

## Team McMillan BMW and Mini supports the Liggins



One of Auckland's premiere car centres – Team McMillan BMW and Mini – has become a sponsorship partner of the Liggins Institute

The agreement will see Team McMillan underwrite production costs of the Institute's newsletter, Dialogue. In addition, the firm will donate \$500 to the Liggins every time a Dialogue reader purchases a BMW from Team McMillan. All the reader is required to do is present a copy of the BMW advertisement that will appear on the back page of this and every future issue of the newsletter. For further information, please contact Pandora Carlyon: p.carlyon@auckland.ac.nz

Bob McMillan of Team McMillan says the sponsorship reflects one of the core values of his firm.

"We believe in giving something back to our community, and we target that support by focusing on outstanding initiatives in health and education.

"The Liggins Institute fulfils both of these criteria. Its research programme is of truly international quality. At its inception, its mission was to become an iconic

THE UNIVERSITY OF AUCKLAND

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Liggins Institute Director Professor Peter Gluckman (left) and Team McMillan BMW and Mini's Bob McMillan, at Team McMillan's new car showroom.

# Culture shifts

During nearly twenty years of change management consultancy in Europe, India and the United Kingdom, Mark Shepherd has experienced a diverse range of work and national cultures.



Now, in his role as the Liggins Institute Chief Operating Officer, he is relishing the opportunity to work in an environment dedicated to the pursuit of scientific discovery. He has travelled a long way to reach the Institute, but he is in no doubt that he has arrived at the right place, at the right time.

There are two reasons for the strength of Mr Shepherd's conviction: his personal passion for science, and a professional passion for building workplace cultures in which people's talent can flourish.

How then, did a multi-lingual science graduate with two degrees in marine biology and applied biology, enter the field of change management?

"I found a niche I was well suited for," says Mr Shepherd. "And I discovered that quite a few people with science backgrounds enter change management, and do well. Scientists are trained to be logical, and methodical. These are invaluable skills when managing workplace change."

Although based in the United Kingdom, Mr Shepherd spent much of his time on assignments that took him all over Europe across many industries. The companies he worked for are world renowned, such as ICI, Aventis, Dupont, Granada, Twinings Tea Co, British Steel, Tata Company of India and many more.

Perhaps the most memorable of these contracts was a two-year stint in India.

"My wife and two young children moved there with me. It was an experience that had a profound affect on all of us. It was a daily lesson in the contradictions of humanity. As soon as I stepped outside the front door, I would be assailed by the extraordinary wealth and poverty, disease and vibrancy, suffering and exuberance. The images of the daily struggle for life in Calcutta are indelibly burnt into my mind."

Immediately prior to leaving the United Kingdom, Mr Shepherd ran a large change management consultancy in London, with an annual turnover of \$NZ100 million and 150 staff. In a professional sense, he had achieved a position of considerable influence. But at a personal level, it was time for a change.

After 17 years of travelling and living away from home Monday to Friday, he decided to make a major lifestyle change. "With the family we decided to live in a country and culture that would allow us to spend more time together – a place where personal time is still valued.

"We came to New Zealand two years ago. Travelling to the other side of the world was bit of a challenge but after India we did not feel daunted by the prospect. I am keen on rugby and sailing, reading – particularly about Charles Darwin whose passion for science and discovery fascinates me – and socialising with our new Kiwi friends. I finally have the time to do all these things."

The move to the Liggins Institute is one that he actively sought.

"I have always wanted to be part of a workplace dedicated to science. I have a deep conviction that the Liggins Institute's mission is of international importance. My role is to nurture an environment that allows people with brilliant minds to get on with their work: making great scientific discoveries."

Sound financial control, clear and transparent policies and service contracts, and an efficient infrastructure are the building blocks of a healthy organisation, he says.

"But these tools are no good without clear communication, open discussion, and a constant exchange of ideas. These are equally important aspects of my work. I am a firm believer in the value of conversation. Especially in a place like this, where teams need to share their opinions and ideas as part of the collaborative process of scientific discovery.

"I could sum up my role quite simply: I am here to help people succeed. If you consider the talented individuals at the Liggins Institute and the relevance of their work to the health of future generations, it's not hard to understand why I am keen to get on with job."

### The world stage

The Liggins Institute's scientific achievements have gained the attention of some of the most influential health policy, research and funding agencies in the world.

Liggins Director Professor Peter Gluckman says his role as founding president of the International Society for the Developmental Origins of Health and Disease was the catalyst for some high-level shoulder tapping.

"Shortly after our inaugural meeting, the World Health Organisation (WHO) asked me to chair a technical consultation group examining the issue of low birth weight. One of WHO's goals is to reduce the global incidence of newborns with a birth weight of less than 2,500 grams."

Professor Gluckman's first task was to persuade WHO to broaden its perspective.

"The focus on low birth weight was too narrow. There are so many causal factors associated with fetal development, the health of the newborn, and maternal health – as has been demonstrated by the Liggins Institute's research.

"I spent several days in Geneva late last year, and persuaded them to expand the scope of their consultation. A draft document is now being prepared, which takes a broader view: the optimisation of fetal health."

At the same time, health policy advisers in the United States were turning their attention to the work of Professor Gluckman and his colleagues.

The National Institutes of Health (NIH) describes itself as the "steward of medical and behavioural research for the nation". One of its member organisations – the National Institute of Child Health and Human Development – had heard about the Liggins Institute, and was keen to draw upon the expertise of its Director.

Professor Gluckman now chairs a NIH-United States Agency for International Development (USAID) committee, looking at ways of optimising fetal development. (USAID assists countries recovering from disaster, trying to escape poverty, and improve living conditions).

He says his participation in these influential international bodies guarantees the Institute's work will be taken from the research laboratories in Auckland to the world's health policy makers.

"The Liggins is ideally placed to contribute to this multilateral effort. We combine the best of biomedical, clinical and public health expertise, and are uniquely placed to help translate basic science findings into public health policies aimed at giving every human being a healthy start in life," says Professor Gluckman.

## Artworks at the Hilton pledges more support for Liggins

The Liggins Institute will again be the beneficiary of a black tie charity auction dinner, during Australasia's largest art event, called Artworks at the Hilton.



Professor Lord Robert Winston will address guests at the Artworks at the Hilton charity auction dinner in September.

Planning is already underway for the prestigious September event – and confirmation of the featured guest speaker means tickets are likely to be keenly sought.

Professor Lord Robert Winston is well known to audiences throughout the world for his BBC television series including The Human Body, and the recently screened The Human Mind. Lord Winston is a Scientific Patron of the Liggins Institute, and has agreed to speak at the dinner on Saturday 4 September.

As Dialogue went to press, arrangements were also underway for a public lecture by Lord Winston, for which dinner guests would have priority booking status. Liggins Director Professor Peter Gluckman says the charity dinner promises to be a memorable evening.

"We are delighted that the organisers of Artworks at the Hilton – the Rotary Club of Ellerslie Sunrise Inc – have chosen to support the Liggins Institute for a second year.

"We are equally delighted that Lord Winston has found time in his busy schedule of international engagements to support the Institute in this way.

"The funds raised will be a valuable contribution to furthering our research efforts, which are increasingly gaining the attention of international health research and policy-making organisations." Last year's black tie dinner contributed nearly \$150,000 to the Liggins Institute. Proceeds will this year again come from auction sales of art – including the sale of the top three works in the Mazda Emerging Artist Awards. In addition, there will be other items for which dinner guests can bid.

Rotary Club of Ellerslie Sunrise director Christopher McMurray said the decision to support the Liggins Institute for the second year running was unanimous.

"The Institute's international research reputation, and the importance of its mission, merits the strongest possible support. Its research teams are dedicated to improving the health of the most vulnerable in our society.

"We are proud to renew our relationship with the Liggins and its scientists – and anticipate a strong demand for tickets to the charity dinner and scientific lecture," said Mr McMurray.

For further information on tickets to the Artworks at the Hilton charity black tie dinner, and associated public lecture by Professor Lord Robert Winston, please contact Pandora Carlyon at the Liggins Institute: p.carlyon@auckland.ac.nz.

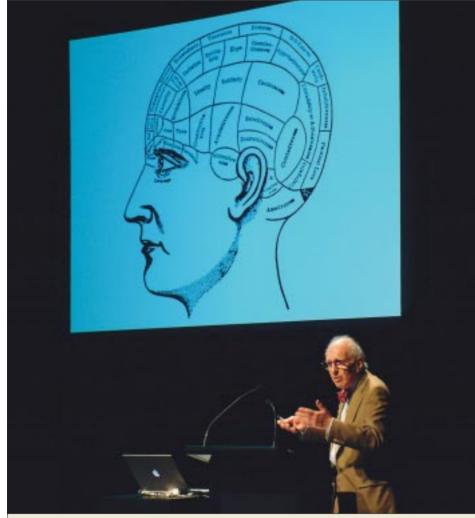
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If you are committed to advancing healthcare and improving quality of life, and want to see New Zealand take greater strides in the knowledge society, then you may wish to consider supporting the Institute. Please contact us at:

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## Nobel Laureate's public lecture attracts overflow crowd

A winner of the 2000 Nobel Prize for Medicine whose research has been pivotal in explaining the basic processes of learning and memory delivered a riveting presentation to a packed auditorium at The University of Auckland earlier this year.



Professor Eric Kandel speaks to a full house at The University of Auckland's Maidment Theatre.

Professor Eric Kandel, from the Centre for Neurobiology and Behaviour at Columbia University, USA, surveyed the history of scientific understanding about the structure and function of the brain. He then described the discoveries he and his team have made about the biological basis of memory.

The gifted speaker spoke about extremely complex research, but carried the capacity crowd with him throughout the hour-long lecture. The interest in the lecture was so great, that people had to be turned away from the venue well before the event started.

While in Auckland, Professor Kandel also visited the Liggins Institute of which he is a Scientific Patron. By studying the nervous system of the sea slug Aplysia as a model, Professor Kandel discovered that synaptic function is important for learning and memory. He also found that the synapses react very differently with short-term memory than with long-term memory, causing a physical change in the synapse itself in the case of long-term memory.

The esteemed Professor used a sea slug for his research work because the simple nervous system of the Aplysia is suitable for studying learning behaviour and memory formation. He and his colleagues found that learning produces changes in behaviour, not by altering basic circuitry, but by adjusting the strength of particular connections between nerve cells. He showed that this simple creature – which has 20,000 brain cells compared with the 100 billion in the human brain – built up its memory of being touched, and its ability to close up in response, by strengthening the connections between its brain cells.

More recently, his laboratory has been developing a drug that might help those who find it harder to remember things as they grow older. Professor Kandel and his colleagues have established a company, Memory Pharmaceuticals, which is in stage one clinical trials for a drug to restore agerelated memory loss. The drug worked in mice and is now being tested on people.

The pharmaceutical is targeted at the 30 per cent of older people who gradually find their power of recall is diminished – a problem that can emerge from their early forties – but who never develop full-blown Alzheimer's.

He said that the drug was not a cure for full Alzheimer's and also warned against trying to develop a drug that could enhance normal memory, such as pills that could help students to remember more facts for exams.

"Every person in this auditorium has had different life experiences and therefore has a unique brain," he told his rapt audience.

Born into a Jewish family in Vienna, he suffered in the explosion of anti-Semitism that erupted after Nazi Germany occupied Austria. He attributes his later interest in the mind to his experiences as a Jewish child in a class of mostly non-Jewish students.

"That sudden transformation of 'civilised' people into 'bullies' helped to determine my later interests in the mind, in how people behave, the unpredictability of motivation, and the persistence of memory," he said in a New Zealand Herald interview.

While in Auckland, Professor Kandel was also interviewed on National Radio's Nine to Noon programme and by the New Zealand Listener.

Professor Kandel's recent research has led to new findings that long-term memories may be stored by compounds called prions, known until now mainly for their role in fatal illnesses such as mad cow disease.

# Distinguished biologist visits Liggins Institute

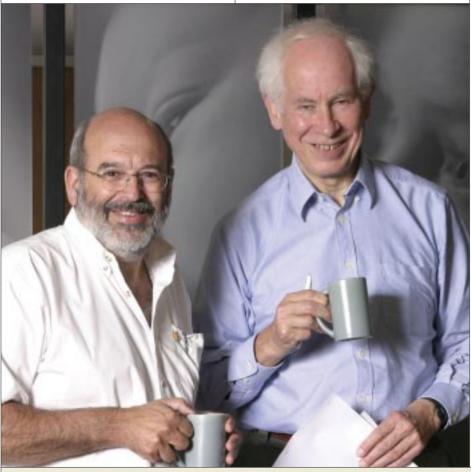
The man whose research challenged accepted theories on the impact of the environment on the development of organisms recently visited the Liggins Institute.

One of the world's most distinguished biologists, Professor Sir Patrick Bateson FRS from Cambridge University, was in Auckland as a member of the advisory board of the National Research Centre for Growth and Development headquartered within the Liggins Institute.

Professor Bateson, whose expertise is in evolution, the development of form and behaviour and comparative biology, presented a public lecture entitled "Biological Plasticity and Human Health" during his visit.

The eminent Professor's research shows that many organisms develop in different ways depending on cues they receive from the environment in early life. Their adult form and adult behaviour are adapted to the conditions predicted by the information that sent them down a particular track. According to Professor Bateson, sometimes the predictions made during development are wrong. Strong evidence from health histories of humans suggests that individuals who are born small and well-adapted to a thrifty environment are especially likely to suffer from, among other things, obesity and heart disease later in life when they grow up in an affluent environment. If the interpretation is correct, the public health implications are immense.

As the Biological Vice-President of the Royal Society, a position he held for the last five years, Professor Bateson led an investigation into whether the way researchers publish their results misleads the public. While in New Zealand, he was interviewed on Radio New Zealand by Linda Clark on the Nine to Noon



programme about the impact of published research on the general public.

Ms Clark referred to a recent case in Europe, where a leading medical journal, The Lancet, published a report claiming a link between the MMR (measles, mumps and rubella) vaccine and the incidence of autism and an inflammatory bowel disease in children.

The publication of the research results, which were later found to be flawed, triggered widespread public concern and a drop in vaccination rates.

The Lancet did publish a retraction, but it did not receive as much publicity as the initial results had. The case also highlighted the issue of conflicting interests as it was found in ensuing days that the research's lead author, Dr Andrew Wakefield, was undertaking a secondary study to find out whether there was any evidence to support possible legal action by a group of parents who claimed their children were damaged by the vaccine.

Professor Bateson said the research should not have been reported as it was.

"The report should never have been published as it was and it is important to consider the issue of a conflict of interest. Editors need to look at just what someone has to gain from the publishing of the report," he said.

Professor Bateson said that medical journals are victim to the same competitive pressures that tabloids are and perhaps some are only interested in increasing their sales.

"On the whole Lancet and other medical journals do a good job, but they are owned by commercial interests who want to make money. Editors are the gatekeepers and have special responsibility to take care.

"You can't make mistakes like that more than once. If you say you've got the cure for cancer – and it's found that it's all rubbish – you've lost your credibility."

In the end, the potential loss of their reputation is the safeguard for researchers as well as journals and newspapers, said Professor Bateson.

Professor Peter Gluckman (left) and Professor Sir Patrick Bateson

# **Eminent visitors**

### The Liggins Institute has hosted several eminent scientific visitors this year.

Elsewhere in this edition of Dialogue there are accounts of public lectures by Professor Eric Kandel and Professor Sir Patrick Bateson.

Professor Mark Hanson - the Director of the Centre for Fetal Origins of Adult Disease at the University of Southampton School of Medicine in the United Kingdom - also spent two days at the Institute in February. His research concerns aspects of cardiovascular, endocrine and neural programming and placental development. Professor Hanson has collaborated with Director Professor Peter Gluckman on research in the control of fetal growth and neural function. The two are now coauthoring a book examining the origins of the pot belly, in which they suggest that many of us are hardwired before birth to carry fat deposits around our waists - a legacy of our hunter-gatherer forebearers.

Another internationally recognised researcher, Professor John Challis, visited the Institute in his capacity as a member of the Liggins' Scientific Advisory Board. Professor Challis is the Vice-President (Research) and Associate Provost at the University of Toronto, Canada. He is renowned for his work in the fields of physiology and obstetrics and gynaecology. In particular, he is known for his work on hormone mechanisms during pregnancy, fetal development and the influence of intrauterine development on disease after birth.





Professor John Challis (left) and Emeritus Professor Sir Graham Liggins (right)



### Continued from front page...

research organisation that would advance medical knowledge and clinical care, harness intellectual property created in New Zealand, and share its findings with the wider public.

"Our support for Dialogue will enhance the Institute's ability to share its discoveries with the community. It will also help build an appreciation of the contributions that Liggins Institute scientists are making to our understanding about fetal and child health, diseases in later adult life, brain development, and other areas of their research," said Mr McMillan.

Liggins Institute Director Professor Peter Gluckman said that the Institute has a commitment to enhancing public understanding of biomedical research, and the relationship between scientific advances and the social context in which research is performed.

"New Zealand has an extremely talented community of scientific and biomedical researchers. The response to any coverage or public discussion about the Liggins Institute's discoveries shows that people want to know about our work, and understand its significance.

"Team McMillan's support will ensure we can maintain our regular newsletter which now reaches about 7,000 readers. For many people, it is the window to the Institute. We are enormously grateful that this publication now has the support of a committed sponsor," said Professor Gluckman.

# The telescopic view

The Liggins Institute has recently gained its first epidemiologist – Dr Susan Morton – who researches the prevention of disease by studying its incidence and distribution in population groups.

Dr Morton's journey to the Institute reflects her personal experiences as a mother of three daughters, and her determination to influence the health of mothers and children.

The departure point was the birth of her first child.

"I did not initially train in medicine. I had an honours degree in science, majoring in mathematics, and had been teaching for a few years. At the time I had my first child, there was a lot of change in the delivery of maternity services. Women were being pressured to leave hospital early, often before breast-feeding had become established.

"I became concerned about the effects on mothers and their infants of these policies. I joined Maternity Action, and started campaigning for continuity of care."

Dr Morton's activism led to an invitation to participate in a Department of Health working group examining maternity issues in the late 1980s. By that time, her second daughter had arrived – and Dr Morton had reached a crossroad.

"I realised that to truly influence change, I had to learn the language of the experts. I had always considered medicine as a career, and at the age of 27 I resolved to become a doctor. My husband was very supportive, and I entered medical school in 1990."

It was during her summer break, while on a Health Research Council studentship research project, that Dr Morton established contact with someone who was to profoundly influence her future career path: Professor Jane Harding, who is now the Liggins Institute's Deputy Director.

"I spent my first summer working at National Women's observing the care for small and pre-term babies, and researching their clinical outcomes. That experience had a major impact on the decisions I was to later face about pursuing a clinical career path, or dedicating myself to research."

By the time Dr Morton became a House Surgeon, she had had her third child. Faced with the choice of a further five years of training to become a paediatrician, long hours working on hospital wards, and the effect that would have on her family, she opted for an alternative path. Her decision was guided by three distinguished mentors: Professor Harding, Professor Peter Gluckman (who was then Dean of the Faculty of Medicine at The University of Auckland) and Professor Robert Beaglehole, one of New Zealand's leading epidemiologists.

"I was encouraged to apply for a Commonwealth Scholarship. In 1998, my family and I moved to London, where I studied at the London School of Hygiene and Tropical Medicine."

Dr Morton's PhD – awarded in October 2002 – was in perinatal epidemiology. Her analysis of birth records of 15,000 children aged 7-12 years at primary schools in the Scottish city of Aberdeen in 1962 provided what she describes as a "telescopic view" of the complex links between biological and social factors over several generations. She examined how these variables affected the size of an infant at birth – particularly the issue of low birth weight.

By tracing people through their birth records, Dr Morton was able to compile data giving a unique picture of three generations: the child of 1962, their parents and now their own children.

Her study found that a baby's weight at birth and in its first few years had a lasting effect throughout life, and into the next generation.

Although the Aberdeen children of 1962 are only in their late 40s-early 50s, there are already signs that those born first in their families have more heart disease and diabetes. Firstborn children are thought to be more at risk because a mother's capacity to nourish her foetus increases with each successive pregnancy. Later babies are usually larger than the first one.

Dr Morton said that by analysing the long-term effects of the social environment on offspring size at birth, it is possible to better understand what might be done at a population level to improve fetal growth, and ultimately lessen the burden of disease in later life.

"At the Liggins Institute, much of the work is at a microscopic rather than telescopic level. My contribution is to bring another perspective that helps to integrate social factors with the findings gained in a laboratory.



Dr Susan Morton at National Women's Hospital with Jayda Pawhau, a firstborn, three days old. (Picture: courtesy of the New Zealand Herald)

"It's a learning process, but one of the great things about the Institute is its commitment to bringing together people from different disciplines," says Dr Morton.

Since her arrival at the Institute in late 2003, Dr Morton has been looking at the effects of antenatal steroids on infant growth and development. She is about to become involved in research led by Professor Harding, tracing nearly 1000 people born to mothers who took part in the 1972 landmark study by Professors Graham Liggins and Ross Howie. It made medical history by showing that giving steroids to mothers in premature labour speeds up the development of the babies' lungs. The Institute's research team is now comparing the health of people whose mothers received the steroids with those in the placebo group.

After more than 10 years of study and research, Dr Morton is fulfilling her initial goal: using her knowledge to make a difference to the health of mothers and their children.

### DIRECTORS



### Professor Peter Gluckman FRS Director

Professor Peter Gluckman is a world renowned Professor of Paediatric and Perinatal Biology. He is one of only two New Zealand doctors, and one of two paediatricians worldwide, to be elected a Fellow of the British Royal Society. His work has focused on understanding the basic mechanisms of two major obstetric and perinatal problems – infant brain injury resulting from oxygen deprivation and intrauterine growth retardation.



#### **Professor Jane Harding** Deputy Director

Professor Jane Harding is internationally recognised as an academic neonatologist. Her research spans both clinical and biomedical studies. She is an authority on placental function, the regulation of fetal growth and the consequences of poor fetal growth.



Professor Murray Mitchell is Professor of Pharmacology and Clinical Pharmacology at The University of Auckland. He has a worldwide reputation for his research into the biology of premature labour and the biochemistry of hormones related to this.



#### Assoc. Prof. Bernhard H. Breier Associate Director

Associate Professor Bernhard H. Breier is an international authority on the endocrinology and physiology of fetal programming and the regulation of growth and metabolism by the somatotropic (growth hormone secreted by the pituitary gland) axis. His research focuses on the physiological mechanisms that regulate preand postnatal growth and metabolism, and how these interact with nutrition and environmental factors.



#### Assoc. Prof. Wayne Cutfield Associate Director

Associate Professor Wayne Cutfield is an expert on insulin sensitivity and action in children. In addition to clinical work at Auckland's Starship Hospital where he is Director of Endocrinology, he conducts both experimental and clinical research into aspects of growth and insulin resistance.



Associate Professor Peter Lobie Associate Director

Associate Professor Peter Lobie has worked at two of the world's most prestigious research centres: the Karolinska Institute in Stockholm, and the Institute of Molecular and Cell Biology in Singapore. A specific area of his most recent research is the production of human growth hormone in the mammary gland, and its possible role in the development of breast cancer.

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Professor Joseph Volpe NIM, Neurologist-in-Chief, Children's Hospital, Bronson Crothers Professor of Neurology, Harvard Medical School

**Professor Lord Robert Winston,** Director of National Health Service Research and Development for Hammersmith Hospital, London

The Liggins Institute is the leading partner in the National Centre for Growth and Development, one of New Zealand's Centres of Research Excellence.

The Liggins Institute is committed to maximising the benefit of its research for New Zealand and, where appropriate, seeing its research translated into effective therapies. Accordingly, in some areas it has licensed its intellectual property to the pharmaceutical industry or to start-up companies associated with the Institute. The terms of these arrangements provide funds which can be committed to public good (ie non-commercial and cutting-edge) research within the University. In accordance with University policy and international practice in developing start-up companies, some staff will, or could, personally benefit from interest in these start-up initiatives. The University and, therefore, the Institute have taken this approach with the aim over time of increasing the capacity of the University and the Institute to undertake novel and leading-edge fundamental research. Most of the research within the Institute are mindful of the need to ensure that donated funds are applied only to the public good research components of the Institute's activities and cannot be applied (unless requested by the donor) to projects where commercial arrangements have been entered into. Specific procedures have been developed to ensure this, and potential donors are invited to contact the Institute's Chief Operating Officer or the University Registrar for further information.

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