DNA

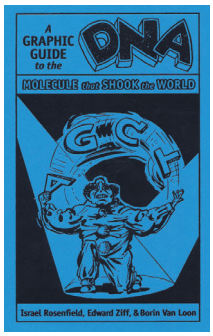
This is a quite unusual and highly entertaining book, which makes DNA molecular biology accessible for a broad readership: for those not familiar with the topic at all it is an easy first step, for the scientist it is simply fun to read. Israel Rosenfield and Edward Ziff, both renowned researchers in several fields of molecular biology and neuroscience, have worked together with the illustrator Borin van Loon to create a comic book that covers a plethora of aspects around "the molecule that shook the world", touching on a wide variety of philosophical, political, and social matters. The book leads the reader through the most important discoveries and inventions surrounding DNA (and RNA): structure and replication, transcription, translation, epigenetics, post-transcriptional modifications, microRNAs, and many more. It also covers the most important technologies that provided, or still provide, key drivers for the scientific revolutions around DNA. These include not only classical techniques such as PCR, Sanger sequencing, and molecular cloning but also recent topics such as high-throughput sequencing, genome engineering, and stem cell differentiation.

It is impressive how the authors cover such a wide range of topics in a media format that does not allow for a lot of written information, by always presenting the essence of the relevant scientific contributions in a tightly condensed form. However, as in every well-made comic book, *DNA* never puts the message across in a dry prosaic way. Instead, the stories are narrated in rich detail from the experimenter's point of view, also highlighting the pertinent questions, hypotheses, and experimental designs by using the major scientific players in the field as protagonists. In this way, exciting aspects around the purely scientific content ad zest to the book—such as the competition among scientists, ethical considerations, and some philosophical topics such as the origin of life.

However, the work is made truly unique by the astonishingly versatile illustrations by van Loon, which are a wild (but not clashing) mixture of different styles. These include portraits (and caricatures) of famous scientists, collages, photographs, diagrams, and a lot of surrealism, frequently citing works by various artists from Warhol to Rodin. This not only adds to the enjoyment of reading but is often quite valuable from a didactic point of view. For example, many molecular processes are illustrated by graphics of a mechanical kind featuring machines and engineering components, which makes the topics easy to grasp for everyone.

To summarize, *DNA* is fun—have a look, you will not be disappointed.

Daniel Summerer
University of Konstanz (Germany)



DNA
A Graphic Guide to the Molecule that Shook the World. By Israel Rosenfield, Edward Ziff and Borin van Loon. Columbia University Press, New York, 2011. 272 pp., softcover, $ 19.95.—ISBN 978-0231142717

Letters to a Young Chemist

Could there have been any better time to publish a popular science book like *Letters to a Young Chemist* than in the International Year of Chemistry? I have just been asked by a student what I would recommend him to do in the future. Although he is already at an advanced stage of his studies, I suggested reading the book *Letters to a Young Chemist*, which I thought could serve as an inspiration to him and certainly for many students. However, this book is not only relevant for students but is intended for a broader readership, and has the potential to overcome some of the prejudices against chemistry that are omnipresent. Various topics that are, per se, complex are wrapped within 17 letters to the fictitious undergraduate chemistry student Angela. The letters are written by scientists at different stages of their careers who share their visions in this form. Chemical terms are explained using metaphors, to make the descriptions accessible to non-chemists and non-scientists. I particularly liked the comparison of DNA to a bookshelf where the individual books can be taken out to read the information (Cynthia Burrows). Such explanations make the contents more transparent, so that the book is easy reading for people with different levels of knowledge.

Throughout the book, the reader is impressed by the contributors' enthusiasm to work on challenging problems, to make thrilling discoveries, and to find innovative solutions. A common feature of all the contributions is that the reader can appreciate the authors' passion for science, and I found the book difficult to put down. The authors deal with some of the major challenges that mankind is currently facing: energy, health, sustainability, materials, etc. The main chapters deal with the progression from fundamental research to applications, the contributions of chemistry to the understanding and exploitation of biological processes,

the development of new materials, and approaches towards solving the world's energy problem.

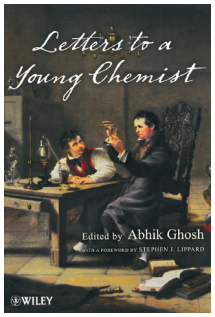
Creativity combined with enthusiasm and dedication to science is one of the appealing characteristics of the book. This is seen, for example, in the letter of the Sessler brothers to Angela, in which they describe her appendectomy in early childhood and the difficulties that she (and her anesthetist Daniel Sessler) experienced during anesthesia, in a story line that would not be out of place in the TV show "Dr. House". Other authors have chosen to address Angela as a family member, as when her uncle (Carl Wamser) or her cousin (Elizabeth Nolan) present their views on energy conversion and biological imaging respectively. Yet others report on a situation where they met Angela, for example during a lunch following a seminar at UCSD (Penelope Brothers), or even after having already worked together on porphyrin and corrole metal complexes (in the laboratory of the book's editor). The reader might also be interested to learn how chemists name compounds or projects (e.g., carcerands or cryptands), which is often driven by a resemblance of shape, properties, or other coincidences, or as in the case of the "Borg" project, which was named after the cyborgs in Star Trek, in Kenneth Raymond's laboratory (as described by Seth Cohen).

The one thing that makes this book uniquely different from many others is that several contributors provide personal information about their upbringing, their social background, and the development of their own careers. It is astonishing and encouraging to read how scientists coming from different backgrounds have succeeded, through hard work, tenacity, and excitement for their subject, in becoming world-class scientists. The authors provide insights and explain what has driven them to work on their topics; they identify various reasons, including personal issues such as a family member suffering from a disease. It becomes obvious that many of the contributors had outstanding mentors, PhD and postdoc supervisors, or more generally spoken a noteworthy family tree. Some chapters of the book also describe how research programs emerge, how the work of others provides the basis for one's own work to "explore strange new worlds, to seek out new life and new civilizations, to boldly go where no man has gone before" (quote from the title sequence of Star Trek). Considering myself still as a young chemist, I think that the book can provide guidance to the reader (or to Angela, if you prefer) on how to become a successful scientist. One important thing emphasized is the power, inspiration, and importance of collaborations from the early beginning of the careers of those who went on to become key players in their research fields, often initiated by a supervisor or mentor. The contributions and influence of mentors and peers, especially in the early stages of a scientific career, cannot be overstated, nor can the effects of talented and passionate graduate students, postdocs, and more experienced researchers towards beginning a successful scientific program. Indeed, collaborations between scientists with very different areas of expertise are an especially pleasurable aspect of the life of a chemist, and compensate for the frustrations from unsuccessful experiments. In addition to the scientific aspects, the reader learns about the daily routine of researchers, which also includes teaching, service to the public, traveling, organizing conferences, administration, etc.

In conclusion, this book paints a realistic and fascinating picture of what the job of a scientist is all about, and of the driving forces and motivations, and it should provide an inspiration to students considering chemistry for their future career and life. I wholeheartedly recommend this book as reading for students (but also for supervisors). To quote Jonathan Wilker: "Put down the books! (OK, not this one.) We are going to the beach!"

Christian Hartinger
Institute of Inorganic Chemistry
University of Vienna (Austria)

DOI: 10.1002/anie.201106202



Letters to a Young Chemist
Edited by Abhik Ghosh. John Wiley & Sons, Hoboken, 2011. 320 pp., softcover, $ 34.90.—ISBN 978-0470390436