but a similar story was told across different geographic areas. He says the study showed that just under 30% of the variance of assault rates could be associated with the variance of lead in the air. He says their datasets were independent of different government agencies and bodies. Bennett says prominent lead towns are Port Pirie, Broken Hill and Mt Isa, and asks about the impact on these towns. Taylor says no population has an inoculation to exposure, with everyone similarly exposed. He says a University of Adelaide study by Rachel Earl last year looked at individuals in Broken Hill and Port Pirie which found that lead exposure contributed to up to a 14% loss in IQ points. He says this is massive. He says their study into NAPLAN scores in parts of Broken Hill also shows a clear association between early life exposure and later life outcomes. He says a precautionary approach needs to be taken by reducing exposure to metals. Bennett says SA Health Director of Public Health Services Dr Kevin Buckett has issued a statement saying they follow NHMRC guidelines on lead management in Australian guidelines and that, in conjunction with the TLAP Program, its environmental health centre in Port Pirie provides education and environmental services to protect children from the effects of lead.

### **Interview with Mark Taylor, Professor of Environmental Science, Macquarie University. ...**

[891 ABC Adelaide, Adelaide, Afternoons, Sonya Feldhoff](#) 18 Feb 2016 1:09 PM

Interview with Mark Taylor, Professor of Environmental Science, Macquarie University. Feldhoff says Port Pirie and Broken Hill have particularly high levels of lead in the atmosphere due to smelting operations in the area. She says the issue has been highly publicised. She says a new study has found high lead levels and exposure in children seem to point to higher levels of violence in adulthood. Taylor says they found a strong association between the communities, timing, and the spatial variation between the time of the lead exposure and later life rates of aggression. He says the rates of aggression rose and fell 21 years after the rise and fall of lead emissions to the atmosphere. He says the pattern was visible in their research, whether they looked at suburb, state, or national levels. He says in the NSW suburbs, they took into account a range of socioeconomic status such as the percentage of people aged between 15 and 24, the percentage of children who finished high school, and the median income levels. He says they still saw a significant association. He says lead was the highest variable which is the strongest indicator of the change in assault rates. He says the study was a population study. He says they did not look at every possible factor that could influence crime. He says they looked at the strengths of the association between the timing and emission of lead to the environment. He says it had consequent potential effects on assault rates, as manifested through the NSW Bureau of Crime Statistics and Research[sic] database. He says they took into account various SES values. He says they looked into the time of the lead exposure and the time of the crime. He says there are many causes of crime, especially on an individual basis. He says there is a difference between causation and correlation. He says there was a strong correlation. He says they took into account a range of factors, which would commonly be considered to influence the outcomes associated with crime. He says they looked at crimes of assault, which includes violent crime. He says they also looked at the rates of fraud in the suburbs. He says fraud is a premeditative crime while aggression or assault is an impulsive crime. He says lead interferes with the executive function of the brain and the development and regulation of decision making. He says it is associated with children with malbehaviours or positional defined behaviours such as ADHD. He says they saw the rise and fall in assault rates but did not see rates of fraud between the timing of fraud and the timing of lead exposure 21 years previously. He says in the six suburbs they looked at, two suburbs were former smelting camps namely Port Kembla in Wollongong and Boolaroo near Newcastle. He says there were high lead emissions to the environment in these suburbs including high assault rates. He says the timing of the lead emissions were different to those in the other four suburbs located in metropolitan Sydney. He says in these four suburbs, the source of the lead in the air was predominantly spatial(\*). He says the association of lead exposure and aggressive rates of crime remained the same in these suburbs. He says in suburbs, the assault rates are falling markedly over time with the decrease in lead exposure. He says similar studies were undertaken in the US looking at the timing of lead emitted from petrol and later life crime. He says they showed quite similar results from different geographic locations, climates, and composition of communities. He says the message in these studies is that exposure to toxins should be avoided because it causes anticipated impacts on the population, which can be prevented by not emitting contaminants. He says the exposure rates causes a greater risk to children at a young age. He says children absorb about 50% of the lead they ingest while adults absorb only around 10%. He says children are at a greater risk because their bodies are growing and taking on calcium for the neurological and skeletal systems. He says the body cannot discriminate between

lead and calcium. He says in a lead-rich environment, lead and calcium in children will compete for a space in the body. He says children are smaller and often exposure comes from dust in the carpet or soil. He says children have a habit to put toys and objects in their mouth as part of their normal exploratory behaviour. He says ingesting and breathing in lead are two different processes with the same effect. He talks about inhalation. He says their study used independent data collected by government and industry agencies. He says they have taken into account various sociodemographic co-variants. He says people need to re-think the allowable levels of lead in the atmosphere particularly in smelting and mining communities. He says they will then take a study on individuals and look at their later life outcomes.

Also broadcast from:

ABC Broken Hill (Broken Hill), ABC Eyre Peninsula and West Coast (Port Lincoln), ABC North and West SA (Port Pirie), ABC Riverland SA (Renmark), ABC South East SA (Mt Gambier)

### **Pre-recorded report on a study linking lead to criminal behaviour. Martin says a new ...**

[Radio Adelaide](#), [Adelaide](#), [The Wire](#), [Sarah Martin](#) 18 Feb 2016 5:52 PM

Pre-recorded report on a study linking lead to criminal behaviour. Martin says a new population study identifies a relationship between children being exposed to lead air pollution and the heightened chance they will engage in aggressive criminal behaviour years later. Lead is no longer commonly used in Australian petrol, but in air pollution hotspots such as Port Pirie and Mount Isa, people remain concerned about the large amounts of lead particles drifting through the air. Mark Taylor, Professor of Environmental Science, Macquarie University, discusses his population study that delves into how childhood exposure to airborne lead particles could eventually lead to criminal behaviour.

Also broadcast from:

2SER FM (Sydney),  
2XX FM (Canberra),  
3MGB (Mallacoota),  
3REG (Bairnsdale),  
4BCB (Blackwater),  
4EB (Brisbane),  
4GEM (Bowen),  
4MIG (Mt Isa),  
4TOF (Cunnamulla),  
4US (Rockhampton),  
5RRR (Woomera),  
8CCC (Alice Springs),  
BLU FM 89.1 (Katoomba),  
Gove FM (Nhulunbuy),  
Hobart FM (Hobart),  
KIX FM (Kingscote),  
MOB FM (Mt Isa), Radio Goolarri (Broome), Tank Radio (Kempsey)

### **Link between lead and aggression**

[Northern Territory News](#), [Darwin](#), General News 19 Feb 2016

AUSSIE kids exposed to high levels of environmental lead are more likely to go on to show increased aggressive behaviour and commit an assault that results in death, a new study led by Macquarie University researchers has found. Lead exposure is known to increase impulsivity, and crimes of aggression are typically related to impulsive actions.

### **Marion Browne, Chair, Broken Hill Lead Reference Group, says the study by Macquarie ...**

[ABC Broken Hill](#), [Broken Hill](#), [07:30 News](#), [Newsreader](#) 22 Feb 2016 7:33 AM

Marion Browne, Chair, Broken Hill Lead Reference Group, says the study by Macquarie University's Professor Mark Taylor that found lead exposure to violent crime is irrelevant to the group's efforts and its approach.

### **Interview with Prof Mark Taylor, Macquarie University, about a new research that shows ...**

[ABC North West WA](#), [Karratha](#), [Statewide Drive](#), [Barry Nicholls](#) 22 Feb 2016 4:17 PM

Interview with Prof Mark Taylor, Macquarie University, about a new research that shows a link between lead pollution and violent crime in Australia. Nicholls says it turns out that children who are exposed to high levels of lead in the air were more likely to assault someone later in life. Taylor talks about what this means for WA, in Esperance in particular where there was a major lead contamination in 2007. He talks about the effects of lead exposure to the brain and to behaviour.

Also broadcast from:

ABC Esperance (Esperance),  
ABC Goldfields WA (Kalgoorlie),  
ABC Great Southern (Albany),  
ABC Great Southern WA (Wagin),  
ABC Kimberley (Broome),  
ABC Midwest and Wheatbelt (Geraldton),  
ABC South West WA (Bunbury)

### **Lead exposure link to violence**

[Canterbury-Bankstown Express, Sydney](#), General News, [Cindy Ngo](#) 23 Feb 2016

EARLWOOD STUDY FINDS ATMOSPHERIC LEAD COULD PROMPT AGGRESSION

### **Isa lead level is safe: CHO**

[North West Star, Mount Isa QLD](#), General News, [Derek Barry](#) 25 Feb 2016

'links between high lead level and aggression. QUEENSLAND's Chief Health Officer says Mount Isa would not be affected by findings in new research into blood lead levels in children and violence later in life. Environmental Health Journal has published research by Professor Mark Taylor of Macquarie University which took air samples from six NSW suburbs and looked at criminal statistics in those areas over 30 years.

### **Lead contamination not caused by mining? Myth busted**

[Sustainability Matters](#) 24 Mar 2016 12:00 AM

Macquarie University researchers have busted the 'miner's myth' that exists in Broken Hill and other mining towns, which implies that non-mining-related sources of lead are the cause for high environmental lead contamination levels within the community...

### **WHAT'S HAPPENING TO THE WATER IN WILLIAMTOWN?**

[Sydney Morning Herald, Sydney](#), Good Weekend Magazine 26 Mar 2016

MARCH 26, 2016 WHAT 'S HAPPENING TO THE WATER IN WILLIAMTOWN? BY CHRIS RAY

### **Study busts 'miner's myth'**

[Barrier Daily Truth, Broken Hill NSW](#), General News 01 Apr 2016

Forget paint, petrol, or natural degradation of our ore bodies - mining is the number one source of high environmental lead contamination levels in Broken Hill. That's the result of a Macquarie University study which pursued multiple lines of evidence to bust the 'miner's myth' that exists in Broken Hill and other mining towns.

### **Prof Mark Taylor, environmental scientist, Macquarie University, has accused TasWater ...**

[ABC Northern Tasmania, Launceston, 06:30 News, Newsreader](#) 11 Apr 2016 6:30 AM

Prof Mark Taylor, environmental scientist, Macquarie University, has accused TasWater of trying to attack his credibility as he investigated the source of lead water contamination Pioneer in Tasmania's north-east.

### **Macquarie University Professor Mark Taylor, an environmental scientist, says internal ...**

[936 ABC Hobart, Hobart, 07:00 News, Newsreader](#) 11 Apr 2016 7:05 AM

Macquarie University Professor Mark Taylor, an environmental scientist, says internal TasWater documents show executives were trying to discredit his water quality research. Taylor led a team of researchers who found old pipes, infrastructure and household plumbing causes lead contamination in the town of Pioneer in the northwest.

Also broadcast from:

Radio National (Hobart)

### **Lead reference group meets.**

EIGHT community, business, school and council representatives met for the first time on Thursday to discuss lead contamination in northern Lake Macquarie. Karen McCraw (school representative); Nicole Gerrard, Emma Hale, Anne Sullivan, Tony Cade...

### **David Lewis, ABC, report on Mount Isa Mines. Cillekens notes Mount Isa Mines is ...**

[ABC North West Qld, Mt Isa, Breakfast, Emma Cillekens](#) 13 May 2016 7:11 AM

David Lewis, ABC, report on Mount Isa Mines. Cillekens notes Mount Isa Mines is Australia's biggest polluter of sulphur dioxide and arsenic and the third biggest polluter of lead. Lewis says staff at the mine's Air Quality Control Centre, including Matthew Meere, have to decide whether slow or stop production during strong winds, which can cause toxic emissions from the smelters to blow across Mount Isa. Meere says the mine is managed to minimise risk. Lewis says Glencore claims it has been able to improve its environmental performance, noting the mine once emitted three times more lead and six times more sulphur dioxide than national guidelines recommend. Mike Westerman, Glencore, says all of the mine's measures now meet the national environmental protection measures. Lewis says data from the Environment Department's air monitoring stations contradicts Westerman by showing that the hourly limit for sulphur dioxide emissions has already been breached several days this year, when the national guideline only allows for breaches one day a year. Prof Mark Taylor, Environmental Scientist, Macquarie University, says the mine does not meet the national standard, claiming the data shows that in January 2016 there were at least four times when the SO<sub>2</sub> one hour value was exceeded. Lewis says Taylor warns these breaches could have implications for people with respiratory conditions, which are common in Mount Isa, especially among Indigenous children. Taylor says they increase their risk of suffering from asthma, wheeze, and shortness of breath, and increase the rate of potential hospital separations due to respiratory illnesses. Taylor says that, in the long term, breathing in sulphur dioxide would form sulphuric acid in one's lungs, and says sulphuric acid is aggressive on one's tissue. Lewis says last year the mine received 55 complaints about sulphur dioxide level, but says it will not be punished, because its environmental authority allows it to exceed the guideline. Taylor says Glencore has a licence to pollute. Tony McGrady, Former Mayor of Mount Isa and Former Qld Minister for Mines, says he would not continue to live in Mount Isa if it had adverse health effects on his family, and says the majority of people have the same view as him.

### **Program preview: Background Briefing....**

[Radio National, Canberra, Breakfast, Fran Kelly](#) 13 May 2016 8:28 AM

Program preview: Background Briefing. David Lewis report. For nearly a century, Mt Isa Mines in remote north west Qld has delivered jobs and royalties to the state. It is also Australia's biggest single polluter of arsenic and sulphur dioxide and the third-biggest polluter of lead. All those chemicals can be harmful to the human body which is a concern for the more than 20,000 people living across the road from the mine. In recent years the mine has had to comply with tougher pollution controls and Glencore says it is meeting with national air quality guidelines. Mike Westerman, Glencore, says the Mt Isa mine is unique because of how close it is to the local community. Toxic plumes from the mine's two smelters occasionally blow across the town and the risk of this happening increases in the summer months when there are strong westerly winds about. Matthew Meere, Glencore, says if it looks as though unfavourable weather conditions are likely he will force the mine to reduce its emissions. Data from the Environment Department's air monitoring stations show that the hourly limit for sulphur dioxide emissions has already been breached several days this year, whereas the national guidelines only allow for breaches one day a year. Professor Mark Taylor, Environmental Scientist, Macquarie University, says it is factually incorrect for Glencore to say the mine meets the national standard. He says Glencore does not have to meet the national standard because it has a licence to exceed the limits. Tony McGrady, former Qld Minister for Mines, says he would not remain living in the city if he believed the mine was having adverse health effects on him or his family.

#### **Also broadcast from:**

Radio National (Sydney),  
Radio National (Melbourne),  
Radio National (Brisbane),  
Radio National (Perth),  
Radio National (Hobart),



Radio National (Adelaide),  
Radio National (Darwin),  
Radio National (Newcastle)

**[TO BE COMPLETED!!]**