

A STUDY by Adelaide University scientists suggesting that the brain can be 'rewired' could lead to a new therapy for stroke victims.

It shows that healthy brain areas may be recruited to take over the functions of areas damaged by stroke or trauma.

Observations of patients who suffer stroke or brain injury and regain only limited function had led to a view of the brain as 'hard wired,' with neural circuits laid down by puberty and remaining unchanged thereafter.

Among other things, the brain's cortex controls voluntary movement, speech and reasoning. Research now suggests that neural connections of the cortex are not fixed, but continuously modified by experience and learning.

Earlier studies have revealed that practising a simple finger movement can change the size of the area of motor cortex that controls specific finger muscles, and even alter its neural connections.

In blind Braille readers, the cortical area for the reading finger is much larger than for a non-reading finger. Amputees show the reverse effect; cortical areas of missing muscles being taken over by those that are unaffected.

In a study published in *Experimental Brain Research*, researchers from the Department of Physiology at Adelaide University have discovered that stimulating the nerve from a muscle to the brain can alter the size of responses from the area of cortex that supplies the muscle. Furthermore, these changes last for some time after the stimulation has stopped.

"Our findings are quite exciting as they have implications for understanding phenomena such as skill learning and motor memory," said Dr Mike Ridding, a Florey Postdoctoral Fellow and lead investigator on the study.

"It also suggests new directions for developing potential therapeutic approaches to disordered

brain function in such debilitating conditions as stroke."

Many stroke victims have difficulty with even simple tasks because of muscle weakness or unwanted muscle contractions that make co-ordinated movement almost impossible. In most instances the muscles and nerves themselves are fine, but their connections to the cortex have been damaged. The study's findings suggest that it may be possible in the future to bypass the damaged brain area.

In the study, electronic coils were used to stimulate the cerebral cortex and then measure changes in its activity produced by stimulation of nerves from the fingers. Differently shaped coils have been designed to produce different patterns of stimulation. Held close to a subject's head, they are non-invasive and painless.

"By developing a method of stimulating the pathways leading back to the brain from the affected muscles, we may be able to encourage the development and use of an alternative cortical area to that damaged by the stroke," said Dr Ridding.

"If we could achieve this, it would be a big step towards enabling patients to regain at least some of the movement control they lost as a result of their stroke."

The other authors of the study are Associate Professor Tim Miles and PhD student Julia Pitcher, both of the Sensorimotor Control Gro

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**Jill Thorpe**  
**Conference Media Officer**

On 13-14 April this year South Australia's three universities are again hosting what is now an international biennial conference looking at Quality in Postgraduate Research. Thirty of Australia's universities will be represented, together with delegates from New Zealand, Malaysia, South Africa, the United Kingdom and Nepal. Interestingly, this fourth conference is sub-titled "Making Ends Meet". This means that, while looking at a myriad of issues such as selection, assessment and resources, participants will need to address quality improvement in an atmosphere of declining financial security.

Nobody would deny the need for innovative development in the tertiary system, but blinkered devotion to precepts that may obtain mere short-term solutions in the marketplace does not address the long-term growth of the national and international community. Specifically, I would like to address the plight of a group which is living through this period of experimental reform and needs to be considered as integral to these processes: research students.

The Federal Government's recent White Paper on the future of education indicated that there were approximately 25,000 (EFTSU) Higher Degree Research Students, but only 21,500 were in HECS exempt places. Bradley Smith, the 2000 President of the Council of Australian Postgraduate Associations (CAPA), recently took up the issue of future numbers to be funded with the Department of Education Training and Youth Affairs (DETYA). He was informed that in the immediate future, the number of places to be made available will fall somewhere between the two figures. There was no definite answer

to the query about what would happen to the money saved. This is unfortunate because while DETYA has announced that it is increasing the HDR scholarship by 4% in relation to the GST, it has also announced that it is reducing the number of scholarships by 4% to compensate. There appears to be no definite appraisal based on the future needs of our society. DETYA will determine the funding load by negotiating with individual institutions which are constrained by finances, some of whom in 1999 actually negotiated a lower higher degree by research (HDR) load.

The reasons motivating institutions to

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## Colleges: past and future

A timely list came my way recently as I was reflecting on the role colleges play in university life.

It was a list of the nine tasks that universities perform, as identified by Stanford University President Gerhard Casper. They are: (1) knowledge assessment and creation; (2) assessing and reviewing those who have the capacity to become and be scholars; (3) education and professional training; (4) knowledge transfer; (5) credentialing; (6) social integration; (7) the collegiate rite of passage to adulthood; (8) providing a place for 'networking'; and (9) fostering a worldwide community of scholars.

It's a rather good list and I'm grateful to my professorial colleague in Electrical Engineering, Bob Bogner, for sending it on. It's certainly more useful than the list that has become the de facto standard in Australia since the mid-90s quality round. That list has just three elements: teaching, research and community service.

As I say, it's also timely. I've had particular reason recently to think of items 6, 7, 8 and 9 on Casper's list, with the 50th anniversary of Aquinas College followed by the 75th anniversary of St Mark's College.

For many students, college is an essential part of university life and the basis of lifelong friendships (and, as Casper puts it, 'networking'). Many of our overseas alumni have particularly fond memories of the support they received in colleges.

Speaking at the Aquinas anniversary dinner, I outlined my view that our colleges have an important role to play in the University's future. At a time of no population growth in the State, and a time when the fee income from overseas students is increasingly important, colleges are a key part of the

and the University's future.

# Algae a blooming interest at Adelaide conference

ALGAE will again go under the microscope

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# Bulletin Board

APRIL 10, 2000

ADELAIDE UNIVERSITY

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**11.00am Politics/Social Inquiry**  
**Seminar:** Prostitution in the Netherlands  
by Joyce Outshoorn (University of Leiden).  
Common Room, 4th Floor, Napier.

**12noon Labour Research**  
**Seminar:** Can labour rights be protect e

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## Special Studies Program

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### **Special Studies commencing in the period January-June 2001.**

Applications are now invited for Special Studies commencing in the first half of 2001. Application forms may be obtained from Human Resources (ext 35666 or 35177) or through our Web page on <[http://www.adelaide.edu.au/HR/services/f\\_sspapp.htm](http://www.adelaide.edu.au/HR/services/f_sspapp.htm)> and should be returned to Human Resources through the Head of the Department no later than 12 May 2000.

Following a recent review of the SSP, the University has revised the rates of financial support for staff undertaking SSP activities from 2001 as follows:

1. Calculation of airfare assistance will be simplified and related more closely to the actual cost for the staff member and dependents, to provide reimbursement of the economy-class, advance-purchase return airfares up to a maximum figure as set out below for the staff member and each dependent charged an adult fare, with an appropriate fraction for dependent minors based on actual fares charged.

\* for travel to UK, Europe or North America up to \$2,800;

\* for travel to Asia, Africa or South America up to \$2,000;

\* for travel in Australia and the Pacific up to \$1,000.

2. The travel grant may be awarded once for each three years of employment and the present complexity under which a staff member elects to use a certain number of "fare days" will be eliminated.

3. The allowance as a cost of living subsidy will be doubled, i.e. based on 14.4% of the daily salary of a Level C at step 6 for travel in Australia or the Pacific.

The revised policy and associated documentation are available on the HR web page. The payment procedures with regard to taxation arrangements are currently under review and will be finalised shortly.

The supporting statement on page 6 of the application must be completed by the Head of the Department and Heads are reminded that in accordance with Paragraph 2.1.6 of the Special Studies Program Policy they are asked to comment specifically on both the academic justification for the programme and the r

for the program

## Student Evaluation of Teaching

The Advisory Centre for University Education (ACUE) provides a service to all University teaching staff who wish to evaluate their teaching. This service is known as Student Evaluation of Teaching (SET). Staff wishing to use SET for the first time should contact the Evaluation Service Office, ext 33496/33023, for a copy of the package.

The SET package contains a User Manual, appropriate evaluation request forms, and some information concerning applications for promotion and tenure. The service is free of charge and is available to all teaching staff of the University.

Due to high demand for SET questionnaires, and to the fact that the Evaluation Service is currently staffed by one full-time person only, please send your evaluation request forms to the ACUE **at least four weeks prior to the planned date of your evaluation.**

It is ACUE policy that all requests are placed in a queue determined strictly by date of receipt. Requests which do not allow sufficient lead time may not be processed. We recognise that occasionally there will be circumstances where a staff member will need to request an evaluation service but cannot give the required minimum notice. In these cases a service will be provided within 5 working days and a priority fee of \$75 charged.

## Women's Professional Development Network (WPDN)

The WPDN is a development initiative for all women general staff of Adelaide University. For more information, contact the WPDN office on 8001 4014 or email [wpdn@adelaide.edu.au](mailto:wpdn@adelaide.edu.au).

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