

Setting the record straight: Review of *My Sister Rosalind Franklin*, by Jenifer Glynn, Oxford University Press, 2012; *Une Vie a Raconter*, by Vittorio Luzzati, Editions HD Temoignage, 2011; *Genesis of the Salk Institute, The Epic of its Founders*, Suzanne Bourgeois, University of California Press, 2013.

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Written by long-term eyewitnesses, these books shed new light on little-known aspects of the interaction between prominent scientists and the scientific institutions they join or leave during their careers. By using letters which Rosalind E. Franklin (1920–1958) wrote to her family, Franklin's youngest sibling Jenifer Glynn (and an established author in her own right¹) seeks to dispel misunderstandings which continue to circulate about her famous sister, despite corrective efforts by two biographies and several essays.² By contrast, the crystallographer and molecular biologist Vittorio Luzzati relies on his personal experience with several prominent scientists – among them Francis Crick, J.D. Bernal, and Franklin herself, the less well known Americans David Harker and Paul Ewald, and the Frenchmen Edmond Bauer, Marcel Mathieu, Charles Sadron, and Boris Ephrussi – to shed light on the diverse personalities of these scientists and their institutional responsibilities. Further drawing on his own career in several French and American laboratories, Luzzati highlights problematic issues in the organization of scientific research, especially the impact of autocratic lab directors who enjoyed unprecedented power during the rapid growth of science after World War II.

Suzanne Bourgeois, one of the earliest molecular biologists at the Salk Institute (and the spouse of Melvin Cohn, one of the institute's first five resident Fellows), uses her own diary as well as interviews with colleagues and archival documents, often in private hands, to illuminate its genesis and first two decades (1955–75). She traces the activities of Jonas Salk, whose famous name was given to the institute as a fund-raising device, and the institute's key constituencies, as they tried to realize Salk's vision for uniting humanistic mission and scientific research – a vision developed on the basis of Salk's own work with the polio vaccine. Those key constituencies include first and foremost the scientists he recruited as foundation Fellows, i.e. the “founders” in

her subtitle,³ as well as the institute's trustees and presidents, and the officers of the National Foundation for Infantile Paralysis (who footed the institute's extravagant costs – “after the first 15 million dollars were spent we simply stopped counting”, p. 116), among others.

These authors are close and attentive witnesses who were sufficiently displeased with previous historians' efforts to want to make the subject their own. Despite the elapsed time since these events, the authors are still not ready to reflect on their own personas as both narrators and historical actors beyond admitting that their proximity entails complications. The idea that their testimony is important precisely because they are not power holders in science has not apparently occurred to them. All are primarily concerned with relationships among scientists, but add relatively little to our understanding of science itself.

These books do, however, shed further light on the key relationship between individual scientists and the institutions they create, lead, or inhabit. Suzanne Bourgeois justifies her effort by the lack of publications on the Salk Institute, despite many biographies of Salk himself occasioned by the 50th anniversary of his vaccine in 2005. Her book might be better termed “the rise and fall of Salk's vision”, since descriptions of “crises”, “failures”, and “resignations” abound in the text as well as in the useful chronology she includes. By boldly revealing the endless machinations of some trustees and consistent lack of support from the Fellows, most of whom opted for entitlement over service, Bourgeois is able to convey how Salk eventually lost control of the institute. Of special interest is Bourgeois' emphasis on a high turnover of administrative officers with their own agendas, like the “McCloy boys” (referring to John Jay McCloy, the first civilian high commissioner of Germany, later an institute trustee) whose networks of influence across government, business, and academe included access to “Ford Knox,” that is, the immensely wealthy Ford Foundation.

Vittorio Luzzati is also very perceptive at observing personal and managerial vagaries in the two research institutes where he spent his mature career as group leader, and which had their own complicated relationships with founding figures. The Center for Macromolecular

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¹ Glynn is also the author of *Prince of Publishers: A Biography of George Smith*, Allison & Busby, 1989; *The Life and Death of Smallpox* (Cambridge University Press, 2004), co-authored with husband Ian M. Glynn, a Professor of Physiology at Cambridge University and a Fellow of Trinity College; and *The Pioneering Garretts, Breaking the Barriers for Women*, Bloomsbury, 2008.

² In chronological order: Anne Sayre, *Rosalind Franklin and DNA* (Norton, 1975, 2000); Jenifer Glynn, “Rosalind Franklin, 1920–1958” in *Cambridge Women: Twelve Portraits*, eds. Edward Shils and Carmen Blecker (Cambridge University Press, 1996), 267–282; Brenda Maddox, *Rosalind Franklin, The Dark Lady of DNA* (HarperCollins, 2002); Lynn Elkin, “Rosalind Franklin and the Double Helix,” *Physics Today* (March 2003), 42–48; Aaron Klug, “Rosalind Franklin” in *Dictionary of National Biography* (Oxford University Press, 2004); Pnina G. Abir-Am, “DNA at 50: Institutional and Biographical Perspectives,” *Minerva* 42 (2004), 191–213.

Available online 20 January 2015

³ The foundation Fellows included Leo Szilard, Jacob Bronowski, Edward Lennox, Melvin Cohn, and Renato Dulbecco, all in residence. Warren Weaver, Jacques Monod, Francis Crick, and Salvador Luria were non-resident foundation Fellows. With the exception of Szilard, known for his key roles in the atomic bomb project, none of the rest were public figures at the time, certainly not at the level that Salk was. Monod, Crick, Luria and Dulbecco went on to share Nobel Prizes in 1965, 1962, 1969, and 1975, respectively. Other scientists who joined as Fellows by the mid-1970s include Leslie Orgel, Robert Holley (Nobel co-Laureate in 1968) and Roger Guillemin (Nobel co-Laureate in 1974).

Research in Strasbourg, for example, was eventually named after its founder Charles Sadron, an autocratic director who pretended that Luzzati left their laboratory of his own accord. By contrast, in the Center for Molecular Genetics at Giff-sur-Yvette (a suburb of Paris), the “rites of succession” prevailed against naming the center after its founder, geneticist Boris Ephrussi, who was only allowed to share a memorial plaque with other little known directorial appointees.

Jenifer Glynn distinguishes between laboratories in which her sister was able to work in collaborative harmony (two laboratories in London and one in Paris) and those in which such a condition did not prevail, most notably the Biophysics laboratory at King’s College, London. She refrains from exploring how the leadership styles in those labs produced such contrasting outcomes, or whether the “circus” nickname of the latter lab may have had something to do with her sister’s eventual relocation to J.D. Bernal’s lab, only a mile away.

All three authors draw much needed attention to the substantial scientific consequence of relations between directors of research institutes and affiliated scientists, whose careers and reputations are profoundly affected by the former. These authors also raise the issue of the impact of families upon the careers of scientists but struggle to provide new insights, in part because they remain unfamiliar with pertinent literature in the history of science which has engaged questions involving gender consciousness, scientific couples, and relationships between personal connections and international scientific prizes.⁴

Vittorio Luzzati’s book provides a personal account of how families impact scientific careers. He focuses on the shattering experience of being forced to leave his native Genoa at the age of 15 by the racial legislation of 1938, which prohibited Jews from attending schools in Fascist Italy. Luzzati then spent the war as an engineering student in Argentina, where his family had connections dating to an earlier migration from Italy to South America. He admits candidly that he chose to make his post-war career in France, in part because his medical-student spouse was French-born, in part because he wished to return to the “old world” of Europe, and in part because he was unfamiliar with the French educational system which continued to favor the graduates of the *Grandes Ecoles*, while treating others as second-class candidates. Still, as Luzzati recalls, the Fourth Republic’s strong left wing electorate, and a governmental lab headed by crystallographer, policy maker, and former Resistance leader Marcel Mathieu, gladly accepted foreign nationals such as Luzzati and Rosalind

Franklin, exposing them to a productive atmosphere of camaraderie and social optimism.

Though Vittorio Luzzati highlights his role as frequent interlocutor of both Rosalind Franklin (in a Parisian lab in 1947–1950) and Francis Crick (in a Brooklyn lab in 1953), he declines to provide his perspective on the controversies surrounding the discovery of DNA’s structure, simply stating that a great deal has already been said. This is unfortunate because he is in a unique position to shed light on key, unresolved issues, such as how his extremely famous colleagues perceived each other at the time; why Francis Crick was slow in publicly admitting that Franklin was perfectly capable of solving the DNA structure on her own; and whether Franklin’s research strategy was somehow influenced by Luzzati’s advice.

Vittorio Luzzati also leaves unresolved a question that Jenifer Glynn specifically addresses, namely why did Rosalind Franklin leave Paris at a time she herself regarded as problematic, because her work there had not yet been completed? Glynn suggests that her sister’s return to London (where she encountered the DNA project) stemmed from her decision to seek a career near her family, so that the family could be included in her life and she in theirs. This suggestion resonates with numerous letters to the members of a large, extended family known for its role in public life, civic affairs, education, and philanthropy.⁵ The letters clearly demonstrate that, contrary to previous allegations, Franklin’s rapport with her family was not only good but also a key reason for her return to London.

By using the records of Newnham College at the University of Cambridge, which she attended a decade later, Jenifer Glynn sheds new light on Rosalind Franklin’s formative scholastic and social experiences, ranging from her selection of tutorials, experience of anxiety before exams, membership in chemical and mathematical societies, growing interest in socialist politics, and involvement with air raid precaution drills and the general wartime mobilization at the university. Of special interest are several academic women whom Franklin encountered during her formative period as a chemistry major at Cambridge University (1938–1942), among them the first woman professor elected in 1939, archeologist Dorothy Garrod; the math lecturer Mary L. Cartwright (later Dame Mary, Mistress of Girton College, strangely not identified as the only contemporary female lecturer in math at Cambridge); as well as tutors in chemistry (Delia Margaret Agar) and mineralogy (Helen McGaw).

Jenifer Glynn implies that the most important female mentor that Rosalind Franklin had during her time as a student, as well as afterwards, was the French physicist Adrienne Weill, a student of Marie Curie, who arrived in Cambridge after the fall of France to conduct research in the Cavendish Laboratory. Weill, who was accompanied by her teenage daughter, not only strengthened Franklin’s pre-war affinity for French culture but also found her a job in Paris, where she would spend four scientifically productive and

⁴ This theme has been researched by authors who covered a variety of scientific disciplines, countries, familial statuses, degrees of gender consciousness, and historical periods in *Uneasy Careers and Intimate Lives, Women in Science, 1789–1979*, eds. Pnina G. Abir-Am and Dorinda Outram (Rutgers University Press, 1987, 1989); *Women, Science, and Myth*, ed. Sue V. Rosser (ABC-CLIO, 2008); *Writing about Lives in Science, Auto/biography, Gender, and Genre*, eds. Paola Govoni and Zeldia Alice Franceschi (V&R Unipress, 2014), esp. Pnina G. Abir-Am, “Women Scientists in the 1970s: An Ego-Histoire of a Lost Generation” in *ibid.*, 223–262. For scientific couples see *Creative Couples in the Sciences*, eds. Helena M. Pycior, Nancy G. Slack and Pnina G. Abir-Am (Rutgers University Press, 1996); *For Better or For Worse, Collaborative Couples in the Science*, eds. Anette Lyknes, Donald Opitz, and Brigitte van Tiggele (Springer, 2012); and Ruth Sime, *Lise Meitner, A Biography* (University of California Press, 1996). On gender and prizes see also Sharon Bertsch McGraw, *Nobel Prize Women in Science, Their Lives, Struggles, and Momentous Discoveries* (Joseph Henry Press, 1998).

⁵ Jenifer Glynn provides relatively few details on her family’s relations in public life, with more such details to be found in the work of Sayre and Maddox (see note 2). Suffice it here to say that a grand-uncle, Viscount Herbert Samuel, was head of the Liberal party prior to World War I, Home minister in the Asquith government, and the first High Commissioner of the British Mandate of Palestine in the 1920s. Another relative, Sir David Salaman was Lord Mayor of London. A grandmother and two aunts were active in the City of London Councils for social reform and education.

personally happy years. Franklin's meaningful encounters with Weill during the 1940s and 1950s made her well aware that it was possible for a woman scientist to combine a career with marriage. If so, contrary to allegations that she excluded marriage in order to devote all her life to science, Glynn concludes that "she simply never met someone she wanted to marry".

In this connection, Jenifer Glynn flatly denies previous suggestions that Rosalind Franklin may have been romantically involved with two of her scientist colleagues in Paris: Vittorio Luzzati, her life long friend and uniquely valuable interlocutor in soul searching discussions on science, culture, and politics, or Jacques Mering, the director of her research unit who served as her scientific mentor in X-ray studies.⁶ Even if Glynn is right, it is still plausible that Franklin's relationships with these two, or other colleagues and friends at the time, even if not necessarily romantic, may have still been significant enough to play a role in her enigmatic decision to trade "happiness in Paris" for "misery in London". (Her hiking partners at the time included, in addition to an Australian woman mentioned by Glynn, the crystallographer Hugh Huxley, and mathematician John Bennett, both then doctoral students at Cambridge University and soon to be associated with groundbreaking work in protein structure. She may have thus learned about new developments in Cambridge from them.) The point here is that Franklin had an active social life so that it would be difficult for anyone to guess the precise nature of her interactions with colleagues and friends.

Jenifer Glynn is equally concerned with dispelling various misconceptions (referring to them as "myths") circulating about their family, first and foremost their father's alleged objection to women's education. That objection was seized upon by rivals as a reason for Rosalind Franklin's alleged belligerence toward them, a conduct presumably grounded in her need to fight for her education. Glynn suggests that this misguided view stemmed from confusion over their father's preference that Franklin should engage in war-related work, instead of continuing with her education. In the event, her education continued uninterrupted during World War II due to the support of a paternal aunt, her mother, and the British government which encouraged students to complete their studies. Glynn is further adept at clarifying misconceptions about the family's alleged wealth, suggesting that it stemmed from a confusion of their own nuclear family, which was merely well off, with that of their grandfather's, who "must have been rich" since he owned a country house and therefore the opportunity for holidays on its beautiful grounds. Similarly, Glynn is unhappy with the suggestion that race may have played a role in her sister's predicament, firmly stating that no one in their family encountered anti-Semitism. British archives nevertheless suggest that high-level civil servants were concerned that the lab Franklin joined upon her return to London might harbor "Jews and foreigners". Though such concerns may count as a milder form of anti-Semitism, they nevertheless may have played a

role in the events that resulted in confusion over her key contribution to the discovery of DNA's structure.

Both the Prolog and the last chapter, "Afterlife", register Jenifer Glynn's adverse reaction to the possibility that the recent rising fame of Rosalind Franklin has occurred for the "wrong" reasons, namely as a result of her framing as a "feminist" icon. Glynn insists that her sister was not a feminist and that such iconization might have baffled her. Since Glynn does not explain what she means by "feminist", it is possible that she has in mind the spectacle associated with the suffragettes (an uncle was a militant supporter for their cause) rather than more recent feminist demands for equal opportunity across the gender line. Although Franklin's pursuit of her scientific vocation would certainly be consistent with the pursuit of gender equality, like most very ambitious scientists – especially ones who, Glynn claims, aspire to be a Fellow of the Royal Society before age 40 – Franklin would have had little time for social activism of any kind, let alone militant feminist activism which emerged as a social force only after her premature death in 1958. In any case, Glynn's concern that an emphasis on gender might somehow detract from her sister's scientific reputation is exaggerated, especially for someone who admits repeatedly that the family had no clue, until very late in Franklin's life, of the great value of her work. It is not uncommon for scientists to be only belatedly recognized for their contributions, but the history of women in science amply suggests that gender remains a key determinant of such a predicament.

Such "myth"-busting may strike many readers as relatively unimportant, however, and at no point does Jenifer Glynn contemplate the obvious possibility that class may have played a bigger role in the predicament of Rosalind Franklin than either gender or race. For example, one of the unresolved questions in the DNA historiography is whether Franklin's lack of suspicion of the conniving efforts to access her data without her knowledge may have stemmed from class-based insularity. It is plausible that it would not have occurred to a person of her background that socially desperate rivals might not play by the rules, resorting not only to data acquisition behind her back, but also lying about how they came into possession of such essential data.

If the current iconization of Rosalind Franklin baffles Jenifer Glynn, and possibly others who have not extensively reflected on the intersectionality of class, race, and gender within science, then how else can we explain the persistence of the "myths" that Glynn and so many others have tried to dispel for half a century? These books suggest that the reasons for the persistent misallocation of credit at the heart of the discovery of DNA's structure must also be sought in the relationships between scientists and their labs, especially lab directors who have a disproportionate say not only about who gets promoted but also in selecting who gets credit as a discoverer.

These volumes are well-timed to redirect our attention from obsessing over the attributes of individual scientists to examining their scientific institutions and the struggles within and across them over resources, power, and recognition. We may even find why historical accounts of DNA's discoveries, or of the institutes involved, are still shrouded, half a century later, in a variety of smoke screens.

⁶ Jacques Mering accompanied Marcel Mathieu to a conference in London in 1946 where both met Rosalind Franklin through Adrienne Weill and agreed that Franklin should join the governmental chemical lab directed by Mathieu in Paris, and work in Mering's X-ray studies group. Relying on circumstantial evidence, both Sayre and Maddox (see note 2) suggested that Franklin had a "crush" on Mering.