For Mario Zanforlin on his 80th birthday

Professor Mario Zanforlin will celebrate his 80th birthday on the 16th of December 2014 – a very happy opportunity for me to pay tribute to his scientific work and mentoring. Mario has spent more than 50 years in scientific research, with remarkable accomplishments in the field of experimental and comparative psychology and a lifelong commitment to Gestalt.

Mario Zanforlin was trained in the tradition of experimental psychology of Padua University, which was started by Vittorio Benussi and then continued first by his Assistant Professor Cesare Musatti and afterward by Fabio Metelli. Mario graduated in fact with a thesis in Experimental Psychology with Fabio Metelli as advisor. After a short period as Assistant Professor at the Advanced Institute for Social Sciences in Trento, he developed an interest in the study of ethology and animal behavior and moved to Edinburgh, to study with Aubrey Manning, one of the most renowned ethologists of the so-called 'second generation' (the young ethologists who were pupils of Konrad Lorenz on the continent and Niko Tinbergen in the U.K.). Mario was awarded a Ph.D. in 1968 with a thesis on the "*Inhibition of responses to light during pre-pupation behaviour in larvae of the fly, Sarcophaga barbata*". It was probably during his years of doctoral work that he developed his long-standing interest in simple animal systems as models for the investigation of basic perceptual problems (an interest which was then pursued in studies with flies and snails in the years to come).

Back at the University of Padua in 1969 Mario Zanforlin soon started his academic career, becoming Assistant Professor in 1969, and Chair (Full

Professor) of Animal and Comparative Psychology in 1975. From 1973 to 1976 he was Director of the Institute of Experimental Psychology at Padua University. In subsequent years he developed an important scientific profile in the areas of animal psychology and perceptual psychology, and was a Visiting Professor at Cornell University and several other universities, with conferences at, among others, Marsiglia, Rennes, Cambridge, Oxford, St. Andrews, Louvain-la-Neuve, Regensburg, Uppsala, Budapest and the Max-Planck-Institut für biologische Kybernetik of Tübingen

After the end of his teaching activity in 2007, he continued his scientific research and mentoring being appointed Emeritus Professor in the Department of General Psychology at the University of Padua.

Mario Zanforlin has focused his scientific career on the area of perceptual psychology, studying mechanisms of vision from a comparative perspective in human and non-human species. He has addressed several topics during his career. His early studies focused on orienting mechanisms, first in invertebrates and then vertebrates (rats, chicks). He also studied perceptual mechanisms in simple nervous systems such as those used in the landing reaction in the fly. Models such as that of Reichardt's detectors for first-order motion perception that were further developed by Mario and his group in the early 80s also prompted his interest in mathematical modeling of visual perception.

In the same period he made important contributions to the study of stereopsis in humans, in particular studying stereopsis with stimuli of different forms. On the comparative side, his studies on visual illusions (another recurrent and important theme of Mario's research) produced the very first evidence of the ability of a non-human species (the young of the domestic fowl) to perceive illusory figures (Kanizsa's subjective contours). Using the same animal model he also investigated spatial and object learning, developing original ideas based on Gestalt theories to account for classical learning phenomena such as shape discrimination and generalization, and position learning.

In the 80s Mario also started to work on what has been probably the most important of his scientific contributions, namely the investigation of how the visual system can recover 3-D object structure from purely motion signals. To investigate this problem he exploited a class of illusions, the so-called stereokinetic phenomena, that were originally discovered by the founder of the experimental psychology tradition in Padua, Vittorio Benussi, and his pupil Cesare Musatti. Stereokinetic effects occur when certain flat, simple 2-D figures are slowly rotated on a plane perpendicular to the line of sight. The stimuli produce intense and vivid 3-D perceptual impressions, sometimes of hallucinatory vividness (they were used by Marcel Duchamp in the series of 'Rotoreliefs' in 1935 and since then by several other 'optical artists'). Mario Zanforlin developed a very original

explanation for these phenomena based on a 'minimum principle' with clear Gestalt roots. Basically, the idea, which has been supported by sophisticated mathematical models, is that the slanting in depth of the rotating figures reflects a minimization process of linear velocities by the visual system. The model is fascinating because, for the first time, it allowed very precise predictions, empirically testable, of some qualitative aspects of the illusions, such as the perceived height of the stereokinetic cone.

Mario Zanforlin's scientific production comprises more than 100 international and national papers. His scientific activity reveals the coexistence of two formidable traditions of European science, on one side Classical Ethology and on the other side Gestalt Theory: a unique mixture which he was able to transmit to his students.

On a personal note, having being a student of and collaborator with Mario for several years, I must stress the two aspects of his multi-faced scientific personality that most impressed me: first, his extraordinary cleverness - the ability to grasp immediately the core of a problem; second, his generosity as a mentor, a teacher capable of letting his students follow their own path even when they have ideas or interests different from his own.

I believe that I am here representing collectively Professor Mario Zanforlin's numerous pupils and students who would all like, through these short notes of mine, to remember his long activity as a Professor, a Researcher and a Master, and to wish him all the best for his 80th birthday with gratitude and affection.

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