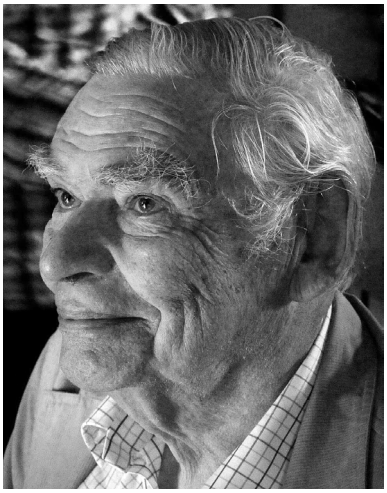

Richard Langton Gregory
1923 - 2010

Professor Richard L. Gregory, Professor Emeritus of Neuropsychology and founder of the Brain and Perception Laboratory at the University of Bristol, passed away on May 17, 2010. Gregory was a charismatic speaker and prolific writer and was known and greatly admired throughout the world. His death marks the end of a celebrated career in the field of visual perception.

Gifted with wide-ranging interests in philosophy, the arts, and natural sciences and endowed with brilliant scholarship, Gregory wrote some 15 books, among them *Eye and Brain: The Psychology of Seeing* (1966), *The Intelligent Eye* (1970), *Illusions in Nature and Art* (1973, co-authored with Sir Ernst Gombrich), and *Odd Perceptions* (1986). He also edited *The Oxford Companion to the Mind* (1987), with chapters by many outstanding scientists and scholars. As a researcher he published over 150 scientific papers (http://www.richardgregory.org/) and received numerous honours and distinctions. He was a Fellow of the Royal Societies of London and Edinburgh, a member of the Royal Society of Arts and Commander of the Order of the British Empire.

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Of large stature, with flowing hair and bushy eyebrows, Gregory was omnipresent at international conferences, which he enriched with his enthusiasm and often-humorous talks. Exceptionally lively and communicative, he was also a much sought after speaker on educational radio and television science programs (http://www.youtube.com/watch?v=0gSNUdgxyA8).

After working for the Royal Air Force on radar and studying robotics and communication systems, Gregory turned his interest to the field of vision and perception. He rapidly became well-known and soon dominated the field of visual perception. In 1972, he published his famous article on the Kanizsa triangle, a contour and brightness illusion that he interpreted as an example of cognitive completion by perceptual occlusion[1]. According to his theory, our perception is guided by top-down problem-solving strategies and perceptual postulates, by which we seek to resolve ambiguities in the stimulus in the most plausible manner. The perception of illusory brightness and contours is thus seen as the result of an active attempt by the brain to organize a seemingly incomplete stimulus to best account for the 'missing' parts. Gregory's seminal paper in *Nature* prompted a large number of follow-up articles, nurturing the field of research on brightness illusions for years to come[2]. His theory of "perceptual hypothesis testing" was further developed in a series of influential papers, which include his first technical note from Cambridge University in 1952 to his 1980 paper in the *Philosophical Transactions of the Royal Society*. His theory can be seen as a precursor of both top-down approaches and Bayesian analysis of perceptual processing in recent years.

Gregory later acknowledged at the 1999 *European Conference on Visual Perception* (ECVP) in Trieste on the basis of neurophysiological evidence[3] that illusory contours could, at least partly, result from bottom-up neuronal filling-in through long-range interactions between cells in the visual cortex, rather than from perceptual inferences in the Helmholtzian sense. "History prevails," he used to say. Few may know that he himself (along with Adam Sillito and Priscilla Heard) had attempted to find cells in Area 17 of the cat brain that would respond to illusory contour stimuli. True to Gregorian humour, his paper presented at the Meeting of the *Experimental Psychological Society* in St. Andrews (1982) bore the title "Can Cognitive Contours Con Cat Contours?".

Visual illusions ("when the system gets it wrong") remained one of Gregory's main interests throughout his life. His studies of misapplied size constancy, vi-

[1] Gregory, R. L. (1972): Cognitive contours. *Nature 238*, 51-52.

[2] Spillmann, L. & Dresp, B. (1995): Phenomena of illusory form: Can we brodge the gap between the levels of explanation? *Perception 24*, 1333-1364.

[3] Von der Heydt, R., Peterhans, E. & Baumgartner, C. (1984): Illusory contours and cortical neuron responses, Science 224. 1260-1262.

sion under isoluminant colour conditions, and the so-called café wall illusion (in the tradition of Susanne Liebmann[4] and Hugo Münsterberg[5]) are well known in the field. So is his groundbreaking work on perceptual filling-in of artificial scotomata (with V. S. Ramachandran).

Gregory had a unique way of approaching science and conducting experiments. His procedures were ingenious in their simplicity, and much of his equipment was handmade. Visitors to his laboratory often commented that "it felt like being in a workshop". More than once, he would bring his apparatus along to conferences to demonstrate special perceptual effects. Gregory also held a number of patents for inventions of optical and mechanical instruments, among them a three-dimensional drawing machine. He was awarded a Gold Medal by the *Royal Society* for his early invention of a system designed to minimise the atmospheric twinkle in the telescopic observation of stars, well before the advent of adaptive optics. (http://richardgregory.org/papers/telescope/technique-minimizing-atmosphere.pdf).

Personally, Gregory was gregarious, often spending vacation with his former students and postdoctoral scientists, many of whom were to become renowned professors and researchers in their own right. He had a warm personality and made anyone who sought his advice feel special. His winning smile and soft-spoken voice conveyed a feeling of genuine concern for others, which attracted young and old. Gregory had a contagious laugh that he let lose whenever he made a pun.

As founder and editor-in-chief of the international journal PERCEPTION, he was tireless, engaging, and open-minded. He accepted papers that challenged current theory or mainstream thinking and he promoted interdisciplinary research long before it became fashionable. He also made space for translations into English of key papers published in foreign language journals long ago. Numerous editorials written by him testify to his profound knowledge, originality and broad spectrum of interests. The close association with the publisher Adam Gelbtuch of PION Ltd. made the publication of ECVP abstracts in supplementary issues of the journal a well-established tradition.

Mostly concerned with the study of perceptual phenomena, Gregory was also keenly interested in the underlying brain mechanisms. His book *Eye and Brain,* which appeared in five editions and was translated into twelve languages, including Chinese, contains many references to single-cell neurophysiology and their relation to perception. In this book, he described, for example, the study of a rare case of a 52 year old man who had become blind at the age of 10 months

[4] West, M., Spillmann, L., Cavanagh, P., Mollon, J. & Hamlin, S. (1996): Susanne Liebmann in the critical zone. *Perception 25*, 1454-1495.

[5] Spillmann, J. & Spillmann, L. (1993): The rise and the fall of Hugo Münsterberg. *Journal of the History of the Behavioral Sciences 29*, 322-338.

and following corneal transplant surgery recovered part of his visual abilities. He also reported on the primitive raster scanning with a single photoreceptor in the copepod *Copilia quadrata*, which he studied at the *Stazione Zoologica Anton Dohrn* in Naples. The handbook volume *Evolution of the Eye and Visual System* (1991), edited jointly with John R. Cronly-Dillon, witnesses his interest in cross-species comparisons.

Gregory, a Fellow of Corpus Christi College in Cambridge, was genuinely interested in students and young scientists, enthusiastic about new ideas, and loved lecturing. He also enjoyed bringing science to the attention of the broader public. In 1967 he gave the televised *Royal Institution Christmas Lectures* for children. He was *spiritus rector* and builder of the *Explorate Hands-on Science Centre in Bristol* which inspired similar ventures in other countries within Europe.

His energy and excitement for science continued well beyond his formal retirement in 1988. Gregory was creative to the end of his life. In 2002, he and Richard Brown of the *San Francisco Exploratorium* initiated *Demo night* at the *Glasgow Science Centre,* a presentation of illusions now in its ninth year at the *Vision Sciences Society*. Only last year, Gregory helped to organize an exhibit on *Trompe l'Oeil* in Florence and around Christmas, his students and collaborators celebrated him on *Gregory Fest* at Wills Memorial Hall in Bristol.

His charisma and delight of scientific pursuit were comparable to that of Hans-Lukas Teuber (1916 - 1977), at MIT, in whose department he spent a sabbatical. After his first stroke, he still attended ECVP in 2009 in Regensburg. At this year's meeting in Lausanne, he was sorely missed. A memorial symposium was held in his honour, and some of his equipment was on display. For half a century, Gregory was a passionate proponent of the study of perception. He was the pioneer who led the way. Shortly before his death, he finished his last book *Seeing Through Illusions* (2009), which can be seen as a legacy of a life-long fascination with odd perceptions, of which he said that they were the "borderland, where the inner and the outer world meet."

Lothar Spillmann, Freiburg

Lothar Spillmann, Prof. Dr., spent 2 years at MIT and 5 years at the *Retina Foundation* and *Massachusetts Eye and Ear Infirmary* in Boston. Spillmann is interested in the neurophysiology of visual perception as it relates to visual illusions, light and dark adaptation, color vision, figure-ground segregation, and the clinical consequences of dysfunctions of the visual system. He has published extensively in those areas. In 1976, he founded the *European Conference on Visual Perception*. From 1971 to 2005, Spillmann was head of the Visual Psychophysics Laboratory, Brain Research Unit, at Freiburg University, Germany. He now teaches at China Medical University in Taichung, Taiwan ROC.
Address: Neurozentrum Universitätsklinikum Freiburg, Breisacher Str. 64, 79106 Freiburg i. Br., Germany. E-Mail: Lothar.Spillmann@zfn-brain.uni-freiburg.de