


BOOK REVIEW

## William C. Summers, *The American Phage Group: The Founders of Molecular Biology*

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One cannot think of the field of molecular biology without thinking of the bacteriophage, the bacteria-infecting viruses that were a critical tool for the field. And the scientists making up the American Phage Group, who were instrumental in leveraging this tool to advance biology, have rightfully earned a permanent place in its history. But that there was much more to the establishment of molecular biology as a discipline than any single player is the point that American molecular biologist and historian of science William C. Summers brings out in his new book.

Reading this book immediately brought to mind what is considered a foundational text in the history of molecular biology, John Cairns's *Phage and the Origins of Molecular Biology* (1966), co-edited by Gunther S. Stent and James D. Watson. But, as historically influential as *Phage* has been, it is not so much about the origins of molecular biology, as it is a collection of essays celebrating the life and achievements of Max Delbrück, one of the leaders of the American Phage Group (APG). Other popular works about the origins of molecular biology, including André Lwoff and Agnes Ullmann's *Origins of Molecular Biology* (1979), William Hayes's *Max Delbrück and the Birth of Molecular Biology* (1984) and Franklin W. Stahl's *We Can Sleep Later* (2000), also read as tributes to notable individuals in the field rather than as histories of the field.

Whereas these earlier histories of molecular biology were distilled into commemorations of single figures, others have painted the picture in too-broad strokes, as all-encompassing narratives with fewer specific insights. An example is Michael Morange's *The Black Box of Biology* (2020). Summers strikes a balance between the two approaches, opting to look at the history of the field through the lens of a specific group. He brings into picture additional actors – other people and their backgrounds, and even entire scientific disciplines – in an attempt to deliver a better-balanced history of molecular biology, while still preserving specificity.

The book is divided into fourteen chapters, with the first acting as a readers' guide. Chapters 2–5 set up the background: the phage itself, methodological tools and biographies of the various physicists and chemists involved in the advent of molecular biology. From the start, *The American Phage Group* stands out as more inclusive than a single-narrative account. Summers adopts a subject-centric approach instead of a person-centric one. He focuses the narrative on the evolution of the group – in terms of both its people and its science – with respect to its contribution to molecular biology. He thus brings to light other members of the APG who worked at the same time as the three purported leaders of the group – Delbrück, Salvador Luria and Alfred Hershey. In fact, Chapter 6 is the

only chapter to focus on these supposed founders. The book also touches upon the cause and effect of Cold Spring Harbor becoming the group's home (Chapter 8), and the influence of worldwide phage work on the American group (Chapters 4, 5, 11). In a possible attempt to add depth to the characters behind the APG, or perhaps in keeping with current times, Summers discusses gender representation, or the lack thereof, within the APG (Chapter 12). The discussion makes for interesting, if somewhat disjointed commentary, not quite woven seamlessly into the rest of the narrative.

Most commendably, Summers has managed a narrative of the founding of a discipline without putting blinders on. Even though he has focused his account through the lens of the APG, he looks at discipline formation through more than *just* its members, by bringing in the contributions of molecular biologists from other parts of the world. He also does not shy away from discussing, albeit briefly, difficult moments in the history of the APG. In Chapter 9, for instance, he discusses their exclusion of the phenomenon of lysogeny, simply because it interfered with their agenda for molecular biology. Given that the book does such a stellar job of being impartial yet strong-willed, it is surprising that the title should position the APG as the founders of molecular biology. It raises the question of whether Summers is undermining the very point he tries to make – that the founding of molecular biology had much more to it than any single set of people or experiments concentrated in any one part of the world.

Although the title of the book appears discordant, the ending is anything but. The final chapter, 'The American phage group as a model for discipline formation', ties up the narrative succinctly. It emphasizes all that is exciting about molecular biology – the brave new world of transdisciplinary science, how the bacteriophage was conveniently positioned as the right tool at the right time, and the key inputs that quantitative ways of thinking brought to molecular biology. Summers loops back to the core framework of the APG introduced early in the book and summarizes the ways in which this framework was fulfilled, as well as how it laid the ground for the field to progress further.

Summers does not shy away from discussing the science, but manages to steer clear of field-specific jargon, making the book informative for anyone looking to understand its history without necessarily having studied the subject. There might be little dramatic storytelling, but the history itself was eventful enough. Anecdotes are interwoven, not always in chronological order, to make for an interesting journey. Enthusiasts of scientific history will enjoy the archival records and biographies, and the scientific groundwork leading up to the foundation of the discipline. Although lay audiences might find themselves wanting context in some places, this book is a descriptive account of the history of discipline formation, with a rarely found multi-angle narrative. Summers may have intended the book for historians of science, perhaps even more specifically of biology, but anyone interested in taking a stroll through the history of discipline formation will appreciate the insights this book has to offer.