



ABN 76 470 896 415

The Royal Society of New South Wales Bulletin and Proceedings 321

ISSN 1039-1843

November 2008

Future Events 2008

Lectures in Sydney are held in Lecture Room 1, Darlington Centre, University of Sydney at 7 pm on the first Wednesday of the month with drinks available from 6 pm.

Wednesday 3 December 2008

Liversidge Lecture

Professor Cameron Keper

School of Chemistry, University of Sydney

Molecular Materials: From Clean Energy Storage to Shrinking Crystals

Followed by The Royal Society

Christmas Party

Wednesday 3 December, 8 pm

– don't miss out!

For booking details contact the Society's office.

The Pollock Lecture 2008

Please note that this lecture has been postponed until 2009.

Southern Highlands Branch

Thursday 20 November 6.30 pm

Optical Interferometry In Australia

Stephen Owens

The Drama Theatre at Frensham School, Mittagong.

Future lectures

Members, what topics interest you? Which scientists would you like to hear from? Please contact the Office (details p6) with your ideas for our 2009 Lecture series. Proposed Rule and By-law changes

Rule Changes

Members will have the opportunity to vote on proposed rule changes at the 3 December general meeting. These changes concerning the President's term in office and the award of Fellow of the RSNSW have already been circulated and will be put to the meeting for approval.

Liversidge Lecture Wednesday 3 December 2008

Professor Cameron Keper

Molecular Materials:

From Clean Energy Storage to Shrinking Crystals

Once thought of as little more than symmetrical arrangements of discrete molecules, molecular materials have recently emerged as very much more than the sum of their individual parts. This lecture will describe how these materials are having considerable impact in two highly topical areas.

Hydrogen Storage. In the proposed *Hydrogen Economy*, hydrogen gas replaces fossil fuels as energy carrier within a potentially greenhouse-free energy cycle. One of the principal challenges in the adoption of this cycle is the design of efficient methods to store hydrogen – a notoriously volatile gas. It has been recently shown that molecular materials are excellent candidates in this area due to their very high surface areas and functional surfaces. Efforts to optimise the hydrogen storage capabilities of such materials will be described and a comparison with other materials given.

Negative Thermal Expansion (NTE, ie., contraction with heating). The expansion of matter with increasing temperature is the cause of numerous technological problems. Once thought to be an immutable law of nature, it has been shown in the past decade that materials can be made that actually shrink upon warming. In addition to addressing the research behind this discovery, a brief description will be given of commercialisation efforts in this area.

Professor Cameron Keper completed his first degree at The University of Western Australia before undertaking a PhD at the Royal Institution of Great Britain, University of London. In 1995 he moved to the University of Oxford as a Junior Research Fellow, where he commenced research into molecular framework materials. He was appointed to the University of Sydney in 1999 and currently holds the position of ARC Federation Fellow. He is the recipient of the Malcolm McIntosh Prize for Physical Scientist of the Year, the AAS Le Fèvre Memorial Prize, the RSNSW Edgeworth David Medal, and the RACI Rennie Medal.



Cameron Keper



Governor-General to be Chief Patron

Her Excellency Ms Quentin Bryce has agreed to continue the tradition of Patron to the Royal Society of NSW. A letter from her office stated that she would be delighted to accept the position of Chief Patron. She has asked to be kept periodically informed of the organisation's activities, for example by way of newsletters, Annual Reports, significant developments and changes of office bearers.

Patrons

Her Excellency Ms Quentin Bryce AC

Governor-General of the Commonwealth of Australia

Her Excellency Professor Marie Bashir AC CVO Governor of New South Wales

From the President

I have recently returned from the 5th Convention of the Royal Societies of Australia which was held in Perth. This was an opportunity for NSW to discuss its activities with other Royal Societies in Australia and to exchange ideas about mutual co-operation. At the meeting an Hon. Executive Officer was appointed to locate funding and other opportunities. This will assist all member Societies in their work.

At the dinner following the Convention, the Chief Scientist of Western Australia, Professor Lyn Beazley, outlined her vision for the role the RSA can play in raising the profile of science and the work of scientists in Australia generally. She exhorted us to gather strength and push ahead with what we are attempting to achieve.



Participants in the Royal Society of Australia (RSA) Convention held in Perth included the President of the Royal Society of WA, Dr Phil O'Brien (back row, L); President of the RSA, Captain Bill McCauley (front row, L); Professor Lyn Beazley, Chief Scientist of WA (front row, 2nd L); John Hardie, President of the Royal Society of NSW (far R).

I'd also like to mention a meeting I had with representatives of the City of Sydney about Science House. There is a lot of interest in what we are attempting to achieve with Science House and this meeting was no exception. A centre for science in the middle of the City of Sydney is something which aligns closely with the Lord Mayor's 2030 program.

John Hardie, President

Owner Missing

Could the owner of a \$12.00 deposit made to the Royal Society bank account using the name Edward Milne please contact the office as we have not been able to identify you.

Marian Haire, Hon Treasurer

The Oceans and Climate Change

A Summary of the November lecture by Professor Matthew England

The oceans dominate the Earth's climate. Prof Matthew England explained to a large audience that in the middle of the oceans, the mean monthly air temperatures fluctuate by less than 5 °C. However, at the centres of the continents, far removed from the sea, the fluctuations in monthly temperatures are *much* larger –44 °C in North America and a huge 56 °C in Siberia. The stability of the ocean air temperatures is partly due to the ocean's huge thermal capacity, and partly due to heat circulation by ocean currents.

The currents transport massive amounts of heat from the equator to the poles. Without these currents the equator would be an intolerable 30 °C hotter and the poles would be 30 °C cooler. And over most of the planet the climate would be much too extreme for advanced life.

This global heat transport by ocean currents dominates the Earth's climate. Yet it was not correctly included in computer models until the famous work by Stouffer's group in 1989! Before then, the models used a 50 m deep "ocean" (really more of a pond!) without dynamic ocean heat transport. Modern climate models have corrected this flaw and are now in excellent agreement with global temperature patterns.

It is still difficult to accurately model rainfall in some parts of the world. It has been known for many years that the rainfall of eastern Australia is dominated by the El Niño/La Niña pattern of Pacific Ocean temperatures. However, the causes of rainfall fluctuations in Western Australia have until recently defied explanation. Prof England's group has now discovered a tight correlation between rainfall and certain sea surface temperature patterns. Hopefully this will lead to better long-range forecasting and improved drought predictions.

All the modern global climate models are in broad agreement about the effect of increasing carbon dioxide leading to increased global temperatures; changes in the global climate, and sea level rise. The oceans are a major buffer for CO₂, taking up and sequestering one third of all new gas. England pointed out that the capacity of the oceans is finite, and the most recent research suggests that we may be approaching that limit. There are also disturbing questions of ocean acidification from dissolved CO₂ that may have major impacts on ocean ecologies.

Global warming is bound to have significant unforeseen consequences. But one effect that scientists are confident of is an increased number of very severe hurricanes (and a decrease in the number of mild hurricanes). The unusually warm waters in the Gulf of Mexico that powered Hurricane Katrina used to be a one in 5,000 year event – now they are probably a once in 100 year event, or even commoner.

The standard models also predict a sea level rise of 0.6 m over the next century. However, there is concern that the Greenland ice is melting much faster than predicted. England said that when (not if!) the Greenland ice sheet melts the sea level will rise 7 m.

Finally, England presented a very disturbing graph of historical sea levels vs. global temperatures. It showed a linear trend between sea levels 120 m below present levels during the last ice age when temperatures were 9 °C, to sea levels 70 m above present during the Eocene when temperatures were 18 °C. That is a rise in the long-term sea level of 21 m per degree of warming. And the predicted global warming by 2100 is 2 – 3 °C. This suggests that the long-term rise in sea level could be large.

When you are faced with a complex machine you don't fully understand, the first rule is not to fiddle with the controls. We don't fully understand the Earth's oceans and atmosphere but are currently changing them in ways that may have the direst of consequences. Perhaps it is time to stop.

Jim Franklin, Councillor, Activities Coordinator

The Society's Christmas Party follows the Liversidge Lecture

Report of the Southern Highlands Branch

Lecture 6.30 pm, Thursday 20th November 2008

Optical Interferometry In Australia

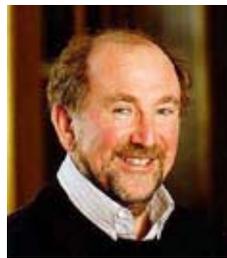
Stephen Owens

On the night of 13 December, 1920 Albert Michelson measured the first stellar angular diameter using a weird contraption bolted to the top of the newly completed 100 inch Hooker telescope on Mount Wilson, California. This measurement heralded a new field in optical astronomy.

It was not until the second half of the twentieth century that this field matured with the construction of the Narrabri Stellar Intensity Interferometer. From 1963 to 1976, this instrument measured the angular diameters of 32 main sequence stars. These measurements, coupled with spectroscopic data, led to the determination of fundamental stellar properties and determined the temperature scales of early type stars. The development of a next generation stellar interferometer was commenced in the mid-1970s with a prototype Michelson interferometer, leading to SUSI, the Sydney University Stellar Interferometer which was opened in 1991. This instrument is operational today.

The talk will give a general (not too technical) overview of Michelson's original experiment and technical progress, with emphasis on the contributions made by the Astronomy Department of the University of Sydney. If time permits, he will talk about the future of this fascinating field of astronomy.

Stephen Owens is a resident of the Southern Highlands (Bundanoon). He has been involved for many years in the design and development of the Sydney University Stellar Interferometer (SUSI), which is in the vanguard of a new generation of Optical Stellar Interferometers.



Stephen Owen

Review of 16th October Lecture

Psychopaths In Society

Dr. Stephen Hember Allnutt

Clinical Director of the NSW Community Forensic Mental Health Services

Dr Stephen Allnutt trained in psychiatry at McMaster University in Canada and in forensic psychiatry in Ottawa. He has a scientific interest in the bizarre, the deviant and the dangerous and described methods for classification with emphasis on anti-social personality disorders.

Dr Allnutt captivated the audience with a most fascinating presentation on a field we hear of repeatedly in the media but know little about. What is a psychopath? How can they be identified? What are their behavioural characteristics? What are the social implications? These complex issues and many more were described in a one hour session followed by an enthusiastic question time.

Psychopaths have always captured the attention of the community. Ultimately the concept is elusive and difficult to define. Individuals who are truly psychopathic are a relatively rare breed and difficult to identify, often not until they are associated with criminal offence. Notwithstanding this, their contribution to community violence is substantial.

Darwin Celebrations 2009

Robyn Stutchbury and Eugenie Lumbers were invited to the NSW Office for Science and Medical Research (OSMR) for an Evolution celebrations briefing and reception on 5 November 2008. In 2009 we will celebrate 200 years since Darwin's birth and 150 years since the publication of *On the Origin of Species*.

For details of Victoria's major event *Evolution—the Festival* visit <http://evolution09.com.au> and <http://evolutionvictoria.org.au/>. Celebrations across Australia will give the scientific community the opportunity to share the importance of evolution with the public.

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Women take over

The positions of Chief Scientist for Australia and for NSW have both been awarded to women.

Australia's new Chief Scientist is Professor Penny D Sackett who is an astronomer with a PhD in theoretical physics. She is also a qualified teacher with a great interest in all levels of education.



Professor Penny Sackett

Her extensive experience in managing large and complex science projects has included the distribution of dark matter in galaxies and the search for planets orbiting distant stars.

Professor Sackett is a strong advocate for increasing the number of young people contributing to the future health and wealth of Australia through science, engineering, technology and innovation. The Australian Government Office of the Status of Women has selected her as one of seven Australian women in science to highlight science as a career to secondary school students.

Her new role is from November 2008.

The NSW Chief Scientist and Scientific Engineer is Professor Mary O'Kane, one of whose roles will be to help stimulate innovation in the State.

Professor O'Kane will provide independent, strategic advice to the NSW Government on the best ways science and the thriving knowledge sector in NSW can be harnessed to benefit business, society and the environment.

A key focus for the position will be to help ensure the State's research capacity keeps pace with the needs of the NSW economy, society and environment.

Professor O'Kane's specific duties include:

- advising on issues that really matter to the NSW Government and the community – either as an expert in her own right, or by accessing the best and brightest minds here or internationally.

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The NSW Chief Scientist

- promoting the quality and level of scientific activity in NSW and acting as a champion for the science and research sector
- providing independent advice to the NSW Government on science issues
- designing strategies to open up publicly-funded research infrastructure and knowledge to NSW business and industry, to stimulate innovation
- advising on R&D priorities to underpin innovation and encourage the take-up of research knowledge by industry
- working with universities and the research sector to encourage greater alignment between their activities and State priorities
- promoting science and engineering education and careers, with an explicit focus on underpinning disciplines such as mathematics
- acting as a key member of the NSW Innovation Council, and working with the NSW Government's Science Agencies Group
- being a key figure in advancing NSW interests in science, research and related innovation at the Commonwealth and global level.

With a distinguished career spanning science, academia, engineering, policy development and business, Professor O'Kane brings well-rounded and high-level skills and experience to the position.

Professor O'Kane is a former Vice-Chancellor of the University of Adelaide. She has also served on a range of high level committees including the Australian Research Council and the CSIRO Board.



Professor Mary O'Kane

Professor O'Kane is also a business-person who runs a consultancy advising governments, universities and the private sector on innovation, research, education and development.

Source: ScienceNetwork, WA and OSMR NSW

One Hundred Years Ago...

The General Monthly Meeting of the Society was held at the 'Society's House, No.5 Elizabeth-street North, on Wednesday evening, November 4th, 1908'. WM Hamlet, FIC FCS, President, in the Chair. Twenty members were present.

'Messrs. L. Hargrave and W.J. Clunies Ross were appointed as scrutineers and Mr. D. Carment deputed to reside at the Ballot Box. The certificates of four candidates were read for the second time. The following gentlemen were duly elected ordinary members of the Society'. [...four names, occupations and addresses followed].

The President made a number of announcements among them were:

- That the sixth popular science lecture *John Dalton and One Hundred Years of the Atomic Theory* by FB Guthrie, FIC FCS would be delivered on Thursday, November 19th, at 8.00 p.m.
- That the Council had decided that the Society's Journal would be published four times a year.

Then the paper for the evening '*Note on Pucherite from West Australia*' by Caird Scholar, University of Sydney was read by [Communicated by] J.A. Schofield, Acting Professor of Chemistry, University of Sydney. The subject of this paper originated from a sample of a few grams of concentrate from Niagara in WA. 'The physical properties and composition of this mineral agree with those recorded in Dana's '*System of Mineralogy*' for the mineral Pucherite [Bismuth vanadate]. This is believed to be the first recorded occurrence of Pucherite in Australia.'

Mr. Maiden exhibited a specimen of *Rhus radicans* or Poison Ivy, from North America, which was reported by Mr Maiden as '...occasionally found in gardens in New South Wales. It is a really dangerous plant causing acute skin irritation, and a perfectly harmless plant, *Ampelopsis veitchii*, is often mistaken for it. ...Poison Ivy is far too poisonous a plant to be permitted in gardens.'

His Honor Judge Docker exhibited stereoscopic views of *Pandanus forsteri*, the Screw Pine, and *Ficus columnaris*, the Lord Howe Bunyan Tree taken by him at Lord Howe Island. Dr. Walter Spencer exhibited modern medical instruments of precision, and demonstrated two examples in common use. Mr A. Duckworth exhibited photographs from Yass, showing Devonian fossils.

Dr Michael Lake, November 2008

Councillor Hora at United Nations Celebration

Emeritus Professor Heinrich Hora was invited by Dr. Werner Burkhardt, the Deputy Director General of the International Atomic Energy Agency, to attend the fifty-year celebration of Peaceful Uses of Atomic Energy at the United Nations in Geneva (15 October 2008). There were many international contributions to the extensive conference during which Professor Hora presented his paper, *Modification of the Bobin-Chu Threshold for Laser Driven Block Ignition or for Spark Ignition*. It was one of three papers selected from Australia and covered work commenced in 1979 as part of a \$20 billion grant signed by President Carter through the efforts of the pressure group SAFE (Society to Advance Fusion Energy) New York. The only non-American directors involved were the Australians Sir Mark Oliphant and Heinz Hora.



Emeritus Professor Heinrich Hora

Heinrich Hora

Darwin Celebrations

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The Royal Society of NSW proposes to join in with other initiatives so that we can display relevant historical items from our Collection, such as our 'Darwin letter'.

In November 2009 we hope to stage a theatrical review featuring events significant to evolutionary history. Planning is underway and we are seeking those with professional experience in theatrical production and script writing. Please contact me (02 9427 6747 or rstutch@bigpond.net.au) if you can assist. All suggestions welcome.

Robyn Stutchbury

Historian Peter Tyler at Randwick

On Saturday, 15th November, the Royal Society historian Dr Peter Tyler addressed the Randwick and District Historical Society at the Bowen Library, Maroubra Junction. He had been asked to speak about some interesting personalities in early Sydney – a tall order!

Peter was able to link this topic with a Royal Society theme (there is plenty of scope in the nominated topic). The talk took the form of case studies: three Royal Society members who had distinguished careers in their respective scientific disciplines, but who each became involved in sensational public scandals in their personal lives. Each was born overseas, in Italy, Germany and England respectively, but spent most of their professional careers in Sydney and remained members of the Royal Society until their deaths.

Dr Tommaso Fiaschi (1853-1927) was a consultant surgeon who was largely responsible for introducing Lister's antiseptic operative techniques to Sydney. The bronze boar outside Sydney Hospital was donated by his daughter in memory of Dr Fiaschi and his son, who also was a doctor. Soon after arriving in Sydney as a young house surgeon at St. Vincent's Hospital, he eloped with one of the nuns. He lost his job and she was excommunicated from the Church. This was sensational news, even for adherents of other faiths. Dr Fiaschi became a prominent vigneron, growing the first chardonnay vines in Australia, but he also had a remarkable military career, serving in both the Australian and Italian armies. During the Boer War, he single-handedly captured more than 200 enemy soldiers, for which he was decorated with the DSO. During World War I, Fiaschi commanded the 3rd Australian General Hospital on the Greek island of Lemnos, supporting the Gallipoli campaign.

Johann Ludwig Gerard Krefft (1830-1881) came to the Victorian gold fields as a young man, but soon moved to Sydney, where he became curator of the Australian Museum at the time the new building was erected in College Street. Krefft was a notable zoologist as well as a skilled artist, but he antagonised the museum Trustees, who were intent on building up their private natural history collections, in competition with the Australian Museum. After some gold was stolen from a display at the museum, the trustees began a campaign to remove Krefft, accusing him of drunkenness and deliberately breaking a fossil jawbone, amongst other misdemeanours. Litigation followed, but the government declined to pay the damages awarded to Krefft (several prominent citizens, including the Colonial Treasurer and the Chief Justice, were museum trustees). When Krefft refused to accept his dismissal, two prizefighters were employed to carry him, still seated in his armchair, and deposit him unceremoniously in College Street. The campaign against Krefft continued when the trustees ensured he received no compensation and could not get other employment. He died a broken man aged 51, and is buried in an unmarked grave at St. Jude's Church, Randwick.

Professor Henry George Chapman (1879-1934) was Director of Cancer Research at the University of Sydney at the time of his death. He joined the Royal Society in 1909, becoming Treasurer in 1916. Shortly before his death, the University suspected discrepancies in the accounts of the Cancer Research Committee, and the Royal Society then discovered that its own bonds and securities were missing from the bank safe deposit box. With creditors closing in, Chapman committed suicide with a toxic substance that was never identified. The Royal Society sued his estate for £3,360, while the Australian National Research Council, of which he was also the treasurer, claimed £15,280. Each organisation only recovered about ten per cent of the loss, because his estate was virtually bankrupt. During the court hearings, the events leading to his downfall were identified. He had separated from his wife many years previously, and formed a relationship with an employee of the Royal Society, who he provided with jewellery, a car, and a flat at Bondi. At the same time, he set up another woman with a flat in the city. Any remaining money he gambled on regular visits to Randwick Racecourse.

Peter Tyler, October 2008

Oral History Project

Peter Tyler and Robyn Stutchbury now have a list of those who we plan to interview so that we can gain a better understanding of the Royal Society's history. If you would like to be involved in this very interesting project, please contact Robyn Stutchbury: rstutch@bigpond.net.au or 02 9427 6747.

Peter Tyler

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Who reads the Bulletin?

Our thanks to diligent Bulletin reader and Society member, Sharon Rutledge, who drew attention to an error in the last issue. In his report in issue #320, our historian, Peter Tyler incorrectly wrote that Sir Thomas Brisbane was President of the Royal Society in London. Sir Thomas was actually President of the Royal Society Edinburgh, although he was also an active Fellow of the Royal Society in London.

Sharon has more than a fleeting knowledge of this. In a letter to me, she explains that she recently finished a Masters degree in Astronomy (2006) at the James Cook University. One of her subjects included Topics in the History of Astronomy. Because she lives in the district, Sharon's choice for a major research project was The Parramatta Observatory.

Although she has now completed her degree course, Sharon has continued with her investigations into the history of the Observatory. She presented a poster on *Sir Thomas Brisbane's Observatories* at the National Australian Conference for Amateur Astronomy (NACAA), thus her knowledge of Sir Thomas Brisbane.

She is continuing with her research and among other projects, Sharon hopes to submit an article to the RSNSW Journal and proceedings. She also commented that she enjoys reading the Bulletin.

Robyn Stutchbury

Science for Science House

Science House has been capturing the imagination of many scientists. Eugenie Lumbers and I had the opportunity to discuss it at a dinner organised by the NSW Chapter of the Fellows of the Academy of Science early in November.

We now have a professionally designed promotional flyer to distribute together with a brochure outlining progress and the benefits to all science and scientists that the NSW Science Centre (Science House) will offer NSW.

Professor David Day, Dean of Science at the University of Sydney is very supportive of the project and has offered to call a meeting of the Deans of Science group early in 2009 to discuss how best university science can benefit from the NSW Science Centre.

Robyn Stutchbury, Science for Science House Co-ordinator

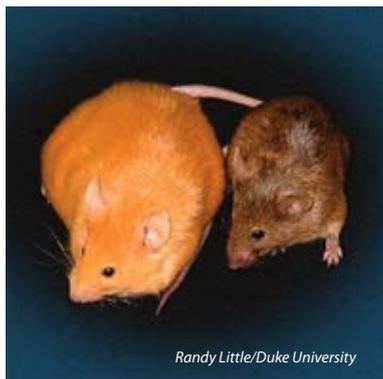
From Lamarck to the Agouti: The evolution of epigenetics

Eugenie Lumbers FAA is Emeritus Scientia Professor, UNSW • Tamas Zakar is an A/Professor, U of Newcastle

Instalment 3: The role of the maternal diet in epigenetics

Epigenetic determination of phenotype by maternal dietary restriction during pregnancy is well established. The best model is the Agouti mouse. The Agouti mouse can have a coat colour that ranges from yellow through mottled yellow and brown to dark brown. The yellow Agouti is obese, develops tumours and has diabetes. Its lean dark brown genomically identical sibling is much healthier with no susceptibility to diabetes or cancer.

How can genetically identical siblings be different? It relates to the methylation of a retrotransposon. Retrotransposons make up about 43% of the genome. They are junky viral material that has been incorporated into the genome and they are non-coding sequences. Not surprisingly if the genome is going to function correctly



The Agouti mouse (left)

these junk elements need to be silenced and methylation of retrotransposons is the major way of silencing. In this sense, it can be seen that methylation of genes is a protective mechanism. If the Agouti allele (A_{vy}) is not methylated, the Agouti protein is expressed and the mouse is yellow, fat and tumour prone. If the Agouti protein is not expressed, meaning that part of the A_{vy} allele is methylated, then the mouse is lean, brown and healthy.

What determines the methylation of A_{vy}? It is directly related to maternal diet. If the maternal diet is rich in betaine, folic acid, or choline – methyl donor food components utilised

by the methylating enzymes – then the element responsible for retrotransposon activation is methylated and the Agouti protein is not synthesized. Conversely if the maternal diet is deficient in components such as folic acid, then the Agouti protein is synthesized and a yellow, diabetic obese mouse is more likely to be born. Since all generations of cells arising from the original silenced or active cell have the same genetic pattern, this can be claimed to be truly epigenetic: the inheritance in cells of an acquired characteristic that is the result of an environmental influence. It is not hard to see how important this research is for studying the interactions between cells and cancer causing agents. But what about transfer of this heritable characteristic across generations, the type of inheritance that Lamarck postulated and Kammerer desperately tried to prove?

For epigenetic inheritance to occur the pattern of methylation in the germ cell line would have to be altered. That this can occur has been shown by researchers in NSW (Copley et al, 2006).

After being mated with grandfather mouse whose genome had the A_{vy} allele, the maternal grandmother mouse was fed a diet rich in methyl donors such as folate,

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B12 and choline, at a time when germ cell differentiation was occurring. This strengthened the methylation of the inherited paternal allele in the germ cells of the offspring. The female offspring (F1 generation) of these pregnancies were mated and no methyl supplements given during their pregnancies. Despite this, these F1 females produced more offspring (F2 generation) that were brown and healthy than did females who had no dietary supplementation during fetal development.

The authors concluded 'Thus a mother's diet may have an enduring influence on succeeding generations, independent of later changes in diet ...' and 'this study demonstrates that a specific mammalian gene can be subjected to germ-line epigenetic change'.

Thus epigenetic inheritance has come to be of major biological importance. Around the world, scientists are investigating the effects of manipulation of maternal diet at critical periods of development on programming during development for diseases like diabetes, hypertension and cardiovascular diseases. These diseases are known to be more prevalent in individuals who are born with a low birth-weight.

The striking and obvious effects of diet on the expression of the Agouti phenotype means that it is an ideal model to test the impact on methylation in early development of environmental contaminant chemicals such as bisphenol A (BPA) that is present in many common plastics.

Thank you Eugenie and Tamas for a very interesting overview of Epigenetics. I feel sure Lamarck is smiling. Are there other members who would like to contribute in this way? RS(ed)

Contact your office bearers

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The Bulletin and Proceedings is issued monthly by the Royal Society of New South Wales
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