

VOLUME
34
NUMBER
1

explore



discover

OPENING MAWSON'S TIME CAPSULE

nature

THE CASE OF THE MISSING CRUSTACEANS

culture

ROVER THOMAS AND THE CANNING
STOCK ROUTE

people

AUSTRALIAN MUSEUM
MEMBERS TURNS 40

CONTENTS

NATURE

- Science bytes** Science, shipwrecks and slippery cargoes 6
Dr Lauren Hughes and the troubled US Exploring Expedition
- Photofeast** Cute little suckers 19
A harlequin bug makes it to the Eurekas
- Science bytes** Darwin's pest 20
Is this the first pest collected in Australia, asks Chris Reid
- Australian Museum Foundation** Captivated by rock-wallabies 24
Meet Dr Sally Potter, Chadwick Biodiversity Fellow

CULTURE

- Culture connect** Rover's legacy 10
Restoring the Canning Stock Route painting
- From the archives** Australian Museum Members turns 40 12
Serena Todd opens the archives
- Culture connect** More Fashion Less Waste 21
Get your sewing basket out, says Jane Johnston

DISCOVER

- Cover story** Mawson's time capsule 2
What does this mystery crate from Antarctica hold?
- People Meeting** Catherine Livingstone 5
- Xplorer young scientist liftout** Catch me if you can! centre
- Xplanations** *Search > Discover* 15
- In your backyard** with Martyn Robinson 16
- Science bytes** On the record 18
- Members events** Night Talks and walks 27

OPINION

- From the Director** 1
- On the agenda** Surviving on sandy beaches 22
Are we squeezing our beaches to death?
- Members message** with Serena Todd 26

encountering INDIGENOUS AUSTRALIA

January 2012 was notable for the number of encounters with Indigenous Australia on offer. Of course there is the wonderful *Yiwarra Kuju: The Canning Stock Route* exhibition, now showing at the Museum, and the in-your-face Sydney Festival production *I Am Eora* forming two geographic bookends of Aboriginal Australia.

Yiwarra Kuju intermixes exuberant contemporary Aboriginal art from north-western Australia with stories of the ruthless exploitation of Aboriginal people, while *I Am Eora* celebrated the Aboriginal heroes of more than 200 turbulent years for the Sydney clans which make up the Eora nation.

January was also notable for the discussion sparked by a very positive proposal from an expert panel to recognise Aboriginal and Torres Strait Islanders in the Australian Constitution – an event contrasted with the widely reported fracas at a Canberra restaurant involving Aboriginal demonstrators, the Prime Minister and the Opposition Leader.

CULTURAL TOURISM

It seems this focus on Indigenous Australia in 2012 is set to continue. By the time you read this, I will be attending an international conference in Darwin about indigenous cultural tourism both in Australia and overseas. The conference will share experiences of, and examine the demand from, tourists to know more about indigenous peoples, a hunger that is nowhere near satisfied, especially in Sydney.

Tourists arrive in Sydney looking for a level of engagement with Indigenous culture that's very hard to find. The Museum's own *Indigenous Australians* gallery, one of the few Indigenous cultural exhibitions in Sydney, is tired and well due for the refurbishment planned to begin later this year. From time to time we also offer temporary exhibitions such as *Yiwarra Kuju*, regular engaging events and curriculum-based learning activities, but we need to do more, and do it differently, to meet demand while strengthening Indigenous culture.

ENGAGEMENT

Yet one of the biggest obstacles we face in broadening the engagement and exploration of Indigenous cultures is the very word 'museum'. For some people it carries baggage, invoking (wrongly in my view) outmoded ideas of dust and stasis.

That's why we are working on perspectives that combine the best of contemporary museum display with complementary events and community development – a collaboration of living culture, people, stories, histories and futures. We want to celebrate Indigenous culture, to provide experiences that engage with all people, Sydneysiders and visitors alike, while building Indigenous community strength through education, artistic development and broader social wellbeing.

I look forward to sharing more of this vision as our plans develop.

FRANK HOWARTH

Director of the Australian Museum



Mawson's



TIME CAPSULE

GEOLOGIST DOUGLAS MAWSON COLLECTED MORE THAN ROCKS ON HIS PIONEERING ANTARCTIC EXPEDITIONS LAST CENTURY. HERE, **DR SANDY INGLEBY** OPENS AN HISTORIC SCIENTIFIC TIME CAPSULE – A PREVIOUSLY UNPACKED CRATE FROM MAWSON CONTAINING A MYSTERY SKELETON.

Opposite
Unpacking the crate
from Antarctica.
Photo Stuart Humphreys.

We're in the mammal laboratory of the Museum's Research & Collections Building looking at an old wooden crate with the word MAWSON painted on the side.

'As far as we can tell, the crate has never been unpacked and so it represents a time capsule of the way explorers and scientists used to work', says Mammals Collection Manager Dr Sandy Ingleby.

On hand with Sandy are Conservation Manager Colin Macgregor and Archivist Patricia Egan.

'The crate is one of three remaining crates thought to date from the 1911–14 Australasian Antarctic Expedition', explains Sandy.

'When I started here 15 years ago there was a whole pyramid of similar crates. They've all been unpacked now and the specimens rehoused in better storage containers in the collection, but we wanted to keep a couple as examples of how scientists used to work – but of course we'd also like to know what it contains.'

POSTCRANIAL SKELETON

A missing panel on the lid reveals an assortment of bones inside – but what do they belong to? We're about to find out.

Colin and Sandy don latex gloves. 'They sometimes used chemicals like arsenic to prevent specimens from deteriorating, so we're taking no chances', Colin says as he gently levers off the lid.

On top is a jawbone. 'Aha! It's a Leopard Seal', says Sandy. 'Look at those teeth. It preys on fish, seals and penguins and so on, but at different times of the year it eats krill [small crustaceans] which it filters from the water through these serrated molars.'

Sandy rifles through the assorted vertebrae, femurs and ribs. 'Look, this rib has been broken, then healed. You can see the thickening of the bone around the break.'

Unfortunately, the rest of the skull (cranium) is not in the crate. 'These bones have never formally been accessioned, so there are no registration numbers or records to tell us exactly when or where they were acquired', says Sandy.

'But this is the atlas, the first bone of the vertebral column, which articulates with the skull. If we can find a matching registered skull, we'll be able to confirm the collection details of the whole skeleton.'

COLD COMFORT

Colin meanwhile is carefully lifting out a number of cigar boxes from the crate, their colourful labels bringing a note of cheer to the laboratory, as they must have done to the explorers alone in their tents and huts.

'They've used cigar boxes to hold the groups of small bones forming the fore- and hindflippers. We can only imagine that these scientists, away from home for years at a time, took boxes of cigars to celebrate special occasions on those long, cold Antarctic evenings', Colin says.

LEATHER-BOUND

Sandy opens an old leather-bound register that records the 'who, what, when and where' of early specimens, each row containing the handwritten details of each specimen.

Left

The jawbones of a Leopard Seal from the crate perfectly match a cranium collected by the Australasian Antarctic Expedition. Photo Stuart Humphreys.

Right

Cigar boxes make handy storage units for flipper bones. Photo Brendan Atkins.

“On the pack ice, sea-leopards and crab-eater seals sometimes appeared, as many as a hundred [at a time].”

Douglas Mawson



‘Here, for example, with the specimen number M.2047, is the skin of a Crab-eater Seal collected by Ernest Shackleton from the Ross Sea and registered at the Museum in June 1909 and, a few pages later, a number of other items from the Australasian Antarctic Expedition, acquired when the expedition survivors returned to Australia in 1915.

‘The Museum has specimens of five species of seal collected during these early expeditions – the Southern Elephant and Leopard seals, and then there’s the Crab-eater, Ross and Weddell seals’, says Sandy.

HISTORY

Patricia explains that the register also records whether there is any correspondence accompanying the specimen. ‘Any letters would be kept

in Archives so that scientists can read them to find extra information about the specimens.

‘Once we’ve cleaned these bones, we’ll place them back in the crate, and the crate will be registered in the Archival collection. Archives will keep the box because it shows us how the work of scientists has changed over time.’

But the last word goes to Sandy.

‘These seal specimens have great historical and scientific value as they represent some of the earliest mammal specimens from Antarctica. They’re especially relevant today because we can use them to look at changes in the species’ biology over time and potentially even extract DNA to compare the genetic structure of those early seal populations with current ones.’

POSTSCRIPT

In looking for the matching cranium, Sandy reports both good and bad news. The good news is that the jawbones from the crate match the cranium of a Leopard Seal collected by Mawson’s team. The bad news is that the atlas bone seems to be from a different specimen, creating another puzzle for Sandy to solve.

BRENDAN ATKINS EDITOR

Further reading

Douglas Mawson, 1915. *Home of the Blizzard*. Heinemann, London.

WEBLINK >

See the Mawson crate being unpacked at www.australianmuseum.net.au/movie/Mawsons-crate.

RESHAPING *the board*



Catherine Livingstone AO, appointed President of the Australian Museum Trust in January 2012.
Photo Carl Bento

THE MUSEUM BOARD OF TRUSTEES HAS A NEW PRESIDENT AND FOUR NEW TRUSTEES WITH IMPECCABLE CONNECTIONS TO SCIENCE, INNOVATION, BUSINESS AND INDIGENOUS COMMUNITIES.

Like many students completing high school, Catherine Livingstone faced a dilemma: pursue science, with its endless possibilities for discovery, or study economics and accounting, with better job prospects and the promise of travel.

'I was fond of chemistry and had an inspirational science teacher, but I ended up taking the more pragmatic path at the time', Ms Livingstone said.

That she was to become one of Australia's most successful business leaders only leaves us to wonder what she might have achieved had science won out.

NEW TRUSTEES

Ms Livingstone has been appointed President of the Australian Museum Trust, bringing a wealth of knowledge and experience gained over 30 years in the corporate sector.

'Catherine Livingstone has impeccable credentials for leading the Australian Museum Trust', said Director Frank Howarth.

'Her experience as Director of "bionic ear" company Cochlear, as Chairman of CSIRO and her current roles as Chairman of Telstra Corporation and Director of Macquarie Group will be critical for securing wider support and recognition for the Museum', he said.

Mr Howarth welcomed Ms Livingstone and new Trustees Professor Merlin Crossley, Dr Karina Kelly, Jason Glanville and Kim McKay AO to a revamped Board with existing members Professor Amanda Lawson, Paul Connor, Helen Wellings, Stephen Crittenden and Dr James Moody.

SERVICE

Ms Livingstone was made an Officer of the Order of Australia in 2008 for her services to the development of science, technology and innovation policies, business and management.

'I am passionate about the social, economic and environmental wellbeing of Australia', Ms Livingstone said.

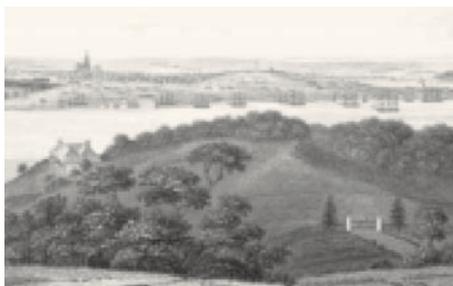
She also believes strongly in individuals taking responsibility for bringing about positive change. 'What I learned from my team at Cochlear is that we're all accountable. We can't expect the government to do it all. We should all contribute.'

Ms Livingstone replaces Sam Mostyn, who retired in December after ten years of service on the Museum Board, the last two as President.

BRENDAN ATKINS EDITOR

science, shipwrecks and **SLIPPERY CARGOES**

JOIN SCIENCE DETECTIVE
LAUREN HUGHES IN THE CASE
OF THE MISSING CRUSTACEANS.



Above
View of Sydney (Port Jackson) in 1839 (detail) by artist Alfred Agate. Australian Museum Research Library.

Opposite
Dr Lauren Hughes with a case of glass microscope slides. Photo Stuart Humphreys.

It's a familiar kind of day in the laboratory. Not unusually, I'm drawing an amphipod (a small marine crustacean), but there's something very special about this one. A native of Brazil, it has a colourful and dramatic history, much of it to do with the troubled US Exploring Expedition (known as the US Ex Ex for short).

SHAPE SHIFTERS

Found in most of the world's ports, my Brazilian specimen, *Podocerus brasiliensis*, was first described by the American geologist James Dwight Dana in 1852. It's a common fouling organism spread on the hulls of ships and rated among the world's top-ten invasive amphipods.

In an epic voyage which explored the Pacific between 1838 and 1842, Dana and the US Ex Ex fleet of research vessels visited South America, Australia, Antarctica, New Zealand and many South Pacific islands, collecting scientific samples and cultural artefacts which would provide the core collection for the Smithsonian Institution in Washington, DC.

Although primarily a mineralogist, Dana was also a skilled zoologist who published on crustaceans, corals and sea anemones. Working on board a wooden sailing ship, he sketched, described and named many specimens during the four-year voyage. His original illustrations of *P. brasiliensis* (it's scientific shorthand to abbreviate the genus name once cited) show a distinct amphipod with a well-developed brush of plumose setae (hairs) on the forward legs and a cluster of long robust setae (thick spikes) on the telson (tail). It is part of a group called the podocerids that are notoriously difficult to identify, with many changing shape completely as they mature and grow.

OMEN

The expedition sent regular shipments of samples back to America for safekeeping and processing, but not without mishap. The first sign of trouble for the research expedition was a barrel of specimens left behind on the dock at Port Jackson during the loading of a supply vessel.

A later ship conveyed the forgotten keg to Hawaii where it was reunited with the USS *Peacock*, part of the main US Ex Ex fleet, shortly before it departed for Washington and the Columbia River.



*“when friends ask me
what I do all day,
I simply say: I draw
pictures, read, think
and name things”*





*“taxonomy lies
at the core of all
biological science”*

But there its luck ran out, with the ship becoming grounded on a sandbar at the river mouth in 1841. Salvage was out of the question and among the debris washing ashore over the next few days were several kegs of collections sourced during the previous six months of the journey, the specimens spoiled by seawater.

LEFT OUT TO DRY

Other ships of the US Ex Ex fleet survived, however, returning safely to Washington or New York with their cargoes. But the collections faced further hurdles as amateur curators, assigned to organise, prepare and display the returned kegs, mishandled many specimens. They unpacked the collections from their original numbered cases and bottles with no cataloguing and, in some instances, removed the original labels from vials – the cardinal sin of taxonomy! Specimens with no location or label data could have come from anywhere on the voyage and were thus rendered useless.

And it didn't stop there. Many small, delicate crustaceans were further 'injured', to use Dana's words, when they were removed from the preserving alcohol, dried and pinned. Unlike insects, small dried

crustaceans are useless for research because the body case (tegument) collapses and the specimens are no more than fish food (ironically, since that is how they often end up in the natural world).

Dana documented these misfortunes in his personal journal of May 1857, showing remarkable self-control in his understated, neatly handwritten notes. He goes on to provide a catalogue of specimens, listing in blue ink those that were still available, and in red those that had been inadvertently dried.

But the curse of the US Ex Ex continued. Some years later, the noted zoologist and anthropologist William Stimpson of the Chicago Academy of Sciences was to borrow the Smithsonian's 10,000 jars of crustacean specimens, including 56 type specimens described by Dana. All were lost in the Great Chicago Fire of 1871, along with the Academy of Sciences and much of the city itself.

NEOTYPES

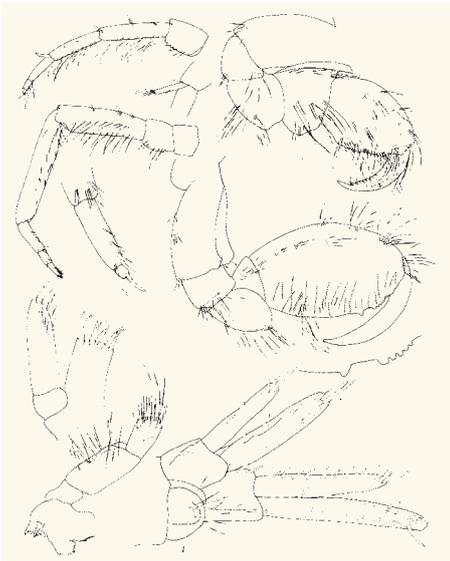
I can't say which of these tragedies led to the loss of the *P. brasiliensis* specimens, and perhaps this is not important. Lost is lost, but the published name and

illustrations still form a valid species description that must be respected, according to the rules that govern taxonomy.

However, I need more information about *P. brasiliensis* so I can compare it with the many other known species of *Podocerus*. That's why I've been drawing recently collected amphipods from Rio de Janeiro – the type locality of Dana's original specimens. When fully described, published and lodged in a museum, these new specimens will become neotypes to fix the identity of the animal (a benchmark if you like) in the absence of the originals. All further identifications will refer to the neotype, should there be any future doubt or query.

Dana's prolific work and the subsequent loss of his type specimens has meant that I am one of many taxonomists worldwide to establish neotypes for US Ex Ex crustaceans, and at least the fifth to do so from the Australian Museum.

Having drawn the specimens, I can compare the neotypes with more-recent *Podocerus* collections from shipping ports in Darwin, Gove and Perth.



Opposite

Purple crab, *Ovalipes trimaculatus*. Illustration James Dana. Plate 18, *Atlas. Crustacea*, American Exploring Expedition, 1855. Australian Museum Research Library.

Above

Illustration of *Podocerus brasiliensis* by Lauren Hughes.

Above right

The amphipod *Podocerus brasiliensis* is a global traveller with a colourful history. Length 4.6 mm. Scanning electron micrograph by Sue Lindsay.



These Australian specimens have the same distinctive hairy front legs and spiky tail of the Brazilian species but differ in other features, which is interesting.

I wonder just how long this animal has been travelling the world's oceans on the hulls of ships. *P. brasiliensis* has been collected worldwide, including one curious collection identified by Reverend TRR Stebbing who reported it from the Falkland Islands in 1917, where it was found on the 'bottom of an upturned sunken ship in the harbour'.

And of course the path to knowledge is paved with questions: was Dana's original material from Brazil already an invasive species transported from elsewhere? Can I find collections of these animals outside the freight channels? Are the Australian specimens I have really part of the diversity of *P. brasiliensis* or are they a new species?

IN PURSUIT OF TAXONOMY

Here at the Museum we've been trying to come up with a new term to describe 'taxonomy', the science of naming things – one that speaks to the relevance and dynamic nature of our scientific knowledge.

As a taxonomist, I could say that I'm an expert in more than 2000 species of animals or that I'm an evolutionary detective of the natural world. Yet when friends ask me what I do all day, I simply say: I draw pictures, read, think and name things.

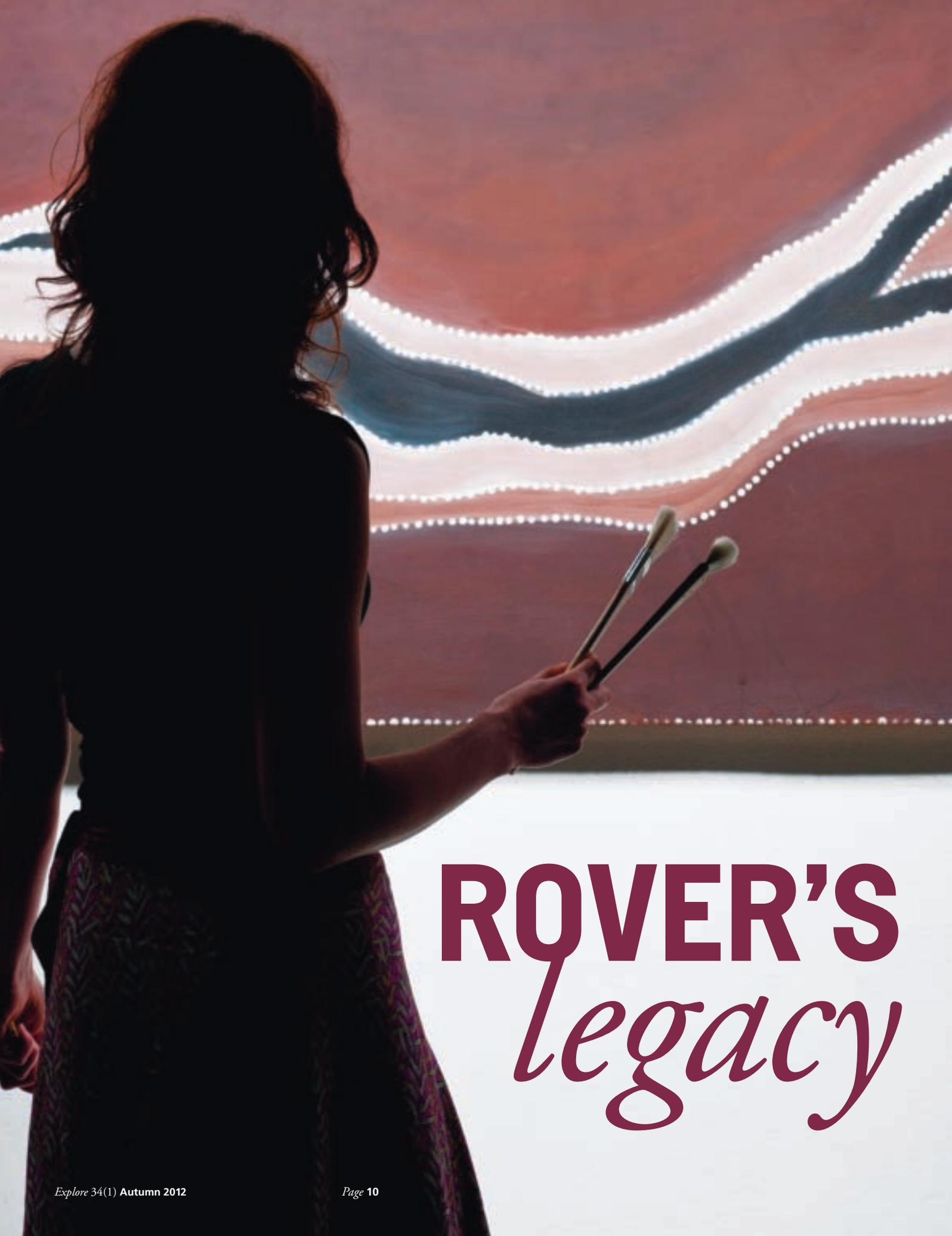
While outsiders may find it hard to see the links between this sort of knowledge and the imperatives of the global economy, taxonomy lies at the core of all biological science because it provides a unique name and identity for each organism and a common basis for communicating about life on Earth.

In fact, without such research, all of those great, historic expeditions to collect specimens – Charles Darwin's *Beagle*, the US Ex Ex and the Australasian Antarctic Expedition – would be no more than adventure stories.

DR LAUREN HUGHES POSTDOCTORAL RESEARCH SCIENTIST

WEBLINK >

Hear Lauren reveal the secret codes within scientific names at Jurassic Lounge. Visit www.jurassiclounge.com for details.



ROVER'S *legacy*

Conservator Kate Jones with the restored Rover Thomas painting *Canning Stock Route* (1984). Photo Stuart Humphreys.



“Thomas used readily available materials including pieces of formica, particle board, wall panelling and packing cases”

AN EARLY PAINTING BY ONE OF AUSTRALIA'S MOST IMPORTANT ARTISTS NEEDS SOME EXPERT TLC, SAYS THE MUSEUM'S GRÁINNE MURPHY.

‘Ah, poor bugger!’, was artist Rover Thomas’s reported response to a damaged Chagall painting awaiting conservation work at the National Gallery in Canberra.

Just what he’d have thought of the challenges facing Kate Jones, conservator at the Australian Museum, when confronted by Thomas’s own *Canning Stock Route* (1984) is guesswork.

Kate and her colleagues in the Museum’s Materials Conservation Unit are undertaking urgent conservation and restoration work on this large and significant painting.

‘Unfortunately the painting was already damaged when it was donated to the Museum in 2000’, explains Kate, ‘and the materials used by the artist are giving us some additional challenges’.

BUSH BORN AND BRED

Rover Thomas created several paintings named after the Canning Stock Route, the remote cattle track which traverses 1850 kilometres of inland Western Australia.

Crossing the territories of nine different Aboriginal language groups, the track was carved from the desert a century ago, connecting 48 wells on the long haul south from the Kimberley to the goldfields.

Sometime around 1926, Thomas was born at Well 33, near Gunawaggi in the Great Sandy Desert.

He lived a traditional bush life at a time when the pastoral industry was growing by

taking land from its traditional owners and using the displaced people as cheap labour.

From the age of 10, Thomas worked as a jackaroo, then as a fencing contractor, travelling the Northern Territory and Western Australia as a stockman on cattle stations on the fringes of the Gibson and Great Sandy deserts.

In 1974, Thomas moved to Warmun, near Turkey Creek, to work on the construction of new public housing to accommodate Indigenous workers being displaced by changes to the pastoral industry. Here he became an important leader of ceremonial life through the Kurirr Kurirr dance cycle, before starting to paint in 1982.

PUZZLE

When he began painting, Thomas used readily available materials including pieces of formica, particle board, wall panelling and packing cases.

He mixed his own paint from natural pigments such as ochre, charcoal and white clay bound with natural resins. It is his use of unorthodox materials that has created a puzzle for Kate Jones and her team.

‘*Canning Stock Route* is a large horizontal representation of the route and the country it passes through’, said Kate. ‘It is painted on a sheet of particle board which is coming away from the frame. Because the frame is not strong enough to hold the board rigid, it could cause the painted surface to crack when it moves’, she said.

‘In addition, the surface has a “tide line” caused by water absorption – possibly from sitting in a puddle – and several splash marks from an unknown liquid.’

But removing these water stains is proving tricky. ‘The natural resins and binders used to bind the pigments appear to be soluble in virtually all of the solutions we generally use in conservation and restoration work’, said Kate, ‘so we are having to experiment to find the best way to remove the marks without removing the original paint’.

‘We also want to ethically repair a number of scratches and scrapes without compromising the significant history of the painting – which includes how it’s been stored.’

ON DISPLAY

Rover Thomas continued to paint up to his death in 1998. By then he had considerable critical recognition, being selected with Trevor Nickolls as the first Australian Indigenous artists to represent Australia in the Venice Biennale (1990) and represented in major public and private collections in Australia and internationally.

His work *Canning Stock Route* (1989) appears in the exhibition *Yiwarra Kuju: The Canning Stock Route* now showing at the Australian Museum until 29 April 2012.

GRÁINNE MURPHY PUBLICIST

AUSTRALIAN MUSEUM MEMBERS
turns 40





THIS YEAR MARKS THE 40TH ANNIVERSARY OF AUSTRALIAN MUSEUM MEMBERS. JOIN EXECUTIVE OFFICER **SERENA TODD** AS SHE OPENS SOME OF THE ARCHIVES AND INTERVIEWS ONE OF OUR FOUNDING MEMBERS, **ROSS PEARSON OAM**.

In February 1972, Museum Director Frank Talbot approved a committee, chaired by prominent conservationist Carol Serventy, to form the Australian Museum Society (TAMS).

TAMS was planned as 'a supporting body, aiming to interest a broad stratum of the Australian public in the Museum, in the Australian environment and in conservation in its widest sense'.

CONTRIBUTIONS

Now celebrating its 40th anniversary in 2012, Australian Museum Members remains a powerful pillar of support for the Museum. One of its most enduring legacies has been to raise money for exhibits that would otherwise not have been possible.

Fundraising efforts from Membership fees and donations have resulted in the *Birds of Australia* exhibition, the *Planet of Minerals*, the now-superseded *Dreamtime to Dust* exhibition, the building of *Search & Discover* and, most recently, *Dinosaurs*, one of our most popular exhibitions.

ENGAGING

Since its inception, the Members team has arranged countless engaging and diverse programs with something to interest everyone: functions, lectures, field trips, travel, workshops, kids events, sleepovers, Night Talks and, most recently, Jurassic Lounge and the Margaret Mead Film Festival.

At different times, Members has directly provided services for visitors, such as a coffee shop, orientation tours, questionnaires and surveys. Members organised the Super Science Series lecture program, beginning in 1988, which brought to Australia some of the world's foremost environmentalists and scientists, including David Suzuki and David Attenborough.

Other activities have included publications like *Muse*, a bi-monthly brochure with colour magazine format which began in 1987, and, since 2006, *Explore* magazine. Then as now, *Explore* aimed to provide readers with exclusive behind-the-scenes access to the Museum and to showcase the Museum's world-class scientific research.

Left

Frank Talbot (now Prof Frank Talbot AM), Director 1966–75 (right), his wife Suzette (far left) and guests at the Chusan Ball in 1972, the inaugural TAMS event to mark the centenary of the first steamship journey from the UK to Australia.

Right

Dr Des Griffin (now Dr Des Griffin AM), Director 1976–98 (left), accepts a cheque for \$100,000 from TAMS President Robert Saunders for the Bicentennial exhibition *Dreamtime to Dust* in May 1988. Photos © Australian News and Information Bureau.

Opposite

Walk leader and foundation Member Ross Pearson OAM, his wife Dorothy and Executive Officer Serena Todd look through the archives. Photo Carl Bento.

A PLAN TO PUT PEOPLE IN MUSEUMS

by Sally Blakeney

A trendy new wind is blowing past the Tyrannosaurus rex and the Megatherium at Sydney's Australian Museum.

On March 22, foundation members of The Australian Museum Society (TAMS) will stand beneath the museum foyer's well-loved sperm whale skeleton and toast their future success from two 18-gallon kegs of champagne.

The confrontation of sperm whale and champagne is significant. The idea behind TAMS is to get away from the traditional museum image of dust and sleepy curators by encouraging public awareness and participation in the work of the Museum.

From *The Australian*,
Saturday 26 February 1972

Older Members may also remember *Talking Science*, a radio program run by volunteers that began as a monthly in 1992 on 2SER.FM and by 1997 was a weekly radio show on Eastside Radio where it ran until 1999.

In 2010, we finally won space for a Members Lounge, where Members can meet for a cup of tea, to rest in comfort or read the latest magazines.

WALK ON

We could list many more achievements and events, but instead we asked foundation Member and walk leader Ross Pearson OAM to recall some of his personal highlights.

What is your first memory of the Museum and why did you become involved with TAMS?

Always, even as a youngster, I used to go to the Museum – mainly to visit the whale in the roof [sperm whale skeleton in the Atrium]. I've always had a strong interest in museums and especially natural history museums; in fact I 'collect' them everywhere I go.

I joined the Australian Museum as a foundation Member and during my time as president I advocated for walks and weekend trips away to see and preserve our natural surrounds; that was my main interest and aim. But who would lead them? That's when I 'volunteered'!

In the planning of these activities, it seemed they might be expensive and I was heartened by the fact that Des Griffin, the Director at the time, said 'Don't worry, we'll back you; even if these trips aren't a financial success they are still worthwhile'.

But we never had a problem, people loved the trips and walks and they were always fully booked.

What are some of your personal highlights and favourite events?

One that particularly sticks in my mind was a guest speaker, a scientist who swam with dolphins – inspiring ... Sylvia Earle I think.

Meeting David Attenborough, the leading light in natural history (which is my second love; my first love, my wife Dorothy, is sitting outside!) – that was a wonderful experience.

How about any stories or scandals?

Many years ago, when we took a trip to Lake Mungo, and each night of the trip, we had convivial meetings which were great fun. One well-loved life Member (now sadly passed away), who was also the wardrobe mistress for the New Zealand Ballet, after a few sips [of wine] jumped up on the table and proceeded to perform the dance of the cassowary!

Another time, [Senior Fellow] Lin Sutherland, a great supporter of TAMS, used to take Members away on excursions and you never quite knew what he was going to do. One night at Mount Canobolas in Orange he invited the group out in the evening for a practical demonstration of volcanic eruption. When we arrived at the site, there was a table and a tented tablecloth on it. Lin proceeded to whip the tablecloth away to expose a man beneath with a lit candlestick in his navel ... those were fun times.

How do you see the future of Members for coming generations?

My hope for the future is that, having kindled the spirit for conservation and interest and appreciation of nature, future generations will appreciate what the Museum stands for and continue the work of encouraging people to take an interest in their world and protection of their environment.

SERENA TODD EXECUTIVE OFFICER, MEMBERS



Top

Broadcaster and natural historian David Attenborough (now Sir David) relaxes with former TAMS president Susan Bridie at the Hilton Hotel following his talk to Members in 1980. Photo John Fields.

Above

Canadian environmentalist David Suzuki signs copies of his book for Members in 1988. Photo Australian Museum.

LET'S CELEBRATE!

To celebrate our 40th anniversary we invite all Members to attend a special function hosted by Australian Museum Director Frank Howarth. View the Museum's latest exhibition *Yiwarra Kuju: The Canning Stock Route*, mingle with staff and fellow Members and learn more about the Museum's priorities and future direction.

When 6–8 pm Thursday 22 March 2012

RSVP 9320 6225 by Friday 9 March for catering purposes

Send your query to the Search & Discover team, email sand@austmus.gov.au

search > DISCOVER



Q. I bought a fossil, which I'm told is a Plesiosaur tooth from Chile, from a market in San Diego. Can you please identify it?

Your tooth is indeed a fossil tooth; however, it is not from a Plesiosaur or any other kind of marine reptile, but from a more recent and possibly more terrifying sea monster: the giant shark *Carcharodon megalodon*, commonly referred to simply as Megalodon.

Belonging to the same genus as the Great White Shark, but more than twice its length, Megalodon hunted Earth's oceans from 28 to 1.8 million years ago, preying on whales and other large marine mammals.

The species went extinct at the beginning of the last ice age but has left behind fossilised teeth in marine deposits in a variety of countries, including Chile.

CHRIS HOSKING

Fossilised tooth of the giant extinct shark Megalodon, *Carcharodon megalodon*. Photo Stuart Humphreys.



Q. I found a large tooth on a beach at King Island, Tasmania. Can you identify it?

A visitor brought in a large tooth collected from King Island for identification. We took it to Mammals Collection Manager Dr Sandy Ingleby who readily identified it as belonging to a Southern Elephant Seal, *Mirounga leonina*. Coincidentally, Sandy was answering enquiries from a government department about this species and had other Southern Elephant Seal teeth on her desk at the time.

The tooth looked old and was perhaps partly fossilised. It was most likely from a colony of the seals that was hunted to extinction on the island in the late 1800s.

The location and species make this tooth quite a valuable find. Because the provenance (that is, its history) is known, the tooth has considerable scientific significance. Luckily for us, the collector kindly agreed to donate it to the collection.

LOGAN METCALFE

Two male Southern Elephant Seals basking. Photo Rhys Puddicombe.



Q. We found this strange-looking bone on our farm in Mossman (Queensland). What animal is it from?

Even though Mossman is some seven kilometres inland, the bone seemed a bit 'fishy' to us, so we sent it to Fish Collection Manager Mark McGrouther to find out exactly what it was. He sent it to Dr David Bellwood of James Cook University who identified it as being an upper pharyngeal bone from a Bumphead Parrotfish, *Bolbometopon muricatum*.

Parrotfish eat algae that grow on coral reefs. The pharyngeal teeth (located in the back of the fish's throat) are used to crush the coral and rock that are scraped off during feeding. Some species are known to process up to 5 tonnes of coral per fish annually. The Bumphead, as its name suggests, has a distinct 'bump' on its head and can grow to 1.3 metres, making it the largest parrotfish.

ELLA MINTON

This pharyngeal tooth of a Bumphead Parrotfish is over 6 cm long. Photo © Megan Fisher.

MARTYN ROBINSON
IS THE MUSEUM'S
RESIDENT NATURALIST

ZOOPHOBIA



This phasmid, *Tropidoderus childreni*, shows no fear of the Museum's Kea Lambert. You too can hold a phasmid when you visit *Search & Discover*. Photo Carl Bento.

We often hear from Museum visitors that they are scared of spiders, snakes, moths, birds ... the list goes on.

In most cases these people also understand that their specific phobia is irrational, and that the actual danger posed is miniscule compared to the anxiety they experience when they encounter, or think they are about to encounter, the object of their fear.

Phobias are surprisingly common, with perhaps one in twenty people holding an irrational fear of something, although the rate varies between countries, as does the degree to which it affects them.

The question is: why do we have phobias at all? Is there any benefit to them?

Obviously it pays to be wary of dangerous situations or animals. A fear of snakes or spiders for example would be an advantage to curious animals in areas where dangerous snakes and spiders abound.

Being an adaptable animal with a large brain, we can also learn about and learn to avoid new dangers encountered in any new environment, even if we've never experienced them before.

HARMLESS

But what's going on when people fear harmless animals such as moths, which would have to be about the most harmless animal we are ever likely to encounter?

Perhaps most of us these days are so cut off from real-life natural dangers that our bodies and minds lack legitimate foes and so we exaggerate the dangers of other things. Being divorced from the natural world may also mean that we never learn

to deal with or get used to some situations, which may make imagined fears become all the more 'real'.

Now that is all speculation on my part and we may never know the truth, but we do know that the fear of specific animals can sometimes be cured by undergoing 'desensitising' sessions at places like Taronga Zoo.

CURE?

Sufferers are taken through a program of education about the actual versus the imagined dangers – and knowledge is a powerful thing for reducing fear of the unknown.

People may wish to take it further and become habituated to these animals, even to the point where they can touch or hold one.

You might not end up loving snakes, spiders or even birds (if that is your fear) but you won't fear them either, if the program is successful. If you have a specific phobia about an animal, why not give it a try?

LIFE IN THE FAST LANE



The Riffle Shrimp, *Australatya striolata*, lives in fast-flowing streams where it captures food particles using fan-like nets. Photo © David Rentz.

It is true in human culture, business practice and in evolution itself: when someone or something comes up with a good way of doing things, others copy them.

During evolution, unrelated organisms (or certain structures) may come to resemble each other in some way where they have a similar way of life (or function). Known as convergent evolution, this property is found even in species which are entirely unrelated or on separate continents.

LEGS

A textbook example is the North American Flying Squirrel, *Glaucomys volans* (a rodent and placental mammal), and the Australian Sugar Glider, *Petaurus breviceps* (a gliding possum and marsupial), both of which have evolved wrist-to-ankle membranes for gliding safely between trees and long bushy tail for steering while airborne.

A less likely example was on display in *Search & Discover* recently and may be again in the near future: the Riffle Shrimp, *Australatya striolata*.

Superficially the Riffle Shrimp looks like other medium-sized shrimps except for its rather robust legs. But, unlike most other shrimps, this one lives among rocks in the fast-flowing sections of streams (called riffles; hence its name and the need for strong legs).

What's interesting is the way it captures food: it filter-feeds on algae, leaf detritus and small animals carried by the water current.

BRISTLES

The Riffle Shrimp has a fringe of bristles (setae) around the edges of its first two pairs of limbs which it can expand into a fan-like net, filtering food items from the water, then sweeping the fringe across its mouth to eat the captured items.

The filtering structures resemble those of other filter-feeding animals like corals, feather- and basket-starfish, sponges and those strange, static crustaceans, barnacles. Just like these filter-feeders, the shrimp can save energy by simply waiting for the food to come its way, rather than having to look for it.

SEX

The Riffle Shrimp can change sex too, with small males transforming into larger females as they moult and grow. After breeding, the young are carried downstream to the estuary before making their way upstream, stage by stage.

The shrimp retains its mobility and can move to better filtering grounds when needed. In a final useful compromise, it also retains the ability to feed by scraping algae and detritus off rocky surfaces, just like other shrimps – handy for those dry periods when the fast-flowing stream dries to a trickle.

This much it shares with many other species: become too specialised and you could find yourself out of a job when the world around you changes.

on the RECORD

POLES APART

Museum scientists Drs Elena Kupriyanova and Nerida Wilson headed to opposite poles in 2011 in the name of science. Elena visited the White Sea Biological Station in the Arctic Circle to present master classes in polychaete research methods. Nerida meanwhile commanded an \$80,000-per-day research vessel for a five-week voyage testing hypotheses about the connectivity of marine invertebrate populations between South America and the West Antarctic Peninsula. Her research project is funded by a grant from the US National Science Foundation.

TIMOR-LESTE

Entomologist Chris Reid and malacologist Frank Köhler have returned from a two-week pilot survey of Timor-Leste (East Timor). The pilot survey provides the basis for a more comprehensive biodiversity expedition, planned for mid-2012. The survey aims to assist in conserving Timor-Leste's little-known biodiversity.

Stay in touch with Museum research at www.australianmuseum.net.au/Australian-Museum-Research.

IMMORTALISED

Fish Collection Manager Mark McGrouther has been immortalised in the name of a new species of crustacean. *Taeniacanthus mcgroutheri* is a small copepod that lives as a parasite on filefishes (leatherjackets) in the Indo-west Pacific region. Despite the parasitic habit of the new species, Mark considers the naming 'an absolute honour'. He already has two species of fishes named after him.

Find fish facts, photo galleries, movies and news at www.australianmuseum.net.au/Fishes.

SINGING FROG

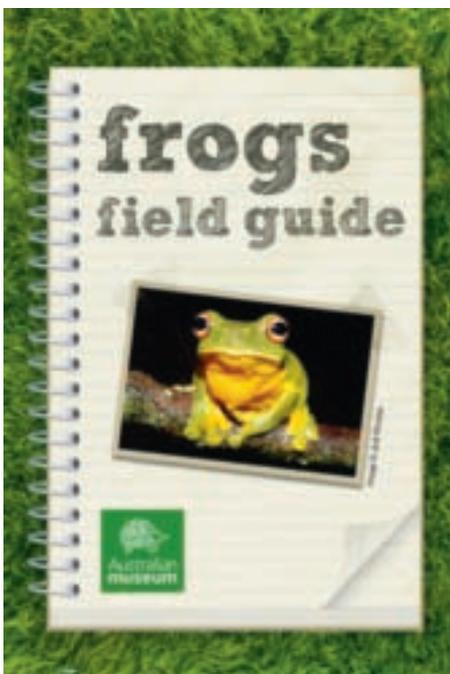
Dr Jodi Rowley has described a new frog species having an unusually variable 'advertisement' call. While the males of most frog species produce a small number of stereotypical, repetitive vocalisations, Quang's Tree Frog, *Gracixalus quangii*, boasts a 'hyperextended vocal repertoire' of variable whistles and clicks.

See and hear Quang's Tree Frog at www.australianmuseum.net.au/image/Male-Quangs-Tree-Frog.

Visit the *Explore* online portal for more stories, videos, photo galleries and blogs at www.australianmuseum.net.au/explore-magazine.

FROGS ONLINE

Identify frogs from their calls anywhere in Australia using your iPhone and the Museum's latest app, *Frogs Field Guide*. Now available from the Apple Store.



cute little SUCKERS



A mother harlequin bug watches on as her eggs hatch. She has spent the last week perched atop the cluster of eggs watching guard. The young bugs emerge looking like miniature versions of their parents and stay closely packed together for a number of weeks. Photo © Damon Wilder.

I couldn't resist this image of a female Cotton Harlequin Bug, *Tectocoris diophthalmus*, and her offspring. It is of the highest technical quality and would have required planning, patience and expertise.

It's just one of many breathtaking images from the 2011 *New Scientist* Eureka Prize for Science Photography.

CATE LOWE PHOTO EDITOR

WEBLINK >

See all of last year's finalists at eureka.australianmuseum.net.au.



Eureka Prizes

2012 AUSTRALIAN MUSEUM EUREKA PRIZES

What does science mean to you?

Capture your answer in a single photograph and you could win a share of \$10,000 in the *New Scientist* Eureka Prize for Science Photography. It's one of 19 prizes up for grabs in the 2012 Eureka Prizes program.

To see the complete line up as well as conditions of entry go to www.australianmuseum.net.au/eureka. Entries close midnight AEST Friday 4 May.

DARWIN'S *pest*

A SMALL BEETLE COLLECTED BY CHARLES DARWIN FROM WESTERN AUSTRALIA IN 1836 COULD BE THE EARLIEST RECORD OF AN INTRODUCED INSECT IN AUSTRALIA, SAYS ENTOMOLOGIST CHRIS REID.



One of Darwin's original specimens of the flea beetle *Haltica bivittata* (length approximately 2 mm). Photo Max Beatson.

It is remarkable that after more than four years at sea Charles Darwin was still keenly collecting specimens when the *Beagle* berthed in King George Sound (near present-day Albany, Western Australia) in 1836.

This remote British military outpost had been established just ten years earlier. Darwin, although tired and homesick, collected beetles, as he had at each landfall on the entire voyage, donating them on his return to the British Museum.

FLEA BEETLES

The specimens included flea beetles, so called because they jump like fleas. In 1838, the British Museum's entomologist George Waterhouse formally described and named the 15 species of flea beetle from Darwin's Australian collection.

One species, collected at King George Sound and represented by four specimens, was described as *Haltica bivittata* – a black beetle less than 2 mm in length with two yellow dorsal stripes. It seems that Darwin had collected in the gardens of the fledgling colony, where insects were likely to be feeding on introduced plants such as cabbages. Following its 15 minutes of fame in the zoological literature, the specimens were then forgotten.

There are several species of small, black yellow-striped flea beetle that occur as pests on cabbage plants in Europe.

The group was described in 1860 and one of the beetles named as *Haltica undulata*.

Darwin's striped flea beetle remained unrecognised by Australian researchers for 173 years until 2011 when, during a visit to the British Museum, I came across his specimens and realised that they were the same as *H. undulata* – described 24 years after *H. bivittata*.

PRECEDENCE

Under the general rules for naming species, the earlier name should take precedence, with all specimens in collections worldwide relabelled and all names changed in the scientific literature. But such a change would create much work and many headaches for researchers (especially Europeans) who know the beetle by its later name.

However, there is a provision in the international rules for priority to be waived by applying (as I am now doing for this species) to the ICZN (International Commission on Zoological Nomenclature), which regulates the system for the naming of animals. It's a nuisance but important for stability in the use of names.

It seems that this tiny beetle – maybe the earliest record of an introduced insect pest in Australia – has now become a pest of a different kind.

CHRIS REID PRINCIPAL RESEARCH SCIENTIST

more FASHION less WASTE

DID YOU KNOW THAT THE MUSEUM RUNS AN ANNUAL FASHION DESIGN COMPETITION, SHOW AND DISPLAY? IT'S DONE IN THE MUSEUM'S OWN STYLE, SAYS THE COORDINATOR **JANE JOHNSTON**.



Left

Kate Follent models *Bird's-eye View* by Sarah Follent. The creation uses books, string, black paint, staples and safety pins and is inspired by native Australian birds facing habitat loss. Winner, TAFE, Tertiary and Design School category, Fashion Less Waste 2010.

Right

Tess Tavener Hanks of Cheltenham Girls High School models her winning outfit in the Secondary School category in Fashion Less Waste 2011. Photos Stuart Humphreys.

From humble beginnings in 2009, Fashion Less Waste has grown from an idea sparked by the Museum's *Climate Change: your future, your choice* exhibition into a much-anticipated event on the Museum's calendar. It calls for greater sustainability in the fashion world while spotlighting the design talents of its entrants.

Each year the program has a natural history theme that takes its cue from a current Museum exhibition. In 2010, the program celebrated Australian biodiversity with *Alive!* and in 2011 drew inspiration from *Rituals of Seduction: birds of paradise*.

The 2012 competition is now calling for entries themed to *Deep Oceans*, an exhibition

being developed by the Australian Museum and Questacon, due to open in June 2012.

MATERIAL WORLD

Fashion Less Waste outfits are mostly made from materials originally bought and used for a non-clothing purpose. Past entrants have used an unlikely range of materials (see weblink) to create stunning garments and accessories.

The program climaxes in a gala show where the creativity of finalists is put on the catwalk before a panel of judges and invited guests. The awarded outfits are then displayed at several Sydney venues.

Leading designers Akira Isogawa, Louise Olsen and Liane Rossler are among those

who have given their time to judge the competition and, with *Strand Arcade*, *Reverse Garbage* and *Peppermint* magazine, raise the profile of Fashion Less Waste.

Who will be a rising star of recycled fashion in 2012? Could it be you?

JANE JOHNSTON EDUCATION PROJECT OFFICER, LEARNING SERVICES

WEBLINK >

See past finalists and enter this year's competition at www.australianmuseum.net.au/Fashion-Less-Waste. Entries close 5 pm, Tuesday 8 May 2012.

Find *Deep Oceans* inspiration at www.deeпоceans.com.au.

SURVIVING *on sandy* BEACHES

EASILY OVERLOOKED BY THE CASUAL VISITOR, BEACH-DWELLING ANIMALS ARE STARTING TO FEEL THE SQUEEZE, ACCORDING TO **LUCIA FANINI** AND **JIM LOWRY**.



Left

View of Putty Beach, a relatively pristine beach just north of the Hawkesbury River. Photo Jim Lowry.

Right

Visiting researcher Lucia Fanini at work at Portuguese Bay, NSW. Photo Jim Lowry.

Far right

This small sand-hopper, *Notorchestia quadrimana*, is found on most Sydney beaches lurking among seaweed. Despite its small size (11 mm) it shows a remarkable range of behavioural adaptations to living on beaches. Photo Roger Springthorpe.



Try looking at a beach from the perspective of a beach-dwelling organism and it seems an unlikely choice of home. Pounded by waves, dried by the sun, blown by the wind ... it's a nice place to visit but who'd want to live there?

The answer is that quite a diversity of animals are adapted to life on (or in) the sand. And because their lives are finely balanced for living in these extreme conditions, they are also vulnerable to human activities – making them ideal subjects for studies of human impacts.

SAND-HOPPERS

We're investigating the fauna at a number of beaches around Sydney. We've chosen beaches with similar exposure to the ocean but located at different distances from urban centres.

The animal communities on these beaches mainly comprise beetles, spiders and small amphipod crustaceans known as sand-hoppers. It is the abundant sand-hoppers that we chose to study because they have evolved specialised morphology and behaviour for withstanding the problems of living in these harsh, high-energy and variable environments.

So although body shape and physiology are important adaptations for living on beaches, it's an animal's behaviour

that determines daily survival – and amphipod behaviour is remarkably sophisticated. Maintaining themselves in a suitable place, and finally staying alive, requires a suite of mechanisms well-calibrated to the environment.

BEHAVIOUR

These small, simple animals are able to locate and move to areas of food or shelter across the beach. They burrow to avoid predators and heat, and they orient themselves with respect to patchy resources like wet sand (to maintain hydration) or wrack (washed-up seaweed for food and shelter).

Their behaviour is matched to the prevailing daily rhythms of tide and light, and they can even learn to adapt to unexpected changes (plasticity). It is this 'plastic' behaviour that provides important clues to the level of impact being experienced.

Usually in animals under stress, 'basic' behaviours are expected to prevail over specialised ones. In more pristine environments, we would expect to see a greater diversity of both behaviour and species. With increasing impact we expect more basic behaviours and a loss of diversity. Of course some human impacts – beach driving, mechanical

beach cleaning and sand replenishment or 'beach nourishment' – are beyond the possibility of behavioural adjustment and usually result in the loss of species.

SQUEEZE

Beach animals are facing dramatic changes as humans modify the environment. Overall, the result is a coastal squeeze, with urbanisation on the land side and increasing sea levels and changed currents on the sea side.

The results of our research will provide an overview of the 'health' of sandy beaches in the Sydney area. With this knowledge, we can then look for solutions to the problems of increasing urbanisation on beach ecosystems.

So far, we have collected sand-hoppers from all of the beaches under study, meaning that even Sydney's urban beaches are still hosting living beings, each one carrying its luggage of behavioural adaptations for the different impacts occurring in the beach environment.

We should be happy to have living beaches; some in the world are just dead piles of sand!

DR LUCIA FANINI VISITING RESEARCHER, HELLENIC CENTRE FOR MARINE RESEARCH, CRETE AND
DR JIM LOWRY PRINCIPAL RESEARCH SCIENTIST

CAPTIVATED

by rock-wallabies

'I set out to understand the patterns of biodiversity in northern Australia – home to more than 38 per cent of Australian mammal species', said Dr Sally Potter, Chadwick Biodiversity Fellow at the Australian Museum.

'We need to find out why things are as they are today so that we can provide better information for managing and conserving this wonderful diversity for the future.'

Sally believes that studying wildlife requires a special combination of knowledge, skills and experience. 'I wanted to combine my genetic research with wild populations and hands-on experience in trapping and handling animals', she said.

ASPIRATIONS

The Chadwick Biodiversity Fellowship is the Museum's annual fellowship providing an early career boost for an aspiring Australian biologist. It is funded by a bequest from the late Clarence Chadwick. For Sally, it is another step on her journey that began with childhood trips to the bush.

'I have worked my way along and followed the things that I was interested in, and that has led me to where I am today. As a kid growing up in South Australia, we spent a lot of family holidays camping in isolated locations and enjoying the surroundings, so I can thank my parents for sharing their appreciation of the natural environment.

'At Adelaide University, I studied science majoring in genetics and zoology, with an Honours year focused on genetics.

'It was while working in a genetics laboratory in my first year after graduating that I realised what I really wanted to do.

'I began searching for a project that would combine my interests in field research and genetics to focus my energy on wildlife conservation.

'I volunteered on field trips, trapping pygmy possums, wombats and the like, and just knew that I wanted to be more involved in this side of research.

'It was during this time that I met marsupial biologist David Taggart who put me in touch with the Museum's Mark Eldridge.

'Within months I'd begun a PhD looking at populations of rock-wallabies from northern Australia, trying to understand their taxonomy and evolutionary history.'

HEADING NORTH

During her doctorate, Sally joined other field biologists in field surveys of Australia's last untouched wilderness, the Kimberley.

'Studying in the Kimberley was like a dream – sandstone escarpments, flowing waterfalls, savanna grasslands and open woodlands, surrounded day and night by wildlife.

'Coming from South Australia, it was a type of wilderness I'd never experienced.

SALLY POTTER IS ON A MISSION TO UNDERSTAND THE PATTERNS AND PROCESSES SHAPING THE FUTURE OF AUSTRALIAN WILDLIFE.

'But despite its breathtaking natural beauty, I realised that all is not well with this region.

'It used to be a safe haven for small mammals but now faces threats like changed fire regimes, feral cats, cane toads and introduced herbivores.

'After spending six months in northern Australia, I have been captivated like so many others, and now want to direct my research towards protecting its fauna.'

ENTHRALLED

Sally has a special interest in rock-wallabies. 'They have enthralled researchers for decades and have now drawn me into their fascinating evolutionary history', she said.

'I feel very fortunate to receive the Chadwick Biodiversity Fellowship at the Museum. I'm using the time to publish research from my PhD while working on a study of hybridisation in six species of rock-wallaby in Queensland.

'This study will provide valuable information about how new species are formed and the evolutionary history of this complex group.'

BRENDAN ATKINS EDITOR

WEBLINK >

Applications for the Chadwick Biodiversity Fellowship close on 27 April 2012. For further information, visit www.australianmuseum.net.au/Chadwick-Biodiversity-Fellowship.

“This study will provide valuable information about how new species are formed and the evolutionary history of this complex group.”

Sally Potter holds pouch young of a Short-eared Rock-wallaby, *Petrogale brachyotis*, during field work in the north Kimberley. She collected morphological data from the pouch young for her PhD project, along with a small biopsy for genetic analysis.
Photo © Liberty Olds.

MAKING A DIFFERENCE

If you are thinking about making a bequest, or have already made one, please contact Kate Richardson on 02 9320 6456 or kate.richardson@austmus.gov.au for more information.





Happy birthday to us! This year marks 40 years of Members. Come and help us celebrate!

To mark the event, join us for a special function hosted by Australian Museum Director Frank Howarth – see page 14 for details.

EVENT HIGHLIGHTS

You asked for it; you got it! *Explore* has reinstated event listings in response to popular demand. As you can see in the following pages, our autumn program includes talks from Australian paleontologist John Long on fossil fish biology, astronomer Fred Watson on the transit of Venus, a special Archaeology Week talk, and walks across Sydney.

EXHIBITION NEWS

It's going to be a bumper year for exhibitions. Have you seen *Yiwarra Kujju: the Canning Stock Route* yet? Just opened is a new display of masks from the Museum's Melanesian collection called *Spirit Faces*. Coming up in June we explore deep-sea mysteries in *Deep Oceans*, a new exhibition developed jointly with Questacon. Then stand by for *Alexander the Great* (opening 24 November), the story of one man's lasting legacy featuring over 400 antiquities from Russia's State Hermitage Museum.

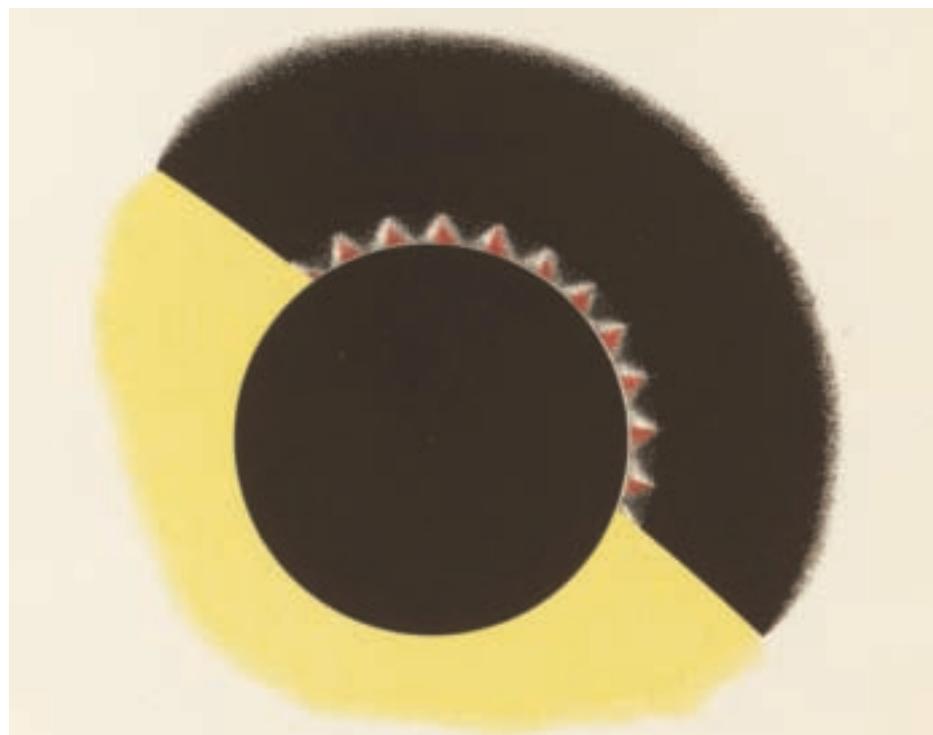
We're so glad to have you along for the ride – see you at the 40th celebrations!

SERENA TODD

Executive Officer,
Australian Museum Members

Photo Carl Bento.

TRAVEL with members



Members tour: Transit of Venus

WHEN 3–6 June 2012

Witness a rare astronomical event that has inspired great voyages of exploration and discovery.

The transit of Venus occurs twice in eight years and then not for a century or more. During its transit, Venus appears as a black dot moving across the bright disc of the sun.

Centuries ago, scientists realised that the transit provided a golden opportunity to measure the relative distance of Earth and Venus from the sun, and thus to calculate the size of the solar system. Observing the transit in 1769 was the scientific purpose of James Cook's first

voyage that also led him to chart the eastern coast of Australia.

Now you can join experts Dr Nick Lomb and Professor Fred Watson and be part of this historic event. With the Warrumbungle mountains as a backdrop, tour the Mount Stromlo and Siding Spring observatories and witness the transit in style in this once-in-a-lifetime opportunity for anyone fascinated by astronomy, science and history.

WEBLINK >

For details and booking, visit www.australianmuseum.net.au/event/Transit-of-Venus.

Above Venus during the transit of 1874 illustrated by amateur astronomer Alfred Fairfax. The aureole (corona) is due to sunlight refracting through the planet's atmosphere.

ALL NIGHT TALKS

TIME 6.30 pm

COST Members \$20, non-Members \$30

BOOKING phone 9320 6225 or
www.australianmuseum.net.au/Members

Transit of Venus: 1631 to the present

Dr Nick Lomb, Sydney Observatory

WHEN Thursday 1 March

The transit of Venus in June this year will be the last for 150 years. As astronomers gear up to witness this historic event, take this time to reflect on the impact on human history of seven transits of Venus since the invention of the telescope. Join author and astronomer Dr Nick Lomb as he outlines their history with a focus on two 18th century transits. He'll also describe observations made from Australia in the 1874 transit and discuss how we can all best observe the coming transit.

In the face of the sun: eclipses and transits

Professor Fred Watson, Anglo-Australian Observatory

WHEN Monday 19 March

Eclipses and planetary transits are some of astronomy's greatest events, with a total eclipse of the sun the most awe-inspiring

celestial event of all. This year, we'll have the opportunity to see both the transit of Venus and a solar eclipse. Join Professor Fred Watson for an entertaining fully illustrated talk as he explores the history and scientific significance of eclipses and transits and offers tips for observing them.

Discovering the origins of sex from ancient fish fossils

Professor John Long, Natural History Museum of Los Angeles

WHEN Monday 2 April

The discovery of perfectly preserved fish fossils from the Gogo site in the Kimberley district of Western Australia has taught us many things about the evolution of vertebrates, but perhaps none is more surprising than the discovery of live-bearing in the primitive, extinct armour-plated placoderms. Further studies have revealed complex sexual dimorphism with males having unusual bony claspers for depositing sperm inside the female. Professor Long believes that such research redefines the crucial evolutionary stages at the beginning of our backbone lineage. This entertaining and informative talk will have you reflecting on what it means to be human.

Below *Materpiscis* giving birth to live young (reconstruction). Illustration © Brian Choo.



Sex, genes and rock 'n' roll: how evolution has shaped the modern world

Professor Rob Brooks, UNSW

WHEN Tuesday 1 May

Evolution might be 'the most important idea anyone ever had', as philosopher Dan Dennett puts it, but outside of biology the awesome power of evolutionary theory remains underappreciated and underused. For too long, explanations for contemporary phenomena have been left to sociologists, psychologists and economists. Now Professor Rob Brooks explores some very modern trends, including obesity, Asia's missing women, decisions about children's schooling and the appalling mortality rates among rock stars, to show that evolution can sit comfortably with other explanations in helping us understand our lives and our world.

Wildlife crime: the forensic evidence

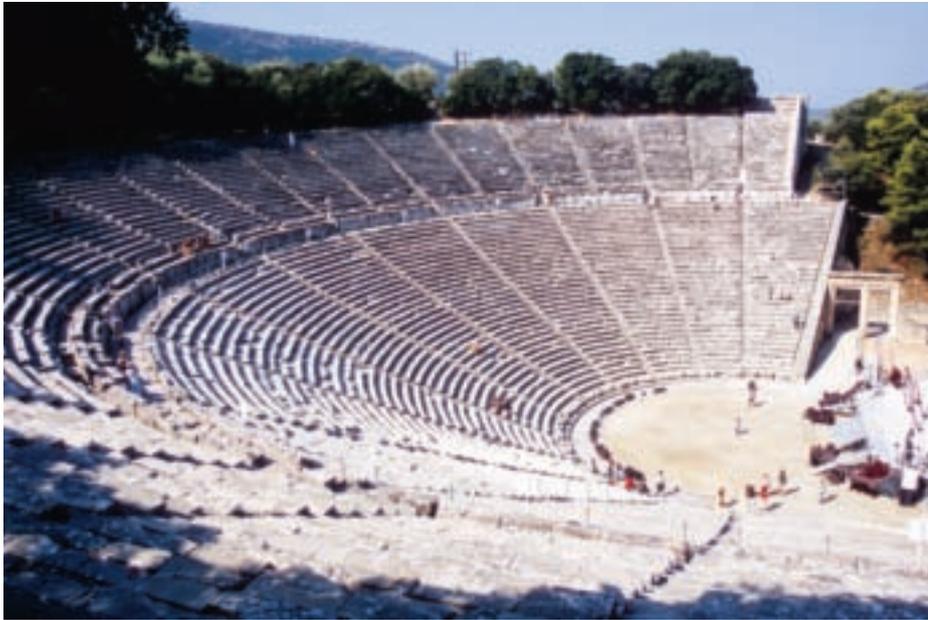
Dr Rebecca Johnson, Australian Museum

WHEN Tuesday 8 May

Wildlife crime is an increasingly lucrative trade with rare animals and plants, and products made from them, fetching a pretty price in illegal markets. Detecting and successfully prosecuting offenders calls for wildlife forensics – the application of genetic technology to assist law enforcement with suspected cases of wildlife crime. Hear the Museum's Dr Rebecca Johnson talk about wildlife crime, the techniques used for different types of identification and some of the many examples from the Australian Museum's case book.

WEBLINK >

For a complete listing of Museum events this autumn, visit www.australianmuseum.net.au/whatson.



Making boys and girls: inside the science of sex

Jane McCredie, UNSW

WHEN Tuesday 15 May

We know the difference between girls and boys, don't we? Well, kind of. When author Jane McCredie started exploring the science of sex and gender, she quickly discovered how blurry the distinctions between the sexes could be. Did you know, for example, that sporting authorities have been unable to come up with a clear definition of what makes somebody a woman? Or that transsexual people typically know they are in the wrong body from toddlerhood? Or that as many as one in 50 children may be born with some degree of anatomical or genetic ambiguity in their sexual make-up? Journey with Jane through the science of sex and challenge everything you thought you knew about gender.

The archaeology of Ancient Greek theatre

Craig Barker, Sydney University

WHEN Tuesday 22 May

Let archaeologist Craig Barker introduce you to the role of theatrical performance in ancient Greek culture in this illustrated talk for National Archaeology Week. Using the architectural remains of ancient theatres, such as the Theatre of Dionysos in Athens and the theatres at Epidauros and Ephesos, as well as the Australian excavations of a theatre at Paphos in Cyprus, he will examine the spaces used for performance. Then, using theatrical iconography in vase-painting and terracotta, he will describe the impact of theatrical performance on Greek life, particularly through its relationship with the god Dionysos.

Above Theatre of Epidauros, Greece. Photo © Craig Barker.

ALL WALKS

COST Members \$15, non-Members \$20

BOOKING phone 9320 6225 or www.australianmuseum.net.au/Members

Walk the courts

Visit Sydney courts in session with Beatrice Scheepers and discover the history, quirks and intricacies of the legal system.

Friday 9 March, 9.30 am – 3 pm

Discover Long Reef Aquatic Reserve

Don't miss this rare insight into the marine environment with biologist Phil Colman.

Thursday 5 April, 12–2.30 pm

Dundas Valley – the ponds walk

Join Ross Pearson OAM on the first of seven walks taking in the magnificent ponds, rivers and creeks of Sydney.

Sunday 15 April, 9.45 am

The wonders of Waverley

Keith Robinson reveals an historical look at this picturesque and historic suburb.

Wednesday 18 April, 10 am

Berowra Valley Park – The Creeks walk

Enjoy cooler autumn temperatures and stunning scenery on this 10 km walk with Ross Pearson OAM.

Sunday 6 May, 9.45 am

Arncliffe and its multicultural heritage

See the world in one suburb on this discovery tour of multicultural Arncliffe with walk leader Keith Robinson.

Wednesday 30 May, 10 am

AUSTRALIAN MUSEUM MEMBERS SINCE 1972, SUPPORTING AUSTRALIA'S FIRST MUSEUM

EXPLORE

Volume 34, Number 1, ISSN 1833-752X

Explore, the news and events magazine of the Australian Museum and Australian Museum Members, is published four times per year.

Copyright Unless otherwise credited, all text and images appearing in *Explore* magazine are copyright © Australian Museum, 2012. Except as permitted under the *Copyright Act 1968*, you may not reproduce or copy any part of this publication without the written permission of the Australian Museum. Please contact the Editor for further information.

Views expressed are not necessarily those of the Museum.

Editorial committee

Brendan Atkins (Editor)
Cate Lowe (Photo Editor)
Serena Todd (Members Executive Officer)
Maxine Kauter (Research Branch)
Christine Callen (Marketing Manager)

Design management Amanda Teer

Design and layout Austen Kaupe,
Australian Museum Design Studio

Production Jenny Hooker

Advertising Brendan Atkins 02 9320 6249

Printing Finsbury Green

We welcome your feedback, comments and enquiries. Email the Editor at explore@austmus.gov.au

Frank Howarth's photo by Carl Bento

Australian Museum

6 College Street Sydney NSW 2010
Open daily 9.30 am – 5 pm (closed 25 Dec)
t 02 9320 6000 (switch)
t 02 9320 6225 (Members)
www.australianmuseum.net.au

President Catherine Livingstone AO

Director Frank Howarth

Members Executive Officer Serena Todd

Environmental responsibility

Explore is produced using carbon-neutral processes under an ISO 14001 environmental management system. It is printed on ecoStar, a carbon-neutral paper made from 100% post-consumer recycled waste, using alcohol-free, vegetable-based inks made from renewable sources.



Discover what's in the crate of bones collected by Douglas Mawson's team during the Australasian Antarctic Expedition, 1911–14. Story page 2. Photo Stuart Humphreys.



Connect with us online

 **Australian Museum website**
www.australianmuseum.net.au

 **Facebook**
www.facebook.com/australianmuseum

 **Twitter**
www.twitter.com/austmus

 **YouTube**
www.youtube.com/austmus

MAKE A DIFFERENCE!

The Australian Museum strives to inspire the exploration of nature and cultures. We would like to acknowledge the benefactors and corporate partners who support us in achieving this vision.



These generous individuals contribute to scientific research, education and public programs, and assist in the acquisition of items that enrich the Museum's collections. We would especially like to acknowledge those who generously leave a gift to the Australian Museum in their will – a lasting way to benefit generations to come.

Find out how your support can make a difference to the important work of the Australian Museum. Contact the Development Branch on **02 9320 6216** or **development@austrmus.gov.au**. Donations to the Australian Museum and its Foundation are tax deductible.



PRINCIPAL PARTNERS

Australian Museum Members
BJ Ball Papers
City of Sydney
Geddes Group
IBM
JCDecaux
Lizard Island Reef Research Foundation
National Geographic Channel
Rio Tinto
Scitech
Sydney Grammar School
Sydney's Child
The Sydney Morning Herald

GIFTS TO COLLECTIONS

Steven and Janine Avery
Ursula Burgoyne
Louise and Sam Dawson
Rod and Robyn Dent
in honour of Pat Dent and the Wanindilyaugwa tribe
John L Gordon
Mark Hanlon
Mrs J Holliday
The Late John Hume
Dr Leighton Llewellyn
George and Edna Oakes
John Rankin
Paul Scully-Power
Trevor Shearston
Muriel Snell
Professor Günther Theischinger

AUSTRALIAN MUSEUM FOUNDATION

President's Circle

Christopher Grubb
Ian and Stephanie Hardy
Judy Lee
Diccon Loxton
Helen Molesworth
Robert and Helen Rich
David and Daniela Shannon
The Sherman Foundation

Director's Club

Patrick and Ailsa Crammond
Bill and Alison Hayward
John Lamble Foundation
Reid Family

Guardians

Ann Hoban
John and Mary Holt
Tempe Merewether OAM
Alice Arnott Oppen OAM
John Pearson

Custodians

James and Belinda Allen
Mr and Mrs KR Bell
Alan Cameron
Peter and Rose Cassidy
P Cornwell
Suellen and Ron Enestrom
Frank Howarth
James E Layt AM
Margaret Mashford
Robert McDougall
Adrian and Dairneen Pilton
David Robb
Vera Vargassoff
Tony White AM and Doffy White

Supporters

Antoinette Albert
Michelle Atkinson
Jane Beniac
Sir Ron Brierley
Elizabeth Cameron
Ken Coles AM and Rowena Danziger AM
Debra Cox
John Dickinson
Hugh Dixon
Estate of the late Clarence E Chadwick
Estate of the late Patricia M Porritt
Estate of the late Merrill Pye
Estate of the late Gwendoline A West
David Greatorex AO and Dee Greatorex
Owen Griffiths and Biodiversity Conservation Madagascar Association
Ken Handley AO and Diana Handley
Ronnie Harding
Dan Howard SC and Dr Rosemary Howard
Gilles Kryger
Mabs Melville
Dame Elisabeth Murdoch AC DBE
David Norman
Andrew Pardoe
Jane and Neville Rowden
Rosemary Swift
Senta Taft-Hendry
Jennifer Wright