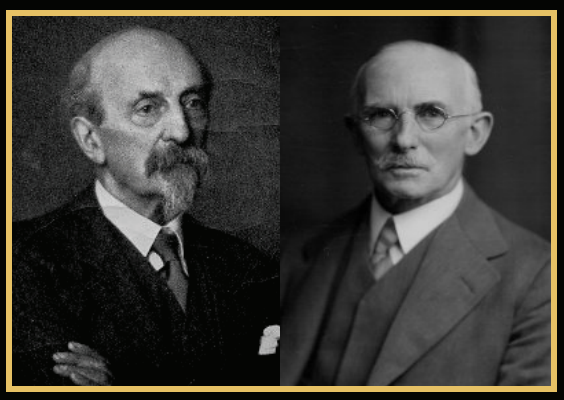
Society of Light & Lighting
Trotter Paterson Lecture 2010



Date: *16 March 2010*
Venue: *Darwin Biochemistry Lecture Theatre, UCL*
Area Map *Detailed Map*
Time: *6.00pm. Refreshments from 5.30pm*
Cost: *Free. Registration not necessary*

The memorial lecture was created in 1951 as a biennial event to commemorate two distinguished past Presidents of the Illuminating Engineering Society, Alexander Trotter (President 1917-1920) and Sir Clifford Paterson (1928). Trotter and Paterson were founder members of the Society in 1909 when Paterson was in charge of the Electro-technical and Photometrical Department of the National Physical Laboratory and Trotter was electrical adviser to the Board of Trade.

Mesopic Vision - Prof. John L Barbur

John L Barbur is Professor of Optics and Visual Science & Director of Research at the Applied Vision Research Centre, City University, London. j.l.barbur@city.ac.uk

His research interests cover both fundamental studies of visual mechanisms as well as applied and clinical research. He has pursued the development of research instrumentation and new measurement techniques and this has resulted in new methods and instrumentation for analysis of pupil response components, spatial vision and chromatic sensitivity and the measurement of scattered light in the eye.

Abstract

Effective vision extends over an almost 1000-million-fold range of light levels, but this extraordinary achievement involves a number of compromises. First, the range is shared between two different subsystems: the sensitive rod photoreceptors and the less-sensitive cone system. Second, processes of adaptation produce adequate compromises by trading between improvements in sensitivity at lower light levels, and improvements in spatial and temporal resolution and chromatic sensitivity at higher light levels. Consequently, the processing of spatial, temporal, and chromatic aspects of visual stimuli varies greatly with light level. The mesopic range, often described at the twilight zone, is extensive and encompasses light levels that are often found in professional, occupational environments. The upper and lower limits of this range cannot be defined easily since the effectiveness of combined rod and cone signals and their inhibitory interactions vary with stimulus size, spectral composition, temporal content and the area of the retina being stimulated.

Findings from a number of studies will be reviewed in this lecture to illustrate how:

- the level of illumination affects key aspects of visual performance
- various parameters affect the range of mesopic vision and how interaction between rod and cone signals can be revealed, even at high light levels, normally associated with photopic vision
- the use of appropriate spectral luminance efficiency functions for mesopic vision can account for
- effective, suprathreshold contrast and other measures visual performance such as simple reaction times