



ASp
la revue du GERAS

43-44 | 2004
Anglais de spécialité et milieux professionnels

Scientific autobiography: some characteristics of the genre

Lesley Graham



Electronic version

URL: <http://journals.openedition.org/asp/1039>
DOI: 10.4000/asp.1039
ISBN: 978-2-8218-0396-1
ISSN: 2108-6354

Publisher

Groupe d'étude et de recherche en anglais de spécialité

Printed version

Date of publication: 1 March 2004
Number of pages: 57-67
ISSN: 1246-8185

Electronic reference

Lesley Graham, « Scientific autobiography: some characteristics of the genre », *ASp [Online]*, 43-44 | 2004, Online since 17 March 2010, connection on 10 December 2020. URL : <http://journals.openedition.org/asp/1039> ; DOI : <https://doi.org/10.4000/asp.1039>

This text was automatically generated on 10 December 2020.

Tous droits réservés

Scientific autobiography: some characteristics of the genre

Lesley Graham

1. Why study scientific autobiography?

- 1 In his introduction to *La Vie de laboratoire*, Bruno Latour is dismissive of accounts of the practices of the scientific community found in the writing of scientists themselves. For him, their works lack inquiry, direct observation and contradiction:

Pour donner un peu d'indépendance aux analyses de la science, il est donc nécessaire de ne pas se reposer uniquement sur ce que les savants et chercheurs disent d'eux-mêmes. Ils doivent devenir ce que l'ethnologie nomme un « informateur », un informateur certes privilégié, mais enfin un informateur dont on doute. (Latour 1996: 17)¹

- 2 Certainly, Latour is defending his own position as the non-participant observer of the scientific process, but his final analysis is inevitably just as unreliable as that of the participant-analyst he relegates to the position of a mere ethnologist's "informer". Scientists are rarely dupes: many have a better working knowledge of current theories in the sociology of science than do sociologists or indeed linguists of the basics of science. When they write about what they do – as autoethnologists – they do so in the full knowledge that their version is not the only possible version. Indeed, it is the very unreliability – the subjectivity – of autobiographical writing that makes it worth examining more closely.
- 3 In a study of Darwin and the genre of biography, Robert M. Young has argued that biography does not merely fill in the "background" of the scientist's life, but also provides "the materials that take us to the centre of the scientific enterprise":

Looking at the way this genre chooses to see great artists and scientists reveals perhaps more clearly than the original works themselves how implicated in the culture of its time each work is. Biography historicizes. Its language can make no pretense to the timelessness too often attributed to both art and science. Watching

how biography actually approaches a writer can tell us a great deal not only about how science reflects its own historical moment, its own personal sources, but about how much our understanding of and our esteem for science are determined by the culture of the moment. (Young 1987: 203)

- 4 Similarly, a careful reading of autobiographical documents – their narrative arguments, their inclusions and omissions, their use of language – can teach us a great deal about the ways and the contexts in which scientific knowledge is created, popularized, and recycled. Consider, for instance, the following anecdote recounted by Jon Beckwith in his autobiography *Making Genes, Making Waves*. Beckwith and his co-workers obtained mutations on the *E. coli* chromosome that were important for studying the mechanism of membrane protein insertion. This work was in some ways the result of ten years of research on other projects that had included Beckwith serendipitously discovering a whole new area of biology, taking some wrong turns and having some lucky breaks. When the time came for Beckwith's colleague Hong-Ping to write the research up, they decided to tell the whole tortuous history of the project beginning with the words "This is the story...". They knew that this was not the accepted way of presenting scientific research, but they believed that recounting the entire course of events would be enlightening for others. The manuscript was submitted to two journals and it was rejected by both. The reviewers felt that the paper read more like a personal memoir than a formal presentation. Beckwith defends his choice in these words:

I had come to see how the scientific process is idealized by its portrayal in school texts and by the image of it purveyed by the media. For those university students who enter scientific careers, the mode of presenting research in scientific journals further strengthens the myth of pure objective science. (2002: 185-186)

He continues:

Yet interesting scientific discoveries are rarely the product of such a linear process. The misrepresentation of the workings of science leaves out the human element, the wrong turns, the surprises, the flashes of intuition, even the passions that drive us in science. It also fails to acknowledge the biases, the assumptions that we all must start with in order to proceed in a scientific investigation. (Beckwith 2002:186)

- 5 Peri-professional writing, and in particular autobiography, offers us access to these elements in a way that professional texts cannot.

2. A brief typology

- 6 The works in the mini corpus of autobiographical writing chosen for the purposes of this article show clearly that the field of what I have loosely called scientific autobiography is, in fact, heterogeneous.

- Beckwith, Jon. 2002. *Making Genes, Making Waves. A Social Activist in Science*.
- Biro, David. 2000. *One Hundred Days. My Unexpected Journey from Doctor to Patient*.
- Bonner, John Tyler. 2002. *Lives of a Biologist, Adventures in a Century of Extraordinary Science*.
- Feynman, Richard P. 1985. "Surely You're Joking Mr. Feynman!" *Adventures of a Curious Character*.
- Gawande, Atul. 2002. *Complications: A Surgeon's Notes on an Imperfect Science*.
- Kingsolver, Barbara. 1995. *High Tide in Tuscon*.
- Nurse, Paul. *Sir Paul Nurse – Autobiography* (Official Nobel Foundation web site).
- Verghese, Abraham. 1995. *My Own Country. A Doctor's Story*.
- Watson, James D. 1968 *The Double Helix. A Personal Account of the Discovery of the Structure of DNA*.

- Watson, James D. 2001. *Genes, Girls and Gamow*.
- Williams, William Carlos. 1948. *The Autobiography of William Carlos Williams*.

7 In this short list there are non-exclusive, overlapping examples of a **memoir** documenting a double life in science and in social activism (Beckwith); an **autopathography** written by a doctor suffering from paroxysmal nocturnal haemoglobinuria (Biro); a book combining **autobiography and the history of biology** (Bonner), a **collaborative life narrative** in the form of a series of stories culled from taped conversations and then set down on paper (Feynman); a collection of **creative nonfiction** essays by a trainee surgeon inspired and illustrated by confessional autobiographical detail (Gawande); a similar collection by a “trained biologist” who abandoned science for writing and which might be described as **eco/autobiography** because the emphasis is often on the mutual influences of person and place (Kingsolver); a short **autobiographical note** for the official Nobel Foundation web site (Nurse); an **auto/biography** combining the story of a physician in Tennessee with that of his AIDS patients, a book which might also be considered **autothanatography** since most of those patients died during the period covered (Verghese); a **memoir** of a specific period and a specific discovery, that of the helical structure of DNA, undoubtedly one of the canonical works of this genre (Watson, 1968), and its disappointing **sequel** (Watson, 2001), and a **literary life narrative** by someone who managed to combine medicine and a highly successful literary career (Williams). Needless to say, this typology is far from exhaustive.

3. Why do scientists write autobiography?

- 8 Writing about oneself is clearly not undertaken lightly and the scientist² who does so often considers the result an important piece of work. During an interview in *Time* magazine marking the occasion of the fiftieth anniversary of the discovery of the double helix, James Watson was asked “What’s your second greatest achievement?” He replied, “Writing *The Double Helix*. I think the book will last. No one else could have written it” (2003: 44).
- 9 The motivations for self-representation in writing are myriad. At the very simplest level we might say that scientists write because they have a good story to tell. Watson, for example, knew that the manner in which he and Crick had arrived at their proposed structure for DNA – the double helix – would make a great story. Lawrence Bragg writes in the introduction it is “drama of the highest order; the tension mounts and mounts towards the final climax” (Watson 1968: 9). Others write through a desire to set the record straight: Francis Crick, for example, produced *What Mad Pursuit* in response to Watson’s book. The aim of scientific autobiographers may also be to make priority claims and gain recognition and prestige both inside and outside the scientific community.
- 10 Pondering a similar question, Greg Myers examines the motivations of scientists who write for popular journals, a seemingly futile occupation when all the professional rewards are for articles in professional journals. Why then do they spend valuable time on these apparently less rewarding productions?
- Not for the money; the fee is small [...]. They don’t get rewarded with citations either; these journals are not usually places for first reports or findings, and they do not allow for extensive review or theoretical development. But there is clearly prestige within the research community attached to being asked to speak for one’s field, and there is the chance to address a broad audience that includes many

researchers and administrators in related fields who would not ordinarily read one's work in specialist journals. (Myers 1990: 145)³

- 11 Autobiographical writing can be considered part of what Latour calls the accreditation system. Credibility is created and accumulated through formal autobiography just as it is through that other form of life writing essential in grant proposals, the CV.⁴ This pursuit of recognition through autobiographical writing can be phenomenally successful as Steve Jones declares in his introduction to *The Double Helix*: "Everyone knows about viruses, or the background radiation of the big bang, but almost nobody could name the individuals who discovered them. DNA is different and this book is the reason why" (Watson 1968: i). Self-representation can therefore be seen as an operation in persuasion, the objective being to make readers appreciate the contribution made by the author's own work to the important ongoing project of science.
- 12 The autobiography may also serve to restate a scientific claim. Woolgar analyses the Nobel address of an astrophysicist and claims that "the events have to be redefined as a discovery in each new text, so that a late text does work just as the first publication did. [...]It is not unusual for a scientist to have an occasion to present a scientific claim in terms of a narrative of his or her career" (Woolgar cited by Myers [1990: 27]).
- 13 The declared objective of the autobiographical project is often to promote the public understanding of science and therefore, less explicitly, to further the cause of the scientific community as a whole, "Although such [works] may not directly advance the career of the individual writer, they are essential to the survival of the discipline, dependent as it is on public support for research" (Myers 1990: 145). In a commentary on *The Double Helix*, Edward Yoxen argues that Watson went beyond the conventional limits of popularisation to convey the experience of carrying out a new style of scientific research based on competition. He claims that Watson's express intention was to challenge the received account of scientific research:

Speaking from a high-level plateau of scientific achievement, he set out didactically to create a new image of a scientific dedication in an age of highly competitive endeavour when one's own lapses could lose one the race. It was his way of telling people how to take science seriously and how to conduct oneself within a set of norms that took competition as a basic fact of life. (Yoxen 1985: 179)
- 14 Paradoxically scientific autobiographers also write to assert their singularity. As regards the scientific community, their message often seems to be double: "I am one of them; a respected member of the tribe, but I'm not like them". Creative writing materialises that difference. In the words of Claude Bernard, "*L'art, c'est moi; la science, c'est nous*" (In Beer 1987: 39).
- 15 Some of these motivations will be examined in more detail when we look at the characteristics of the genre.

4. Who reads scientific autobiographies?

- 16 Readers appear to respect what scientists have to say in a way that they do not necessarily respect the pronouncements of other categories of expert.⁵ Presumably they are interested in the personality behind the scientific process or the application of scientific knowledge, perhaps they are interested in the idea and the story of its genesis, keen to know more about the story behind the story, the face behind the concept. They may be flattered by the illusion of a privileged one-to-one encounter with scientific and

medical authority or seduced by the promise of a confidential, conversational tone; the prospect of entertaining anecdotes and inside information, the taking off of the white coat, but the reassurance that it is hanging on a hook somewhere there in the background. They want to be entertained but they also want access to a sort of power – the power of scientific knowledge – and they want it wrapped up in a more attractive package than the research article.

- 17 The blurb on the back of the books,⁶ that paratext *par excellence*, the hook calculated to incite readers to part with their money, throws some light on what publishers believe readers of scientific autobiography to be interested in. Here are a few examples: “Like nothing else in literature, it gives one the feel of how creative science really happens” (C. P. Snow on *The Double Helix*); “[A] story told from the closely observed heat of an epidemic. Far from being a sociological discourse, it is intensely personal; Dr Verghese’s vulnerability and his lucid prose give this book the emotional momentum of a good novel” (John Irving on *My Own Country*); “a wise, funny, passionate and totally honest self-portrait of one of the greatest men of our age” (*Surely You’re Joking Mr Feynman*); “It is the story of a doctor with the heart of a poet” (*The New York Times Book Review on One Hundred Days*); “an unflinching view from the scalpel’s edge, where science is ambiguous, information is limited, the stakes are high, yet decisions must be made” (*Complications*); “With the eyes of a scientist and the vision of a poet [...]” (*High Tide in Tucson*).
- 18 There are also celebrity endorsements of the quality of the writing: Bill Bryson declares, “I don’t know if Atul Gawande was born to be a surgeon – I very much suspect so – but he was certainly born to write.” Verghese is even compared to Conrad and Nabokov. As the advertising pitch shows, several double competencies are required of scientist-autobiographers: scientific authority but quality writing too; the thrill of the novel with the stamp of approved science. Authors must be both credible scientists and accomplished stylists; credible describers of the mysteries of the scientific world but also adept at demystification. They must have proven professional skill and knowledge and interesting personal lives too.
- 19 Who reads scientific autobiography? Probably much the same sort of person as reads popular science: both non-scientists and scientists. In a review of *One Hundred Days* in the medical press, one doctor reviewer gives a brief history of autopathography by doctors and concludes that “Clinicians are fascinated by the genre – perhaps because they are intrigued, if not intimidated, by role reversal, a frustrating if enlightening movement from active to passive” (Duffin 2000: 1857). But what interests the lay reader is not necessarily what interests the clinician in this case. The reviewer continues:
- [Biro’s] tale is interspersed with lucid explanations of bone marrow function and T-cell depleted transplantation, useful to anyone facing this procedure. But these explanations interrupt the personal tale of unusual family dynamics, which is, for me, much more compelling. (Duffin 2000: 1857)
- 20 Whereas this doctor-reviewer at least reads not for the science but for the human element, the lay reader is generally more interested in the scientific than the human. Myers claims: “different audiences get different narratives, and different narratives carry different views of the work of science” (Myers 1990: 248). Autobiography, it would appear, carries many closely intertwined narratives directed at a variety of readers with a wide range of motivations.

5. Some characteristics of the genre(s)

- 21 Given the heterogeneity mentioned earlier, we can rarely talk about a characteristic common to *all* scientific autobiographical writing. Certain general traits do, however, appear to tie together those under study in the present article albeit in a loose bundle.
- 22 The first of these is a declaration of honest intent and the assurance of professional integrity. Each of these documents is framed in what Philippe Lejeune (1975) has called the “autobiographical pact” – an implicit contract between reader and writer. The autobiographical pact, the contract of identity, is sealed primarily in the proper name: the author’s name is identical to that of the narrator and we consequently read the text written by the author to whom it refers as reflexive or autobiographical. For Lejeune, this is fundamental:
- Dans ce travail, j’étais guidé par quelque chose d’essentiel : la récurrence obstinée d’un certain type de discours adressé au lecteur, ce que j’ai appelé le « pacte autobiographique ». Très vite, je me suis mis à faire une anthologie de ces préambules propitiatoires, de ces serments, de ces appels au peuple, avec l’impression qu’ils disaient déjà tout ce que je pourrais dire ! Ce discours contenait fatalement sa propre vérité : il n’était pas une simple assertion, mais un acte de langage, un performatif (je ne connaissais pas encore l’expression), qui faisait ce qu’il disait. C’était une promesse. En y croyant je n’étais pas une dupe, ou un ethnologue naïf qui croit à la vérité littérale des légendes que les indigènes lui racontent, j’étais dans la vérité de cette magie ! (Lejeune: web page)
- 23 This passage, taken from an autobiographical text on Lejeune’s “autopacte” website, is in the past tense because he later reformulated his theory, believing that it wasn’t so much a pact, which supposes that the reader too is promising something, but more of a unilateral engagement on the part of the writer. He has now reconsidered that rectification and thinks that perhaps he wasn’t mistaken after all.
- 24 Because of the autobiographical pact, the reader assesses the narrative in ways that are suspended in fictional forms of literature. The autobiographical pact is also embedded in dedications to people whose names also appear in the narrative (Verghese), in assurances that “these stories are true” (Gawande), in claims that extensive use has been made of contemporary letters to date events (Watson), in admissions that some people will not be happy with the book, and perhaps paradoxically in declarations that “all names, certain identifying characteristics and temporal events have been changed” (Verghese). It may also be expressed in the title – Watson’s working title for the *Double Helix* was *Honest Jim*. Others have included the words “surgeon” or “doctor” in their subtitles.
- 25 The concept of an autobiographical pact is still more complex and interesting when applied to scientific autobiography since the implied contract demands not only the honesty of the individual in being who s/he says s/he is when recounting past events and experiences but also his or her scientific credibility: the guarantee that the science is accurate. Consequently, assurances of scientific credibility are also to be found in the paratext; in prefaces, synopses, vitals and author’s notes. Even in those of Barbara Kingsolver, a modest ex-student of biology where we are assured that “Barbara Kingsolver was trained as a biologist before becoming a writer”, that she is indebted to the editors of *Natural History* who invited her “back from poetics to science”, and by protestations that if it hadn’t been for the encouragement of her literary agent she would still be “labouring in a cubicle as a technical writer, and that’s the truth”

(Kingsolver 1995: x-xi). These disclosures all serve to establish the author's scientific credibility and legitimise her right to write about scientific matters.

- 26 Author photographs also help seal the autobiographical pact and establish scientific authority. David Biro's cover photograph shows him wearing a respectable shirt and tie under the symbolic and persuasive white coat: the publishers have chosen to showcase his role in this narrative as a doctor rather than as a patient (we assume it is him in the photograph). Abraham Verghese appears on the cover of his book without the white coat but in a medical context, a stethoscope draped around his neck, and a pose suggesting a comfortable bedside manner. A patient with AIDS is visible in the background, further confirming the veracity of the document.
- 27 Scientific authority is also materialised in the presence of photographs of the author with other scientists, in technical diagrams and in the scholarly apparatus of "notes on sources" including references to well-known scientific reviews. However, because the reader has not agreed to a scholarly piece of writing, these notes are deferred to the unobtrusive final pages without so much as a footnote to refer to them (Gawande).
- 28 Along with these multiform assurances of scientific authority we nevertheless find claims that the narrative is above all to be read as a *personal* interpretation of events. If textbooks are, as has been claimed, a mosaic of claims from which the personal and the provisional have been removed, autobiographical writing is the very opposite. It is rather a distillation of the personal element. Watson, for example, declares:
- [...] this account represents the way I saw things then, in 1951-3: the ideas, the people and myself.
I am aware that the other participants in this story would tell parts of it in other ways, sometimes because their memory of what happened differs from mine and, perhaps in even more cases, because no two people ever see the same events in exactly the same light. (Watson 1968: 13-14)
- 29 In the sequel to this book, Watson's revindication of the right to personal interpretation stretches the autobiographical pact to the limit. In his foreword, Peter Pauling voices the following reservation, "As a work of reference to what actually happened, this book is unreliable. There are many mistakes and errors of fact" (Watson 2002: ix).
- 30 In most cases however, the combination of the autobiographical pact, the assurance of scientific authority and the promise of a personal approach to the material invites readers to consider the narrator as a uniquely qualified authority, compelling the reader's belief in the story and in the importance of the narrator.
- 31 Another common characteristic tying these scientists' autobiographies together is a concern with the accessibility of science. Explicitly or implicitly, writers of scientific autobiography consider themselves to be mediators between the world of science and the non-scientist. Often the authors see themselves as ideal mediators because, for some reason, they stand apart from the community being described. Atul Gawande creates his niche in this way: "I am a surgical resident [...] and this book arises from the intensity of that experience [...] a resident has a distinctive vantage point on medicine. You are an insider, seeing everything and a part of everything, yet at the same time you see it anew" (Gawande 2002: 7-8). Indeed, there is in all of these books the expression of a strange sense of displacement, perhaps the catalyst for self-representation. Watson is not in his own country and not working in the field he was trained for. Gawande is in the process of professional metamorphosis. Verghese has never really had a home and is now moving around for career reasons. Kingsolver is geographically displaced. Biro is temporarily in

the land of the ill, on the other side of the doctor patient fence and Feynman flits from one activity to another. Beckwith moves between social activism and research, and Bonner writes of practices in a world of scientific research that has changed beyond all recognition.

- 32 Feynman is concerned with the notion of integrity vis-à-vis the general public. He reports saying in his Caltec commencement address:

I would like to add something that's not essential to the science, but something I kind of believe, which is that you should not fool the layman when you're talking as a scientist. [...] I'm talking about a specific, extra type of integrity that is not lying, but bending over backwards to show how you're maybe wrong, that you ought to have when acting as a scientist. And this is our responsibility as scientists, certainly to other scientists, and I think to laymen. (Feynman 1985: 343)

- 33 Scientific discourse is frequently described as deliberately exclusive. Autobiographical writing, on the other hand, has to be inclusive, otherwise it would have an audience as limited as that of professional journals. This does not mean, however, that there is no technical language, but that language is usually either glossed, reformulated, joked about or used simply to establish the author's authority in the field. By this I mean that the author does not intend the lay reader to understand every single concept but merely to be convinced of his/her scientific competence. Take this passage from Atul Gawande's book, for example, where he describes the work of his father, a urologist:

[...] he has had to learn to put in penile prostheses, to perform microsurgery, to reverse vasectomies, to do nerve-sparing prostatectomies, to implant artificial urinary sphincters. He's had to learn to use shock-wave lithotripters, electrohydraulic lithotripters, and laser lithotripters (all instruments for breaking up kidney stones); to deploy double J ureteral stents and Silicone Figure Four Coil stents and Retro-Inject Multi-Length stents (don't even ask); to maneuver fiber-optic ureteroscopes. (Gawande 2002: 25-26)

- 34 Note that while the word lithotripter is glossed, the last three stents are not: "don't even ask" may be a jokey aside but it establishes, nonetheless, Gawande's superior mastery of the language and the procedures of surgery.
- 35 In many ways scientific autobiography might be seen as the ultimate popularisation – an effort by the scientist to make the opaque world of his/her practices accessible to the lay reader. Various commentators have written on the importance of popularisation work on the production of scientific knowledge by means of a sort of backwash effect. Some have even gone as far as to suggest that the popular doesn't just influence the professional but has priority (Myers 1990: 190). Indeed, we might adopt Myers' description, originally applied to review articles but equally applicable to autobiographies of "textual forms in which the original communication is modified, amplified, fused and melted" (Myers 1993: 70). Alternatively, we might just as well take up Mellor's less viscous image of popular books acting as "nodal points in an intertextual web" (Mellor 2003: 509). She claims that popular books do work for the scientific community in a not entirely innocent way: "Indeed they are interesting precisely because of the active boundary work they do in protecting the position of science in a hierarchy of ways of knowing while appearing to be merely playing the popular market" (Mellor 2003: 519).
- 36 We also see in all of these autobiographies the reflection of the social influences and social processes at work in the production and application of scientific knowledge. These writings clearly show, for example, the ways in which scientists knowingly live their lives

to create the best CV possible, while taking into account personal factors. This passage from Paul Nurse's autobiographical note illustrates that close knit:

It was now 1980 and Anne and myself had two little children Sarah and Emily, and we were wondering whether to stay permanently in Edinburgh. This possibility bothered me as I thought it was not advisable to remain in one academic environment, and the long dark winters in Edinburgh could be rather dismal. I also thought that the next stage in cell cycle analysis required molecular genetics, and fission yeast was not developed for these types of experiments, and so I looked for an environment which would make this possible. (Nurse: web page)

- 37 Young comments on this hustling phenomenon that so profoundly influences the way scientists live:

The requirements of the research, the next post, the next grant are, I believe, even more pressing and blinkering than they are in other niches of the division of labour. Everyone knows this about medical education and training. It is not so well-researched and understood in physics, chemistry, molecular biology and engineering. This needs to change. I also think that scientists – except when they are doing PR or speaking at prize-giving ceremonies – know perfectly that they are utterly immersed in the same cultural, economic and other conflicts, contradictions and compromises as the rest of us. They hustle – more and more as governments squeeze them. They really must give up their false-self facades. (Young 1993: web page)

- 38 Of course, some of these scientists refused to take up the false-self facades condemned by Young. Jon Beckwith, more than most scientists, is aware of the social influences and ideological influences at work in the biology arena. On announcing their genetic feat, the first isolation of a gene from a chromosome, he, along with co-workers, expressed concern that such manipulations could ultimately be dangerous for humanity. He comments: "Little in my scientific career up to that point had connected with social concerns about science. But just as there was a scientific trajectory in the late 1950s and 1960s, there was also a political trajectory" (Beckwith 2002: 37). Later in the autobiography, he expresses regret that young scientists are not educated in past controversies surrounding the social impact of science, arguing that they thus lose a part of their history – and in his view "a part of their humanity" (Beckwith 2002: 56).
- 39 Autobiographical writing might also be seen as an arena in which writers are able to justify choices made, be they professional or personal. Abraham Verghese, for example, decides against a procedural speciality which financially would be much more lucrative and much more acceptable in the Asian doctor community, while Biro decides to go ahead with a bone marrow transplant against his first specialist's advice (a choice not entirely vindicated). This justification is a message apparently intended for both the professional community and the family entourage. Not surprisingly, another common characteristic is a personal investment in creative writing. William Carlos Williams is the obvious example: for him, the need to write was imperious. When he had an idea he had to get it down on paper, he had to cleanse himself of his torments, even if it meant writing between patients. In his own words, he was "like a woman at term" (Williams 1948: foreword). David Biro too had invested time in learning about literature, even studying with Terry Eagleton at Oxford and organising his schedule as a dermatologist around writing in the afternoons.

Conclusion

40 Let us return to our initial question, why study scientific autobiography? Young has argued for the importance of biography in understanding the creation of science, claiming that, “biography is not an adjunct to the serious business of understanding nature, human nature, and history. Rather, [...] biography is neither finally personal nor historical but the crucible in which we can forge the best understanding of those forces” (Young 1987: 219). Likewise, we would argue that autobiography is a fundamental element of our understanding of the scientific process, and that many scientific lives are, in fact, autobiography-driven. Career moves are made within the scientific community to accumulate credit as Bruno Latour has shown⁷ but that credit means nothing if it is not set down on paper and submitted to the appropriate audience. Paul de Man asserts:

We assume the life produces the autobiography as an act produces its consequences, but can we not suggest, with equal justice, that the autobiographical project may itself produce and determine the life and that whatever the writer does is in fact governed by the technical demands of self-portraiture and thus determined, in all aspects, by the resources of its medium? (de Man 1979: 920)

41 Although this article has not been concerned with the specific applications of autobiography in the field of ESP, it is clear that a close reading of these autobiographical texts in the ESP classroom would be a useful addition to our already well-established use of other authentic scientific texts,⁸ both in terms of linguistic exploitation and the joint ethnographic exploration, by teacher and student, of the target discourse community.

BIBLIOGRAPHY

Beckwith, Jon. 2002. *Making Genes, Making Waves. A Social Activist in Science*. Cambridge, MA: Harvard University Press.

Beer, Gillian. 1987. “Problems of description in the language of discovery”. In Levine, George, *One Culture*. Madison: University of Wisconsin Press, 35-58.

Biro, David. 2000. *One Hundred Days. My Unexpected Journey from Doctor to Patient*. New York: Vintage.

Bonner, John Tyler. 2002. *Lives of a Biologist, Adventures in a Century of Extraordinary Science*. Cambridge, MA: Harvard University Press.

Caroll, Felix A. & Jeffrey I. Seeman. 2001. “Placing science into its human context: Using scientific autobiography to teach chemistry”. *Journal of Chemical Education* 78, 1618-1623.

Crick, Francis. 1988. *What Mad Pursuit: A Personal View of Scientific Discovery*. New York: Basic Books.

de Man, Paul. 1979. “Autobiography as de-facement”. *Modern Language Notes* 94/5, 919-930.

Duffin, Jacalyn. 2000. “The doctor and the zebra”. In *CMAJ* 162/13, 1857-1860.

- Feynman, Richard P. 1985. "Surely You're Joking Mr. Feynman!" *Adventures of a Curious Character*. London: Vintage.
- Gawande, Atul. 2002. *Complications: A Surgeon's Notes on an Imperfect Science*. London: Profile.
- Kingsolver, Barbara. 1995. *High Tide in Tuscon: Essays from Now or Never*. New York: Harper.
- Latour, Bruno. 1993. *La Clef de Berlin et autres leçons d'un amateur de sciences*. Paris: la Découverte.
- Latour, Bruno & Steve Woolgar. 1986 [1979]. *Laboratory Life: The Construction of Scientific Facts*. Princeton: Princeton University Press.
- Latour, Bruno & Steve Woolgar. 1996. *La vie de laboratoire: la production des faits scientifiques*. Paris: La Découverte.
- Lejeune, Philippe. 1975. *Le Pacte autobiographique*. Paris: Seuil.
- Lejeune, Philippe. Autopacte. <<http://www.autopacte.org/>>.
- Lejeune, Philippe. "Le pacte autobiographique, 25 ans après". <http://www.autopacte.org/Pacte_25_ans_apr%E8s.html>.
- Mellor, Felicity. 2003. "Between fact and fiction: Demarcating science from non-science in popular physics books." *Social Studies of Science* 33/4, 509-538.
- Myers, Greg. 1990. *Writing Biology: Texts in the Social Construction of Scientific Knowledge*. Madison: The University of Wisconsin Press.
- Myers, Greg. 1991. "Stories and styles in two molecular biology review articles". In Bazerman, Charles & James Paradis, *Textual Dynamics of the Professions: Historical and Contemporary Studies of Writing in Professional Communities*. Madison: The University of Wisconsin Press.
- Nurse, Paul. "Sir Paul Nurse – Autobiography." Official Nobel Foundation <<http://www.nobel.se/medicine/laureates/2001/nurse-autobio.html>>.
- Smith, Sidonie & Julia Watson. 2001. *Reading Autobiography: A Guide for Interpreting Life Narratives*. Minneapolis, Minn: University of Minnesota Press.
- Time* 161/9, March 3, 2003
- Verghese, Abraham. 1995. *My Own Country: A Doctor's Story*. New York: Vintage.
- Watson, James D. 1968. *The Double Helix. A Personal Account of the Discovery of the Structure of DNA*. London: Penguin.
- Watson, James D. 2001. *Genes, Girls and Gamow*. Oxford: Oxford University Press.
- Williams, William Carlos. 1948. *The Autobiography of William Carlos Williams*. New York: New Directions.
- Woolgar, Steve. 1980. "Discovery, logic and sequence in a scientific text". In Knorr *et al.* (eds.), *The Social Process of Scientific Investigation*. Dordrecht: D. Riedel, 239-268.
- Young, Robert M. 1987. "Darwin and the genre of biography". In Levine, George *One Culture*, Madison: The University of Wisconsin Press, 203-224.
- Young, Robert M. 1993 "What scientists have to learn". Revised text of a talk given at the Wellcome Trust <<http://human-nature.com/rmyoung/papers/paper31h.html>>.
- Yoxen, Edward. 1985. "Speaking out about competition. An Essay on 'The Double Helix' as popularisation". In Shinn, Terry & Richard Whitley, *Expository Science: Forms and Functions of Popularisation*. Dordrecht: D. Riedel, 163-181.

NOTES

1. This passage is not part of the original English version of *Laboratory Life*.
 2. There are, of course, important differences between the lives and professional activities of those who work in medicine and those who work in science. For the purposes of the present article, however, I include doctors of medicine under the term “scientists”.
 3. The fee for writing in popular journals may be relatively small but successful books can be real money-spinners. Watson proudly declares in *Genes, Girls and Gamow* that his book *Biology* was earning him the equivalent of half of his professor’s salary. Similarly, Mellor points out that Stephen Hawking earned about £2 for each of the 9 million copies of *A Brief History of Time* (Mellor 2003: 519).
 4. Cf. Myers (1990: 247-248) on the subject of grant proposals and the rhetoric of self-presentation.
 5. Young condemns this blind belief in the wisdom of scientists: “They can pronounce with the authority of an expert on objectivity about all sorts of things and, for the most part, get away with it. They are not only thought expert in rationality; they are thought wise. I am thinking, for example, of some of the sillier pronouncements of Louis Wolpert (who condemns sociology and the philosophy of science out of hand) and Richard Dawkins (who deploys scientific analogies with touching philosophical simplicity), as well as of the ways scientists from Einstein to Bronowski to Zuckerman to Medawar have been treated as gurus when they hold forth far beyond their areas of undoubted contribution. They offer science as above the battle and as an arbiter of cultural issues in a startling and deeply embarrassing way” (Young 1993).
 6. In fact, increasingly, the blurb is not only on the back of the book but on the front cover, sprawled across the first few pages and in the inside of the covers too.
 7. Cf. for example « Portrait d'un biologiste en capitaliste sauvage » (*In* Latour 1993: 100-129).
 8. For an account of the use of scientific autobiography in the teaching of chemistry see Carroll & Seeman (2001).
-

ABSTRACTS

This article focuses on a dozen examples of autobiographical writing by scientists and attempts to characterise the genre. I argue that a careful reading of autobiographical texts reveals a great deal about the ways and the contexts in which scientific knowledge is created, popularised, and recycled. The material included and omitted in each of these examples of life writing reflects the social influences and processes at work in the production and application of scientific knowledge. A permanent tension between self-promotion, personal interpretation and the furtherance of the project of the scientific community as a whole is also evident.

Cet article s'intéresse à une douzaine de récits autobiographiques écrits par des scientifiques et s'attache à en caractériser le genre. Il apparaît clairement qu'une lecture attentive de ces textes est riche en enseignements sur la façon dont la connaissance scientifique est créée, diffusée, recyclée, ainsi que sur les contextes au sein desquels ce processus a lieu. Les inclusions et les omissions de chacun de ces exemples de l'« écriture de soi » est le reflet des influences et

processus sociaux qui opèrent lors de la production et l'application de la connaissance scientifique. On discerne également une tension permanente entre l'interprétation personnelle des événements et l'avancement du projet de la communauté scientifique toute entière.

INDEX

Mots-clés: autobiographie, autorité, médecine, pacte autobiographique, science, système d'accréditation

Keywords: accreditation system, authority, autobiographical pact, autobiography, medicine, science

AUTHOR

LESLEY GRAHAM