In this issue

Visual illusion in insects

Visual illusions have been described in the literature many years ago:

"He thought he saw a Banker's Clerk
Descending from the bus:
He looked again and found it was
A Hippopotamus:
'If this should state to dine', he said
'There won't be much for us!'"
(Lewis Carroll, in *Sylvie and Bruno*)

On receipt of a kick neither you nor the Hippo above are likely to respond amiably. Both of you will feel a pin prick, though you are probably more thick-skinned than the Hippo and both are likely to lust after spinach souffle. From this, the biologist will rightly conclude that you and the Hippo have many remarkable similarities in the physiology and processing of sensory information. But our homo-centric view, will find the prevalence of visual illusion in insects a bit worrisome. Srinivasan tells us (**page 649**) that there are things both insects and humans think they see but don't. Does falling for the same trick mean that we process visual information in the same way? What is 'higher level' processing? What is cognition? How do we know that flies can react to visual illusion the same way as bees? Srinivasan discusses visual illusions in insects and relates this to how brains function.

Master control genes

Till recently, genetics was an unusual area in the biological sciences. The study of mutants in plants, flies, mice, bacteria and bacteriophage told us, in a remarkably precise manner, the nature of the gene: How it is organized, how it functions and how it interacts with other genes. The unusual nature of genetics devices from the fact that the geneticist merely 'crossed' one organism with another and the organism did the 'biochemistry'. This was an area of biology that came closest to being a formal science whose rules were laid down and used to design experiments. All of this has changed with the molecular biology revolution. No longer is it sufficient to propose function on the basis of classical genetics alone. The gene has to be 'cloned', sequenced and it function tested both in the organism and *in vitro*. This has been hugely more informative on the collective level but rather unromantic. The article by E. B. Lewis (**page 640**) links the past with the future. Lewis started his work on genetics with the fruit fly *Drosophila melanogaster*, while he was in high school and continues to work on this animal as an extremely active Professor Emeritus at Caltech. Thomas Hunt Morgan laid down much of the foundations of modern genetics with his collaborators Sturtevant, Muller and Bridges. Lewis was Sturtevant's student at Caltech and is Thomas Hunt Morgan Professor there. His eloquent description of animal development in the context of his own work is done modestly but with a firmness and persistence that stresses his viewpoint. Lewis is remarkable for persisting with views that go against fashion. He and D. F. Poulson were the first to study animal development using genetics at a time when this was thought strange. Lewis works largely by himself, sometimes with few other collaborators. His publication list is small: about a dozen papers in 50 years. But he has inspired hundreds of 'fly-people' and the scientific approach he has pioneered has taught us that, perhaps, all multicellular organisms from cabbages to kings may develop in very similar ways. Each of Lewis' publications is thus very valuable -so read and enjoy!