LEAD Action NEWS

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Biden Administration leads the world on lead-safety

LEAD Action News vol 22 no 4 Editorial, December 2024

by Elizabeth O'Brien, BSc, Grad Dip Health Edn

I really hope Nelson Mandela is right when he says "it always seems impossible until it is done", because the rest of the world – especially Australia which exports more lead than any other country and approves every new lead mine apparently out of habit, and the United Kingdom which has way better climate policy than its lead policy – is impossibly behind the USA when it comes to lead-safety regulations and policy.

I was heartened to read when preparing the Roger Green Obituary in this issue, that some environmental protection campaigns are resoundingly successful. Vale Roger Green, Deni Greene and Michael Leunig.



MURAL: It always seems impossible until it's done - Nelson Mandela

Enter Volcano Art Prize 2025 by 28th July 2025!

To be in the running for this – the world's only **annual lead-awareness-raising global art/photo/film competition open to all ages**, just go through your smart phone photos/videos and pick a landscape-orientation one, create a short Title and Lead-Safety Message and enter as many times as you like, at https://volcanoartprize.com/submitentry/ by midnight at the end of the day, your timezone, on Monday 28th July 2025. Children enter for free. OECD adults pay only AU$10/entry.

Once the entry deadline has passed, the Volcano Art Prize (VAP) 2025 Judge will choose the First Prize winner of $400 and 30 prize winners of a mug from Pictureproducts and you can help pick the 2025 People's Choice prizewinner. Just go to https://volcanoartprize.com/peoples-choice/ and following pages, to vote (by clicking the thumbsup) for all the VAP 2025 entries you like, so that The LEAD Group can count up the Likes to see who wins the People's Choice Cash Prize of $200.

Volcano Art Prize

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FACT SHEET: Biden-Harris Administration Strengthens Standards to Protect Millions from Exposure to Lead Paint Dust, Announces New Actions to Address Toxic Lead Exposure

URL: HTTPS://WWW.WHITEHOUSE.GOV/BRIEFING-ROOM/STATEMENTS-RELEASES/2024/10/24/FACT-SHEET-BIDEN-HARRIS-ADMINISTRATION-STRENGTHENS-STANDARDS-TO-PROTECT-MILLIONS-FROM-EXPOSURE-TO-LEAD-PAINT-DUST-ANNOUNCES-NEW-ACTIONS-TO-ADDRESS-TOXIC-LEAD-EXPOSURE []

October 24, 2024

Today's announcement is expected to reduce the lead exposure of up to 1.2 million people every year and represents one of over 100 actions taken by the Administration in 2024 to reduce lead poisoning

President Biden and Vice President Harris have been clear that all Americans deserve to live free from fear of toxic lead exposure. Since Day One, the Biden-Harris Administration has marshalled a whole of government effort to reduce all sources of lead exposure, issuing a comprehensive Lead Pipe and Paint Action Plan that guides federal action to achieve a lead-free future.

Today, as we continue to mark National Lead Poisoning Prevention Week, the Biden-Harris Administration is taking action to further reduce lead exposure by issuing a final Environmental Protection Agency (EPA) rule to strengthen requirements for the removal of lead paint dust in pre-1978 housing and child care facilities.

Lead is a neurotoxin that can irreversibly harm brain development in children, lower IQ, cause behavioral problems, and lead to life-long health effects. There is no safe level of lead exposure. Yet, due to decades of inequitable infrastructure development and underinvestment, lead poisoning disproportionately affects low-income communities and communities of color.

Today's final rule sets new standards for lead abatement activities that will better protect children and communities from the harmful effects of exposure to dust generated from lead paint. The rule will help protect people in communities across the country from these harms, and is expected to reduce the lead

exposures of up to nearly 1.2 million people every year, providing public health and economic benefits up to 30 times greater than the costs. Although the United States banned lead-based paint in residences in 1978, an estimated 31 million houses built before 1978 still contain lead-based paint, and 3.8 million are home to one or more child under the age of six, putting them at risk of lead exposure.

Since the announcement of the Biden-Harris Lead Pipe and Paint Action Plan, the Administration has taken hundreds of actions across more than 10 agencies to reduce the risk of lead poisoning in drinking water, paint, soil, food and household products, the workplace, and to combat lead exposure internationally – including more than 100 actions in the past year alone. Some of the actions since the latest Action Plan progress update in November 2023 include:

Reducing Exposure to Lead from Paint and Dust in the Home – Lead in household dust originates from indoor sources such as deteriorated, lead-based paint on surfaces. In the last year, the Administration has worked diligently to identify, help tackle, and eliminate these exposures in several ways:

- Earlier this month, the Department of Housing and Urban Development (HUD) announced more than $420 million in awards to remove lead hazards from homes, including HUD-assisted homes, ensuring the safety of children, residents, and families. This includes $2 million to remove other housing-related hazards from homes in conjunction with weatherization efforts, and nearly $10 million to facilitate research on better identifying and controlling lead and other housing-related hazards. These awards are part of President Biden's Justice40 Initiative, which seeks to ensure that 40 percent of the overall benefits of certain Federal climate, clean energy, affordable and sustainable housing, and other investments flow to disadvantaged communities that are marginalized by underinvestment and overburdened by pollution.

- In August 2024, the Department of Health and Human Services (HHS) issued a new final rule updating the Head Start Program Performance Standards. This rule requires Head Start programs to protect children from exposure to lead in water and paint through regular testing and inspection and remediate lead in Head Start facilities where lead exists.

- In 2024, EPA conducted approximately 1,400 compliance monitoring activities for lead-based paint in over 190 communities, more than a third of which were communities with environmental justice concerns. Additionally, EPA's Federal Facilities Enforcement Office conducted compliance monitoring activities at 18 military installations in 2024. This work protects our service members and their families from exposure to lead-based paint in their homes at military bases.

Reducing Exposure to Lead from Drinking Water – Millions of buildings still receive their water through a lead pipe. The Biden-Harris Administration has taken historic steps to meet President Biden's commitment to replace every lead pipe in the country within a decade:

- Earlier this month President Biden traveled to Milwaukee, Wisconsin, to announce a final rule that requires drinking water systems nationwide to replace lead service lines within 10 years. This rule will protect children from brain damage, prevent up to 900,000 infants being born with low birth weight, and protect 1,100 adults from premature death from heart disease every year.

- President Biden secured a historic $15 billion in funding through the Bipartisan Infrastructure Law specifically dedicated for replacing lead service lines, and provided an additional $2.6 billion from his Bipartisan Infrastructure Law for drinking water upgrades and lead pipe replacements, along with an additional $11.7 billion in general-purpose funding through the Drinking Water State Revolving Fund which can also be used for lead pipe replacement. To date, EPA has announced over $18 billion of this funding across every state. Nearly half of this funding is required to flow to disadvantaged communities, in the form of grants and zero-interest loans.

- Thanks to the Biden-Harris Administration's actions, cities across the country are already making progress in replacing lead pipes. Cities with some of the highest numbers of lead pipes, like Milwaukee, Detroit, Pittsburgh, St. Paul, and Denver, have received funding from the Administration and are now on track to replace all lead pipes within 10 years or less. Under this Administration, over 367,000 lead pipes have been replaced nationwide, benefitting nearly 1 million people.



- Funding from the American Rescue Plan's $350 billion State and Local Fiscal Recovery Fund can be used by states and communities to replace lead service lines and remediate lead paint. To date, well over $20 billion nationwide has been invested in water infrastructure projects.

- During this Administration, the EPA has also used its Water Infrastructure Finance and Innovation Act (WIFIA) program to provide well over $350 million in financing to communities for lead pipe replacement.

- Since launching in November 2023, EPA's Get the Lead Out Initiative has provided technical assistance to public water systems nationwide to identify lead pipes and accelerate their replacement. Prioritizing disadvantaged and underserved communities, the initiative is providing assistance to a growing list of public water systems, including in Michigan, Ohio, and Illinois, and facilitates access to funding from the Bipartisan Infrastructure Law. This initiative builds on the partnership between EPA, the Department of Labor (DOL), and 40 underserved communities to support lead pipe replacement.

- In January 2023, the White House Summit on Accelerating Lead Pipe Replacement hosted by Vice President Harris, announced new actions and progress to deliver clean drinking water, replace lead pipes, and remediate lead paint to protect children and communities across America, including the Biden-Harris Get the Lead Out Partnership comprised of state and local officials, water utilities, labor unions, and other nongovernmental organizations who committed to advance and accelerate lead pipe replacement. This White House Partnership spurred the creation of a the Great Lakes Lead Pipes Partnership, a first-of-its kind, mayor-led effort to accelerate lead pipe replacement in cities with the heaviest lead burdens.

- In August 2024, EPA announced $26 million in grant funding to protect children from lead in drinking water at schools and childcare facilities across the country. These grants will be used by 55 States and territories to reduce lead exposure where children learn and play.

- The Department of the Interior conducted more than 330 water system assessments at all Indian Affairs-owned sites, including schools, offices and detention centers, among others. Beyond service lines, assessments collected lead/copper samples to identify lead sources in water distribution systems and where lead levels affected drinking points DOI coordinated immediate

remediation strategies and implemented actions including alternative water sourcing and confirmatory sampling.

Reducing Exposure to Lead from Air – Major sources of lead in the air include emissions from manufacturing, waste and metals processing, and aircraft operating on leaded aviation fuel. To tackle these emissions, the Biden-Harris Administration has taken the following actions:

- In January 2024, EPA released the Integrated Science Assessment for Lead as part of its review of the lead National Ambient Air Quality Standards. This technical document, along with additional technical and policy assessments, will provide the scientific foundation for EPA's decisions as it regulates air lead exposure.

- In October 2023, EPA issued a final determination that emissions of lead from aircraft engines that operate on leaded fuel cause or contribute to air pollution which may reasonably be anticipated to endanger public health and welfare. With this final determination, EPA and Federal Aviation Administration (FAA) have begun work to consider regulatory options to address lead emissions from aircrafts.

Reducing Exposure to Lead from Soil – Lead contamination at legacy pollution sites from past industrial operations, like lead mining and smelting, can accumulate in soil and poses a threat to human health and the environment. Reducing lead levels in soils can reduce exposure risks.

- The Bipartisan Infrastructure Law invests $5 billion to clean up legacy pollution, including lead contamination, at Superfund and Brownfields sites. In Fiscal Year 2024, EPA completed 63 Superfund cleanup projects that addressed lead contamination in soil to protect families and children from the harmful impacts of lead. In addition, lead is the environmental contaminant most commonly reported by EPA Brownfields cleanup grant recipients. In fiscal year 2024, Brownfields grant recipients completed 63 brownfields cleanups that addressed lead contamination.

- In January 2024, after years of research and advanced understanding of the latest science on lead, EPA issued new guidance to improve screenings for lead in residential soils at Superfund and other contaminated sites. This new guidance cuts in half the recommended screening levels issued 30 years ago and takes into account the potential for cumulative impacts by

recommending even more stringent levels in areas where there may be additional sources of lead exposure, such as lead in drinking water or lead paint in homes.

Reducing Exposure to Lead from Food and Household Products – Lead may be present in food when it is in the environment where foods are grown, raised, or processed. To reduce the risk to children of ingesting lead in food, the Administration is working to addressed lead hazards in processed foods.

- In September 2024, the Food and Drug Administration (FDA) published a new study on dietary exposure from lead in infants and young children. This action is part of the agency's Closer to Zero effort, which sets forth the FDA's science-based approach to continually reduce exposure to lead, arsenic, cadmium, mercury and other contaminants to the lowest levels possible in foods eaten by babies and young children.

Protecting People from Lead Exposure in the Workplace – Workers can be exposed to lead as a result of the production, use, maintenance, recycling, and disposal of lead material and products. In 2024, the Administration sought to protect workers through a number of actions.

- In April 2024, the National Institute for Occupational Safety and Health (NIOSH) released Trends in Workplace Lead Exposure, monitoring workplace lead exposure trends through the Adult Blood Lead Epidemiology and Surveillance program.
- In March 2024, at the direction of President Biden, the Department of Veterans Affairs (VA) announced that all veterans exposed to toxins and other hazards during military service—including lead—are now eligible for VA health care.

Accelerating Innovations to Improve Blood Lead Testing – Testing blood is the best way to determine if a person has had lead exposure, as there are often no immediate symptoms when someone is exposed to lead. Based on blood lead test results, healthcare providers can recommend follow-up actions and care.

- In March 2024, the Centers for Disease Control and Prevention (CDC) announced Phase 2 of the Lead Detect Prize on challenge.gov, inviting selected Phase 1 participants to develop their winning concepts into detailed designs. This challenge provides a $1 million prize pool to accelerate the development of next-generation point-of-care blood lead testing technology.

National Aeronautics and Space Administration (NASA) and the FDA support the challenge, and it spotlights the urgent need to identify and foster new or existing breakthrough solutions and products for optimal lead testing in children.

Establishing Domestic Partnerships to Reduce All Lead Exposure – The Administration is engaging stakeholders in a number of ways to reduce community exposure to lead in the United States.

- In July 2024, the President's Task Force on Environmental Health Risks and Safety Risks to Children published the Progress Report on the Federal Lead Action Plan, a comprehensive update on the government's progress since 2018 toward reducing childhood lead exposures. HUD, EPA, and HHS, as co-leading members of the Task Force's Lead Subcommittee, are leading aggressive actions to combat lead exposure. The Federal Lead Action Plan promotes a vision that the United States will become a place where children, especially those in communities with environmental justice concerns, can live, learn and play and remain safe from lead exposure and its harmful effects.

- In June 2024, the CDC published the Childhood Lead Poisoning Prevention National Classroom program. This program features multiple training methods and outreach strategies, including slide presentations, training videos, webinars, podcasts, and materials posted online to engage a broad range of audiences, including public health professionals, other physicians, general audiences, and high school students, through social media platforms and many other outlets.

- In February 2024, the EPA in collaboration with HUD and CDC/ASTDR published *A U.S. Lead Exposures Hotspot Analysis,* which identifies states and counties with the highest potential lead exposure risk from old housing sources of lead. This analysis applied science-based methods based on available data, continuing the agencies' commitment to advancing whole of government efforts to focus lead actions in disproportionately impacted locations.

- EPA continues to establish and lead U.S. whole-of-government partnerships to develop and apply a science-based blueprint to identify communities with high lead exposures and improve their health outcomes in support of EPA's Lead Strategy and priority activities of the President's Task Force on Environmental Health Risks and Safety Risks to Children.

Spearheading an International Effort to Reduce Global Lead Exposure – Amidst historic actions taken

domestically to combat lead exposure in the United States, the Administration has built an unprecedented global coalition to tackle lead exposure in low- and middle-income countries, where one in two children has elevated levels of lead in their blood.

- In September 2024, the U.S. Agency for International Development (USAID) joined UNICEF and over 60 partners and 26 countries to launch the Partnership for a Lead-Free Future, the first-ever public-private partnership dedicated to tackling lead exposure in low- and middle-income countries. The Partnership committed $150 million toward this effort—at least 10 times the average estimated annual investment to combat lead exposure internationally over the past five years.

- Earlier this year, USAID, through its Enterprises for Development, Growth, and Empowerment (EDGE) Fund, provided $5 million to the Lead Exposure Elimination Project (LEEP) to accelerate the global transition to lead-free paint. Spanning over 30 countries in Africa, Asia, Latin America, Central Asia, and Europe, the LEEP partnership will support governments in introducing lead paint regulations and demonstrate how the private sector can reduce lead exposure, saving lives and protecting communities.

Critical minerals: New Resources to help power the future

Accessible via
www.blogs.oregonstate.edu/strata/critical-minerals/

By Nancy Steinberg

Fall/Winter 2024

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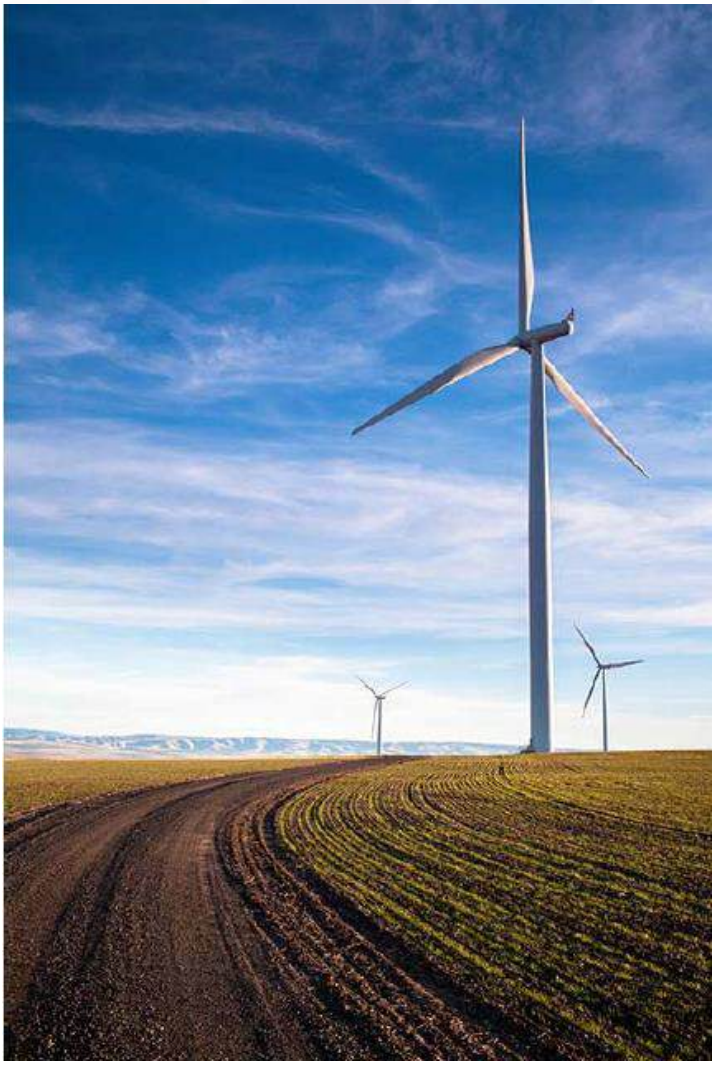
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If you own a smart phone, you are carrying around in your pocket some tiny pieces of the Earth that probably came from deep underground in various places across the globe. Current— and future — technologies, from iPhones to electric cars to wind turbines, require minerals with unfamiliar names like wolframite, arsenopyrite and bastnaesite, which contain tungsten, arsenic and rare earth elements, respectively. The lithium in lithium-ion batteries comes from minerals like spodumene, lepidolite or hectorite. Circuitry requires silicon and silver found in various types of ores. Electric vehicle batteries also require lithium, as well as cobalt, manganese, nickel and a host of other elements, while nationwide electrification will require huge new sources of copper.2/9

The subterranean substances these technologies require are referred to as critical minerals, so named because they are essential to the tech sector but also challenging to obtain. They may be scarce, or difficult to mine, or only available from countries with

fraught political or diplomatic relationships with the United States. Obtaining them may come at the risk of damaging an ecosystem or a community resource, or it simply may be difficult to produce enough to keep pace with demand.3/9

The rise of green technologies offers the promise of a respite from, or even replacement of, the use of fossil fuels, which we know drive not only our economies, but planet-altering climate change. But, as the saying goes, there is no such thing as a free lunch: Of course, resources are needed to build and operate green technologies, too. We simply can't construct electronics, batteries and other components without using mineral resources of some kind. The trick will be to determine how to obtain them responsibly, in a way that is minimally impactful to ecosystems and communities.

A new center at Oregon State University, the Center for Energy and Mineral Resources for Resilient Societies, now under development and led by faculty in the College of Earth, Ocean, and Atmospheric Sciences, intends to serve as a hub for interdisciplinary critical minerals research. The center will bring together geologists, engineers, chemists, economists, and environmental and social scientists to work on facets of the critical minerals issue, from determining how, where and why the relevant minerals form to evaluating how best to include communities in decisions about siting mining and processing facilities.

Which minerals are critical and why?

So which minerals are considered critical? It depends, explains Brian Tattitch, the CEOAS Barrow Family Chair in Mineral Resource Geology and one of the driving forces behind the new center. Some are critical now, and some are expected to become critical as technologies evolve. While he largely agrees with the U.S. Department of Energy's criticality matrix (see Figure 1), which indicates which substances are considered critical now and which ones are likely to become critical, he would tweak some of their findings.4/9



Figure 1: The U.S. Department of Energy's criticality matrices for the short term (left) and medium term (right), categorizing the level of criticality for various minerals.

One common misconception is that critical minerals are synonymous with the so-called rare earth elements (a group of metallic elements, many of which are now used in technology manufacturing). Not so, says Tattitch, although many rare earths are indeed critical minerals. "We've mined rare earths since the 1940s or even earlier, when we didn't need that much of them. Tiny mines were enough," he says. Now our need for some of the rare earths is growing as well, and the challenge is not that they are rare, but that we are not mining them, while China has cornered control over supply and processing. Keeping up with demand may become more difficult, as the mines that used to produce them in small amounts are no longer operating, pushing more rare earths into the "critical" category.

Beyond rare earths, a suite of other uncommon elements (like gallium) are equally critical for modern technology, but the U.S. supply remains uncertain. What kinds of domestic resources exist for these elements and how should we acquire them?

A good example is copper, which Tattitch thinks is more critical than the graphs in Figure 1indicate. "Copper is not a headline-grabbing commodity, but it's one of the few things we don't have a substitute for," he explains. "Copper is not going to be easy to replace if we want to build power lines, if we want to build cars, if we want to build solar and all kinds of electrification." While the U.S. is the second-largest producer of copper in the world, China (with whom the U.S.'s relationship is complex) actually leads the world in processing it, and demand is expected to grow significantly.

A kinder, gentler mine?

There is no question that mining critical minerals using current approaches and technologies is often problematic. Traditional mining rips apart the land surface, rendering it useless for other activities like ranching or recreation. It can also leave behind toxic tailings that contaminate soil and water. Research is underway to develop methods that move away from open pit mining or other damaging techniques that impact environmental, cultural and social resources, Tattitch explains.

For example, some of the minerals we need are found not in rocks, but dissolved in geothermal fluids deep underground in geothermally active areas like central Oregon.Tattitch describes techniques under development that would extract minerals by sending fluids down into the rock via long pipes plumbed deep into the ground, and sucking up the mineral-rich fluids from the other side of the mineral field. The footprint of these "in-situ leaching" mines would be tiny compared to a kilometer-wide open pit mine, and replacing the fluid would fill the voids left when materials are removed.5/9

Another more environmentally friendly approach is to extract elements like lithium from the salty waste left behind by desalination processes that provide freshwater to parched places on the planet. This approach, called brine mining, is the focus of a team of researchers in Oregon State's College of Engineering. The Brine Miners lab, led by Associate Professor Zhenxing Feng, employs electrically charged membranes to separate desirable resources, including lithium, magnesium and green hydrogen, from the brine waste that is usually sent back to the ocean. The only byproduct of their process is clean water.

Tattitch is also excited about efforts that could actually improve environmental conditions at abandoned or legacy mines where piles of mine waste (tailings) remain, often leaching toxins into the environment. While those piles of rock were considered waste when mining for more traditional resources was undertaken long ago (gold, silver), they may still contain critical minerals that we now want. If properly incentivized, companies might be interested in removing those tailings and processing them to gain things like lithium, gallium and rare-earth elements. Pushing forward these kinds of operations could help erase our legacy of damaging mining practices, while helping develop a new critical mineral supply chain.

Bringing expertise together

Some of these improved mining approaches are a long way off, and will still require serious planning and monitoring to minimize environmental and social impacts and ensure their economic feasibility. Such sticky problems will require interdisciplinary

research and new educational approaches, which is where the Center for Energy and Mineral Resources for Resilient Societies comes in.

Frank Tepley, CEOAS geologist and one of the coordinators of this initiative, notes that while the center is in the earliest stages of development, he expects it to ultimately help Oregon State become a leader in this vital area. He explains, "A center like this will allow for synergy among different researchers who are focused on a range of aspects of the issue. It will allow for us to attract funding, and to go farther than we could if we simply continued each individual research program on its own."

The center will tackle the science, engineering challenges, environmental impacts and human dimensions of critical mineral mining. It will also teach the next generation of geologists and problem solvers how to think holistically about critical minerals, their extraction, and their cradle-to-grave impacts on ecosystems and communities.

> *The center represents a great opportunity for us to have a space for everybody's voice on these issues. We can do things differently. We can do them better.– Alyssa Shiel*6/9

Tattitch, Tepley and others in the center will continue to focus on research that seeks to characterize mineral resources using geological and geophysical techniques, answering questions about how, where and how often these mineral deposits form and how we can find them.

Tepley's work is a good example of how asking first-order geology questions will help characterize these resources. He studies volcanic systems, many of which harbor various types of critical minerals in their petrological guts. "You do some mapping, you collect rock samples, and maybe cores, and analyze their constituents back in the lab. You use geophysical techniques to look at subsurface structures. From this information, you try to determine how often the volcano erupts." In the process of understanding why and how often volcanoes erupt, and in characterizing a volcano's eruptive products, scientists like Tepley can also establish the concentration of certain elements, which are encased in specific critical minerals.

This type of work can be combined with more experimental approaches that Tattitch uses, in which he simulates geothermal conditions in the lab to determine how minerals initially form in those environments. He is currently building an experimental system that will recreate ancient underground conditions of pressure and temperature similar to Yellowstone geothermal springs or bubbling Cascadia magma reservoirs, where some of the minerals of interest form. "One of the ways to we can determine how these minerals were formed is by creating those conditions in the lab and then evaluating

what happens," Tattitch says. He playfully refers to this kind of research as "cook and look."

Tattitch and Tepley also hope to be part of the regional segments of a national assessment of critical mineral resources funded by the U.S. Department of Energy. Pieces of Oregon are located in two of the massive project's designated regions; Tattitch is hoping that the new OSU center can "serve as a hub to strengthen and link the geologic, innovation and public outreach programs" in both of those assessments. In fact, OSU faculty and students, along with agency and industry partners, are already working on a very large lithium deposit that spans the border between Nevada and Oregon, known on the Oregon side as the McDermitt deposit. This region could become the largest source of lithium in the United States, indeed one of the largest in the world.

As the center grows, CEOAS geologists will collaborate with faculty in Oregon State's College of Engineering to work on questions related to extraction techniques. CEOAS geophysicist Adam Schultz has studied the possibilities of commercializing geothermal energy in central Oregon for decades. He and Tattitch hope to work on ways to extract critical minerals from geothermal fluids in collaboration with Espiku, a company founded by OSU College of Engineering Associate Professor Bahman Abbasi. They will also collaborate to undertake studies of so-called "supercritical" geothermal systems, which are found very deep underground (5 km or deeper) and are very hot (more than 400oC). These systems harbor the promise of nearly unlimited efficient geothermal power coupled with the presence7/9 of critical minerals in their fluids, but many questions remain about how the systems work and how to develop commercially and environmentally viable methods for tapping their potential.

Another focus of the center will be the potential environmental impacts that accompany critical mineral mining. CEOAS environmental geochemist Alyssa Shiel will be central to that effort; she has conducted research on the chemical footprints of mines in Colorado and Alaska in the past, and she has ideas about the kinds of research and monitoring that should be done to examine impacts of new mines, too. The environmental issues with mining affect land and water, and ultimately, human beings and their livelihoods, Shiel says.

She is also interested in the educational mission of the center. "As an academic institution, there's a place for us to come together and educate students who are looking to have careers in mineral resources, to educate them on historical practices that have devastated the environment and get them thinking about solutions, about ways to do things differently," she says. "And, in my classes where I talk about historic mining impacts, it would be great to have Brian come in and talk about why there's a need for extraction of these minerals at all."

People and policy

The center will also include a focus on human dimensions of the problems inherent in critical mineral mining. Community and policy issues that come up in relation to critical mineral mining include appropriate siting of facilities, potential for economic development in areas near mines, social and cultural impacts of mining and its environmental risks. Hilary Boudet, associate professor in Oregon State's School of Public Policy, will use her deep expertise in the sociological and policy aspects of renewable energy to lead this piece of the effort. One strength of this initiative, she says, is the fact that these aspects of the issue we reconsidered early in the process of establishing the center. "It takes foresight to embed human dimensions research in a project like this," she says.

Boudet anticipates that there will be a variety of interesting and important challenges to explore under the center's umbrella. For one thing, siting of individual facilities should be addressed as a local issue, but each individual project is embedded in a national and even global supply chain and demand. "I think it would be interesting to do some work to understand how much of that kind of linkage is happening in the minds of the general public, and what that kind of understanding means for people's views on siting facilities," she says.

"There is also a rural-urban divide here, where a lot of the mines will be proposed for rural areas, but the outcomes will serve the broader society, maybe urban areas in particular. So how do people's backgrounds or their views on urban or rural issues impact their thoughts on mining projects?" she adds.8/9

Through the interdisciplinary power of the center, Boudet hopes to ask questions that will lead to conducting public engagement and policy development differently.

"For critical minerals, and for the larger renewable energy transition, there is a really strong tension between the need to move quickly to address climate change and the need to take time and effort and resources to truly engage people in a meaningful way," which has hampered efforts in the past, she says. "If we want this to be a different sort of transition, we have to almost put the human side of the issue first, before the technical side. I would love to see more community-led decision-making about this issue."

Looking toward the future

As we look toward our energy future, we need to take stock of what is known and what is unknown. One thing that we know for sure is that our current reliance on fossil fuels is harming the planet and its people. We know that something has to change, likely multiple "somethings." Renewable energy is a critical piece of the future, and the minerals to support its development need to come from somewhere. But we know that traditional mining comes with environmental risks, too.

The new center at Oregon State will focus on the wide range of unknowns. "The center represents a great opportunity for us to have a space for everybody's voice on these issues,

"Alyssa Shiel says. "We can train a new kind of workforce. We can do things differently. We can do them better."9/9

Brian Tattitch, center, works in his lab with Master's student Sophia O'Barr andundergraduate Konstantin Lukyanenko.



Protecting Kids from Lead: 10 Reasons to be Thankful

Blog originally published on 4th Dec 2024 at https://unleadedkids.org/10-reasons-to-be-thankful/2024/12/04/ and reprinted with kind permission of Tom Neltner.

Tom Neltner is national director for Unleaded Kids. He is a chemical engineer and attorney dedicated to chemical safety issues. He is using his quarter century of experience in government, industry, academia, and non-profit advocacy to protect kids from harmful exposure to lead.

CLEANUP, **FOOD**, **HEALTH RISKS**, **HOUSING**, **LEAD**, **PAINT**, **PIPES**, **PRODUCTS**, **SOIL**, **WATER**, **WORKPLACE**



FelipeSalgado/Unsplash

This year has been a great one for actions to protect kids—and adults—from lead exposure, helping to make families and communities across the country healthier for decades to come. So great that picking Unleaded Kids' Top 10 was challenging. Here is the list of what we are thankful for:

1. EPA mandates water utilities remove virtually all lead pipes by 2037.
2. HUD awards historic $395 million to reduce children's exposure to lead-based paint hazards.
3. EPA reframes dust-lead standards as action levels and strengthens cleanup limits.
4. EPA tightens soil-lead screening levels for industrial sources impacting children.
5. Water utilities notify customers who likely have lead pipes and post maps of its inventory.
6. California strengthens rules to protect workers—and their families—from lead.
7. FDA recalls lead-contaminated cinnamon and inches closer to action levels for baby food.
8. Washington State limits lead contamination in metal cookware.
9. State and federal agencies map lead exposure risks.
10. USAID promotes efforts to reduce lead in consumer products overseas.

1. EPA mandates water utilities remove virtually all lead pipes by 2037. Lead service lines (LSLs) connect the water main under the street with homes and buildings. They are the primary source of lead in drinking water. Formula-fed infants are at greatest risk.

In October, **EPA improved** its Lead and Copper Rule (LCR) by requiring utilities to replace virtually all LSLs by 2037.[1] This timeline is consistent with recommendations by **EPA's National Drinking Water Advisory Committee** in 2015 and **EPA's Administrator** in 2018.

EPA estimated that the benefits of the rule will exceed the costs by up to 13 times. The benefits include up to 1,500 fewer heart-disease related deaths, up to 900,000 fewer babies with low birthweight, up to 2,600 fewer children with ADHD, and preventing the loss of up to 200,000 IQ points.

Congress' 2021 **Bipartisan Infrastructure Law** provided $15 billion in **critical funding** to support LSL replacement programs through the **Drinking Water State Revolving Fund**, which helps keep water affordable. Thanks to EPA's new rule and Congressional funding, families across the nation should eventually be free of the scourge of these lead pipes.

2. HUD awards historic $395 million to reduce children's exposure to lead-based paint hazards. An estimated **3.6 million American households** have young children who live with lead exposure hazards. At greatest risk are those in low-income families renting market-rate housing, where they lack protection from requirements that accompany federal subsidies.

HUD's **Lead Hazard Reduction Program** is essential to helping these children since their families have few options, especially in communities where cleanups are not required, even when a child is already harmed.

For these reasons, we give thanks to **HUD's October announcement** of $395 million in grants to four states and 69 local governments to remediate lead-based paint hazards in more than 25,000 homes with low-income families. HUD also provided $13 million to Missouri and nine local governments to build their capacity to remediate lead-based paint hazards in the future.

Unfortunately, **Congress cut** these grant funds by 31% in FY2024 and may cut further in FY2025, so the most recent round may remain unprecedented.[2]

3. EPA reframes dust-lead standards as action levels and strengthens cleanup limits. Lead-contaminated dust on the floor of homes is the primary source of most toddler's lead exposure. In October, **EPA revised a rule** that reframed and tightened its standards for lead-contaminated dust in homes and child-occupied facilities pursuant to a **2021 order** by the Ninth Circuit Court of Appeals. Compliance with the revised rule is required in January 2026, maybe later where states need to update their rules.

By switching the key term[3] to "dust lead action level," the agency is more consistent with similar terms for drinking water, food, and workplaces. This consistency will make it easier to know when EPA recommends cleanup, while still being clear that a hazard may be present. There is, after all, no safe level of exposure to lead.

We are particularly thankful that EPA made important changes to its **2023 proposal** based on comments it received. After considering reliability, effectiveness, and safety, EPA tightened the level at which action was needed[4] and relaxed how low labs needed to be able to measure lead. As a result, the long-term benefits of the rule will exceed the costs by up to eight times. Next up are action levels for soil lead and for lead-based paint.

4. EPA tightens soil-lead screening levels for industrial sources impacting children. Often, children's lead exposure comes from a nearby industrial or commercial source. In this situation, Superfund and the Resource Conservation and Recovery Act (RCRA) are key tools to clean up the contamination.

We are thankful that in January, **EPA revised its guidance** for these cleanups, tightening the screening levels for the first time in 30 years. The levels were 400 parts per million (ppm). Now, the level is 100 ppm where other localized sources of lead exposure are present such as **lead-based paint**, **lead service lines** (LSLs), or an area that **does not meet lead air standards**. For other areas, the level is 200 ppm.

EPA and states will incorporate the new guidance into its cleanups moving forward, including **five-**

year reviews at existing Superfund sites. Overall, the long-term benefits of the change should exceed the costs by up to 1.8 times.

5. Water utilities notify customers who likely have lead pipes and post maps of its inventory. Pursuant to **December 2020 revisions** to EPA's LCR, customers with a service line that is or may be an LSL (or in some cases galvanized) should have received notices from their utilities advising them of the potential risks and encouraging them to act by mid-November.

The utilities also sent their service line materials inventory to the state and made it publicly available. If they are one of about 1,000 utilities that serve more than 50,000 people, they had to post the inventory online. Most did this as a searchable map showing the location of each service line and whether it was an LSL, galvanized requiring replacement, or unknown.

While we don't yet know how many of the 50,000 utilities complied, we are thankful for those that did and are undertaking efforts to replace known LSLs and resolve the material of those that are unknown.

6. California strengthens rules to protect workers—and their families—from lead. Workers across the country are exposed to lead from industries that process materials containing lead or from construction and maintenance projects that disturb old lead contamination in paint and other materials. Even at low levels, this exposure harms their hearts, kidneys, and nervous systems. The risk is greater for pregnant people because lead increases risk of spontaneous abortion, preterm births, and reduced fetal growth.

In addition, these workers take lead home with them on their body and clothes that contaminate their vehicles and home, potentially harming their families.

We are thankful that in April, **CalOSHA dramatically strengthened** its version of the federal OSHA rules for general industry and construction activities. Those federal rules, written more than 30 years ago, are woefully outdated and do little to protect worker's families. **CalOSHA's rule changes**, effective in January 2025, include lowering the action level 15-fold to 2 micrograms per cubic meter of air, tightening the permissible exposure limit (PEL) five-fold, mandating the use of interim protections for tasks presumed to exceed the PEL, and strengthening interim protections by requiring employers to provide washing facilities and ensure their workers use them for hands, exposed arms, and face before entering eating areas, drinking, smoking, or applying cosmetics, and at end of their shift.

7. FDA recalls lead-contaminated cinnamon and inches closer to action levels for baby food. Many common food ingredients, including roots crops, spices, and some fruits, are contaminated from lead in the environment. While the levels are often low, the cumulative impact can

be significant, especially for babies and toddlers. FDA's analysis shows that more than 2.6 million children exceed the agency's goal of keeping dietary lead intake below 2.2 micrograms of lead per day.

Last year, FDA forced the recall of **applesauce contaminated with lead** after finding that lead chromate had been added to cinnamon used in the product. In 2024, FDA began intensively testing the popular spice and **forced recall of 13 brands** where levels were 2 ppm or greater.

As part of its **Closer to Zero program**, FDA also committed to finalizing action levels for lead (and cadmium) in baby food by the end of this year, based on its January 2023 proposal. On October 21, the agency submitted its decision on lead for **interagency review**.

We are thankful that FDA is acting to limit lead levels in food. We will be more thankful when it fulfills its commitment and sets protective limits on lead in baby food by the end of 2024.

8. Washington State limits lead contamination in metal cookware. Metal cookware is commonly used in household and commercial kitchens. Studies by **Hazardous Waste Management Program in King County, WA** and the University of Washington showed that some cookware, especially lead and brass can be highly contaminated with lead that may leach into food resulting in harmful exposures to children.

Faced with FDA inaction, **Washington State legislature responded** to the study by unanimously passing a law prohibiting manufacturers from making, selling, offering for sale, or distributing for sale or use in the State, any metal cookwarewith a component containing more than 5 ppm of lead by the end of 2025. Cookware includes any container or device intended for the preparation or storage of food.

We are thankful that states like Washington are taking on issues and setting standards when FDA drops the ball.

9. State and federal agencies map lead exposure risks. Virtually every community in the United States has a lead exposure risk because of decades of use in gasoline, paint, manufacturing, and consumer products. While our country continues to make progress reducing the risk, much remains to be done. Maps of that risk and of lead exposures sources help people visually understand their situation. When they are interactive, they are particularly helpful means to access detailed information about those risks.

In 2024, EPA, with support from HUD and CDC, published an **impressive study** identifying the

nation's potential lead exposure hotspots that warrant a deeper analysis for targeting lead actions. The mapping is built on sophisticated models driven by actual data in several states.

In addition to EPA's effort, **Ohio, New Jersey, Indiana and California** developed their own models and maps to help residents better understand the cumulative impact of various sources of lead exposure.

We are thankful for their efforts to make the information more accessible to all and anticipate seeing more in the coming year.

10. USAID promotes efforts to reduce lead in consumer products overseas. The U.S. has made tremendous strides in protecting Americans from lead exposure. Unfortunately, developing countries have only begun to take on the issue, often allowing lead intentionally added to paint, spices, and other consumer products. In addition, industrial operations, especially those that recycle lead, spread lead contamination through neighboring communities. A **staggering 1.6 million lives are lost** worldwide due to lead exposure.

In 2024, USAID undertook a promising new effort to reduce lead in consumer products, such as spices and cookware, in developing countries. The potential benefits are huge, topping $1 trillion annually, with only a relatively small investment. We are thankful that **USAID partnered** with UNICEF and others to provide this bridge to protecting public health on a global scale. And because these contaminated products often make their way into our country, the effort will help protect children here.

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1. Utilities can take longer than 2037 if: 1) At least 39% of their service lines must be replaced and they convince state regulators they need more time; or 2) current and future property owners deny access to the LSL despite repeated efforts.
2. The total exceeds the $314 million **awarded by HUD** in 2019 to **77 state and local governments**.
3. The previous terms were hazard standard and clearance level.
4. The tightened from: 1) 5 micrograms per square foot (µg/ft^2) for floors, down from 10; 2) 40 µg/ft^2 for window sill, down from 100; and 3) 100 µg/ft^2 for window troughs, down from 400.

CDC's LEPAC Calls for Groundbreaking Action to Protect Adults from Lead

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HEALTH RISKS



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What Happened

At a **December 11 meeting**, CDC's Lead Exposure Prevention Advisory Committee (LEPAC) adopted an impressive **draft report** that calls for measures to protect adults from the harmful effects of lead exposure.[1] The report makes 16 groundbreaking recommendations with detailed justifications for each.

Key drivers for action were the recognition that lead exposure is a cardiovascular risk factor on par with high cholesterol, smoking, and high blood pressure and that risk "has received relatively sparse attention in health professional education and outreach to the lay public." LEPAC was also concerned about lead's risk to both pregnant people and their fetuses.

> The magnitude of lead-related risk is on par with that of other prominent cardiovascular risk factors, such as elevated cholesterol, smoking, and hypertension, that have been the focus of extensive public health concern.
>
> *FROM THE* **LEPAC DRAFT REPORT**

In October, EPA quantified the benefits of reducing lead-related cardiovascular disease mortality when it **finalized two major rules** that tightened dust lead action levels and mandated removal of virtually

all lead pipes. The estimated benefits for each rule far exceeded the costs of those rules.

The recommendations include:

- Recognize and emphasize the cardiovascular disease risk in preventive health policies and communications; take decisive and consequential actions when adult blood lead levels are at or above 10 µg/dL.
- Combine adult and child blood lead surveillance systems at federal, state, and local levels; improve national and state Adult Blood Lead Epidemiology and Surveillance (ABLES) programs, including performance measures, data management, and funding.
- Use new California OSHA standards as a model for feasible health protection because the federal standards fail to protect workers.
- Encourage occupational physicians to exercise their discretionary authority to recommend medical removal and other protective measures at blood lead levels lower than OSHA limits.
- Eliminate all unnecessary workplace and commercial uses of lead where substitution of safer alternative materials is possible and feasible.
- Increase compliance with EPA's Lead-Safe Renovation, Repair and Painting (RRP) rule.
- Mandate lead hazard mitigation activities for permits and inspections conducted in accordance with model codes of the International Code Council.
- Offer no-cost blood lead screening to uninsured or low-income adults.
- Improve compliance with CDC and the American College of Obstetricians and Gynecologists (ACOG) recommendations for blood lead screening of pregnant people and track success through healthcare performance measures.

Why it Matters

LEPAC gave seven specific reasons to support its call for action:

- "A prominent endpoint of concern is death, as opposed to subtle or subclinical effects on organ system function that are often sufficient for public health and regulatory action."
- "The epidemiological evidence that associates this outcome with lead exposure is derived from multiple large, high quality prospective cohort studies that extensively controlled for confounding and bias."
- "This epidemiological evidence is coherent with clinical and experimental findings that demonstrate plausible modes of action at consistent lead doses."
- "Because the background risk of cardiovascular mortality in populations with this ongoing extent of lead exposure (largely but not exclusively in the workplace) is high, the absolute increase in mortality may be substantial."
- "The magnitude of lead-related risk is on par with that of other prominent cardiovascular risk factors, such as elevated cholesterol, smoking, and hypertension, that have been the focus of extensive public health concern."
- "Levels of chronic adult lead exposure linked to this risk remain prevalent in many workplace settings."

- "The observed risk of cardiovascular mortality associated with blood lead concentrations ≥ 10 µg/dL does not establish the absence of risk at lower blood lead concentrations."

Our Take

We fully support LEPAC's recommendations to CDC and encourage the agency to act with urgency given the risks. The two years LEPAC invested in the comprehensive report was worth the wait.

We also encourage all who seek to protect people from lead to consider the recommendations now and not to wait for federal action. These state, local, and private actions will serve as models to help the federal government to act when it is able.

Unleaded Kids also asked CDC to:

- Encouraged CDC to closely review ACOG's risk factors because they have not been validated and are hard to apply in practice even for folks knowledgeable on issue.
- Finalize its **Lead Exposure Risk Index** presented by CDC at a December 2021 LEPAC meeting so drinking water utilities could add it to their maps of lead service lines to avoid the misperception that lead pipes are the sole or primary source of lead exposure. **Indiana** and **California** have their own helpful examples.
- Encourage rather than discourage **data sharing with EPA and HUD** so they can take action to protect families from lead.
- Consider redefining the **Blood Lead Reference Value** as an "action level" as other federal agencies have done for dust-lead, food, water, and workplaces. This approach would better describe the purpose of the BLRV and be consistent with other agencies, making it easier to communicate.

1. LEPAC approved the report but asked the workgroup that wrote the report to clarify three areas: 1) reference EPA analysis to support lead in **water** and **dust** rules that quantified the health benefits of reducing adult exposure to lead in terms of fewer cardiovascular disease deaths, and fewer low birth weights; 2) drop call to link clinical lab certification to compliance with state-mandated blood lead reporting requirements; and 3) include local agencies increasing compliance with lead-safe renovation, repair, and painting rule.

US EPA's Perplexing Gift to Lead Industry - NOT Banning Lead Wheel Weights

By **Tom Neltner**, Unleaded Kids [US NGO]

December 26, 2024

Health Risks, **Lead**, **Products**, **Workplace**

[Originally published under the Heading: *Lead in Products: EPA's Perplexing Gift to Lead Industry*, at https://unleadedkids.org/perplexing-gift-to-lead-industry/2024/12/26/ - reprinted with kind permission]



HutchRock/Pixabay

What Happened

On December 23, **EPA decided** not to initiate rulemaking to ban lead wheel weights, concluding that the risks to children's health and the environment were insufficient to warrant immediate action. Instead, the agency suggested[1] the risks from lead wheel weights should be considered as part of a comprehensive risk evaluation for all lead and lead compounds pursuant to the Toxic Substances Control Act (TSCA), a process that is not scheduled to begin in the near future and likely will take many, many years to complete after it's started.[2]

Wheel weights are used to balance tires, preventing uncomfortable vibrations for vehicle occupants and significantly extending the life of the tire and vehicle. However, wheel weights often fall off the tire while driving. They also are removed when the tire is replaced. Since 2009, vehicles produced in North America have been using non-lead wheel weights, generally zinc-coated steel.

Inexplicably, EPA's action came less than two weeks after CDC's Lead Exposure Prevention Advisory Committee (LEPAC) adopted a **draft report** that specifically identified lead wheel weights as an unnecessary use because there were feasible, safer alternatives. EPA's representative on LEPAC voted for report. See our blog regarding **LEPAC's action**.

The report noted that many states have already adopted a ban, and it recommended that the federal government and other states do the same. Among the **nine states**—California, Illinois, Maine, Maryland, Minnesota, New Jersey, New York, Vermont, and Washington—that already have a ban in place, six have been in effect for more than a dozen years.

In addition, EPA's analysis[3] failed to consider the risks to adults, especially those who handle lead wheel weights in tire repair shops, despite the **evidence provided by commenters**. The omission is strange because the agency knows how significant the socioeconomic benefits of reducing adult lead exposure can be. To justify **two major October rulemakings** to reduce lead in drinking water and dust in homes, EPA quantified the risks of death from cardiovascular disease (CVD) and of low birth weights when adults are exposed to lead. The CVD benefits were huge, similar to or greater than the IQ benefits from reducing children's lead exposure.

Why it Matters

In 2009, in response to a **TSCA citizen petition**,[4] **EPA agreed to take action** on lead wheel weights, recognizing that state action showed there were safer alternatives, but that a national rule was needed to effectively remove the materials from the market.

In 2014, a **Tire Review article** said, "Weight manufacturers and distributors alike agree that a complete ban on lead wheel weights would be beneficial to everyone. It would allow producers to focus on making only one product; distributors could reduce their stock levels; and any national companies would have to worry about only one set of laws." Unfortunately, despite the anticipated benefits, the market has not on its own fully moved away from lead wheel weights.

After 14 years of EPA's inaction, the **petitioners went to court** to force EPA to make a decision. As a result, EPA agreed to decide whether to initiate rulemaking to regulate lead wheel weights.

The delay appears to have been costly because the **petitioners' comments** showed that EPA's inaction resulted in significantly greater production of lead wheel weights, reversing years of decline. They also said that:

- The cost of steel wheel weights are roughly the same as lead;
- The world's largest retailers—Walmart and Amazon—sell lead wheel weights;
- Lead wheel weights are available online, even in states with a ban; and
- 25 million pounds of lead has fallen from vehicles since EPA granted the 2009 petition.

Our Take

For an agency and an Administration clearly committed to protecting people from lead exposure, EPA's action makes little sense, especially since final action under a TSCA comprehensive review may well be a decade away. EPA's failure to consider the evidence of adult exposure, especially from people who replace tires and add wheel weights to rebalance the new tire, leaves its decision vulnerable to a legal challenge.

On a personal level, Unleaded Kids' Tom Neltner recalls many of his pre-teen years spent collecting lead wheel weights that had fallen off car tires and then melting them down into toys—and even gifts

for the family. He recalls how hard it was to wipe the gray from his fingers. No telling how much harm he did to himself and others, harm that EPA's action fails to prevent for others who might have similar hobbies and those who rely on safe environments to earn money.

Next Steps

We encourage the following actions:

- States and communities to consider banning lead wheel weights;
- Consumers to avoid repair shops that use them; and
- Petitioners to consider challenging EPA's action in court.

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1. EPA said, "addressing potential remaining exposures from lead continues to be a high priority for EPA, as reflected in EPA's announcement that "Lead and Lead Compounds" is on its list of candidate chemical substances currently being considered for future prioritization actions under TSCA." It also said it "may also need to develop a peer-reviewed threshold to determine the level of adult health effects that would be considered unreasonable during the risk evaluation process." ↩
2. Specifically, TSCA Section 6(b). On December 18, 2024, **EPA designated five petroleum products** as high-priority substances for TSCA risk evaluation. Lead and lead compounds are further down the priority list. ↩
3. See ***Federal Register* notice** and **supporting technical document**. ↩
4. The petitioners were Ecology Center, Center for Environmental Health, United Parents Against Lead & Other Environmental Hazards, and Sierra Club. Unleaded Kids' Tom Neltner, cosigned the 2009 petition on behalf of the Sierra Club, where he was a volunteer on its National Toxics Committee. ↩

EPAleadTiresTSCAVehicleswheel weights

Post navigation

CDC's LEPAC Calls for

Look WHO now supports mercury-free dentistry

CAMPAIGN FOR
MERCURY FREE DENTISTRY
A PROJECT OF CONSUMERS FOR DENTAL CHOICE

World Health Organization endorses a qualified phase-out of dental amalgam

This Campaign for Mercury-Free Dentistry post by US-based Charlie Brown National Counsel, Consumers for Dental Choice, President, World Alliance for Mercury-Free Dentistry was emailed to supporters like The LEAD Group Inc (because mercury and lead are synergistic, making symptoms of exposure to the two toxic metals together much worse than either on their own) but is also at URL: https://mailchi.mp/toxicteeth/look-who-now-supports-mercury-free-dentistry?e=e42f825315

Dear Friends,

When I created the World Alliance for Mercury-Free Dentistry and we dove into the mercury treaty negotiations 15 years ago, our most formidable opponent was the World Health Organization (WHO). This powerful player was thick as thieves with the pro-mercury American Dental Association and World Dental Federation, even approving of (I am not making this up) an *increase* in dental amalgam use in Africa.

We have come so far since then!

Instead of treating us as pariahs like the old days, WHO invited us to its global meeting on oral health last month in Bangkok. Working from the inside, we convinced WHO to adopt a provision in its "Bangkok Declaration on Oral Health" calling for the "phase out where feasible" of dental amalgam. Not quite a home run, but certainly a triple!

To hit the home run in 2025, I must raise funds now. To continue with us as a donor, please visit https://www.mercury-free.org/donate.aspx

These battles take bulldog tenacity, a strategy to outwit the mercury lobby, and a global coalition

working together – and support year-in and year-out from contributors like you!

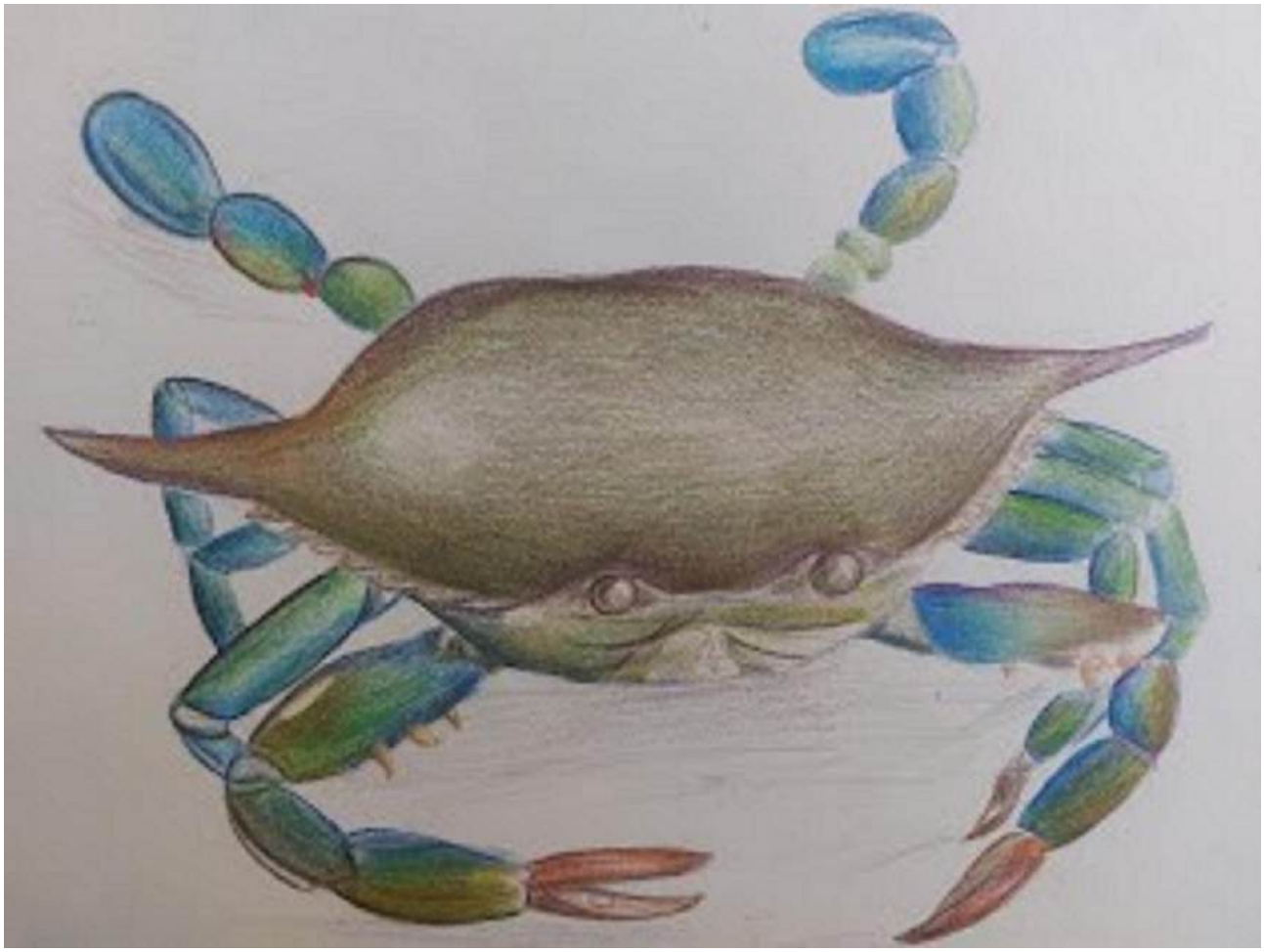
Charlie

Charles G. Brown
National Counsel, Consumers for Dental Choice
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Phone: 202-544-6333 www.ToxicTeeth.org

Search results for Mercury on The LEAD Group's Volcano Art Prize site

1 **Blue Crab** November 10, 2024, 7:50 pm

Artist: Tianyang Zhao



2

Ocean Dumping July 9, 2024, 8:25 pm

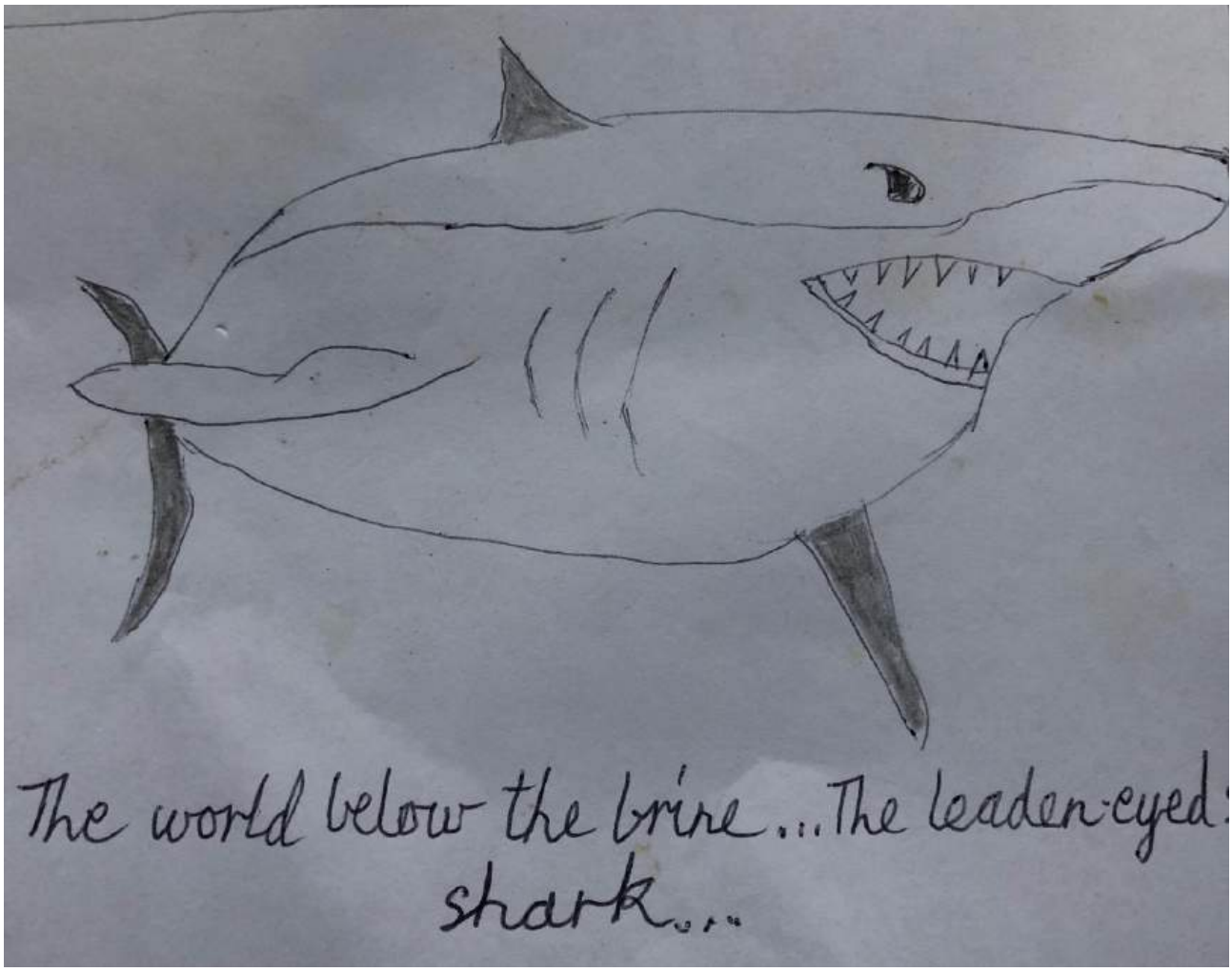
Artist: Siobhan Hannigan



3

The world below the brine…The leaden-eyed shark…July 26, 2020, 8:05 pm

Artists: Elizabeth O'Brien



4

Volcano Eruption May 1, 2020, 7:42 pm

Artist: Liza Tripathi



5

Test your stock feed at a lab with a LEAD Group Kit July 29, 2016, 1:24 pm

Artist: Elizabeth O'Brien



6

Whale washed up to shore July 22, 2016, 5:52 pm

Artist: Sreedhar Ritishaa



7

Dolphins soaring July 20, 2016, 5:53 pm

Artist: Alex Weng



Millions of Mental Health Disorders in US Caused by Lead



Miki Barnes
December 6, 2024

https://mailchi.mp/f242982197a2/millions-of-mental-health-disorders-in-us-caused-by-lead-poisoning?e=0e273a55ef – reprinted with permission of Dr Aaron Reuben.

"A significant burden of mental illness symptomatology and disadvantageous personality differences can be attributed to US children's exposure to lead over the past 75 years."

The above quote is from The Journal of Child Psychology and Psychiatry, Contribution of Childhood Lead Exposure to Psychopathology in the US Population Over the Past 75 Years by Aaron Reuben, Michael J. McFarland, and Matt Hauer.

Below are excerpts from a CNN article by Madeline Holcombe, Research Shows More Than 150 Million Mental Diagnoses May Be Linked to Lead in Gasoline, published on 12/04/2024.

> A history of lead in gasoline may be behind tens of millions of mental health conditions in the United States…

"We've shifted the curve in the population for mental health problems, so that everyone has a greater liability in the mental illness symptoms, and that some people who were already at risk are going to develop diagnosable disorders sooner, more often or more kinds," said coauthor of the study Dr. Aaron Reuben, assistant professor of clinical neuropsychology at the University of Virginia.

The study published Wednesday in The Journal of Child Psychology and Psychiatry estimates that about 151 million mental disorder diagnoses in the US are attributable to lead. The exposure likely would not have happened had lead not been in gasoline, Reuben added…

"Millions of Americans are walking around with an unknown, invisible history of lead exposure that has likely influenced for the worse how they think, feel and behave."

Lead is a potent neurotoxin and can disrupt brain development in many ways that can impact most types of mental health problems, including anxiety, depression and ADHD…

"It also changed personalities. We believe that (lead exposure) makes people a little less conscientious — so less well organized, less detail-oriented, less likely to be able to pursue their goals in an organized way, and more neurotic," Reuben added.

A 12/04/2024 NeuroscienceNews.com article Leaded Gas Exposure Linked to Mental Illness provides additional information.

"A new study estimates that childhood lead exposure, peaking between 1960 and 1990 due to leaded gasoline, caused 151 million excess cases of mental illness by 2015. Researchers linked historic lead exposure data to mental health symptoms, finding that personality changes and mental health disorders were most pronounced among Generation X.

This underscores the lasting impact of environmental toxins on public health, with leaded gasoline serving as a cautionary tale for prioritizing profit over safety. The findings highlight the need to address environmental risks proactively to prevent long-term societal harm."

Though lead was removed from automotive fuel more than 25 years ago, piston-engine aircraft used by flight training schools, private pilots, hobbyists and others continue to use leaded avgas. Seventy percent of all airborne lead emissions in the U.S., 470 tons per year, are released by general aviation pilots who continue to pump lead into the air with abandon, despite the well-documented adverse impacts of this pernicious neurotoxin. Though commercial jets contribute to global warming and emit a number of toxic chemicals, jet fuel does not contain lead.

In Oregon, the largest facility sources of lead in the majority of the 36 counties throughout the state are airports. Washington County, the second most populated county in the state, is also the most lead polluted due primarily to relentless flight training and recreational flying over homes, neighborhoods, schools, day care centers, recreational areas, waterways and agricultural lands.

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Portable XRF Bone Lead Machine for Australia Project

by Elizabeth O'Brien, BSc, Grad Dip Health Edn



Volcano Art Prize (VAP) 2024 Entry by Elizabeth O'Brien. Title: pXRF Bone Lead Testing
Lead Safety Message: #Grandma Lead says: In our lead safe future, everyone will have access to bone lead testing by portable X-Ray Fluorescence (pXRF) using a Niton XL3t **GOLDD+** (made by Thermo-Fisher Scientific, USA). And all earthlings should have less lead in our bones if Australian registered voters sign the Circular Economy for Lead Petition EN6714. Description of Work: iPhone 13 photo and text added in Powerpoint. Petition EN6714 is at https://www.aph.gov.au/e-petitions/petition/EN6714 until Wed 04 Dec 2024 11:59 PM (AEDT).
https://volcanoartprize.com/portfolio-item/pxrf-bone-lead-testing/

At the 11th November 2024 Annual General Meeting of The LEAD Group, I informed members that US$37,000 could buy a Niton Thermo Fisher XL3t+ GOLDD+ XRF scanner and that Dr Aaron Specht has been using these machines for a decade and has published some 20 journal articles on his results, as well as being available to either validate the portable XRF (pXRF) machine in the US or to have his costs covered to validate it in Australia. pXRF machines are normally used for mining exploration, but Aaron Specht has led the academic world in their use to assess bone lead burdens. For research use by academics (perhaps in combination with an Australian pathology company, lead mine or lead poisoning prevention centre such as are found in Port Pirie lead smelter town, South Australia or Broken Hill lead mining town, New South Wales, or Mt Isa lead smelter and lead mining town, Queensland) would need ethics approval.

I added that these Niton pXRF scanners could be used to measure bone lead burden in mining and smelting towns to assess the effectiveness of detoxification methods. The accuracy is linked to the thickness of skin over the tibia – the less fat the more accurate the bone lead XRF result. They can also be used to measure lead in wildlife that have eaten or been shot with lead shot.

Tim Pye asked if it is safe to point x-rays at living people. I assured the meeting that this is safe and would thus pass ethics approval. It would be a long-held dream of mine come true if the first person pXRF bone lead tested in Australia would be Martin Bryant, the Port Arthur Massacre shooter who began serving 35 consecutive life sentences in prison in Tasmania after he was found guilty of 35 shooting deaths in 1996.

After I sent the following email to Aaron Specht, he replied with the next two articles so our Project to ensure that a has been launched!!

Sent: Wednesday, 25 December 2024 11:47 AM
To: Aaron Specht

Thanks so much Aaron Specht for all these articles listed in LID (LibraryID) order in the following: Specht et al LIDs re pXRF in LEAD Group Library.

They came just in time to inspire me to add the following item to our charity's Annual General Meeting agenda:
Item: Portable XRF Bone Lead Machine for Australia

Motion: That The LEAD Group Inc embarks on a Project to have a Portable XRF machine in Australia for bone lead assessment of cumulative lead exposure in humans and wildlife, as well as assessment of other metals including strontium to assess adult bone mineral density and fracture risk (as bone fractures release stored lead from bones).

My proposal was accepted unanimously and I have since put out feelers to the Chinese-owned Perilya lead mining company in Broken Hill and to some academics and pXRF-utilising consultancy companies to get on board the Project, but to date I have had no response so… nothing positive to report.

But the best idea Tim Pye had at the AGM was that you might already have written text promoting the use of pXRF for bone lead research - perhaps from a grant application or any other summary of what you've already done with this wondrous Niton machine - so I wondered if you could send something through for when I get back on the horse on this issue in 2025?

Elizabeth



Volcano Art Prize (VAP) 2024 Entry by Elizabeth O'Brien. Title: Daily Lead Detox Foods

Lead Safety Message: I eat 30 different plants plus mushrooms daily and take LivOn Vit C, Vit D, calcium and magnesium. I experiment with fresh ginger in every meal (then double the dose), and fresh garlic for brekky and lunch to see if I can get my blood lead level to fall but if I could have bone lead testing by pXRF, I'd know for sure what works!

Description of Work: iPhone 13 photos collaged in Powerpoint.
https://volcanoartprize.com/portfolio-item/daily-lead-detox-foods/

Portable XRF validation and method to quantify bone lead in vivo

By Dr Aaron Specht, Assistant Professor, School of Health Sciences, Purdue University, USA
Photo from https://www.mpo-mag.com/breaking-news/purdue-researcher-develops-lead-detection-breakthrough-tech/

Pilot work to validate portable XRF:

Over the last few years, principal investigator Specht's lab (see biosketch) made substantial progress in validating a portable XRF machine for quantifying metals in bone *in vivo*.[170-172]
As shown in Figure 7a, conventional KXRF and portable XRF measurements of Pb are highly correlated (R^2=0.95) in four goat bones covered by 3 mm of soft tissue. To further validate the portable XRF against the standard KXRF bone Pb measurement system, 76 human participants were recruited and their bone Pb content measured. This study confirmed that the average detection limit (sensitivity) of the portable XRF system (using 5 min measures) is equivalent to that of the conventional KXRF system (with a 30 min measurement). As shown in Figure 7b, there is a strong correlation of bone Pb measurements between the portable XRF and KXRF systems (more details are in a recent paper[172]).

Conclusion: the portable XRF is sensitive to detect bone Pb, is ideal for the proposed study.

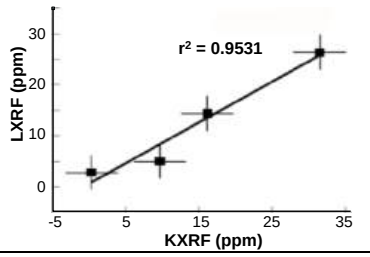


Figure 7a. Portable XRF vs. KXRF for bone Pb content in goat bones covered with 3 mm Lucite.

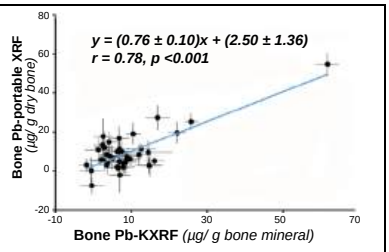
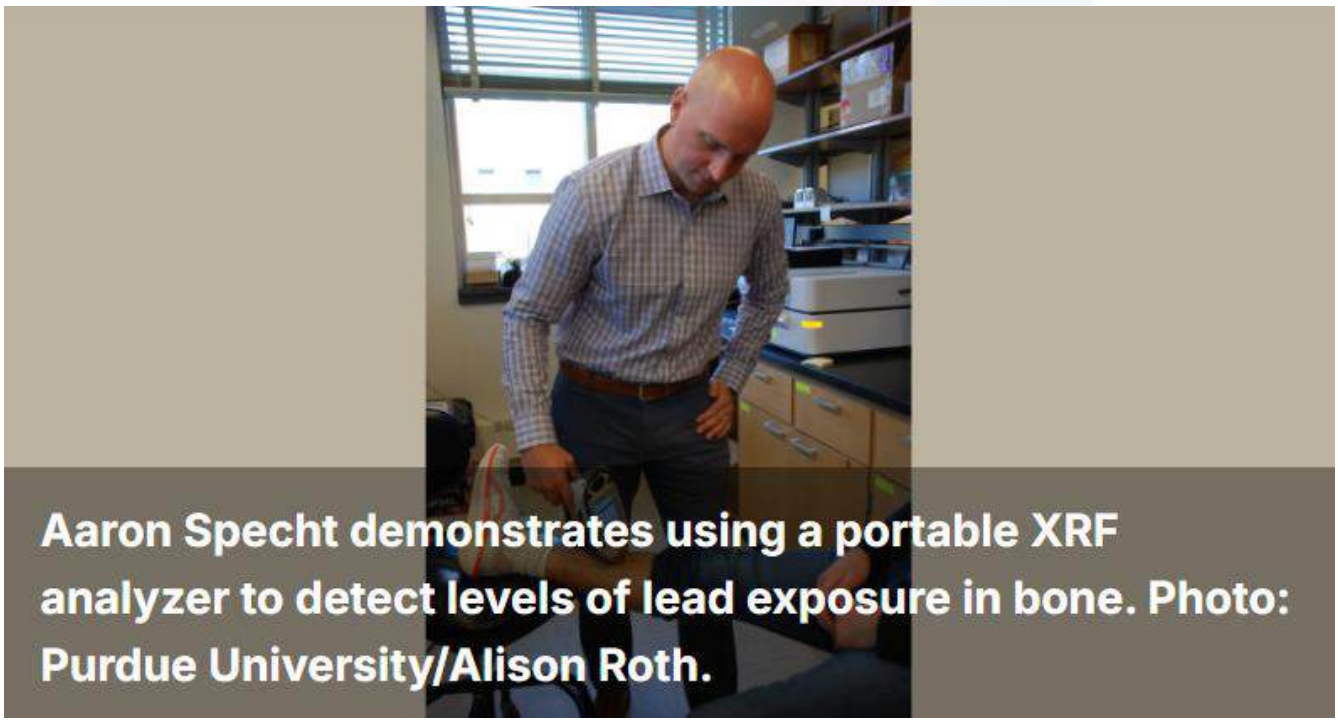


Figure 7b. Correlation of bone Pb measured by the portable XRF and KXRF (uncertainty bars shown).

A portable XRF method developed and validated in Dr. Specht's lab will be used to quantify bone Pb of participants *in vivo*. Details of the device and methodology were published previously,[171, 172, 214, 215] with the basics summarized here. The portable XRF device is a customized instrument manufactured by Thermo-Fisher Scientific (Thermo Niton XL3t GOLDD+, Billerica, MA). The x-ray tube has an energy span up to 50 kV and uses a thermoelectric-cooled silicon drift detector with 25 mm^2 area and 1 mm thickness. The tube was optimized for bone Pb measurement with a voltage of 50 kV, a current of 40 μA, and a silver and Fe combination filter. These settings provide the best sensitivity for bone Pb measurements.[214] In response to irradiation, Pb L x-rays are generated, detected, and used to estimate bone Pb concentration. Before *in vivo* measurements are performed, Pb-doped bone equivalent phantoms will be used to calibrate the system. Calibrations and QA/QC procedures will be performed periodically according to our standard protocols.[170] After collecting the spectra, characteristic Pb peaks will be fitted using a Gaussian function to quantify the net peak and an exponential function to quantify background. Least-squares algorithms will be used to extract the net counts of the Pb peaks. During

the *in vivo* measurement, participants will sit comfortably on a chair with his/her right leg placed on another chair. If it is not possible for the participant to place their leg on another chair, a measurement with the footrest on the floor can be performed. The pants of the participant will be pulled up, and a 50% alcohol swipe will be used to clean the skin above the tibia bone. A spot above the center of the tibia bone or toenail will be marked and a 5-minute measurement will be taken on the spot. The spectrum will be collected, stored, and analyzed later.



Aaron Specht demonstrates using a portable XRF analyzer to detect levels of lead exposure in bone. Photo: Purdue University/Alison Roth.

As the device makes use of low energy x-rays, there is a small and safe amount of radiation involved in the procedure. The whole-body effective dose from a 3-minute bone measurement is ~3.4 μSv.[216] We will take a 5-minute bone measurement for participants in this project and the effective dose will be <10 μSv. This dose is negligible compared to an AP chest x-ray of ~100 μSv and an annual background dose to the US population of ~3600 μSv.

Bone Lead Description and Population Comparison including by pXRF

By Dr Aaron Specht, Assistant Professor, School of Health Sciences, Purdue University, USA.
Image from https://hhs.purdue.edu/directory/aaron-specht/



Lead is a known toxicant having wide ranging negative effects throughout the body with a particular impact on neurodevelopment. Even dating back to Roman times, lead's deleterious effects in the body were recognized. Lead used to be more ubiquitously used in paints and leaded gasoline, which led to serious exposures nationwide with many deaths attributable directly to lead. In the 1990's, many studies showed the drastic negative impacts lead was having on the population including serious effects such as cardiovascular disease (Navas-Acien, Guallar et al. 2007), neurodevelopmental deficits (Canfield, Henderson et al. 2003), and death (Weisskopf, Jain et al. 2009). There was a drastic public health intervention to reduce these known issues and improve health by removing lead from both paint and gasoline, which resulted in a drastic reduction in lead exposures nationwide (Dignam, Kaufmann et al. 2019). However, even after these reductions, it was determined that ever lower levels of lead exposure continued to show these drastic influences on neurodevelopment, particularly in children (Canfield, Henderson et al. 2003, Lanphear, Hornung et al. 2005, Jusko, Henderson et al. 2008, Lanphear, Rauch et al. 2018). Thus, communities still experiencing exposures outside of paint and leaded gasoline had continued health issues associated with lead. For this reason, the Centers for Disease Control reduced the actionable level of lead exposure from 10 ug/dL to 5 ug/dL (Dignam, Kaufmann et al. 2019) and most recently the reference level has been further reduced to 3.5 ug/dL. However, despite these reference values, the scientific community recognizes that there is no safe level of lead exposure.

Lead can be absorbed through oral ingestion, inhalation, and dermal absorption in the body. Children have been shown to be much more susceptible to ingested lead than adults with 40-50% of lead dose orally ingested ultimately being absorbed in the body (United States. Agency for Toxic Substances and Disease Registry. 2007). This typically leads to high exposures in children from hand-to-mouth exposures and lead accumulation in dust. However, water soluble lead actually increases the ability of the body to metabolize and ultimately absorb the ingested lead. Thus, lead in water is a particularly dangerous source of exposure during development (United States. Agency for Toxic Substances and Disease Registry. 2007).

The primary means of surveilling lead exposure in communities relies on widespread blood testing. Lead in blood, although taken as standard in these surveillance settings, has many situations in which its capabilities as a biomarker of exposure are severely lacking (Rabinowitz 1991). Blood lead is a biomarker that is highly linked with turnover of red blood cells in the body, as red blood cells are the primary carriers of lead in blood (O'Flaherty 1998). Thus, in adults, lead in blood has been repeatedly shown to only reflect recent exposures with a half-life of about 30 days (Nilsson, Attewell et

al. 1991). This means that if we measured an adult who was severely exposed one month ago, we would only be able to identify half of the exposure from our lagged measurement. This is further complicated when we look at children's biokinetics and blood lead turnover. Previous studies have shown children have a blood lead half-life of less than one week, so the measurement from blood is incredibly time sensitive (Specht, Lin et al. 2016, Specht, Weisskopf et al. 2018). This effect introduces a great deal of uncertainty into a single measurement of blood lead, as, in any given week, the blood lead could change by more than 50%. In order to properly assess the exposure to lead over time using blood lead, there would need to be serial measurements taken over many weeks at the known point of highest exposure.

Bone lead is the most valuable tool for accurately determining cumulative exposure to lead over years to decades. When lead gets in the body, it acts similarly to calcium, as they have similar binding properties (Rabinowitz 1991). As a consequence, lead can disrupt critical neural pathways reliant on calcium channels, as well as produce many other ill-effects throughout the body (Bressler and Goldstein 1991). Lead will also replace calcium in bone. Not only is lead in bone a good marker of overall exposure, but, since it is directly related to disruption in calcium metabolism, it is a proxy for lead's effects in the brain and throughout the body (United States. Agency for Toxic Substances and Disease Registry. 2007). This is what makes bone such an excellent marker of exposure. Additionally, since bone changes slowly in the body, studies have shown that lead measured from bone is reflective of years to decades worth of exposure due to the slow kinetic processes of bone remodeling (Nilsson, Attewell et al. 1991, Rabinowitz 1991, Barbosa, Tanus-Santos et al. 2005). Thus, a single measurement of bone lead reflects the lead exposure during a time period of potential exposure from an acute or chronic source in an individual's past (i.e., the water crisis). Thus, we can use bone lead to identify lead exposure that was missed due to the poor temporality, high uncertainty, and unavailability of widespread blood lead testing from years prior.

Bone lead can be measured in a variety of ways, but the most successful and least invasive method is a tool utilizing x-ray fluorescence (XRF) (Wielopolski, Ellis et al. 1986, Hu, Milder et al. 1989, Todd, Moshier et al. 2001). In XRF, an X-ray source generates a photon beam that passes through the sample. The photon transfers the energy and displaces an electron from atoms in the sample. Displacement of this electron makes the sample atoms unstable and electrons jump from outer orbitals to lower orbitals releasing fluorescence, characteristic of the element of each atom. The fluorescence in the form of secondary X-rays is measured by a radiation spectrometer and the rate of determination of these secondary rays gives the elemental concentration present in the sample. XRF has been used for decades to determine the bone lead level of individuals from children to adults in a variety of different settings (Wielopolski, Ellis et al. 1986, Bleecker, Mcneill et al. 1995, McNeill, Stokes et al. 2000, Grashow, Spiro et al. 2013, Specht, Lin et al. 2018). Lead can be measured at multiple energies particular to the XRF device, the K- and L-shell. K and L are reflective of the electron orbitals in which the measurement arose. K-shell requires the use of a radioisotope source or a high energy radiation source. L-shell can be used with either radioisotope or x-ray tube sources. Both have been used successfully in measurement of bone lead (Wielopolski, Ellis et al. 1986, Hu, Milder et al. 1989, Todd, Moshier et al. 2001). There have been a number of iterations of these XRF devices to gradually make this measurement of bone lead easier through the years.

Measurement of bone lead has become much more convenient as the capabilities of the XRF technology has improved. The first devices to measure bone lead (K-shell) utilized a radioisotope source (cobalt-57 and cadmium-109), which made the devices themselves fairly difficult to obtain and operate (Hu, Milder et al. 1989). The measurement systems were also incredibly large, requiring

special high-purity germanium detectors with liquid nitrogen cooling in order to operate properly. Finally, the measurements were slow with each measurement taking 30 minutes to complete. Thus, the initial XRF bone lead measurement systems were incredibly large, difficult to obtain, difficult to operate, and took a significant amount of time for each measurement.

Improvements in low energy (L-shell) x-ray detection led to advancements of low energy XRF technology (Wielopolski, Ellis et al. 1986, Nie, Sanchez et al. 2011, Specht, Weisskopf et al. 2014). Previous L-shell measurement systems had similar long measurement times as the K-shell systems in order to reach detection limits needed for measurement of bone lead. In the early 2000's, low energy x-ray detector systems vastly improved in both the maximum counts per second (resolving time) and energy resolution, which would drastically lower the detection limits and, most importantly, the measurement times with these devices. The current standard L-shell XRF utilizes a portable form factor and boasts a 3-minute measurement time to achieve equivalent detection limits to conventional XRF devices (Specht, Weisskopf et al. 2014, Zhang et al. 2022). This allows for easy, convenient measurements of bone lead in field environments and the ability for widespread testing for cumulative lead exposure.

The current portable XRF measures the same bone lead measurement as has been done decades prior. This has been verified in theoretical, human, animal, and lab settings using multiple methodologies for validation (Nie, Sanchez et al. 2011, Specht, Weisskopf et al. 2014, Specht, Lin et al. 2016, Specht, Parish et al. 2018, Specht, Dickerson et al. 2019, Specht, Kirchner et al. 2019, Zhang et al. 2021). The device x-rays give a small radiation exposure, which is equivalent to that of standing outside for about 9 hours with natural cosmic sources of radiation or equivalent to 1/3rd of a single dental x-ray (Specht, Zhang et al. 2019).

Reference studies of bone lead have been completed in a few comparable groups for recent environmental exposures, legacy leaded gasoline exposures, and within groups of communities with known exposure sources from industry. Populations of adults that do not have blood lead levels typically considered elevated, can still have bone lead levels consistent with that of an elevated level of exposure. Bone lead in adults from a study in Toronto recently showed a level on average of about 3.4 µg/g bone mineral for those with an average age of 43 (McNeill, Fisher et al. 2017). From the same study, those with an average age of 29 years had a bone lead measurement of 0.9 µg/g bone mineral and those with average age of 56.5 years had 6.0 µg/g bone mineral (McNeill, Fisher et al. 2017). Correcting these levels to values reflective of general population bone lead measurements during the time of this case would change the values for ages of 29, 43, and 56 years to 0.5, 1.7, and 3.0 µg/g bone mineral (McNeill, Fisher et al. 2017).

For children, we have a couple of points for comparison. In a group of lead poisoned children in China (diagnosed as lead poisoned defined as blood lead levels >25 ug/dl) the median and standard deviation of bone lead was 12 ± 26 ug/g bone mineral (Specht, Lin et al. 2016, Specht, Weisskopf et al. 2018). The most highly exposed children from that population were directly ingesting 100% lead powder. The control group from that study had a median value of -1 ± 4 ug/g bone mineral (Specht, Lin et al. 2016, Specht, Weisskopf et al. 2018). Similarly a recent population survey of children between 6-19 years of age in Ontario, Canada found bone lead levels to be 0.63 ± 1.0 ug/g bone mineral (average ± standard deviation) (McNeill, Fisher et al. 2017). Populations of children that do not have blood lead levels typically considered elevated, can still have bone lead levels consistent with that of an elevated level of exposure.

Specht et al articles re bone lead pXRF in LEAD Group Library

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UK LEAPP Alliance Update, Dec 2024

LEAPP Alliance



Two emails from Tim Pye, LEAPP Alliance - Lead Exposure and Poisoning Prevention Alliance - A joint initiative of the Lead Containing Materials Association and Lead Safe World UK, December 2024

To: Supporters of the LEAPP Alliance

There are many opportunities to progress lead poisoning prevention. Most pass by unrealised. If you are willing and able to help decide which are most useful, and especially if you are able to progress them, then please let me know.

With very best wishes for Christmas and a lead-safe 2025.

ILPPWA 2024 - WHO International Lead Poisoning Prevention Week of Action (ILPPWA)

We held an open meeting during ILPPWA 2024. The main parts of the discussion were on the proposed ban on lead-shot for outdoor use and lead in drinking water. I had hoped we could identify some specific actions, but we need to work more on this.

Communications

Financial Times

Laura Hughes has continued her series of articles regarding lead hazards from old mines "England's environment watchdog told to review risk from lead mines". You may need to sign-up to their £1 trial to read this article.

Healthy Homes Hub

I have been in contact with Jenny Danson of the Healthy Homes Hub - a new enterprise that focuses on making housing healthier. Outputs from this are a podcast and an article.

Unchecked UK

I had a useful discussion with Unchecked UK. They focus on maintaining and improving regulations and the politics of making it happen. I have not taken it forward, but they may be a route for sharing warnings about lead hazards.

ASIA

ASIA is the Advanced Study Institute of Asia. They are doing a lot of work on lead poisoning prevention in southern Asia. I presented on the work of the LEAPP Alliance during their

ILPPWA 2024 online event.

Ayanay Psychological Accreditation (APA) https://ayanay.co.uk/

I did record an interview with APA, but it does not seem to be on their YouTube channel yet.

Royal Society of Chemistry (RSC) https://www.rsc.org/

Our article called "*Should we still worry about lead*" is now ready for publication. There was an RSC committee meeting recently. I hoped it would be discussed, but I have not heard.

Government

Webpages

New UK Health Security Agency webpages have been published. This release is very welcome, but I think the content needs some improvement. I am going review the pages and will feedback to the author.

LEPHIS

The Lead Exposure, Public Health Interventions and Surveillance Steering Group met on 1st October. The minutes are confidential, but I will ask for permission to share some highlights once some corrections I requested have been included.

LEICSS

The Lead Exposure In Children Surveillance System report on 2023 data has been published. This is, of course, a passive reporting system when health care professionals recognise the potential for lead exposure. Some highlights:

- 226 child (under 16 years) cases of blood lead concentration (BLC) above 5 µg Pb/dL blood were reported. This is an 18% increase over 2022
- Again, more cases are reported from Yorkshire and the Humber. (This is thought to be because clinicians are prompted to recommend a blood lead test when anaemia is identified.)
- The following sources were identified, in order of prevalence - soil, paint, imported spices/food, traditional medicines and herbal remedies, imported utensils, ceramic pottery and pewter
- Most cases exhibited pica and learning difficulties
- Using studies in France and the USA it is estimated that there are 64,780 children aged 1-4 with BLC > 5 µg /dL. (This would equate to 292,000 aged up to 19 - The WHO definition of a child)
- A summary of the West Midlands shooting range incident is included. The highest BLC was 242 µg/dL. 15 people received chelation therapy

ECLIPS

The Elevated Childhood Lead Interagency Prevalence Study pilot will start in January. I have been doing pre-work on engaging with community groups in Leeds. I have been told that the project was chosen as one of only 36 successful applications out of about 900.

HSE Lead Shot

The Health & Safety Executive consultation on the use of lead shot in outdoor shooting

remains incomplete - according to the HSE Annual Reports and Accounts 2023/24.

DEFRA leaflet

The DEFRA leaflet on decorating safely remains "withdrawn" because it was out of date. Tim Farron MP asked about this and was "shocked" by the response from DEFRA which was "it is out of date". I have also asked Greg Smith MP to ask about this.

Water

WaterSafe are campaigning to end the use of lead solder in plumbing which is great.

Water2 are marketing an under-sink water filter. The company is part-owned by Bear Grylls who produced this video which includes mention of the UNICEF "Toxic Truth" report on lead exposure (see time point 0:36). We have reached out to them to try to form an affiliation, but without any response.

I had a very useful conversation about sampling protocols with Dr Colin Hayes whom, I think, developed, or researched, orthophosphate dosing. The most important think I learned was that water company testing aims to check that water treatment is working as it should, i.e. it is about what is under the water companies' control and not what is under the customer's control. He also explained that testing for lead contamination at the kitchen tap should be sequential because the lead pipe might be upstream and including in a shared supply. I therefore do not intend to continue to press the Drinking Water Inspectorate about sampling protocols.

Social Media

When there is something I think is worth sharing, I continue to post on the following social media channels:

Facebook

Groups

Lead poisoning support group

UK Lead Safe Mamas

Pages

LEAPP Alliance

Lead Safe World UK

Linked In

Tim Pye

LEAPP Alliance

X/Twitter

LEAPP Alliance (Shared with Lee Crawfurd)

Bluesky

LEAPP Alliance

Sent: Monday, 30 December 2024

Great article by Laura Hughes in the Financial Times. Online today. Print edition tomorrow. Several LEAPP Alliance allies are quoted.

'A timebomb': fears for children being poisoned by lead paint in UK homes

Lack of routine testing means thousands of youngsters could be suffering from effects, say experts.

https://www.ft.com/content/e0f09d7f-5f05-4902-8778-c0ee7a13cbcd

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Horrendous lead exposure from playing UK Christmas game Toad in the Hole

LEAPP Alliance

Two emails from Hesaan Sheridan, Heritage Testing Limited, United Kingdom and LEAPP Alliance - Lead Exposure and Poisoning Prevention Alliance - A joint initiative of the Lead Containing Materials Association and Lead Safe World UK, December 2024

Game of Toads IMAGE UK Christmas game Toad in the Hole.from https://www.gameoftoads.com/ - For all things related to the MOST leadtacular game in the world



Sent: Monday, 30 December 2024

Re: article by Laura Hughes in the Financial Times: 'A timebomb': fears for children being poisoned by lead paint in UK homes - Lack of routine testing means thousands of youngsters could be suffering from effects, say experts.

https://www.ft.com/content/e0f09d7f-5f05-4902-8778-c0ee7a13cbcd

Great article. I agree with the potential danger from lead paint... it's very real!!!

Watch out for Toad In the Hole game during Xmas festivities... don't let your children near it. The amount of lead shed into their hands is horrendous (corroborated by our tests)

- https://www.itv.com/news/meridian/2022-04-20/toad-in-the-hole-the-sussex-pub-game-that-has-nothing-to-do-with-the-food
- https://www.brightonandhovenews.org/2022/09/29/old-fashioned-sussex-pub-game-enjoys-brighton-revival/
- https://www.gameoftoads.com/ - For all things related to the MOST leadtacular game in the world
- https://www.sussexliving.com/features/features/sporty-sussex-goes-indoors-toad-in-the-hole/

It's a bit of a child magnet but please don't let your child near it!!

Kind regards,
Hesaan Sheridan

Sent: Monday, 30 December 2024

Re Q: Interesting, so the brass coins shed so much lead? Had no idea, does all brass do that?

Not the brass coins so much (although wipe tests would show that they do shed lead), it's the constant of the impact of the brass coins on the lead lined table with the hole in it. The table is made of lead because it's part of the game. It absorbs the energy and does not cause "bounce". But you also get tiny shards of lead that are produced on impact and also constant abrasion from the game itself. So lead hazards are high for the immediate area and beyond (including surfaces and floors). And the measured amount on the sides of a drinking glass of a player who is constantly touching it is horrendous.

The staff at these establishments serve the customers and families play the game too.

I look on in impotence knowing what the dangers are. Even the establishment who allowed me to take the tests of players hands do not wish to follow it up, because others do not seem to have a problem so why should they.

Kind regards,

Hesaan Sheridan

Heritage Testing Limited
Unit 43, The Old Brickworks, Station Road, Plumpton Green, East Sussex, England, BN7 3DF.
Tel: +44 (0) 1273-891785
Web - http://www.heritagetesting.co.uk and http://www.testforlead.co.uk

Heritage Testing Ltd is a private limited company. Registered in England No. 05353671. Registered Office: 10 Dellney Avenue, Haywards Heath, West Sussex, RH16 3ND.

Clinical and population strategies to protect children from low-level lead poisoning - by Prof Bruce Lanphear

LEAPP Alliance



Email from Professor Bruce Lanphear, Faculty of Health Sciences, Simon Fraser University, Vancouver, British Columbia, Canada and LEAPP Alliance - Lead Exposure and Poisoning Prevention Alliance - A joint initiative of the Lead Containing Materials Association and Lead Safe World UK, December 2024

From: Bruce Lanphear
Sent: Tuesday, 31 December 2024 2:56 AM
Subject: Re: LEAPP Alliance Update

Tim and others:

Re: article by Laura Hughes in the Financial Times: 'A timebomb': fears for children being poisoned by lead paint in UK homes - Lack of routine testing means thousands of youngsters could be suffering from effects, say experts.

It is encouraging to read high-profile articles like Laura's.

I encourage LEAPP Alliance to have in-depth discussion on clinical and population strategies to protect children from low-level lead poisoning. The US led population strategies in the 1970s and 1980s, but then shifted to clinical strategies. These two strategies are complementary, but for the past 30 years the US emphasized the clinical strategy (testing children in the clinic setting) at the expense of a population strategy.

The clinical strategy is important, but if sufficient investments are made in population strategies (e.g., replacing lead service lines, identifying residential lead hazards, banning leaded aviation fuel, and so on), then clinical strategies will become unnecessary over the next 10 years.

Some of the key strategies to discuss are:

Identifying and mitigating sources rather than using children as biological indicators of lead hazards. This could begin with a national survey of lead in water, housing and soil analogous with the national housing survey in the US.

Enacting laws and regulations to eliminate or control lead hazards.

Conducting ongoing representative surveys of UK children for lead and other toxic chemicals to quantify the prevalence of lead poisoning, identify risk factors for lead poisoning, and monitor trends in lead poisoning.

Ongoing surveillance of high-risk children who are screened for low-level lead poisoning in the clinical setting.

All these will obviously require enhanced communication of lead hazards and the health impact of low-level lead poisoning.

Cheers,

Bruce



IMAGE: https://volcanoartprize.com/?s=lanphear

Bruce Lanphear's Little Things Matter (Video), VAP 2014

in Vap archive



Volcano Art Prize (VAP) 2014 Entry by Professor Bruce Lanphear et al

Lead-safety Message: "We've been studying the impact of toxins on children for the past 30 years and reached the inescapable conclusion: little things matter. We've discovered that extremely low levels of toxins can impact brain development. We have also discovered that subtle shifts in the intellectual abilities of individual children have a big impact on the number of children in a population that are challenged or gifted. Steps should be taken to reduce children's exposure to toxins or suspected toxins."

Artists: Bruce Lanphear (Producer and Narrator), Bob Lanphear (Art Direction and Graphic Design), Trevor Phillips (Motion Graphics and Video Production), David Murphy, Chris Jeschelnik and Jason Levis (Audio/Video)

Advisory Team: Erica Phipps, Adrienne Montani, Bruce Lanphear, Joanne Telfer, Manda Aufochs-Gillespie

Sponsors: Simon Fraser University Engagement Fund, Artemis Fund

Materials: Infographic Video (Graphics, Video Editing Software, Filming Equipment)

https://volcanoartprize.com/portfolio-item/little-things-matter/ which links to https://www.youtube.com/watch?v=E6KoMAbz1Bw where you can watch the video.

UN PCFV Lead Campaign page as at 8th March 2021

[*Editor's note:* I was stunned to find that practically everything about the PCFV's role in eliminating lead paint has been removed from the United Nations website and thus if you want to know the history, you really need to search for PCFV on The LEAD Group's www.lead.org.au site, where you will find it 119 times. I'm so proud of The LEAD Group's role within and outside the Lead Campaign of this UN Partnership, that I have done a deep search to find the last remaining vestige of this historic info at URL: https://web.archive.org/web/20210308214243/https://www.unep.org/explore-topics/transport/what-we-do/partnership-clean-fuels-and-vehicles/lead-campaign]

The PCFV [UN Partnership for Clean Fuels and Vehicles] has been most successful in the global elimination of leaded petrol. In 2002 when the PCFV was formed, 82 countries were still using leaded petrol. Today only ONE country is remaining and plans are underway to also eliminate leaded petrol in this country.

Leaded petrol poisoning has been one of the world's most serious environmental health problems, responsible for 90% or more of human lead exposure. A UNEP-commissioned study (Hatfield, Journal of Environmental Health, 2011) estimates the benefits of the global elimination of leaded petrol at over 1.2 million premature deaths avoided per year, of which 125,000 are children. The overall global benefit of eliminating leaded petrol adds up to $2.45 trillion per year.

Circular Economy for Lead Petition to the Australian House of Representatives

The LEAD Group's Petition to Australian Parliament House (APH) was submitted at https://www.aph.gov.au/e-petitions/create/petition/confirm on Sunday 6 Oct 2024 and went Online and was signable from 6 Nov to 12 Dec 2024 at https://www.aph.gov.au/e-petitions/petition/EN6714 or at https://www.aph.gov.au/e-petitions/ - search for: circular

As at 12 Dec 2024, the petition was signed by 95 Citizens of Australia, was closed for signatures, and was eligible for being presented to Parliament, but as at 30 Dec 2024 it had not yet been presented to Parliament.

Volcano Art Prize (VAP) 2024 Entry by Elizabeth O'Brien. Title: Petition for our children.
Lead Safety Message: #Grandma Lead says: please sign my **Petition EN6714 - Circular Economy for Lead** to not only stop new lead mines digging more lead out of the ground but also start collecting and recycling ALL the lead already in circulation in Australia.
https://volcanoartprize.com/portfolio-item/petition-for-our-children/



Final PETITION Details

Petition Address

To the Hon. Speaker of the House of Representatives and Members of the House of Representatives

Petition Of

Certain citizens of Australia

Petition Title

Circular Economy for Lead

Petition Reason

Australia is the world's largest lead (ore/concentrate) exporter – often to countries with lax controls on shipping, smelting, refining, manufacturing and recycling, allowing the continuing flow of Australian lead into cheap products that're banned here (like lead paint, toxic Ayurvedic medicines/spices/cosmetics); and into footpath/backyard/kitchen recycling (including by children). The annual global cost of lead exposure is US$6 trillion (2019) - 7% of global GDP. A moratorium on all new 'lead mines' (where lead is the highest tonnage metal) especially 'greenfield' projects like Bowdens, will prevent land and water contamination of agricultural/grazing land/indigenous sites and reduce water, fossil-fuel and infrastructure requirements. 'Mining' existing lead from the built environment; and incentivising householders to replace lead with non-lead flashing, especially on rainwater collection roof areas; and industry to collect, transport and recycle lead radiation shielding, weights, pewter, brass, solder, spent ammunition along with used lead acid batteries; and to

manufacture new lead acid batteries from 100% recycled lead; and 'export' lead ingots with the technology/policy to assist other countries to achieve lead circularity, will obviate the need for newly-mined lead, create a smarter world (more capable of solving the climate crisis), and create a lead-safe and climate-safe planet for future generations.

Petition Request

We therefore ask the House to create lead circularity: commit to a moratorium on all new mine projects where lead is the major mine product by weight, and incentivize 'mining' the built environment and waste-streams for lead; manufacturing new lead acid batteries from 100% recycled-lead; and exporting lead ingots, and lead-safety technologies/knowledge.

Principal Petitioner Information

Name

Elizabeth O'Brien, The LEAD Group Inc charity

Address

Summer Hill, NSW, 2130, AU

Phone 0297160014

Original full PETITION

Petition Reason

To the Honourable Speaker and Members of the House of Representatives, given that Australia is the world's largest lead (ore and concentrate) exporter and that the annual global financial cost of lead exposure was US$6 trillion in 2019 - equivalent to 7% of global GDP – Australia needs to become the world's first circular economy for lead and then export the technology and policy to assist Australian lead-importing and other countries to achieve lead circularity. We, the undersigned, urgently petition the House to begin by **ending lead mining in Australia** and especially "greenfield" lead mining which is not green but rather new mining proposed in areas which have not been mined before. We call upon the Federal Minister for Environment and Water to commit to a moratorium on all new 'lead mine' projects and to incentivise industry to manufacture new lead acid batteries from 100% recycled lead, and to 'mine' existing lead from the built environment and the community. We petition the Minister to end the approval of all new 'lead mine' proposals including any mine proposal where the major tonnage of metal to be extracted will be lead. Such proposals are often presented as 'silver mine', 'gold mine', 'tin mine', 'zinc mine', etc but should be required to name the proposal as a 'lead mine'. For instance, 'Bowdens Silver' mine is proposed/estimated to produce 90 times more lead than silver and will destroy agricultural/grazing land, tourism and indigenous sites and place a too-heavy burden on water use and fossil-fuel use to create infrastructure for the construction, operation and ore transport out-of-state. We further ask the Minister to incentivise householders to safely replace lead flashing with non-lead flashing, especially on rainwater collection roof areas, and incentivize industry to safely collect, transport and recycle previously-mined lead, such as lead flashing, radiation shielding lead sheet, lead weights, pewter, brass, solder, spent ammunition along with used lead acid batteries and other leaded wastes like removed lead paint waste, lead-contaminated building void dusts, soil and sediments. The need for newly-mined lead (and other metals found with lead in these recyclables) will be obviated, populations will be smarter (therefore potentially more able to solve the climate crisis), and the Australian and global environment will be lead-safe and climate-safe for future generations.

Petition Request

We therefore ask the House to take the first step towards a national circular economy for lead (the toxic heavy metal) and commit to a moratorium on all new mine projects where the major mine product by weight will be lead (whether it is proposed as a 'lead mine' or 'silver mine', 'gold mine', 'tin mine', 'zinc mine', etc) and instead incentivize 'mining' the built environment and waste-streams for lead and any other metals found with lead in lead-containing products and wastes, and the technological improvements to enable all leaded products/wastes (not just used lead acid batteries) to be collected and recycled safely and to be manufactured (both here and overseas) into lead acid batteries made from 100% recycled-lead ingots and with the target of replacing all Australian lead ore or concentrate exports with lead ingots, in order to avoid lax shipping, smelting and refining controls and the continuing escape of Australian lead into street recycling by children and black markets in non-OECD-importing countries.



Volcano Art Prize (VAP) 2024 Entry by Zoe Lu. Age: 7. School: Creative Einstein

Title: Panda. Lead-Safety Message: Lead exposure bad. Lead-safety good. It's as black and white as a panda. Sign Grandma Lead's **Petition EN6714 - Circular Economy for Lead** to keep Australian lead in the ground where it is safe.

https://volcanoartprize.com/portfolio-item/panda/

Volcano Art Prize (VAP) 2024 Entry by Jenny Rowbotham



Title: Broken Hill Lead Dust. Lead-Safety Message: This is where my journey began with lead and I've spent more than 40 years telling my story so this cycle of lead mine lead poisoning can be broken. New lead mines are not going to fulfil any of the promises broken repeatedly by existing lead mines and by the governments that support mines instead of people. Sign the Circular Economy for Lead to keep lead safely in the ground, like wise First Nations Australians have done for tens of thousands of years. Description of Work: Poster with a photo of my sons' first back yard beside the mine train line in Gaffney Street, and the Melissa Sweet SMH 12th April 1997 article *Mother blames mine trains for three frail sons*.

https://volcanoartprize.com/portfolio-item/broken-hill-lead-dust/

Roger Green 30 Dec 1955 - 4 Dec 2024 OBITUARY

By Elizabeth "Lizzie" O'Brien, Lead Scientist and Lead Advisor, The LEAD Group Inc. Australia, 30 December 2024

Roger Green would have turned 69 today, but in the words of Haydn Washington, he was a greenie who was slowly felled by a red gum. Roger always called me "Lizzie". He was my friend for 53 years, and my boyfriend in 1972 in 5th form at Chatswood High School on Sydney's North Shore.

Roger Green acquired meningoencephalitis from fungal spores released when he chain-sawed, by order of the local Council, a *Eucalyptus baileyi* (red gum) on his property just outside Canberra in 2002.

Before that, Roger had run a very successful editing and printing business called Green Words and, as I found out after the last time I saw him at the end of November 2024, five days before he died, Roger Green had written three books, two of which were published: "Battle for the Franklin" in 1984 and "Good Business, Bad Business" in 2002.

I was amazed to discover when last week I started to read his "Battle for the Franklin", that the whole dam-building tradition and culture in Tasmania was "justified" according to the Hydro-Electric Commission, on the basis that the energy was needed for mining and forestry. That tradition, of government's automatically approving any and all proposals which destroy the environment for the sake of felling trees and mining the earth, no matter the energy costs (and contribution to the climate crisis), continues to this day.

I'm certain that if Roger had been able to use a computer in the final month of his life, he would have signed my *Circular Economy for Lead Petition* to the Australian Federal Government (see above), which closed for signatures the day Roger died, 4th December 2024.

Indeed, if he'd been able to talk on the phone and use a computer for the last two decades of his life, I feel certain I could have learned so much more from him about how to run a truly successful environmental protection campaign. Earlier visits to Canberra involved an outing for Roger when he was still able to be transferred from wheelchair to car, but later, had to be held indoors using a hearing device.





Photo: Lizzie, Roger and Michael Maratea at Arboretum, and Lizzie, Roger and Howard Jacobs at Roger's aged care, Canberra visits

I will be forever grateful to have known Roger, and that his legacy – compassion, love of beauty, brilliance - lives on in his beautiful wife Monika and sons Ned and Will.

Photo: Monika Binder and Roger Green



In the last issue – *LEAD Action News vol 22 no 3* – I included a hastily put-together obituary of another member of Roger's friendship group from three of his schools, Lembit Salasoo, so I'm adding in here some photos of Lembit that have been found since. This one was taken a month before Lembit had to retire sick from General Electric, USA. *Photo: (L to R) Philip Wallis, Lembit Salasoo & Peter Beaumont-Edmonds Nov 2023 Sydney*

As an environmental health professional, I feel compelled to add here a note on the potential for prevention of Roger's fatal illness…



Botanical Gardens, gardening shows like *Gardening Australia* on ABC TV, and government agencies, especially OHS and Councils, in all the areas in Australia where red gums grow, need to be warning people not to allow sawdust from red gums or other Cryptococcus-affected gums to alight on their skin. When creating sawdust during trimming or cutting down fungus-bearing gums, people should be wearing a headshield and be fully covered by overalls, socks, boots, gloves, in order to stop the fungal spores from for example *Eucalyptus baileyi* sawdust entering tiny cuts in the skin and eventually making their way to the brain (which took two years to become evident in Roger's case).

Photo: Lizzie beside trimmed Eucalyptus baileyi at Australian National Botanic Gardens (ANBG) carpark Canberra

According to "The wood-chopping farmer with an axe to grind on fungus" by Cherie von Hörchner, 9 Jun 2017, at https://www.abc.net.au/news/rural/2017-06-09/wood-chop-warning-for-fungus-from-eucalyptus-causing-disease/8599890 :



[Roger and the farmer of this article] contracted Cryptococcus, a disease that kills half a million people globally each year and, in Australia, tends to come from the Cryptococcus gattii fungus that grows in and around eucalyptus trees.

Photo: ANBG Blakely's red gum plaque showing south eastern Australian distribution

> ...James Fraser, a molecular biologist from the University of Queensland [said, "...the far more common second fatal form of Cryptococcus,] Cryptococcus neoformans is responsible for half a million deaths a year, predominantly in sub-Saharan Africa and less privileged countries ... these tend to target people who are immuno-compromised."

Below you will find "In memory of Roger Green" by fellow Franklin-campaigner Vince Mahon, and then Roger's very philosophical Introduction to his book about the successful "Battle for the Franklin", but first I've included here a page about what is beauty? from Roger's unpublished book on philosophy, written for his children and titled: "The Bad Life — Beauty 1, Fear 0"; and I've added photos to the Classmates Eulogy some of us wrote and read at his funeral.

what is beauty?

Beauty itself doth of itself persuade
The eyes of men without an orator.
(William Shakespeare, The rape of Lucrece, 1594)

[ed. The following list is what beauty meant to Roger]

nature
- an ancient tree
- spring blossom
- the leap of a whale
- the full moon rising
- the sea shore
- a storm in the mountains
- the antarctic wilderness
- the Milky Way
- the smell of jasmine/gardenia
- air, after nearly drowning

art
- a hand's outline on a cave wall
- the Venus de Milo
- the Book of Kells
- da Vinci's Mona Lisa (la Giaconda)
- Michaelangelo's David
- Hokusei's Great Wave
- Cezanne's Mont St Victoire
- Kandinsky's improvisations [no. 9, 1910]
- Answel Adams' photographys of Yosemite cliffs
- Kurosawa's Seven Samurai
- oriental calligraphy

music
- Beethoven's moonlight sonata
- Bach's mass in B minor
- the Beatles' white album
- shakuhachi

literature
- Chaucer's Canterbury tales
- Dante's Inferno
- Shakespeare's King Lear
- Coleridge's Kubla Khan
- Dylan Thomas, The force that through the green fuse drives the flower
- the Oxford English dictionary
- Spike Milligan's Goon show scripts

religion
- Aboriginal creation myths
- the first chapter of the book of Genesis (old testament, Christian bible)
- the Tao te ching
- the book of Matthew (new testament)
- Tibetan monks meditating in saffron robes

architecture
- the pyramids of Egypt
- the Parthenon
- Roman aqueducts
- the Alhambra palace
- Chartres cathedral
- a Shinto shrine
- the Sydney Opera House
- a red cedar chest of drawers

mathematics
- pi
- Pythagoras' theorem
- the geometry of Euclid
- calculus (Newton and Leibniz)
- trigonometry

science
- Kepler's equations for the orbits of the planets
- Newton's laws of motion
- natural selection (Darwin and Wallace)
- Einstein's theory of special relativity
- the Rutherford Bohr model of the atom
- Heisenberg's uncertainty principle
- the double helix of DNA (deoxyribonucleic acid)
- the biochemistry of photosynthesis
- the Krebs acid cycle
- the periodic table of the elements
- plate tectonics

technology
- the wheel
- radio
- the jet engine
- the washing machine
- the telephone
- the programmable computer
- the transistor

medicine
- the smallpox vaccine
- anaesthesia
- x-ray images
- penicillin

food and drink
- stream water, after thirst
- fresh baked bread
- figs hanging over the fence
- milk
- honey
- minestrone
- rare lamb
- good wine

touch and movement
- a foot massage
- orgasm
- skiing
- a warm bath

human actions
- someone else cooking dinner
- patience
- politeness
- caring for the sick
- nursing a child
- being kind when no one is watching
- passing the ball to a team mate in space

states of mind
- the calm and clarity of meditation
- perceiving infinity
- sleep

people
- (for a baby) your parent's face
- (for a parent) your baby's first smile
- a hug from someone you love
- Helen of Troy
- Brad Pitt
- the Dalai Lama

(extracted from Green R. 2015, *The Bad Life – Beauty 1, Fear 0*, Canberra, unpublished manuscript).

Eulogy by Roger Green's Classmates



Photo by Lizzie's mum Noela Whitton: L to R: Michael Maratea, Howard Jacobs, Lizzie O'Brien, Roger Green, Barbara Drury and Lembit Salasoo, Sydney University days 1975.

[Words of Howard Jacobs, read by Lizzie O'Brien]: We were part of a close group of childhood friends at school and university, and even though life took us in different directions many of us remained close to Roger for 50 years or more.

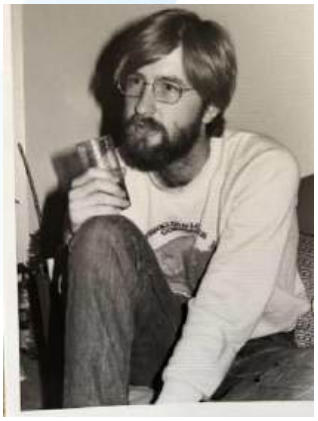
I'm not here just to speak on my own behalf but on behalf of several of Roger's school and university friends, and those who could not be here: Howard Jacobs, Philip Wallis and Geraldine Brooks.

Roger attended two primary schools, two high schools and two universities. That much we all agree on, but it all happened so long ago that when a few of us got together recently to discuss what we would say, it became clear that memory is a very tricky thing.



One thing we did all agree on was Roger's striking appearance. Always handsome, tall and of course, the hair. I loved the way it swished from side to side when he was running on the soccer field!

Photo: Roger's 4th Form school dance date Joanne Young



In his early adult years, we see someone who would not have been out of place in a Jean-Luc Goddard movie, especially during his shorter hair/wire-rimmed glasses days.

Photo: Roger in his Franklin and Gordon Rivers, Tasmanian Wilderness Society sweatshirt, early 1980s Jean-Luc Goddard movie look

Roger was intelligent, serious, funny, romantic, contemplative, curious, intellectual, witty, someone with a rich inner life – a Renaissance man growing up on Sydney's conservative, middle-class North Shore. Like many of us, he escaped as soon as possible, first to the progressive International School and then to University and the inner-city.

Roger's interests from that time were eclectic: Monty Python songs, Shakespeare, Kurosawa, Kandinsky, philosophy, soccer, religions (the idea not the practice), bushwalking, and the opposite sex!!

To pin Roger down is not easy, as you can see, but we would like to share some memories that show some of the many sides of our friend.

[Read by Michael Maratea]: Good morning. Roger was my friend. We knew each other since we were five at Lindfield Public School. He meant a lot to me. He was thoughtful, and the world fascinated him. Roger saw the connection between opposites and was always trying to reconcile them. There was never too little to know or too much to understand. He had a huge appetite for knowledge.



At Chatswood High, we had a wonderful English teacher called Mr Gordon. He loved Shakespeare. We weren't as keen, and of course we'd always be complaining saying, 'Gosh, this is boring' and Mr Gordon's beautiful reply was, 'only boring people get bored'. Well Roger definitely wasn't bored! He absorbed as much information as was humanly possible. I think he could have been the world's first computer, storing everything away in his memory, putting it into files, in alphabetical order, waiting for the day he could retrieve in and use it.

Photo: Roger Green and Michael Maratea

Fundamentally I believe that Roger didn't see knowledge as power, as is often quoted, but he saw knowledge as beauty. And that quest to find beauty led him down a different path. By the end of Year 11 [5th Form], Roger needed to spread his wings and leave the nest of the state school system and he found just what he wanted at the International School, which had opened just a few years earlier. I think that school changed his life forever. It was the path less travelled and he was happy. And for the rest of his life, Roger would continue to challenge himself. At that school his love of nature and the environment began to blossom. He met like-minded people, such as Hayden Washington, who would become a well-known environmentalist and author. They together and with others such as Roger Faulkner, would form the Colo Committee. The campaigning work done by these young men, still at school, was instrumental in having the Wollemi National Park declared in the 1980s by the Wran Labor government.

Roger's love of nature and the environment and his deeply-rooted sense of justice led him to come to Canberra to help organise and fight for the preservation of the Franklin River, one of the most important environmental battles ever fought in Australia. And that led Roger to the beautiful Monika and his loving boys Ned and Billy. I am so grateful that you have been a part of my life.



Photo: Monika and Roger

I miss you Roger.

[Read by Lizzie O'Brien] And from Philip Wallis: Although I first met Roger at Lindfield Public School, most of my memories of Roger go back to when I met him at Artarmon Public School in the Opportunity Class and we had notable musicians Lembit Salasoo - who became a brilliant electrical engineer (but passed away in August this year) – and Geoffrey Collins who began his illustrious music career playing the flute in the school band.



Photo: Lizzie with Lembit's family



Photo: classmate Geoff Collins, flautist, 2015

Roger beat me to the position of Band Leader and I was offered the job of flautist but having no musical talent, that was the end of my musical journey.

Also at the same school was Anthony Spencer who, now, like me, is also a barrister, and Jeff Lewis who became a music entrepreneur, as well as Howard Jacobs who was the star of the dramatic society which Roger and I belonged to too. Roger often played the leading man because he was so tall. Roger and I [that's Philip Wallis] played soccer together for Lindfield Soccer Club where he was a striker.



Photo: classmate Anthony Spencer

I often went to the Green's house where I found his father had the weird job of being an agronomist for the Department of Agriculture. Roger's little brother Warwick was in the same class as my little brother Mark. My later memory of Roger was that Roger's girlfriend Jane Carrick [who is here today] was part of the reason that he studied Medicine at the University of NSW before he transferred to Sydney University to study Arts.

At the Chatswood High School 10-year reunion, we were all impressed that Roger was writing his first book: "Battle for the Franklin". And I'm so glad Lizzie and I saw Warwick again and of course Roger on his last trip to Sydney at their mother's funeral.



Lizzie O'Brien (that's me!): after spending a year at Willoughby Girls School in 4th Form, it was wonderful to arrive at Chatswood High School in Roger's last year there in 5th Form, and to immediately be accepted by the friendship group of Philip Wallis, Roger Green, Howard Jacobs, Michael Maratea, Lembit Salasoo and Jeff Lewis. I studied English, Maths and Science in Roger's classes.

Photo: Chatswood High 5th Form English 5E1: (2nd row 2nd from L) Philip Wallis, Roger Green, Howard Jacobs, (behind them) Michael Maratea, Lembit Salasoo, Jeff Lewis, (behind Jeff) Lizzie O'Brien

And we were all on the Punari (school magazine) Committee 1973 together.

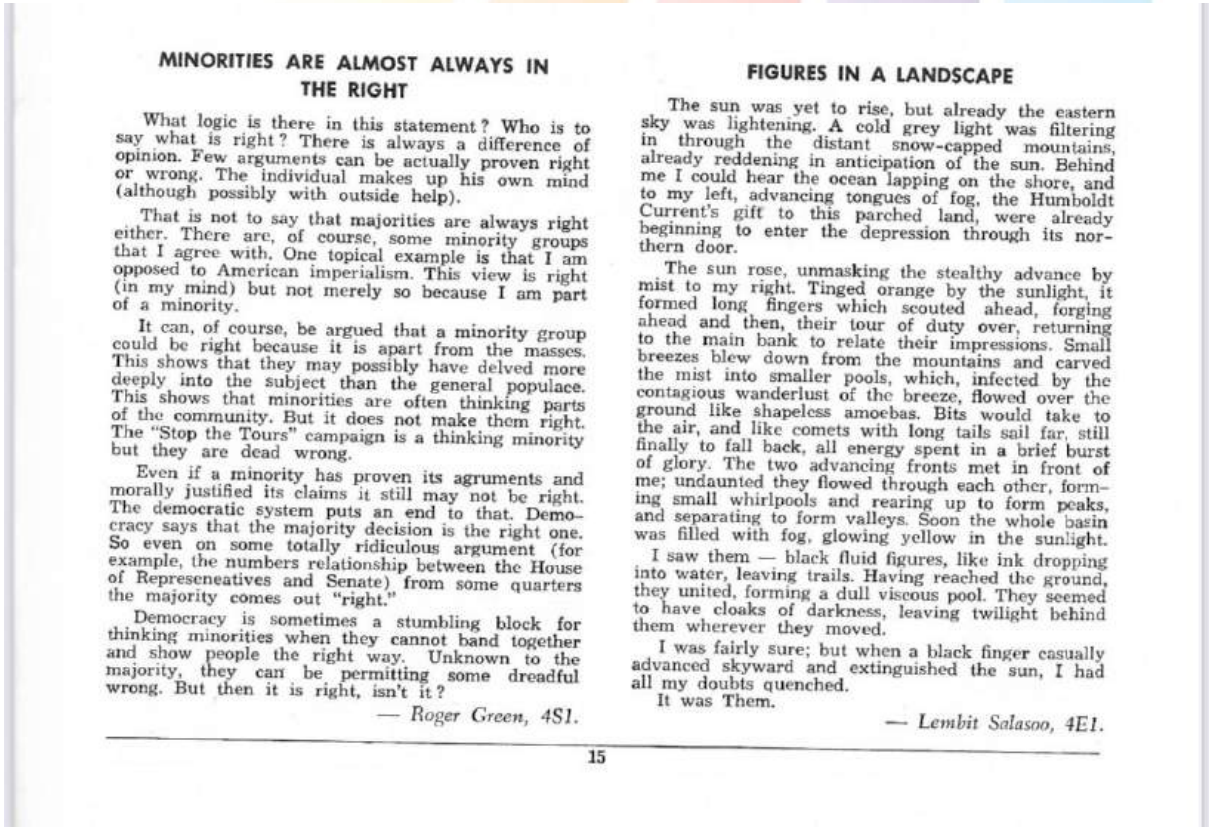
In 1971 Punari recorded Lembit Salasoo as Dux of third form and first in Science and English whereas Roger came first in Maths and German, which was pretty impressive considering that in 1972, Lembit topped the state in the School Certificate exams.

Overleaf are some 4th Form Punari contributions from Roger and Lembit.

Punari Committee



TOP: R. Forrester, J. Lewis, P. Wallis, M. Maratea, M. Marx. SECOND ROW: L. Kornman, R. Green, H. Jacobs, E. O'Brien, C. Gingle. THIRD ROW: J. Moore, D. Settle, M. Watts, A. Jones.



MINORITIES ARE ALMOST ALWAYS IN THE RIGHT

What logic is there in this statement? Who is to say what is right? There is always a difference of opinion. Few arguments can be actually proven right or wrong. The individual makes up his own mind (although possibly with outside help).

That is not to say that majorities are always right either. There are, of course, some minority groups that I agree with. One topical example is that I am opposed to American imperialism. This view is right (in my mind) but not merely so because I am part of a minority.

It can, of course, be argued that a minority group could be right because it is apart from the masses. This shows that they may possibly have delved more deeply into the subject than the general populace. This shows that minorities are often thinking parts of the community. But it does not make them right. The "Stop the Tours" campaign is a thinking minority but they are dead wrong.

Even if a minority has proven its agruments and morally justified its claims it still may not be right. The democratic system puts an end to that. Democracy says that the majority decision is the right one. So even on some totally ridiculous argument (for example, the numbers relationship between the House of Represeneatives and Senate) from some quarters the majority comes out "right."

Democracy is sometimes a stumbling block for thinking minorities when they cannot band together and show people the right way. Unknown to the majority, they can be permitting some dreadful wrong. But then it is right, isn't it?

— *Roger Green, 4S1.*

FIGURES IN A LANDSCAPE

The sun was yet to rise, but already the eastern sky was lightening. A cold grey light was filtering in through the distant snow-capped mountains, already reddening in anticipation of the sun. Behind me I could hear the ocean lapping on the shore, and to my left, advancing tongues of fog, the Humboldt Current's gift to this parched land, were already beginning to enter the depression through its northern door.

The sun rose, unmasking the stealthy advance by mist to my right. Tinged orange by the sunlight, it formed long fingers which scouted ahead, forging ahead and then, their tour of duty over, returning to the main bank to relate their impressions. Small breezes blew down from the mountains and carved the mist into smaller pools, which, infected by the contagious wanderlust of the breeze, flowed over the ground like shapeless amoebas. Bits would take to the air, and like comets with long tails sail far, still finally to fall back, all energy spent in a brief burst of glory. The two advancing fronts met in front of me; undaunted they flowed through each other, forming small whirlpools and rearing up to form peaks, and separating to form valleys. Soon the whole basin was filled with fog, glowing yellow in the sunlight.

I saw them — black fluid figures, like ink dropping into water, leaving trails. Having reached the ground, they united, forming a dull viscous pool. They seemed to have cloaks of darkness, leaving twilight behind them wherever they moved.

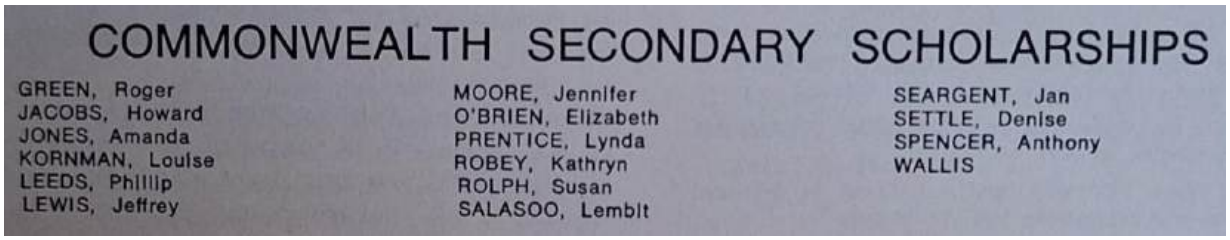
I was fairly sure; but when a black finger casually advanced skyward and extinguished the sun, I had all my doubts quenched.

It was Them.

— *Lembit Salasoo, 4E1.*

15

My first date with Roger was to see *Hamlet* on the stage, and I was dazzled by his knowledge of the play and the playwright. He encouraged me to write poetry - I will always cherish him for that.



At the end of Form 5, Roger, Howard, Jeff, Lizzie, Lembit Anthony, Philip et al were awarded Commonwealth Secondary Scholarships.



I'm chuffed to think that I may have inspired Roger to love the art of Kandinsky, as I had done for many years, and I thank Roger's big sister Katie for opening my eyes to the beauty of plants which led me to major in Botany. At Sydney University, Roger encouraged me to spice up my science degree by adding Philosophy, Fine Arts and the subject we both loved the most: History and Philosophy of Science.

Photo: Siblings Katie and Roger



I'm sure Roger played no small part in my post-school interest in nature photography. Every time I walk outside I see beautiful things and photograph them and think of Roger. I now have tens of thousands of photos that will remind me of him forever.



Photo: Lizzie in her Franklin and Gordon Rivers, Tasmanian Wilderness Society t-shirt, early 1980s, with Roger in Lumberjack mode, one of his favourite Monty Python songs. *Photo: South West Tasmanian cycad - photo by Lizzie O'Brien, Dec 1981*



He also introduced me to his Sydney University 2nd year girlfriend Barbara Drury and I thank him for the 40+ years that Barbara and I have been friends. And of course, without Roger, none of us would have been blessed to know Monika and to a small extent, to know of Will and Ned's achievements.
Photo: Barbara Drury & Lizzie O'Brien

[Read by Barbara Drury]: I'm another of Roger's many girlfriends and it's a testament to Roger that we're all here today, so that's fantastic. I met Roger through the Sydney Uni Filmmakers Society – and like any bunch of young intellectuals we talked and argued a lot but we did little actual filmmaking. Roger and I started going out together towards the end of second year in 1976, just before I headed to the US to visit my mother for the summer break. And for two months we wrote very long letters full of longing. He was endlessly inventive, thoughtful and romantic. I still have two pressed roses Roger sent me, that I secreted between pages of the I Ching, that I occasionally come across in my bookshelf, faded and intact, and a memory of time and place.

In some ways I have Roger to thank for getting a journalism cadetship at Fairfax straight out of Uni. I was obsessed with live theatre at the time, so Roger marched me into the *Union Recorder* student newspaper office and demanded review tickets. So for a while there I saw almost every play showing in Sydney and wrote reviews, which helped me get my start in journalism.

After Uni, Roger travelled around Europe on a gap year while I stayed in Sydney to start work, and our paths diverged.

And that's where I met Geraldine Brooks, who was in my cadet intake, and she and Roger re-connected after first meeting in the Fine Arts department at Sydney Uni. They shared a love of the Australian wilderness and the drive to protect it through the environment movement.

Geraldine's overseas and can't be here today, but she's watching the live stream. Here's a snippet of a message that she sent to Monika… I'll have to collect myself for this really.

'Roger was beautiful in body and soul and the Earth was lucky to have him as her champion.'

Once Roger married Monika and moved to Canberra, started his business and a family, we saw less of each other as we all pursued our various careers, formed relationships, had children and moved away, but I think it's true to say that we all had Roger in our minds and hearts.

[Words of Howard Jacobs] Three of us, Howard, Michael and Lizzie, were able to see him just a few weeks ago. Even though his health had declined and he couldn't talk, he knew that we were there - a friendship that lasted a lifetime. We were privileged to have him in our lives and will remember him fondly as one-of-a-kind, a seeker of beauty in all its forms who was prepared to take the path less travelled.

Editor's note: At Roger Green's wake, people were pleased that they had been asked, instead of buying flowers, to donate to the Bob Brown Foundation at https://give.bobbrown.org.au/ and I was glad to report that I had made the same appeal in Quotable Quotes - The Giants doco re Bob Brown, in *LEAD Action News vol 22 no 2*, which included Bob Brown saying:

"As soon as I left the Senate, I set up the Bob Brown Foundation to take action for the Tarkine. For Australia's forests. For its oceans. The Tarkine is the biggest temperate rainforest in Australia, which has been marauded and targeted by both loggers and by mining enterprise."





In memory of Roger Green - Vince Mahon

Conservation including the Franklin River Campaign in which Roger played a valuable role was an important part of Roger's life. Monika and Roger's sons, Ned & Will had little knowledge of his work on the Franklin campaign or his campaigning prowess.

Amongst the privileges of working at the Tasmanian Wilderness Society (as it then was) were the wonderful people you met, worked with, and, forged friendships. Roger was one of those people. He was a wonderful person. He was analytical, genial, generous, intelligent, smart and warm.

Those from the Tasmanian Wilderness Society who remember Roger and worked with him speak highly of him and acknowledge his important contribution. He was a voice of calm and reason during those heady days at the business end of the campaign.

Roger was appointed the Australian Conservation Foundation South-West Tasmanian Campaign Officer sometime in the second half of 1982. Federal lobbying was intensifying and preparations were underway for the Blockade to start in December that year. Roger's appointment came at a time there was some tension between ACF and TWS. He was a calming influence.

In October 1982 we were in Canberra to lobby members of the Fraser Government. Roger was part of the team. Among those Roger lobbied was one John Howard (Treasurer at the time) who told Roger he had received more letters on South-West Tasmania than on his retrospective tax legislation.

A federal by-election for the seat of Flinders in Victoria was to be held on the 4th December 1982. The seat was held by the Fraser Government. ACF and TWS committed resources to the campaign. Roger was among those on the ground during that campaign, finding a suitable shopfront & involved in the important strategic decision (and the correct one) not to support candidates but get voters to write "No Dams" on their ballot papers. Over 40% of voters wrote "No Dams" on their ballot papers.

Roger's lobbying extended to psephologists. He saw Malcolm Mackerras at the time a well known & respected political commentator. This was on Monday 13 December, the day before the Blockade commenced. Malcolm Mackerras told Roger the ALP can win the election without winning seats in Tasmania. This was the outcome election day.

Come early 1983 the Blockade was in full swing and planning underway for a federal election due sometime in the coming months. When Roger journeyed to Hobart the ACF Office was in the Hobart CBD while the TWS building was on its outskirts. Roger tended to "camp out' at TWS where the action was, decisions needed to made quickly, his input important and for the camaraderie.



PHOTO: Flinders-by-election Team incl (standing) Bob Brown (arms crossed) & Roger Green (far right) Dec 1982. Photo URL: https://theemperors-clothes.com/wp-content/uploads/2017/12/flinders-by-electionteam-dec-1982-unknown.jpg; Link accessible via https://theemperors-clothes.com/2017/12/08/the-law-of-the-land-and-other-legends-in-their-own-lunchtimes/#more-5091

Roger, I and others visited Strahan which was the headquarters for the Blockade. Along with Bob Brown we went up river to visit the blockade sites. Also federal politicians especially ALP MPs visited Strahan to meet with campaigners. In today's political climate most unlikely. Roger was with ACF Executive Director Geoff Mosley in Strahan to lobby shadow ministers including Barry Jones to strengthen its position on South-West Tasmania.

By the time Malcolm Fraser called the election on February 3 1983 Roger had become a de facto TWS campaigner. In the subsequent TWS national meetings to formulate our campaign strategy Roger was always invited to attend and an active important participant in all such meetings. Roger was involved in making the decision to back the ALP in the House of Representatives and the Democrats in the Senate. He was also part of ongoing meetings to refine our strategy throughout the campaign.

On Saturday March 5 1983 the Bob Hawke led ALP won government. It enacted World Heritage legislation to protect the Franklin Wilderness which was upheld as constitutional by the High Court. This paved the way for other national treasures to receive World Heritage status and protection.

Subsequent to the campaign Roger authored and published "Battle for the Franklin" which Bob Brown stated "was a very valuable book of interviews of figures involved in the campaign".

Throughout the campaign Roger played an important and valuable role. Also a good friend.

Vale Roger. Rest in Peace

BATTLE FOR THE FRANKLIN by Roger Green (Introduction)

Roger Green is a writer and conservationist. He presented the Australian Conservation Foundation's case for preserving South West Tasmania to politicians and bureaucrats in Canberra in 1982 and 1983. After the Liberal-National Government of Malcolm Fraser decided not to save the Franklin River, Roger worked on the conservation movement's plans for electing a new Federal Government in 1983.

Roger's involvement in wilderness conservation began with the Colo Committee in Sydney in the mid-1970s. Later he convened the Pittwater Branch of the Tasmanian Wilderness Society. Roger has worked as a freelance journalist for many newspapers and has also written for radio and television. He is currently writing about politics in Canberra.

Geoffrey Lea is a photographer who lives in Hobart. In 1976 he was drawn to Tasmania by accounts of Olegas Truchanas' journeys on the western rivers. He Liloed down the Gordon River and travelled much of the South West. In 1979 he returned to Tasmania and worked briefly for the Hydro-Electric Commission on investigations at the Gordon-below-Franklin dam site. Soon after, he joined the Tasmanian Wilderness Society and began working full time to protect the area.

Dedication

To the thousands of people around the world who have
kept the Franklin River flowing free.

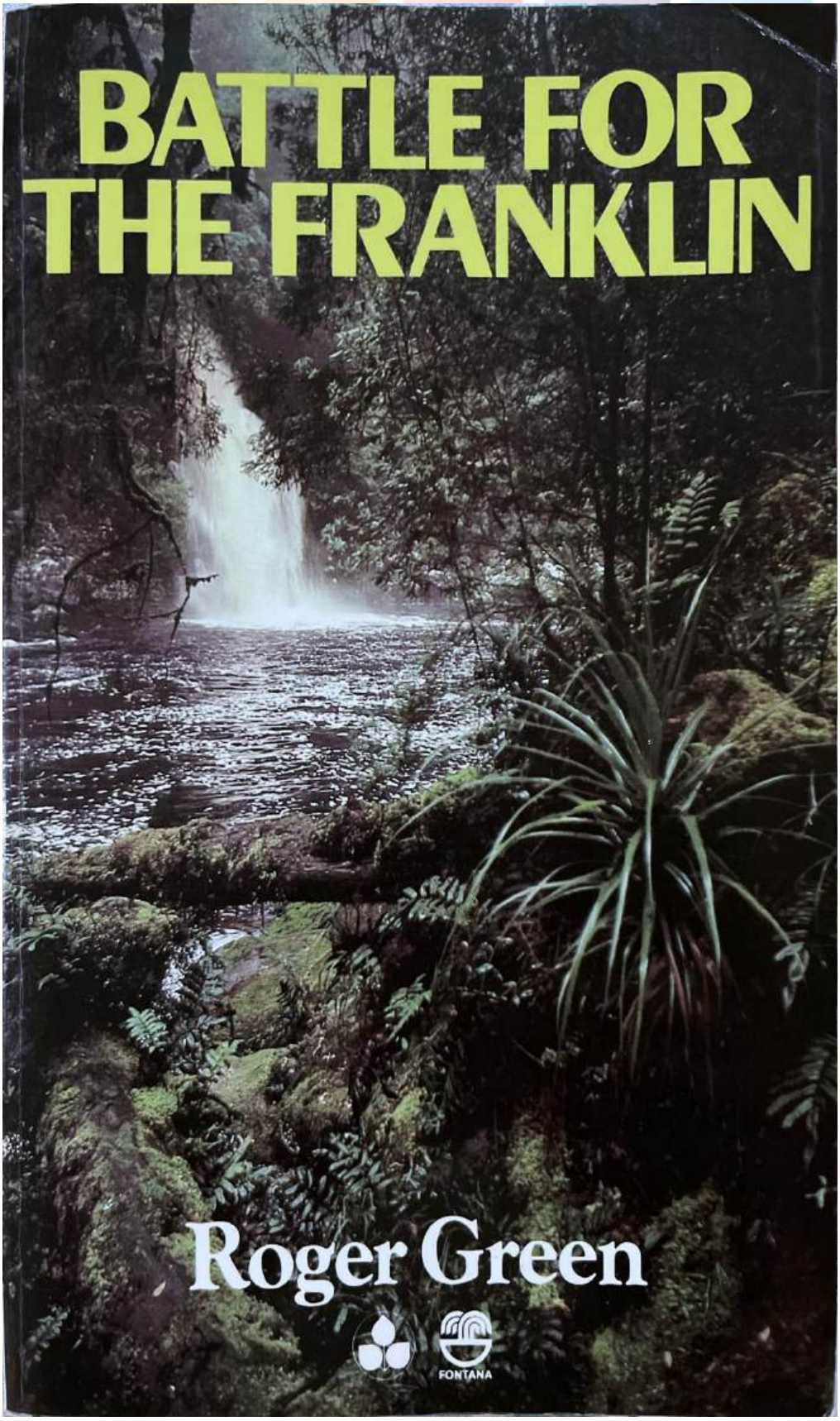
BATTLE FOR THE FRANKLIN

Conversations with the combatants in the struggle for South West Tasmania

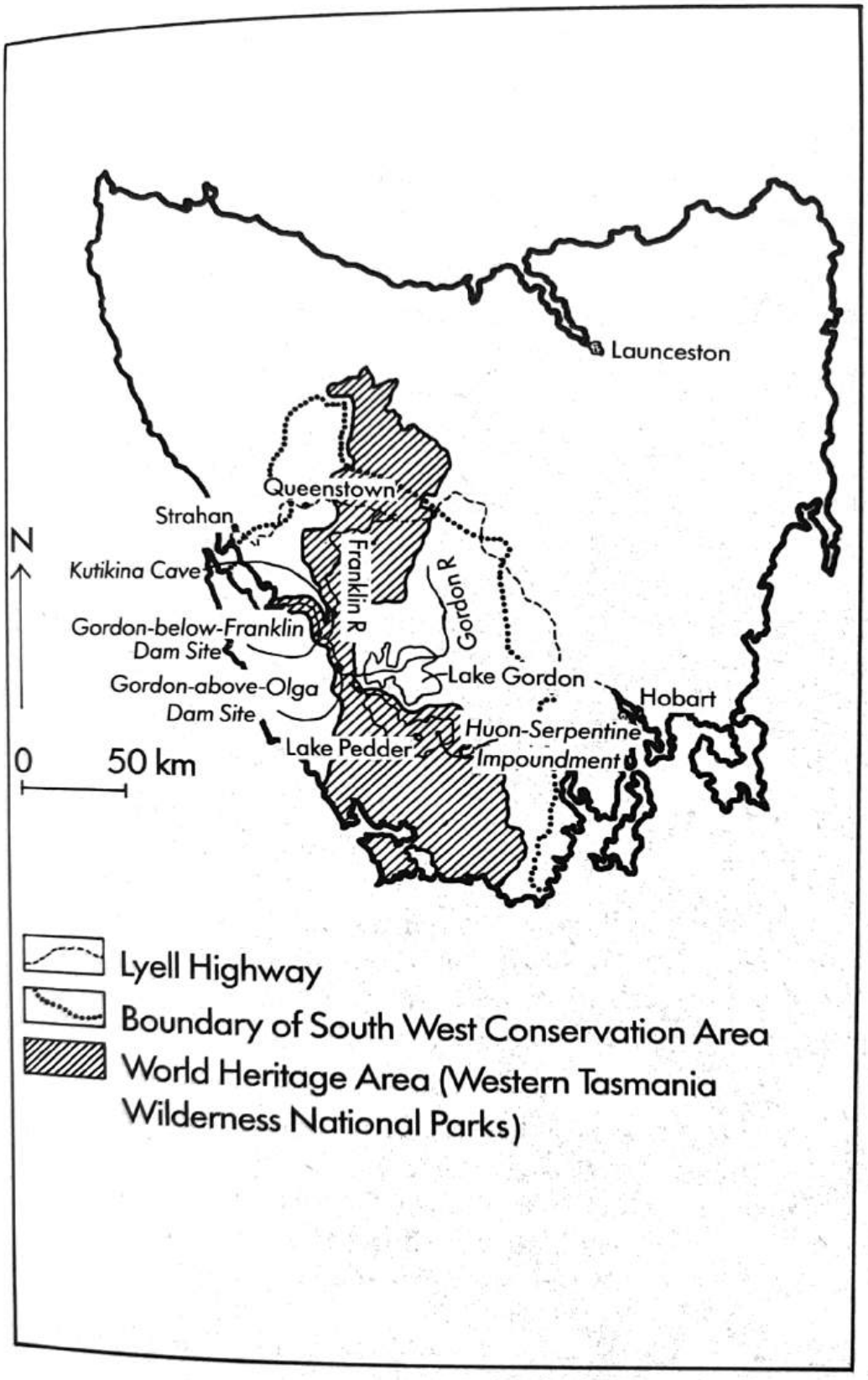
Interviews by Roger Green

Photographs by Geoffrey Lea

Fontana/Australian Conservation Foundation


BATTLE FOR THE FRANKLIN
Roger Green
FONTANA

Map page 7 by Anna Warren
Photograph page 8 by Melva Truchanas
Photograph page 275 by Russell Bastock
Photograph page 301 by Ross Scott
[Cover photograph: Sir John Falls, near Gordon-below-Franklin dam site (Geoffrey Lea).]
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Dam Site
Gordon-above-Olga
Dam Site
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Huon-Serpentine
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Lyell Highway
Boundary of South West Conservation Area
World Heritage Area (Western Tasmania
Wilderness National Parks)

Introduction

At the beginning of 1972 the Serpentine River snaked across a highland valley in South West Tasmania and flowed into a placid lake lying between ranges of jagged mountains. The lake was Lake Pedder. A breeze blowing across its surface would stir a sea of diamonds, or as clouds covered the sun the sharp reflections of mountains would disappear into the lake's dark waters.

Paddling children run from the water up the wide white moon of sand. The rapidly-changing atmosphere brings cries from families and the clicking of cameras from photographers like Olegas Truchanas trying to record the swirling mists on the lake.

That was the last summer of Lake Pedder. No photograph could capture the beauty or the magic of that singular place, the excitement of those whose eyes beheld the scene, who whiffed the reaction between the weather and the lake, who heard the wind play the bent trees on the sandhills and the rain patter on the water. Lake Pedder disappeared under steadily rising water in the middle of 1972. A dam down the Serpentine River impounded water that rose to cover the river's banks, the swamps on either side, the lake, the beach and the dunes. A layer of the water at the top of the impoundment would later make hydro-electricity.

In 1972 Australia was changing. The people elected a reforming Labor Government whose first act was to pull troops out of the Vietnam War. There was hope for a prouder, independent Australia that cared for its people, its culture and its landscape.

In Tasmania little had changed. Doubts about the way things were done met a concrete-solid Establishment: for more than forty years the State's Hydro-Electric Commission had directed Tasmanian development. The colony built on mining, logging and agriculture in the nineteenth century discovered, in the twentieth, that cheap electricity generated from fallen water could attract the industries that smelted the ores and pulped the wood. From the 1920s that single idea, propagated by the Hydro-Electric Commission, mesmerized the governors of Tasmania. In the 1960s its pursuit stirred environmental protest, but that opposition could not save Lake Pedder. Ten years after Pedder, in 1982, with the largest conservation battle in Australian history reaching its peak and with power demand below predicted levels, the Tasmanian Hydro-Electric Commission began work on another dam on the lower Gordon River, a dam that would flood the Franklin.

The Gordon, the mightiest river in Tasmania, was dammed once in association with the flooding of Lake Pedder. Downstream the river surged through slots in mountain ranges before winding a course between steep banks covered with rainforest. From the north entered the Franklin, the last major river in Tasmania surrounded by wild country and flowing free from its source to the sea. The Franklin and lower Gordon Rivers were at the heart of the Wild Rivers National Park, later inscribed on the World Heritage List. Below the junction of these rivers the Hydro-Electric Commission picked a site for the Gordon-below-Franklin dam, the last great dam site in Tasmania.

Late in 1982 conservationists from Tasmania and the mainland began arriving in the fishing village of Strahan on the windswept West Coast of the island. From Strahan a four- hour boat trip took protestors across Macquarie Harbour and up the Gordon River to their camp near the dam site. In mid-December conservationists started a blockade of dam work. The conservative government of Malcolm Fraser in Canberra, which had earlier said it would not intervene in the dam dispute, in January approved an offer of $500 million to Tasmania to leave the Gordon River and build a power station elsewhere.

The offer from Canberra was closely followed by a Federal election campaign and while the blockade continued the Tasmanian dam was a major election issue. Bob Hawke, leading the Labor Party, promised to stop the dam, using legislation if necessary. The Labor Party won the election and attempted to negotiate a settlement with Tasmania. However the Tasmanian Premier, Robin Gray, continued to refuse Federal offers so the Federal Government passed legislation which was subsequently tested in the High Court. On 1 July 1983 the Chief Justice announced that work on the dam must stop. After five years' campaigning for the Franklin and more than fifteen years' battling hydro-electric development in the wilderness of South West Tasmania this was the Australian

conservation movement's greatest victory.

Still, in Tasmania little had changed. Within weeks of the decision stopping work on the Gordon-below-Franklin dam, the Tasmanian Parliament approved the construction of seven more dams in the highlands and river gorges of South West Tasmania.

What makes the Hydro-Electric Commission want to keep doing it?

Building dams can be fun. Then, after a few times, it becomes a habit.

In Tasmania it must have been a terrific challenge to trek the wilderness in search of the perfect dam site. Once the place was found trails would be blazed, an access route built across rugged country and then a dam would be designed and built by the highly-skilled and ambitious young engineer keen to leave a mark on the world. Such activity would be even more satisfying for one convinced of the necessity of the project, convinced of the economic and moral good of the work being done. The joys of engineering could capture many a young graduate.

Some are hooked for life. In 1947 Russell Ashton graduated in civil engineering from the University of Sydney and began working with the Hydro-Electric Commission of Tasmania. The next year he was on the banks of the Franklin River in the wild South West, investigating its hydro-electric potential. Since 1977 Russell Ashton has been the Commissioner of the Hydro-Electric Commission. For more than 35 years he has been planning to build a dam on the Franklin River: no wonder he has been so keen to finish the job. He is still keen. For many in the Hydro-Electric Commission the 1983 High Court decision stopping the dam is just a temporary setback. When the government changes in Canberra they believe work will resume on their Gordon-below-Franklin project. What is three or six years after thirty-five?

Why didn't the 1983 decision shatter the HEC world view and bring their world tumbling after? The Hydro-Electric Commission, like many other large institutions, has developed the resilience and survival instincts of a living organism. It has a life and destiny quite independent of the government that is nominally running Tasmania. This corporality, more than anything, sustains the Commission's enthusiasm for projects where the economics are unsound, the energy is unnecessary and the environmental effects are disastrous.

The HEC is more resilient than other institutions. No other authority operating 'under' a popularly-elected government could have survived so much public criticism, so many charges of impropriety and so many embarrassments without major structural changes. The Hydro-Electric Commission has been secretive, party-political during election campaigns, hostile to public review and unresponsive to changing needs. It has refused to carry out government policy, indeed lobbied for the removal of its Minister and the State Premier; but still it survives unchanged. There have not even been significant shifts of personnel.

The Hydro-Electric Commission sees itself above politics, it has a mission. The only reason that the Commission has survived so long is because a belief in the destiny of dams has infected more than the employees and their relatives; many Tasmanian people have succumbed to the condition, variously known as Hydro-philia or Dam-mania. How could Australia's natural or archaeological heritage be allowed to subvert such a reality?

The HEC is a dinosaur in its death throes, ransacking its own tiny island, cutting off its own life-support system. The Tasmanian dam builder is now an endangered species: its habitat is being destroyed as the State's dammable rivers and streams are progressively choked with rocks and concrete. With many of the surviving wild rivers now in reserves under Federal protection the species must migrate, mutate or face extinction.

Why do conservationists oppose the Hydro-Electric Commission's dam building? Why fight for years against the powerful forces of the State to save a trackless wilderness?

A love of beauty. Rows of glacier-gouged mountains fade into a misty distance. Water drips onto a quivering fern frond. An azure kingfisher flits along riverbank lighting on the fine, scaly branch of a huon pine. Nearby rapids crash on worn rocks.

The wild mountains, rivers and forests of the wilderness excite our senses so that even paintings and photographs of the landscape can stimulate our imagination wherever we happen to view them. The sheer physical beauty of wilderness unaffected by roads, buildings, agriculture or introduced species inspires those who work for its preservation.

But the beauty is more than skin deep. The experience and understanding of a natural area begins a relationship that adds more pleasure and intellectual satisfaction to that derived from the raw visual beauty.

A trip through the South West of Tasmania is an adventure where the challenges presented by rocks, water and the profusion of plants are, usually, surmounted and remembered for life. Nature is coloured by contrasting experiences: rough and smooth, wet and dry, sharp and blunt, enclosed and panoramic.

Wilderness travel is usually physically difficult, not only because the visitor has to be self-sufficient but also because it is only the least hospitable country that survives as wilderness — land that has failed to attract economic interest because it is too dry, too steep, too cold, barren or remote. Crossing such terrain can produce the same euphoria as performing before a large audience or winning a conservation battle.

Another kind of joy comes from knowledge of nature. Wilderness offers the chance to study complete ecosystems that have been minimally affected by humans. There is beauty in the detailed picture of an ecological niche, the food webs of a forest, patterns of growth and decay and the cycles of inorganic compounds and elements. Scientific understanding produces simple images of the fundamental particles and pathways that constitute the complexity and variety of a natural world. These theories have their own shape and beauty. The explanation of the nature of wilderness can please as much as the naive experience itself.

The wilderness also presents an object, outside of human direction, that may be interpreted in different ways. As in a great work of art observers can find many meanings in wild life — the different views of the scientist, artist, bushwalker and Aborigine and also different feelings about the meaning of life on earth. Whether it be melancholy, sublime or ridiculous there is no limit to the exegesis of nature. Limits come when the landscape is modified by human engineering. There are not many different responses you can have to a 100-metre-high dam wall; just awe, brute, head-cracking awe.

In nature we may find beauty in the most blasted heath, sheer cliff or desert. And just as in art, scarcity and the death of the Artist increase the objects' value so does the value of wilderness increase. No new Picassos or new wildernesses will be created.

There is more to natural beauty than its physical qualities and their interpretation. As with paintings the object itself has qualities that cannot be reproduced. A forgery perfect in every detail is not as valuable as the original. So a room equipped with machines that could recreate the sights and sounds, even smells, of a wilderness would be no substitute for the original. The experience would lack physical substance and does not have a history. It would be like sex without the flesh, without the other's personality and without the history of the relationship, however short. And while that is common it is a symptom of our video-alienation from life.

The sensual experience of wilderness is not essential for it to provide pleasure or inspire advocacy. The simple knowledge that a wilderness exists can provide enjoyment. An audio-visual presentation of the lost Lake Pedder, though extremely beautiful is also profoundly sad, tinged as it is with the knowledge that that wonderful place no longer exists. Knowledge of the existence of beauty, in nature, art and people, is a source of happiness whose loss compares to lost love.

The beauty of a wilderness exists today because of its history, natural and social. What we see now is a product of that history, and can teach us about it. In South West Tasmania can be found the story of the splitting of the ancient continent of Gondwanaland, the geological forces that shaped Tasmania and the glaciers that carved its mountains and valleys. Then those reaches were colonized by plants similar to those in the formerly-connected parts of New Zealand and South America and animals from what is now mainland Australia. Humans lived in caves by the rivers during the last Ice Age, about

20,000 years ago.

The preservation of South West Tasmania by our society adds another chapter to that history, showing a quality of Australian society in the late twentieth century. The scarcity of wilderness and the human domination of nature on this planet mean that Tasmania's wilderness survives only by our leave. In a way the existence of that wilderness beyond 1983 is one of our cultural artifacts.

Retaining wilderness is like collectively creating a work of art, a museum of nature full of the treasures of beauty and knowledge. The museum is not a heavy stone building filled with dusty boxes and glass cases but a light and open resort of the Muses, a place for the poetry and drama of nature. We value such a place, like Michelangelo's David, whether or not we see and touch it.

Through our understanding of and feelings for the complex beauty of wilderness we can develop a love of nature. An initial acquaintance with photographs may stir the curiosity enough for a strong attraction to begin. As in human relationships, perceived beauty can lead to love.

I grew up on the edge of a suburb surrounded by bush. My childhood playground nurtured an abiding fondness for Sydney's sandstone country. While the accident of my birthplace may make my particular affection seem arbitrary, my love for the scrawny trees and kookaburras over the back fence is easily generalized to Australia's surviving natural lands. And anyway all love is arbitrary.

Once a loving relationship begins there are no limits to the qualities that relationship may develop. The rapture of the soul in the presence of the other, the vicarious experience of the loved one's state, the care and concern for the other's well-being are all typical of the wilderness-lover.

This state need not be peculiar to rafters and bushwalkers. Anyone can appreciate the beauty of the wilderness, anyone can feel concern for life that is dependent on human actions as we are dependent on it. In any good relationship a sense of responsibility follows the satisfaction of the desire to experience beauty. Our emotions and moral sense dictate proper forms of conduct in dealing with nature as well as other people. Love is more than the pleasure of beautiful company, it involves more than the use of the loved object to serve the lover's interests. Even though the caring that is born of love may benefit both parties one does not care for that reason, conscious of the profit.

Our relationship with nature depends on the same qualities as our relationships with people — perception, affection, trust. When we love an untrammelled piece of wilderness we want it to live, for its own sake.

Tragedy may occur when the beauty of a forest or of a person is not noticed until too late. Without keen observers the value of a natural area will be overlooked and fail to become a social issue. There are many people who still do not see the beauty of wilderness and such blindness in our society threatens valuable natural places as much as callousness.

Though I emphasize the beauty of nature and natural processes I do not want to suggest that nature is just a decorative adjunct to human existence. We should not anticipate a change of taste that will lead to the destruction of wilderness. It has a use-value of other sorts. Like art it offers the chance for understanding of the world and of oneself: adventure and comradeship in the wild are amongst the best means of self-discovery.

Wilderness is materially important to our life in the city. Natural areas are the sources of valuable chemicals and genetic materials for use in medicine and industry, they offer reference areas for the study of urban and industrial pollution. And when we want to get away from that we can visit wilderness areas, supporting commerce in nearby towns. But the direct and indirect commercial uses of wilderness do not explain why conservationists fight for it. The love of its beauty does.

A few conservationists may espouse pantheistic or other religious beliefs; and the campaign for the Franklin may have seemed like a crusade complete with a spiritual leader, Bob Brown the Lionheart, but it was really just a band of secular people who wanted to protect the wilderness they love. Most would also care about the poor and weak in our society and have a keen sense of social and natural justice.

However, I do not believe that the plants and animals in wilderness areas have rights. Even the

concept of human rights is hopelessly idealistic. My experience as an active conservationist has taught me the need to be a ruthless pragmatist. Only people with power have rights.

The South West Tasmanian struggle does show the power of ideas. The popular feeling that the wilderness should be saved prevailed, at least temporarily, over all the forces that could be mustered by the alliance of capital and state in Tasmania. These forces included all major industrialists, the Government and Opposition parties, the media and some unions. In spite of this confederacy a dam in the heart of the wilderness was stopped. Why was the Gordon-below-Franklin campaign successful?

Because thousands of people were convinced enough of the value of the World Heritage area in Tasmania to commit themselves to the fight. And because they managed to convince enough other people to make the political momentum of the campaign unstoppable.

Many were already motivated by memories of the Lake Pedder tragedy. Others who had been to the South West joined in. From that point the pleasure of fighting for good alongside one's peers, being part of a family as some have described it, spurred conservationists to greater efforts. Those efforts were directed so that the maximum publicity for the wilderness could be generated. Australia had to 'see' what was at stake. Even though this advertising has affected the wild quality of the Franklin, being rafted is better than being dammed.

The gradual escalation of the campaign from Tasmania to the national stage was assisted by the placing of ineffective obstacles in the conservationists' path by those who wanted to build the dam. Perhaps we owe thanks to our opponents: to the Tasmanian Legislative Council for its refusal to accept the 'compromise' Gordon-above-Olga scheme, to the Tasmanian Labor Government for its outrageous 1981 referendum that did not offer a 'No Dams' option, to Malcolm Fraser for procrastinating just long enough to successfully raise the South West in the national consciousness and then offering Tasmania $500 million to prove the dam was a national issue after we'd been told it wasn't, to the Tasmanian Liberal Government for introducing just enough draconian measures to guarantee massive publicity for the Gordon River blockade but not enough to make any of the arrests stick and even to the Hydro- Electric Commission for refusing to appear modern and reasonable. Of course it would be better if all these people took a more benevolent approach to the wilderness.

The fact that they do not, perhaps indicates how few of the old beliefs have been changed. By exploiting traditional ideas and traditional paths of political procedure the movement to preserve the wilderness of South West Tasmania has accepted the legitimacy of those ideas and methods. There may have been some shift of ideas towards a greater appreciation of the value of wilderness but the political structures that produce dam-building proposals have not changed. In Tasmania the same old system goes on. There will be more dams, more power stations, nothing fundamental has changed. The same battles will be fought over and over again with the conservation victory being the exception. What can we do to change Tasmania?

At least, as Bob Brown says, the saving of the Franklin offers us hope. It shows that many people working together can achieve something.

This book is a first rough draft of history; it gathers together the accounts of those fresh from the clamour of battle for the South West Tasmanian wilderness, those who lived, if only in a limited sense of the term, to tell the tale, recorded by one of their number. Conservationists as well as politicians from both sides, and dam workers, tell their stories in their own words. The stories give an idea of the challenges, the risk of devoting oneself to a cause that, at the outset, seems to have little support, the tactics employed by both sides and the perceptions of those at the front.

These yarns throw up material that can be expanded, contradicted or criticized by those who follow. They contain clues to the values and ideals of the characters speaking and also hint more generally at the way the world works. The definitive history of the conservation struggle over the rugged and beautiful South West, a struggle that still goes on, will take years to write. This is just part of the story — the loss of Lake Pedder and the saving of the Franklin River — told by a few of the many thousands involved. There are other people with great tales to tell, other places that have been fought for and lost and others that may yet require protection. Much valuable wilderness remains outside the boundaries

of the World Heritage area and is threatened by logging, mining and damming.

In the course of collecting the stories that make up this book I have noticed how people's manner changes as they move from being the struggling underdogs to winners. The nature of conversation changes from why something should be done to how we did it and how we'll do it again. Those who thought they had the power, change from being abrupt and dismissive and begin to justify their position and appeal for compassion. Such is the prerogative of the weak.

Many people working together have made the production of this book possible. I would like to thank all of them: those who told me their stories and the hundreds of others who could have, those who put me up and put up with me — Barbara Lane, Jill Hickie and Leonie Steindl in Hobart, Ross Scott and the Hooley family in Melbourne; my friends at the Environment Centre in Canberra and the Wilderness Society around Australia for their help and for the use of their facilities, Penny Figgis and Joan Staples at ACF in Canberra for their ideas and moral support during difficult times, Lincoln Siliakus for suggesting that I write a book, Monica McDonald from the Australian National University for getting my brain working after 12 months in ideological mothballs, Virginia Williamson for helping with transcribing, Geoff Lea for his photographs and his thoughts, others who offered photos, my parents for everything, and Haydn Washington, Milo Dunphy and Bill Dixon for getting me into the South West campaign in the first place.

Roger Green, Canberra, October 1983

Deni Greene 7 Oct 1939 – 2 Jun 2012 MEMORIES

by Elizabeth O'Brien, Vice President (Australia), The LEAD Group Inc, December 2024

It is with great sadness that I recently learned that Deni Greene passed away on 2nd June 2012.

I first met the brilliant Deni Greene in early 1993, when she was the main writer of the best government plan for a lead safe Australia that's ever been published by the Government:

> Greene, Deni; Berry, Prof Mike; Garrard, Dr Jan (1993) *Reducing Lead Exposure in Australia*, Funded by National Health and Medical Research Council (NHMRC), Commonwealth Environment Protection Agency (CEPA) and Dept of Health, Housing, Local Government, & Community Services (DHHLGCS). Published by Commonwealth Dept of Human Services and Health. Not web-published, copies available at 33 libraries including The LEAD Group's library.

Seven years after the above comprehensive strategy was published, IF all of its recommendations had been acted on by state and federal government agencies in Australia, I could have retired, but instead I wrote a scathing SCORECARD - *NHMRC Recommendations for A National Strategy Scorecard: Review of NHMRC Strategy* - of government [in]action in *LEAD Action News vol 7 no 4*, (March 2000) at https://www.lead.org.au/lanv7n4/L74-19.html and I'm still working on getting Australian governments to act on lead-safety 24 years later!

In the Editorial for *LEAD Action News vol 16 no 4,* (June 2016) at https://lead.org.au/lanv16n4/lanv16n4-2.html I wrote:

> This issue of *LEAD Action News* begins with the best Australian article I've ever found on "Effects Of Lead On The Environment". It was put together by the inimitable Deni Greene et al in 1993 and we published a draft version in *LEAD Action News volume 1 number 2* [June 1993], at www.lead.org.au/lanv1n2/lanv1n2-8.html.
>
> The article "Effects Of Lead On The Environment" comes from the books by Greene et al "Reducing Lead Exposure In Australia" published in July 1993 – and still important!

Many concepts of great value in my *LEAD Action News vol 21 no 4 (LANv21n4) - Model National Lead Safety Policy* (Dec 2023) at https://leadsafeworld.com/lanv21n4-content/ were inspired by Deni Greene's mastery of environmental health policy-writing.

When my friend Roger Green died on 4 Dec 2024, I was amazed to discover that both Roger and Deni Greene had worked on the Franklin River campaign in the 1980s, after Deni moved to Australia in March 1983, from the USA where she had worked for the former Californian Governor, Gray Davis. And one of Roger's eulogists, Vince Mahon (whose eulogy is included in Roger Green's obituary in this issue of *LEAD Action News vol 22 no 4*) by coincidence, was a good friend of Deni Greene who he met while working on the Franklin River campaign.



PHOTO: Deni Greene (white shirt) with Franklin River campaigners 1983, photo URL: https://theemperors-clothes.com/wp-content/uploads/2017/12/peter-homan-dave-neilson-deni-greenerudi-liz-1983.jpg ; link accessible via https://theemperors-clothes.com/2017/12/08/the-law-of-the-land-and-other-legends-in-their-own-lunchtimes/#more-5091

There are many wonderful tributes to Deni Greene at:

https://app.memories.net/memorials/deni-greene-94554 and
https://tributes.theage.com.au/obituaries/83330/deni-greene/

Vale Michael Leunig and thank you for your brilliance!

2nd June 1945 – 19th December 2024



Cartoon from "You and Me" by Michael Leunig ©. Published by Penguin Books Australia 1995.
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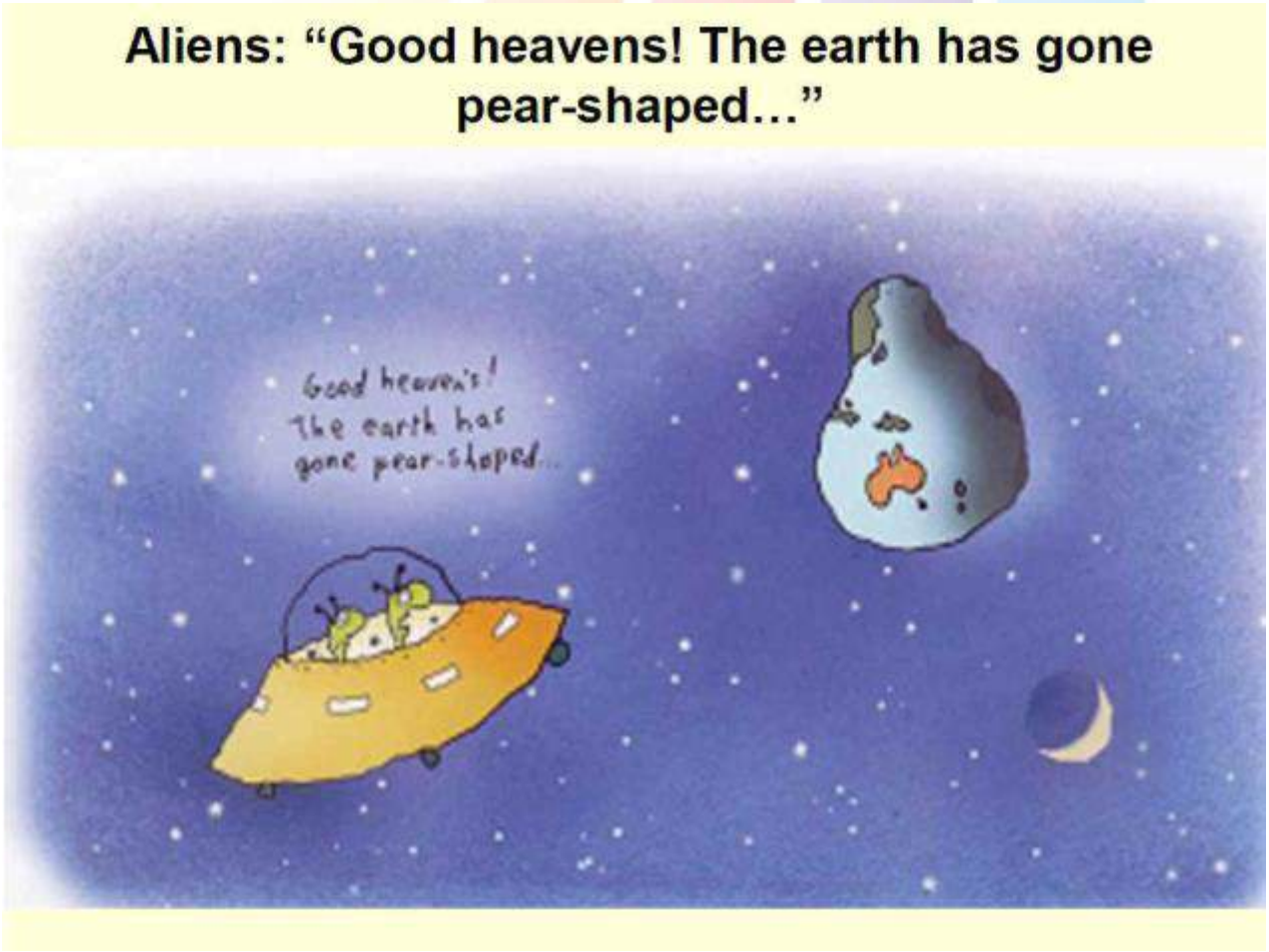
https://lead.org.au/lanv3n3/lanv3n3.pdf

This extract from a prayer by Michael Leunig, from his book A Common Prayer, although harsh, highlights for me the nature of our environmental sins.

Father do not forgive them for they know precisely what they do.
Those destroyers of earth's beauty and goodness,
Those killers of nature, do not forgive them.
Those betrayers of nature's love.
Those exploiters of nature's innocence.
Those poisoners. Do not forgive them.

LEAD Action News Vol 2 no 2 Autumn 1994

https://lead.org.au/lanv2n2/lanv2n2-4.html



https://lead.org.au/bblp/Climate_Change/tsld002.htm

Cartoon with the kind permission of Michael Leunig
https://lead.org.au/bblp/Climate_Change/Conf_Paper.pdf

Prize Winning & Highly Commended Entries in Volcano Art Prize 2024

Many thanks to our sponsor Pictureproducts, all our entrants and the VAP 2024 Judge, "Skip" and his assistant Pen Starr!

Note: this list shows the Volcano Art Prize (VAP) 2024 entries, in the approximate order that they appeared on the website (see the number preceding each image below) when the **VAP 2024 Judge, "Skip"**, judged them. Skip's high commendations and decisions on the Joint First Prize winners of the $400 ($200 each) cash prize, and the winners of the 30 Pictureproducts mugs from our sponsor , have been marked on this list.

Due to a glitch in the Facebook Likes buttons on www.volcanoartprize.com this year, the winner of the People's Choice cash prize of $200 will be announced later this year once entrants have had a chance to ask their networks to vote (now that the Thumbs Up logo at the top of feach entry page is fixed!

Volcano Art Prize

1. LID 28131 **mug winner!**



Artist: Jayesh Verma

Title: The Baryonyx Dinosaur. Lead-Safety Message: Be aware with frauds. Description of Work: I have made an installation art using scrap materials, of baryonyx dinosaur who was a carnivorous dinosaur of the Jurassic period.

https://volcanoartprize.com/portfolio-item/the-baryonyx-dinosaur/

2. LID 28132



Artist: Khangai Davaasuren, Age: 7, School Name: Creative Einstein

Title: Tulips and Glass Vase. Lead-Safety Message: “The Tulips… weigh me down [like] a dozen red lead sinkers around my neck.” Don’t be weighed down by lead! Get a blood lead test and detox yourself. Description of Work: Colouring pencils on paper. Lead-Safety Message from *The Tulips* poem by Sylvia Plath.

https://volcanoartprize.com/portfolio-item/tulips-and-glass-vase/

3. LID 28133

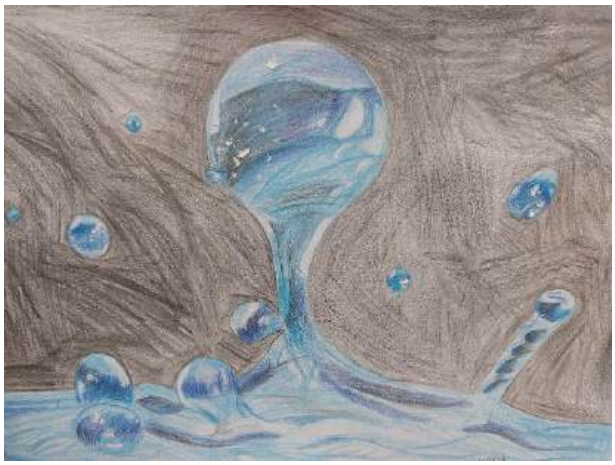


Artist: Khangai Davaasuren, Age: 7, School Name: Creative Einstein

Title: Reflecting. Lead-Safety Message: Reflecting on our murky past and our bright future, I thank The LEAD Group for Australia's bans on leaded petrol (in 2002) and leaded paint (in 2021). Description of Work: Colouring pencils on paper.

https://volcanoartprize.com/portfolio-item/reflecting/

4. LID 28134



Artist: Khangai Davaasuren, Age: 7, School Name: Creative Einstein,

Title: A Drop In The Ocean. Lead-Safety Message: Every molecule of lead that we put in the air (by burning fossil fuels, making batteries, shooting bullets, sanding lead paint, etc) is rained down or washed off the land into the sea, making the concentration of lead in deep sea mud four times more than naturally occurs in the earth's crust.

Description of Work: Colouring pencils on paper. Lead-Safety Message from "Lead in the Environment" by USGS - United States Geological Survey, 1976
https://pubs.usgs.gov/pp/0957/report.pdf

https://volcanoartprize.com/portfolio-item/a-drop-in-the-ocean/

5. LID 28135 **mug winner!**



Artist: Tabitha Ryan, Age: 10, School Name: Creative Einstein
Title: Vases of Tulips. Lead-Safety Message: Life is heavy enough without adding lead.
Description of Work: Colouring pencils on paper.
https://volcanoartprize.com/portfolio-item/vases-of-tulips/

6. LID 28136



Artist: Nicholas Jeffrey, Age: 10, School Name: Creative Einstein

Title: Celebration of Life. Lead-Safety Message: From the cradle to the grave, let's celebrate our healthy aging and ensure our bodies are not taking in or releasing past lead. Request a blood lead series at your next medical check-up.
Description of Work: Colouring pencils on paper.
https://volcanoartprize.com/portfolio-item/celebration-of-life/

7. LID 28137 **mug winner!**



Artist: Nicholas Jeffrey, Age: 10, School Name: Creative Einstein

Title: Time to Relax. Lead-Safety Message: When Australia is leading the world with National Lead-Safety Policy, it will be time for The LEAD Group's Grandma Lead to relax.

Description of Work: Colouring pencils on paper.

https://volcanoartprize.com/portfolio-item/time-to-relax/

8. LID 28139 - **Joint First Prize and** **mug winner!**



Artist: Tianyang Zhao, Age: 10, School Name: Creative Einstein

Title: City Surf. Lead-Safety Message: Don't let lead wheel weights or bullets or fishing sinkers or lead paint or lead oxide powder from vehicle lead acid batteries go from the city to the surf then settle in the sediments. Lead harms marine life.

Description of Work: Colouring pencils on paper. Reference for Lead-Safety Message: Lead in the Environment - US Geological Survey Professional Paper 957: Abundance of Lead in Rocks, Sediments, Fossil Fuels, and Minerals (1970) – includes that 15 parts per million (ppm) is the average lead concentration in the earth's crust, but 60 ppm is the average found in deep sea muds.

https://volcanoartprize.com/portfolio-item/city-surf/

9. LID 28140



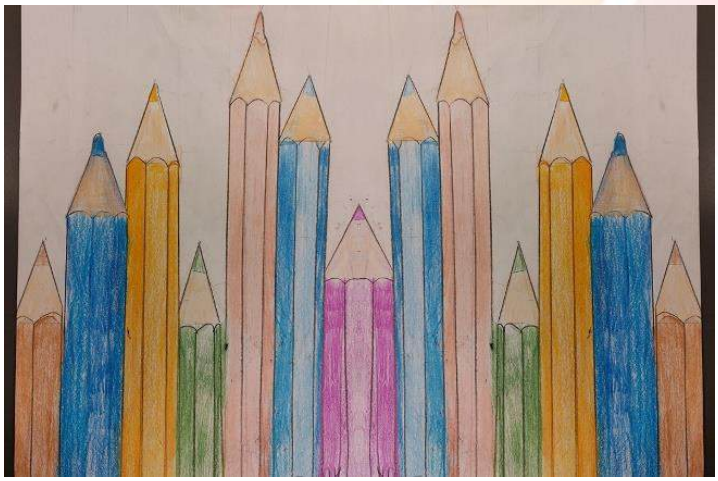
Artist: Tianyang Zhao, Age: 10, School Name: Creative Einstein
Title: Ebony and Ivory. Lead-Safety Message: United States mean blood lead levels are like the keys of a piano - at every age category the Black population is higher than the White or Hispanic population.Description of Work: Colouring pencils on paper. Reference for Lead-Safety Message: Pirkle et al 1998 *Exposure of the U.S. Population to Lead, 1991-1994 [NHANES III]*
https://volcanoartprize.com/portfolio-item/ebony-and-ivory/

10. LID 28141 **mug winner!**



Artist: Rishab Vohra, Age: 10, School Name: Creative Einstein
Title: Sunlight Streaming. Lead-Safety Message: Lead absorbed earlier in life is stored in your bones and can cause early death including by osteoporosis. A walk in the sunshine helps your body make Vitamin D for healthy bones and longevity.
Description of Work: Colouring pencils on paper.
https://volcanoartprize.com/portfolio-item/sunlight-streaming/

11. LID 28142 **mug winner!**



Artist: Danny Wang, Age: 7, School Name: Creative Einstein

Title: Sharpened Pencils. Lead-Safety Message: If you can stay as lead-free as a pencil, you'll have a sharper mind for life! Description of Work: Colouring pencils on paper.https://volcanoartprize.com/portfolio-item/sharpened-pencils/

12. LID 28143 **mug winner!**



Artist: Danny Wang, Age: 7, School Name: Creative Einstein

Title: Autumn Landscape. Lead-Safety Message: In the autumn of your life, you can remain vibrant in mind and body if you just make sure you're as lead-safe as can be throughout life! Test for lead in your environment and in water with a LEAD Group Kit from. https://leadsafeworld.com/leadkits
Description of Work: Colouring pencils on paper.
https://volcanoartprize.com/portfolio-item/autumn-landscape/

13. LID 28144 **mug winner!**



Artist: Joshua Quarters, Age: 11, School Name: Creative Einstein

Title: Tree Shadows. Lead-Safety Message: Lead gets into trees and into us if we're not vigilant. Burning fossil fuels and bushfires release lead into the air so a climate-safe planet will mean a lead-safe world. Don't let lead cast a shadow on your intellectual abilities. The world needs a smarter generation to avert the climate crisis. Description of Work: Colouring pencils on paper. Reference for Lead-Safety Message: The LEAD Group Inc 2023 December – LEAD Action News v21n4 – Model National Lead Safety Policy and 2023 VAP

https://volcanoartprize.com/portfolio-item/tree-shadows/

14. LID 28146 **mug winner!**



Artist: Julia Jia, Age: 10, School Name: Creative Einstein

Title: Tiger Eyes. Lead-Safety Message: The phrase "**eye of the tiger**" refers to the intense and focused mindset of a person who is determined and ready to face a challenge such as making the world lead-safe and climate-safe with resilience and unwavering focus, much like that of a tiger. Description of Work: Colouring pencils on paper.

https://volcanoartprize.com/portfolio-item/tiger-eyes/

15. LID 28150



Artist's Name: Elizabeth O'Brien
Title of Image: Wrought Iron Gate Lead-Safety Message: Just because Australia finally banned lead paint on 1st October 2021 doesn't make all the existing lead paint go away! Protect yourself, your children, pets, soil, backyard chickens and your neighbours by lead testing paint before lead-safely preparing and repainting, and testing soil and floor dust wipes after, with a LEAD Group Kit.
Description of Work: iPhone 8 photo.

https://volcanoartprize.com/portfolio-item/wrought-iron-gate/

16. LID 28151 **Highly commended**



Artist: Elizabeth O'Brien
Title: Leaded PVC Lead-Safety Message: There's no regulation in Australia that stops lead being added to PVC. These PVC-coated clothes racks are not weather-fast so have no place being outside especially if you have young children, pets, backyard chickens or vegetable/herb gardens. Description of Work: iPhone 13 photo.

https://volcanoartprize.com/portfolio-item/leaded-pvc/

17. LID 28152



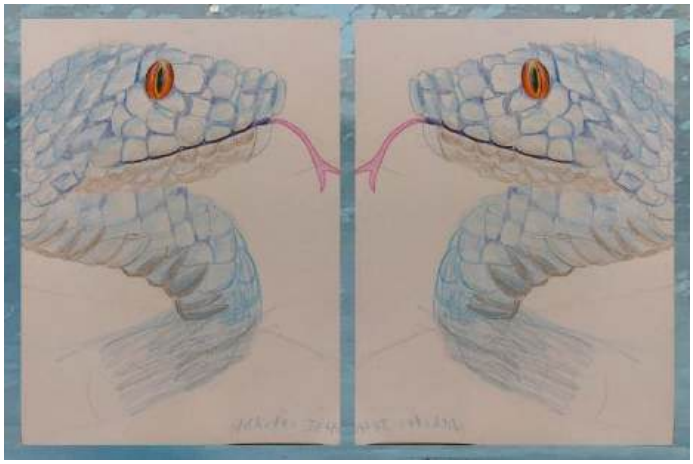
Artist: Julia Jia, Age: 10, School Name: Creative Einstein

Title: Snakes Tongues Lead-Safety Message: Snakes use their forked tongues to help them smell chemicals in the air in three dimensions and figure out which way to go. If only we could smell lead and if crawling babies could figure out how to crawl away from it!

Description of Work: Colouring pencils on paper. Reference for Lead-Safety Message: Explainer: Why do snakes flick their tongues, 31 July 2014

https://volcanoartprize.com/portfolio-item/snakes-tongues/

18. LID 28153



Artist: Nicholas Jeffrey, Age: 10, School Name: Creative Einstein,
Title: Blue Snakes Lead-Safety Message: Snakes can be lead poisoned if they eat animals that have been shot with lead shot or bullets. All leaded ammunition should be replaced with non-lead ammunition to protect wildlife and pets that are fed shot animals.
Description of Work: Colouring pencils on paper. Reference for Lead-Safety Message: https://www.aussiepythons.com/threads/lead-poisoning.115931/#post-1502888

https://volcanoartprize.com/portfolio-item/blue-snakes/

19. LID 27858



Photographer: Elizabeth O'Brien
Title: Grandma Lead meets Dr Aaron Reuben in Broken Hill
Lead-Safety Message: It was truly fabulous to discover Broken Hill with a young and brilliant academic, Aaron Reuben, who could literally be quintessential in the creation of my vision: a lead-safe world by 2041!
Description of Work: iPhone8 selfie
https://volcanoartprize.com/portfolio-item/grandma-lead-meets-dr-aaron-reuben-in-broken-hill/

20. LID 28154 **Joint First Prize winner!**



Artist: Siobhan Hannigan
Title: Ocean Dumping.
Lead-Safety Message: Watch out! What is dumped in the sea will pollute seawater and whales and seafood forever! In September 1997 the Pasminco lead zinc smelter in Hobart stopped dumping jarosite (a waste product containing lead, cadmium, mercury and arsenic) at sea, after making 9,089 dumpings (a total of 2.4million tonnes) since 6th March 1984. Description of Work: Materials - watercolours and tea bag on paper. References for Lead-Safety Message: *Pasminco Ends Ocean Dumping: Protests led to a ban on ocean dumping* at https://lead.org.au/lanv6n3/lan6n3-16.html; *Annual Report Of The LEAD Group Inc 2002 - Ten Year Review of Objectives* at https://lead.org.au/tlgar2002.pdf ; *Sea Dumping in Australia: Historical and Contemporary Aspects* at https://uxo.defence.gov.au/sites/default/files/2023-02/sea-dumping-in-australia-

historical-and-contemporary-aspects.pdf
https://volcanoartprize.com/portfolio-item/ocean-dumping/

21. LID 28155



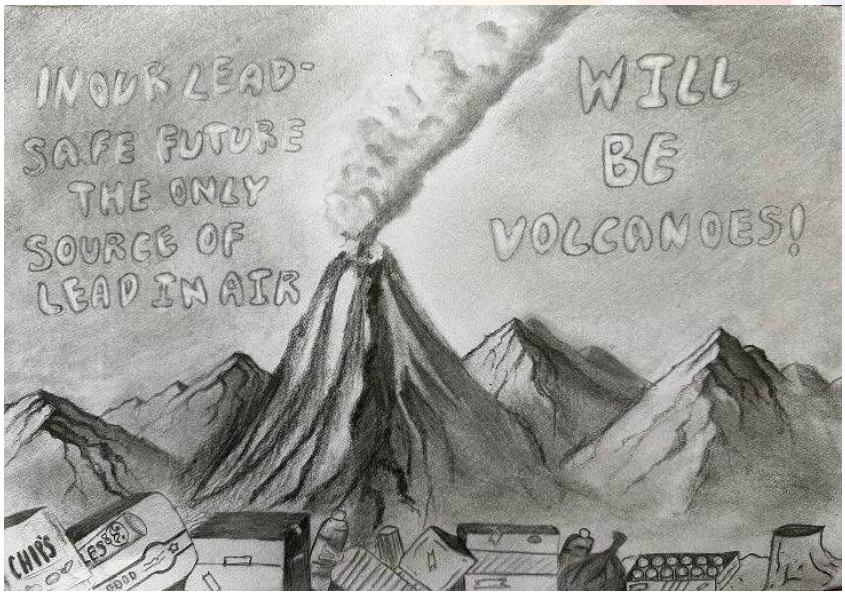
Artist: Aidan Hannigan
Title: PVC Hose. Lead Lead-Safety Message: Tell the humans there is lead in the PVC hoses, but not in the stainless steel hoses! Description of Work: Watercolour painting of graphite line drawing on paper
https://volcanoartprize.com/portfolio-item/pvc-hose-lead/

22. LID 28156 **mug winner!**



Artist: Aidan Hannigan
Title: Chicken Feed. Lead Lead-Safety Message: Tell the humans there is lead in some commercial chicken feed that can get in to our eggs along with the soil lead from our backyard chicken run! Description of Work: Watercolour painting of graphite line drawing on paper
https://volcanoartprize.com/portfolio-item/chicken-feed-lead/

23. LID 28157 **mug winner!**



Artist: Haoze (Allen) Li, Age: 11, School: Highgate Primary School
Title: Volcano.
Lead-Safety Message: In our lead-safe future, the only source of lead in air will be volcanoes!
Description of Work: Pencil drawing
https://volcanoartprize.com/portfolio-item/volcano/

24. LID. 28158



Artist's Name: Joey Caforia, Age: 3.

Title: Lead Glow Up. Lead-Safety Message: An abstract representation of how lead glows when sprayed with Fluoro-Spec. Description of Work: Black construction paper, glue, green sand.

https://volcanoartprize.com/portfolio-item/lead-glow-up/

25. LID28159 **mug winner!**

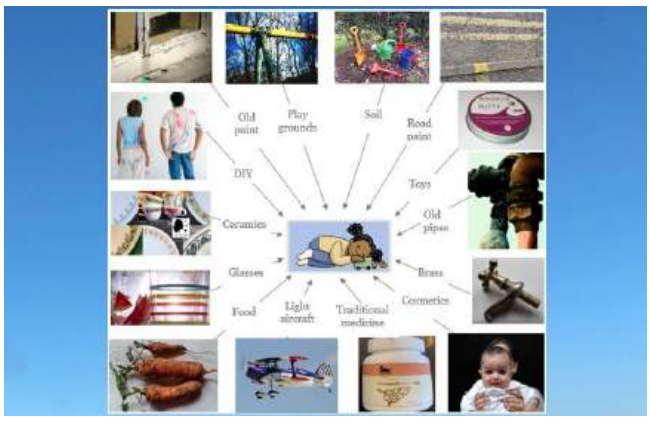


Artist: Phoenix Jewson, Age: 5. Home-school.

Title: Phoenix Makes a Volcano. Lead-Safety Message: No one can stop lead fumes spewing out of a volcano, but people who can vote, can sign Lead's **Petition EN6714 - Circular Economy for Lead**. Then we might just be able to stop new lead mines sending Australian lead out in to the world. Please Sign the petition at https://www.aph.gov.au/e-petitions/petition/EN6714 before it closes on Wed 04 Dec 2024 11:59 PM (AEDT). Description of Work: Mummy and my magpie Chough helped me make a volcano out of clay, food dye, vinegar and bicarb soda while the video was recording on her iPhone and mummy edited it. Click the image at https://volcanoartprize.com/portfolio-item/phoenix-makes-a-volcano/ to watch the very short video at: https://volcanoartprize.com/wp-content/uploads/2024/11/Phoenix-Makes-a-Volcano.mp4 ; Watch the very short video also at: https://youtu.be/-vAgJtJontE and https://www.facebook.com/LeadSafeWorld/videos/4040873666143427

https://volcanoartprize.com/portfolio-item/phoenix-makes-a-volcano/

26. LID 28160**Highly commended!**



Artist: Tim Pye

Title: Sources of lead Lead-Safety Message: There are many sources of lead that can impact a child Description of Work: Microsoft Powerpoint

https://volcanoartprize.com/portfolio-item/sources-of-lead/

27. LID 28163 **Highly commended**



Artist: Elizabeth O'Brien
Title: Petition for our children. Lead Safety Message: #Grandma Lead says: please sign my **Petition EN6714 - Circular Economy for Lead** to not only stop new lead mines digging more lead out of the ground but also start collecting and recycling ALL the lead already in circulation in Australia. Registered voters can sign the petition at https://www.aph.gov.au/e-petitions/petition/EN6714 before Wed 04 Dec 2024 11:59 PM (AEDT).
Description of Work: iPhone 13 photos collaged in Powerpoint
https://volcanoartprize.com/portfolio-item/petition-for-our-children/

28. LID 28164



Artist: Elizabeth O'Brien
Title: pXRF Bone Lead Testing
Lead Safety Message: #Grandma Lead says: In our lead safe future, everyone will have access to bone lead testing by portable X-Ray Fluorescence (pXRF) using a Niton XL3t **GOLDD+** (made by Thermo-Fisher Scientific, USA). And all earthlings should have less lead in our bones if Australian registered voters sign the Circular Economy for Lead Petition EN6714.
Description of Work: iPhone 13 photo and text added in Powerpoint. Petition EN6714 is at https://www.aph.gov.au/e-petitions/petition/EN6714 until Wed 04 Dec 2024 11:59 PM (AEDT).
https://volcanoartprize.com/portfolio-item/pxrf-bone-lead-testing/

29. LID 28165 **Highly commended**



Artist: Elizabeth O'Brien
Title: Daily Lead Detox Foods
Lead Safety Message: I eat 30 different plants plus mushrooms daily and take LivOn Vit C, Vit D, calcium and magnesium. I experiment with fresh ginger in every meal (then double the dose), and fresh garlic for brekky and lunch to see if I can get my blood lead level to fall but if I could have bone lead testing by pXRF, I'd know for sure what works!
Description of Work: iPhone 13 photos collaged in Powerpoint.
https://volcanoartprize.com/portfolio-item/daily-lead-detox-foods/

30. LID 28166 **mug winner!**



Artist: Nicholas Jeffrey, Age: 11, School Name: Creative Einstein,
Title: Moon dolphin porpoising. Lead Safety Message: Don't let spilled lead pellets from a dive weight belt or lead sinkers weigh down our dolphins. Use only stainless steel diving weights and non-lead fishing sinkers. Description of Work: Coloured pencil drawing. Lead Safety Message from *Successful Treatment of Lead Toxicosis in a Bottlenose Dolphin (Tursiops truncatus)*.
https://volcanoartprize.com/portfolio-item/moon-dolphin-porpoising/

31. LID 28167



Artist: Elizabeth O'Brien
Title: Safe Use of Lead Crystal Lead Safety Message: #Grandma Lead says: it is possible to use lead crystal safely, like for cut coriander, rather than filling the second-hand stores and landfill with it. Just don't ever keep acidic, alcoholic or hot foods and liquids in it and never heat drinks in the microwave in it! Description of Work: iPhone 13 photos collaged in Powerpoint.
https://volcanoartprize.com/portfolio-item/safe-use-of-lead-crystal/

32. LID 28168



Artist: Danny Wang, Age: 7, School Name: Creative Einstein
Title: Sunset Trees. Lead-Safety Message: As trees grow they absorb carbon dioxide (CO_2), but if there's lead in the soil, they also absorb lead that gets released in forest fires. Reduce energy use and plant more trees to avert a climate crisis.
Description of Work: Colouring pencils on paper.
https://volcanoartprize.com/portfolio-item/sunset-trees/

33. 28169LID **mug winner!**



Artist: Khangai Davaasuren, Age: 7, School Name: Creative Einstein

Tittle: Temple Stones, Candles and Bamboo Lead-Safety Message: If we all applied the Buddhist principles of Right Livelihood, Right Thinking, Right Action and Right Speech, we would soon have a lead-safe, climate-safe world. Description of Work: Colouring pencils on paper.

https://volcanoartprize.com/portfolio-item/temple-stones-candles-and-bamboo/

34. LID 28170 **mug winner!**



Artist: Khangai Davaasuren, Age: 7, School Name: Creative Einstein

Title: Sydney Harbour Bridge and Opera House.

Lead-Safety Message: In the murky depths beneath these beautiful icons, lies lead and other heavy metals in the harbour sediment, which should be mined and recycled and made into lead acid batteries made of 100% recycled lead.

Description of Work: Colouring pencils on paper.

https://volcanoartprize.com/portfolio-item/sydney-harbour-bridge-and-opera-house/

35. LID 28171 **Highly commended**



Artist: Elizabeth O'Brien
Title: Fabric Sailing Boat Lead Safety Message: Ballast prevents sailboats from being blown sideways by the wind, and keeps the boat right-side up. Lead poisoning turns a life upside down. Why can't boat designers and manufacturers understand it is worth paying more to replace lead ballast with steel or tungsten ballast? Description of Work: iPhone 13 photo of bathmat.
https://volcanoartprize.com/portfolio-item/fabric-sailing-boat/

36. LID 28172 **Highly commended**



Artist: Elizabeth O'Brien
Title: Stop Doing the Damaging Stuff Lead Safety Message: As I wrote in our *Model National Lead Safety Policy* (2023): David Attenborough says, "The plan is obvious: stop doing the damaging stuff". So let's stop burning fossil fuels, especially leaded fuels like AvGas, and stop lead poisoning our kids because we need smarter, wiser minds to avert a climate crisis. Description of Work: iPhone 13 photo of *A Life on Our Planet* marked up where lead-safety and climate-safety interact, and collaged with screenshots collaged by Lucinda Curran and Elizabeth O'Brien from video *A Reason for Hope* Attenborough 2019.
https://volcanoartprize.com/portfolio-item/stop-doing-the-damaging-stuff/

37. LID 28173



Artist: Zoe Lu. Age: 7. School: Creative Einstein.
Title: Pumpkin Superfood. Lead-Safety Message: Pumpkins are a superfood because they're high in many nutrients essential for a well-functioning body, including: fiber, carotenoids, potassium, vitamins A, E, and C, omega-3 fatty acids, zinc, selenium, iron, magnesium, and beta-carotene... all the nutrients you need to prevent absorption of lead and help detox lead. Description of Work: Coloured pencil drawing. Lead-Safety Message from https://www.webmd.com/diet/health-benefits-pumpkin
https://volcanoartprize.com/portfolio-item/pumpkin-superfood/

38. LID 28174



Artist: Elizabeth O'Brien

Title: Stained Glass Lead-Safety Message: Stained glass can be beautiful without being leadlighting. The lead cames (black lines made of lead) between the stained glass pieces in leadlighting pose a real hazard to young children, especially if sun has oxidised the lead. Use a LEAD Group Kit to test surface dust wipes near leadlighting or just replace it with non-leaded windows.Description of Work: iPhone 13 photo and #Grandma Lead wisdom.

https://volcanoartprize.com/portfolio-item/stained-glass/

39. LID 28175 **mug winner!**



Artist: Jennifer Chua. Age: 13. School: Creative Einstein
Title: Three Skull Kings Lead-Safety Message: Lead stored in your bones can actually kill you so contribute to or join The LEAD Group's project to have bone lead testing available in Australia by portable X-Ray Fluorescence (pXRF) by October 2025.
Description of Work: Coloured pencil drawing collaged in Powerpoint.
https://volcanoartprize.com/portfolio-item/three-skull-kings/

40. LID 28176 **Highly commended**



Artist's Rachel Gardner Farmer
Title:Fall Leaves
Lead-Safety Message: Kids' blood lead levels tend to rise in the summer and fall in the fall. Everyone's blood lead level tends to rise as we age, so ask the doctor to test your level annually at the same season each year as you age. Description of Work: Photograph mobile phone
https://volcanoartprize.com/portfolio-item/fall-leaves/

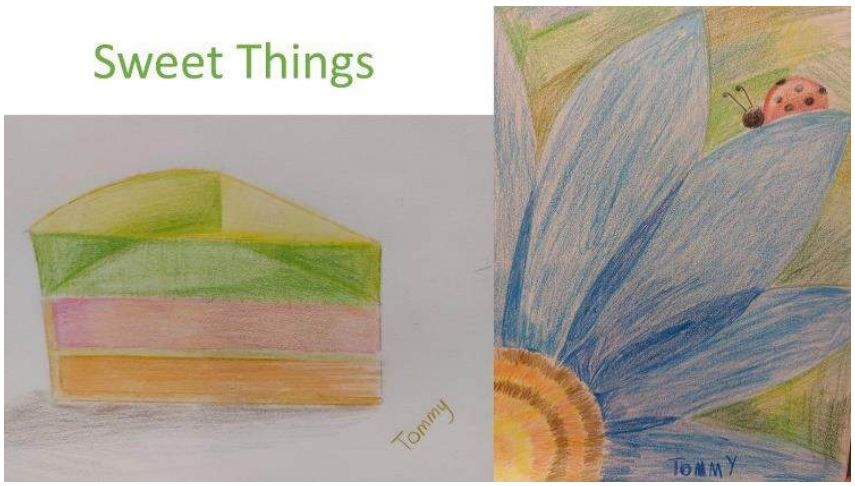
41. LID 28177 **mug winner!**



Artist: Tommy Chuah, Age: 11. School: Creative Einstein

Title: Kookaburra. Lead-Safety Message: Unbelievably, dozens of kookaburras and other wild birds and animals have been used for shooting practice in far North Queensland. If they don't die outright, lead shot pellets cause lead poisoning, which is too cruel so they are euthanised. Description of Work: Coloured pencil drawing. Lead-Safety Message from *Wildlife carers' plea for action to stop people shooting native birds* from https://www.abc.net.au/news/2022-12-22/wildlife-carers-say-shooting-of-native-birds-common/101796954

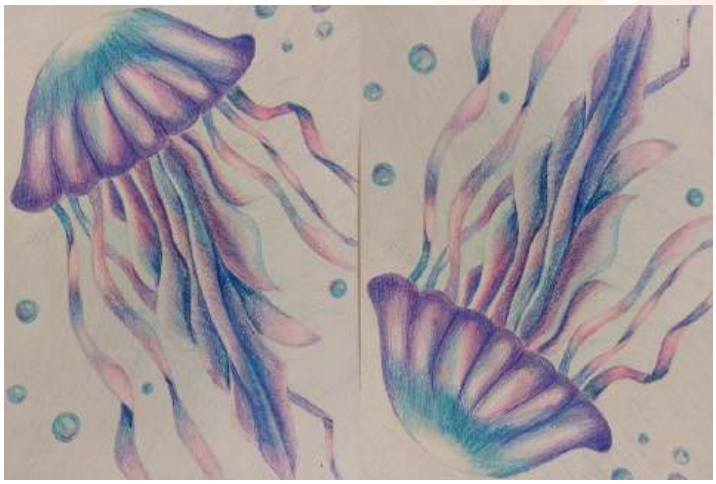
42. LID 28178 **mug winner!**



Artist: Tommy Chuah. Age: 11. School: Creative Einstein

Title: Sweet Things Lead-Safety Message: Sweet kids draw sweet things like daisies, ladybeetles and cake, with non-toxic pencils. Yay for lead safety! Description of Work: Coloured pencil drawing. https://volcanoartprize.com/portfolio-item/sweet-things/

43. LID 28179 mug winner!



Artist: Jennifer Chua. Age: 13. School: Creative Einstein
Title: Jellyfish Havoc. Lead-Safety Message: As climate change warms seawater and burning fuel pollutes it and reduces oxygen levels, and overfishing removes their predators, many jellyfish species become overpopulous and clog up waterways closing down nuclear power stations and seabed mining. Reducing your energy use will help to reduce jellyfish havoc.
Description of Work: Coloured pencil drawing collaged in Powerpoint. Lead-Safety Message from
https://www.weforum.org/stories/2019/01/how-an-explosion-of-jellyfish-is-wreaking-havoc/
https://volcanoartprize.com/portfolio-item/jellyfish-havoc/

44. LID 28180 **mug winner!**



Artist: Devrim Yasar. Age: 10. School: Creative Einstein

Title: Red Roses Lead-Safety Message: Red roses are given to people you love just as a lead-safe home is a gift to your children to help them reach their intelligence and longevity potentials. Description of Work: Coloured pencil drawing collaged in Paint and Powerpoint.
https://volcanoartprize.com/portfolio-item/red-roses/

45. LID 28181 **mug winner!**



Artist: Zoe Lu. Age: 7. School: Creative Einstein

Title: Panda. Lead-Safety Message: Lead exposure bad. Lead-safety good. It's as black and white as a panda. Sign Grandma Lead's **Petition EN6714 - Circular Economy for Lead** to keep Australian lead in the ground where it is safe. Go to https://www.aph.gov.au/e-petitions/petition/EN6714 before it closes on Wed 04 Dec 2024 11:59 PM (AEDT). Description of Work: Coloured pencil drawing.

https://volcanoartprize.com/portfolio-item/panda/

46. LID 28182 **mug winner!**



Artist: Zoe Lu. Age: 7. School: Creative Einstein

Title: Butterflies and Tulips. Lead-Safety Message: In the 1920s when tetra ethyl lead (TEL) was first made, the factory became known as the House of the Butterflies as lead poisoned workers had hallucinations and went insane or died. When will we stop using TEL in aviation fuel (AvGas)? Description of Work: Coloured pencil drawing collaged in Paint and Powerpoint. Lead Safety Message from *The House of the Butterflies: Lead Poisoning among Workers and Consumers*.
https://volcanoartprize.com/portfolio-item/butterflies-and-tulips/

47. LID 28183



Artist: Elizabeth O'Brien

Title: Lue Water Protection Ceremony Lead-Safety Message: Grandma Lead was inspired by this first nations protection of the waters ceremony at Lue, the site of Bowdens proposed lead mine on a very rainy day on 4th Oct 2023, to create the **Petition EN6714 - Circular Economy for Lead** to stop new lead mines being approved. Please Sign the petition at https://www.aph.gov.au/e-petitions/petition/EN6714 before it closes on Wed 04 Dec 2024 11:59 PM (AEDT). Description of Work: Collage of selfie & iphone 13 photos from Lue, near Mudgee, NSW. https://volcanoartprize.com/portfolio-item/lue-water-protection-ceremony/

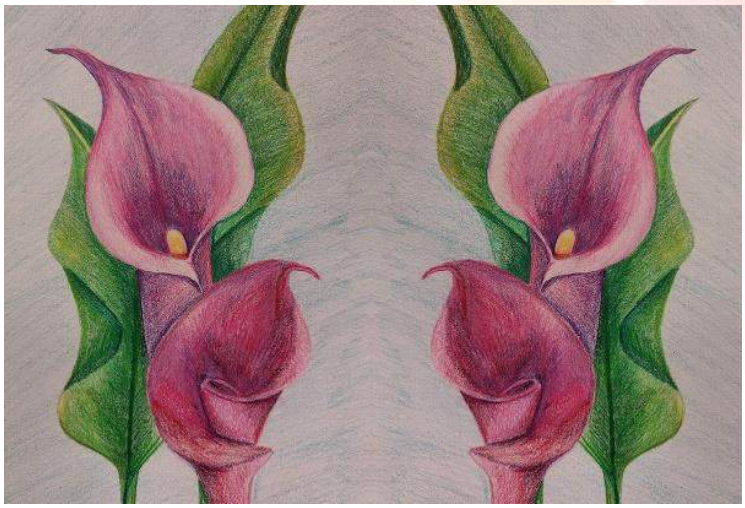
48. LID 28184



Artist: Danny Wang, Age: 7, School Name: Creative Einstein

Title: New Year. Lead-Safety Message: May every new year bring you lower blood and bone lead levels. Wishing you a long and healthy life. Description of Work: Coloured pencil drawing https://volcanoartprize.com/portfolio-item/new-year/

49. LID 28185



Artist: Jennifer Chuah, Age: 13, School Name: Creative Einstein

Title: Red Peace Lilies. Lead-Safety Message: For thousands of years humans have mined lead and for hundreds of years we've fought wars with lead ammunition. Peace means less lead will be used in bullets, missiles and as radiation shielding for nuclear weapons.

Description of Work: Coloured pencil drawing collaged in Paint and Powerpoint.
https://volcanoartprize.com/portfolio-item/red-peace-lilies/

50. LID 28186 **mug winner!**



Artist: Azalea Manttan, Age: 2

Title: Recycled Collage Lead-Safety Message: My parents keep me safe from lead and other toxic metals. Description of Work: Collage of lead-safe recycled items.
https://volcanoartprize.com/portfolio-item/recycled-collage/

51. LID 28187 **mug winner!**



Artist: Leo Manttan, Age: 5

Title: Abstract Painting. Lead-Safety Message: My parents keep me safe from lead and other toxic metals. Description of Work: Non-toxic paints.
https://volcanoartprize.com/portfolio-item/abstract-painting/

52. LID 28188 **Highly commended**



Artist: Elizabeth O'Brien

Title: Sea Level Rise Lead-Safety Message: Take steps today to reduce your fossil fuel burning to slow the rate of sea level rise and lead pollution of the land and oceans.

Description of Work: iPhone 13 photo. Lead-Safety Message from
https://theconversation.com/burning-fossil-fuels-is-responsible-for-most-sea-level-rise-since-1970-57286#

https://volcanoartprize.com/portfolio-item/sea-level-rise-2/

53. LID 28189 **Highly commended**



Artist: Elizabeth O'Brien

Title: Lead Paint Recycling Lead-Safety Message: 1. Strip old paint safely 2. Recycle lead paint waste. 3. Make lead acid batteries from 100% recycled lead. These are some of the steps towards a **Circular Economy for Lead**. If you're an Australian voter, please sign my Petition EN6714 at https://www.aph.gov.au/e-petitions/petition/EN6714 before it closes on Wed 04 Dec 2024 11:59 PM (AEDT) Description of Work: iPhone 13 photo.

https://volcanoartprize.com/portfolio-item/lead-paint-recycling/

54. LID 28190

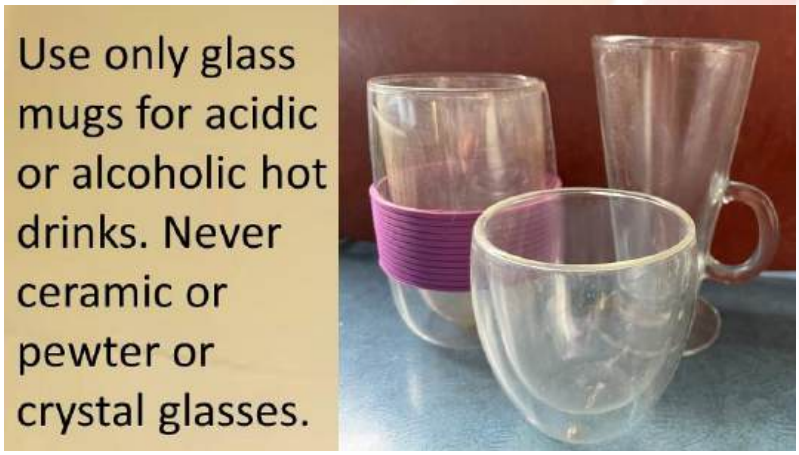


Artist: Elizabeth O'Brien

Title: Avoid strokes as you age Lead-Safety Message: My motivation for asking people to join me in self-experimenting with lead detox methods and now pushing for bone lead testing by pXRF in Australia, is my mother. She had notifiable (5-7 ug/dL) blood lead levels between 5 strokes in her final 21 years, the first stroke when she was just three years older than I am now. Description of Work: iPhone 8 photos collaged in Paint and Powerpoint.

https://volcanoartprize.com/portfolio-item/avoid-strokes-as-you-age/

55. LID 28191



Artist: Elizabeth O'Brien

Title: Glass Mugs Lead-Safety Message: #Grandma Lead says use only glass mugs for acidic or alcoholic hot drinks. Never ceramic or pewter or crystal glasses which will leach lead into the drink. One client in 2024 was seriously lead poisoned by adding boiling water to lemon juice in a ceramic mug and replenishing the hot water for drinks throughout the day. Description of Work: iPhone 13 photo. Poster made in Powerpoint.
https://volcanoartprize.com/portfolio-item/glass-mugs/
Elizabeth O'Brien Glass Mugs.jpg

56. LID 28192



Artist: Elizabeth O'Brien

Title: Lead from helicopters Lead-Safety Message: #Grandma Lead says non-turbo helicopters use leaded AvGas and some fire suppressants dropped from Fire Fighting helicopters may be contaminating the environment they're working to protect, with lead and other toxic heavy metals. Description of Work: iPhone 13 photo. Lead-Safety Message from *Metals in Wildfire Suppressants*.
https://volcanoartprize.com/portfolio-item/lead-from-helicopters /

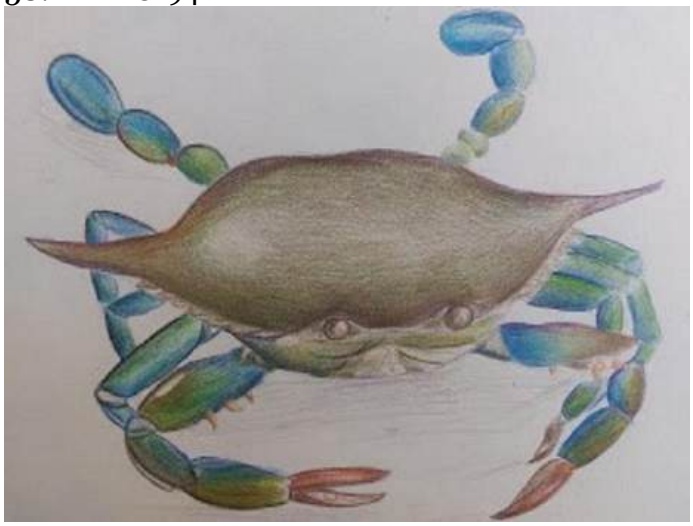
57. LID 28193 **mug winner!**



Artist: Tianyang Zhao, Age: 11, School Name: Creative Einstein

Title: Pikachu Lead-Safety Message: Just as Pikachu is brave in the face of countless challenges, young people like Greta Thunberg are brave when she says things like: “I want you to panic, I want you to feel the fear I feel every day. And then I want you to act, I want you to act as if you would in a crisis. I want you to act as if the house was on fire, because it is.” Description of Work: Coloured pencil drawing. Lead-Safety Message from: *Greta Thunberg quotes*.
https://volcanoartprize.com/portfolio-item/pikachu/

58. LID 28194



Artist: Tianyang Zhao, Age: 11, School Name: Creative Einstein

Title: Blue Crab. Lead-Safety Message: Blue crabs are eaten by fish, bigger crabs, mammals, birds and turtles so its lucky that crabs are generally lower in lead and mercury than other sea creatures.

Description of Work: Coloured pencil drawing. Lead-Safety Message from: Lead, Mercury and What Sea Animal Eats Blue Crabs?
https://volcanoartprize.com/portfolio-item/blue-crab/

59. LID 28195



Artist: Julia Jia, Age: 10, School Name: Creative Einstein

Title: Pointing. Lead-Safety Message: All the planetary signs are pointing to dangerous and cascading effects, with many areas experiencing simultaneous multiple impacts due to climate change if two degrees Celsius of warming is allowed to occur due to burning fossil fuels.

Description of Work: Colouring pencils on paper. Lead Safety Message from Wikipedia.

https://volcanoartprize.com/portfolio-item/pointing/

60. LID 28196 **mug winner!**



Artist: Rishab Vohra, Age: 10, School Name: Creative Einstein

Title: Heart. Lead-Safety Message: The heart is a target organ for lead impacts so check your blood lead level annually or more frequently if your blood pressure goes up and detox the lead from your bone stores safely to prevent heart attack. Description of Work: Coloured quilling paper cut, curled, and glued to a board.

https://volcanoartprize.com/portfolio-item/heart-2/

61. LID 28197 **mug winner!**



Artist: Joshua Quarters, Age: 11, School Name: Creative Einstein

Title: I Love Earth. Lead-Safety Message: Our Earth is so beautiful so let's make it lead-safe and climate-safe.

Description of Work: Coloured quilling paper cut, curled, and glued to a board.

https://volcanoartprize.com/portfolio-item/i-love-earth/

62. LID 28198



Artist: Azalea Manttan, Age: 2

Title: Arrangements Lead-Safety Message: Beautiful coloured things for children to use should never be leaded. Description of Work: Collage of lead-safe recycled items.

https://volcanoartprize.com/portfolio-item/arrangements/

63. LID 28199



Artist: Julia Jia, Age: 11, School Name: Creative Einstein

Title: Pelican Lead-Safety Message: Pelicans die of lead poisoning when they ingest lead shot or lead fishing tackle/sinkers. Small sinkers (under 2cm diameter) are most often consumed. All leaded ammunition and fishing sinkers should be banned and fished out of sediments so our pelicans can live. Description of Work: Coloured quilling paper cut, curled, and glued to a board. Lead-Safety Message from *Effects of lead ammunition and sinkers on wildlife*.
https://volcanoartprize.com/portfolio-item/pelican/

64. LID 28200 **mug winner!**

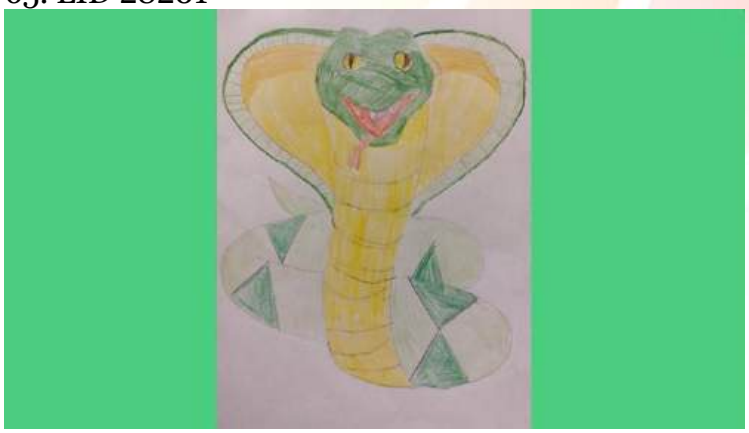


Artist: Victor Burrows, Age: 11, School Name: Creative Einstein

Title: Bridge Lookout. Lead-Safety Message: Look out for degraded paint on handrails and bridges in your area and report it to the Council so little kids and wildlife don't touch it or eat it. It could be lead paint! Description of Work: Colouring pencils on paper.

https://volcanoartprize.com/portfolio-item/bridge-lookout/

65. LID 28201



Artist: Danny Wang, Age: 7, School Name: Creative Einstein

Title: Cobra. Lead-Safety Message: Did you know a Lead-Spitting Cobra is a weapon in the video game Torchlight? It kills by lead poisoning its victims. Description of Work: Colouring pencils on paper. Collaged in Powerpoint and Paint. Lead-Safety Message from Wikipedia.

https://volcanoartprize.com/portfolio-item/cobra/

66. LID 28202



Artist: Elizabeth O'Brien

Title: VAP Keepsakes Lead-Safety Message: Even though I can never win a Volcano Art Prize (VAP) Pictureproducts mug (because I'm the founder of VAP), it makes me so happy every time I have 8 cups of tea a day (for lead detox hydration) from my mother's prize mugs. Description of Work: iPhone 13 Selfie – Elizabeth O'Brien, aka Grandma Lead.

https://volcanoartprize.com/portfolio-item/vap-keepsakes/

67. LID 28203 **mug winner!**



Artist: Jenny Rowbotham

Title: Broken Hill Lead Dust. Lead-Safety Message: This is where my journey began with lead and I've spent more than 40 years telling my story so this cycle of lead mine lead poisoning can be broken. New lead mines are not going to fulfil any of the promises broken repeatedly by existing lead mines and by the governments that support mines instead of people. Sign the Circular Economy for Lead petition at https://www.aph.gov.au/e-petitions/petition/EN6714 before it closes on Wed 04 Dec 2024 11:59 PM (AEDT) to keep lead safely in the ground, like wise First Nations Australians have done for tens of thousands of years. Description of Work: Poster with a photo of my sons' first back yard beside the mine train line in Gaffney Street, and the Melissa Sweet SMH 12th April 1997 article *Mother blames mine trains for three frail sons*.

https://volcanoartprize.com/portfolio-item/broken-hill-lead-dust/

68. LID 28216 **mug winner!**



Artist: Jayne Bentivoglio

Title: Protesting against the Lead mine at Lue

Lead-Safety Message: My community has spent the last 12 years protesting against the proposed Bowden lead mine at Lue yet, as things stand, any new lead mine proposal on your home or farm or waterways is practically 100% likely to be approved no matter how unjustifiable the destruction of aboriginal heritage, water, wildlife, agriculture, tourism or cost of infrastructure and drain on non-renewable energy and dwindling clean water. Sign the Circular Economy for Lead petition at https://www.aph.gov.au/e-petitions/petition/EN6714 before it closes on Wed 04 Dec 2024 11:59 PM (AEDT) to keep lead safely in the ground, and start instead, collecting and recycling existing lead to meet future needs.

Description of Work: Photo of protest in mid Oct 2024 with Mudgee Region Health Alliance and Mudgee Region Action Group and Sen Cate Faehrmann NSW Greens MLC.

https://volcanoartprize.com/portfolio-item/protesting-against-the-lead-mine-at-lue/

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