Drawing the strands together

Gene Mappin

DNA for Beginners. By Israel Rosenfield, Edward Ziff and Borin Van Loon. *Writers & Readers (distributed by W.W. Norton): 1983. Pp.223. Pbk $6.95. To be published in the UK in February 1984, price £2.95.*

Hi Brid Vygor stood on the bridge of his ship, the *James Dewey Watson,* watching the last preparations for take off. They were destined for the Helix Nebula, 194 giga bases away, with a valuable cargo of allosteric effectors. As he adjusted the supercoils on the massive meiotic drive units, the great ship slowly lifted off. Then, with a surge of 23 megacricks of pure cistronic energy, she leapt forward. . .

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DNA is constantly coming of age but now this is in single figures and as a special mark of celebration we have a guide for beginners in the novel form of a comic book which can be easily read by all nine-year-old scientists. It will be particularly appreciated by many of our colleagues who, up to now, have had to be satisfied with the inferior substitute of the xerox machine. The book covers an enormous range and since its illustrations are, of course, the main part, it has to be said that it is richly and profusely complemented by a text that has just enough spelling mistakes to give the book an authentic flavour. It is replete with many subtle allusions, popular and recherché, classical and modern; so many, in fact, that a detailed deconstructionist textual analysis would fill many pH.D. theses.

We start with a dramatically illustrated page on von Neumann's theory of self-reproducing machines. The robot loading another with an instruction tape (the *I* component, if I remember correctly) is for the more mature *aficionado,* and younger boys will rapidly turn on but should not take too literally the next picture of the well-dressed chimpanzee threading its somewhat limp offspring with DNA. This is what is known in the trade as a metaphor. The history of genetics opens with a typical cell and a not-so-typical scientist just off the beach at La Jolla whose dim awareness must be due to the rather opaque shades he so elegantly sports. Friedrich Miescher, the discoverer of DNA, has suspiciously loose cervical vertebrae with too many degrees of rotational freedom and Mendel appears undeterred by the Jolly Green Giants and their mutants. Weismann is found climbing back into an egg with most of his soma deleted so he can retain a pair of threateningly large boots. The chimaeric figure of Lamarck bears a striking resemblance to Mrs Thatcher and H.J. Muller progressively acquires more and more of the characters of *Drosophila* with bizarre homoeotic consequences.

And so we pass to the modern era. A somewhat Proustian Griffith shares with Avery the discovery of DNA transformation and — after a short chemical interlude — SHAZAM! enter Watson and Crick. There is a super drawing of Jim but across the page where he appears with Luria there is a strong suggestion of a ventriloquist and his dummy. Alas, the drawings of Francis are poor, but the famous pair appear with the model as Batman and Robin, distinctly labelled so you know who is who. Fred Sanger makes a first appearance (not a good likeness) and Sydney Brenner, depicted as a zoot-suited Mongolian of fractal dimension, is found clutching an extremely tired-looking Francis. The reader is warned that the history is not entirely accurate and is reminded of the extreme improbability of Francois Jacob saying "Rhubarb, Rhubarb" and, later, "Aw Shucks".

The core of the book contains descriptions of the central molecular processes of replication, transcription, translation and genetic regulation, rather well illustrated by machine analogies. I adored the polypeptide chain of machines trundling out of the ribosome factory and then folding up with a SPROING! I am certain sproing theories would get rather short shrift in other pages of this journal. After an account of bacterial genes with the ambling shape of Joshua Lederberg we are with animal cells. The attractive lady on page 111 has a most improbable cytology and I am haunted by that sad and lonely bacterium reluctantly eating two sardines.

Enter genetic engineering with explanations of the techniques of cloning and sequencing with scissors, gluepots and other mechanical devices; then eukaryotic transcription, introns, chromatin, Z-DNA and molecular evolution.

We also have the social impacts of DNA. There is a resemblance between the skin of the cloned monster and Wally Gilbert's jacket but that, I am sure, is purely coincidental. It is a marvellous monster and I only wish I could make one. We pass on to the moratorium, the public debate on recombinant DNA, biotechnology and its promised benefits. Finally, there is a discussion on the origins of life with cans of prebiotic soup that look quite hard to open, and another look at evolution and selfish genes.

The postcript, which has no pictures, is very good and will be enjoyed by the older, more serious-minded reader. I find it hard to tell how much this book will be read for instruction and how much for sheer entertainment. A real beginner may still find the subject-matter hard going but the cartoons help and, as popularization, it is to the bland dronings of the glossy pages of popular science magazines as chocolate cream cake is to sliced bread. Read it and enjoy it, and try to give it to your friends before they give it to you. □

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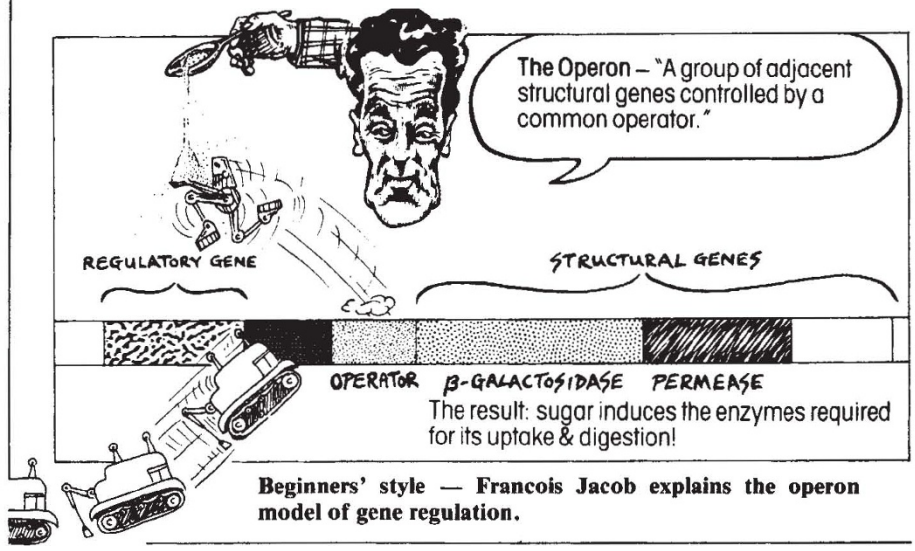
. . . as the ship emerged from intracisternal space, Hi Brid Vygor cast his mind back to the first successful Hfr transfer, remembering the stirring words of President T.G. Exon — "Let us now go forward to boldly clone and to joyfully express. . .". He turned to his engineer Hin D III. "Cut", he said, with a faint smile.

The reviewer is a molecular biologist who enjoys a considerable reputation in a somewhat limited circle. He is delighted to affirm that the above should be construed as an advertisement not only for himself but also for his friends who wrote the book.



Beginners' style — Francois Jacob explains the operon model of gene regulation.