# CSAR

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CAMBRIDGE SOCIETY FOR THE APPLICATION OF RESEARCH

# 'Flat Projection'

How to project images through and out of flat screens

**Dr Adrian TRAVIS**
Lecturer, Cambridge University Engineering Department
Monday, 1st March 2004 ***7.30 p.m. - 9.00 p.m.***
*The Wolfson Lecture Theatre, Churchill College, Cambridge*

**Chair:** Dr David Fyfe, CEO of Cambridge Display Technologies
**Vote of Thanks:** to be advised

**Dr Travis writes:**

What made the cathode ray tube such a great display is that the screen was an essentially uniform layer of phosphor paste. All the complexity was tucked into a small electron gun which projected the image, and assembly was simple. Flat panel displays typically comprise a million transistors, none of which may fail, so the manufacturing demands are hideous and the displays still expensive. But it need not be so – the speaker will explain how to project an image through a flat sheet of Perspex, and describe the many benefits besides low cost which ensue.

Video projectors are typically pointed at a white screen, but point a video projector at a slightly concave mirror and you will see a virtual image, i.e. one which appears to be far away. The effect is like looking through a window, and flat projection allows the projection of such images out of sheets of Perspex. Virtual reality spectacles could be made like this, but there is little limit on screen size and since spectacles are so hated, it might be better to make something the size of a window pane and get the sensation of immersion by curving the screen round the viewer.

Somewhere between an on-screen image and a far-away virtual image lies space where one can project a 3D image. Flat projection can be used for 3D too, and the author will tie this in with the latest on the 3D displays that he developed with Cambridge Computer Laboratory. Much of this work has now transferred to Hollywood, and there will be a short description of how it feels to spend a few days with a film star on Malibu Beach.

**About the speaker:**

◊ Dr Adrian Travis did his BA and PhD at Cambridge University then became a lecturer at the

Engineering Department and a Fellow of Clare College.

**Organising Secretary's Notes:**

Of late, I have felt rather guilty. We have had a string of (admittedly rather good) lectures of a *biologic* nature. Since the CSAR was founded by an eminent physicist, and since many of our Council are themselves of a physical persuasion, I feel that the programme thus far is not feeding their inner selves.

Adrian Travis's talk should redress matters, to some extent at least.

The Lent Term visit has now been arranged by our very capable Elizabeth Platts. Details will be sent as a separate document to this flyer.

The Easter Term visit is likely to be to Sutton Hoo (coach provided). I hope this meets with your approval!

Best

Richard Freeman
*CSAR Organising Secretary*