

Scientists Gain Important Insights Into how Brain Transfers, Processes and Stores Visual Information

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(PhysOrg.com) -- Just released research published in prestigious international journal *Nature Neuroscience* details the findings of an international team of researchers led by Australian scientist and Macquarie University senior lecturer, Dr Mark Williams.

Previously, scientists believed information detected by the eye was transferred to the rear of the brain (occipital cortex) and then transferred on to higher areas for further processing and conscious perception. The occipital cortex was seen as a relay station through which information flowed and was refined, but the real work of consciously seeing involved the higher areas.

Now, the study led by Williams has shown that, contrary to popular belief, the information is passed back to the occipital cortex to a particular region (the foveal retinotopic cortex), which is then involved in our ability to see things in our environment.

"The inner workings of the mammalian brain are incredibly complex and our understanding of the processes at work is still rudimentary," Williams said.

"If we think of the visual system as a complicated web of connections at the rear of the brain, these findings allow us to make better sense of this web by more effectively mapping the way information is transferred and

processed."

While applying this newfound knowledge to a clinical setting may still be a long way off, this greater understanding of the brain's inner workings may even eventually help scientists better understand visual impairment.

"That's a long way off, but the potential's there," Williams said. "The brain and eye work together to enable us to see - understanding this process better is the first step in improving a person's visual function."

Dr Williams is a senior lecturer with the Macquarie Centre for Cognitive Science, one of the University's CORE research areas (Concentrations of Research Excellence).

Provided by Macquarie University

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