

# Where credit is due

Vivian Siegel, Editor-in-Chief

**Scholarship builds not only from published results, but also from the unpublished work, ideas, reagents and goodwill of others. We need to acknowledge this – to celebrate this – every chance we get**

Anyone who has done biomedical research knows that a lot of work precedes a single meaningful result. The time spent purifying a protein, sorting flies, troubleshooting a method, or chasing ideas that ultimately prove to be dead ends can seem infinite. Some experiments simply require a huge amount of repetitive and tedious data collection. If we did research in isolation, the balance of thinking and doing would be unbearable, with far too little time spent on the former to warrant an advanced degree. It's one of the reasons that music or the voices of National Public Radio emanate from many labs – it's an attempt to keep minds engaged.

In the labs where I was happiest and most productive, we occupied our minds by discussing science, by troubleshooting each other's experiments, by thinking about the next steps, by fantasizing about risky experiments that would be amazing if they worked, and by challenging ourselves to consider alternative explanations for exciting results. White boards were everywhere, covered with experimental designs and sketches of ideas. In the labs where I was happy but less productive, we talked about politics more often than science; white boards were limited to the hallway and the conference room. Finally, in the labs where I felt unhappy, productive or not, talking was the exception rather than the rule and white boards held little more than general lab announcements. For me, at least, talking about science was essential for a great lab environment that both refined my ideas and sparked my enthusiasm for research.

One thing I learned from all that talking is that great ideas come from all sorts of people – from mentors, surely, but also from postdocs, graduate students and technicians. In fact, the best idea I ever had came from a conversation with a first-year graduate student who pushed me to think hard about a protocol I had already done dozens of times. Other ideas came from scribbling on a lab-mate's white board, from lab meetings, and from other people having conversations of their own about my research.

Sometimes conversations lead to collaborations. Perhaps one person has a reagent or methodological expertise that the other lacks. Perhaps a scientific relationship develops in which a colleague becomes a critical sounding board for new ideas, experimental design or interpretation of data. Collaborations of any kind provide substantial contributions to the work that is done and the knowledge that ensues; all should be acknowledged, sometimes by authorship.

## Authorship and acknowledgment

Unfortunately, authorship lists can become battlegrounds, and as a professional editor, I've often had a front-row seat for the melee. According to the International Council of Medical Journal Editors (ICMJE; <http://www.icmje.org/#author>), 'authorship credit should be based on (1) substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data; (2) drafting the article or revising it critically for important intellectual content; and (3) final approval of the version to be published. Authors should meet conditions 1, 2, and 3.' Furthermore, they suggest that, 'all contributors who do not meet the criteria for authorship should be listed in an acknowledgments section.'

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I consider this wise policy, but would go one step further. If there are individuals who meet criterion number 1, having made substantial (unpublished) contributions to the paper, whether through sharing their ideas or their hands, then they should be invited to meet the other criteria for authorship. If they choose to decline, their contributions should be acknowledged. But, given that publications are the means by which research contributions are measured, is it really appropriate to exclude from authorship those who have made substantial contributions to the work – even if ‘only’ conceptually – simply by refusing them the opportunity to participate in the drafting, revision and approval of the manuscript?

Having grown up in the era of the two-author paper, I understand the hesitation to include a long list of authors, potentially diluting the credit the major contributors deserve. The emergence of explicit statements detailing author contributions, such as the ones we include in all of our research articles, should effectively offset this worry. Hopefully, the time will come when tenure committees recognize acknowledgments in their assessment of academic contributions and research impact.

### The value of ideas

Of course, this is murky territory. After all, ‘substantial’ is in the eye of the beholder. But it would be good for all of us if we could more generously acknowledge the intellectual and technical contributions that propel our work. I sometimes think that the following lyrics were written for scientists:

*“I heard you said I stole your big idea.  
Guess what? It’s my idea now.  
It’s my idea now: I did the work on it.”*

**Voice Farm**

*Ralph Records, 1987*

Many of us have stories that echo this song, and either have seen our ideas published through the experiments of others, or, conversely, have performed experiments based on the ideas of others, whom we then ‘forgot’ to credit. These acts of omission are poisons that drive secrecy and enhance competition, undermining the pleasure and productivity of research.

What I find especially troubling is that we seem more willing to grant authorship to providers of rare reagents (perhaps this was a condition of getting the reagent in the first place, but that is another matter) than to providers of critical ideas. The latter may not even receive mention in the acknowledgements. This suggests an economy of research in which products are valued, but ideas are not. My advisor Peter Walter once quipped, “Ideas are cheap” – an interesting comment from someone running a lab instead of his own gels, and one that reflects the enormous amount of effort required to turn an idea into a meaningful result. However, despite how ‘cheap’ they might be, without our own ideas we are ‘technicians’ rather than ‘scientists’. Perhaps our failure to acknowledge the intellectual contributions of others reflects a fear that, if we did so, our own intellectual involvement would seem less significant. If so, we are being unnecessarily miserly. Scholarship builds not only from published results, but also from the unpublished work, ideas, reagents and goodwill of others. We need to acknowledge this – to celebrate this – every chance we get.

### Writing acknowledgments

I say this without an exemplary history of my own. In my published articles, I have credited others with unspecified helpful discussions, comments on the manuscript, gifts of rare reagents, technical assistance and funding. I limited my acknowledgments to

the mandatory and the exceptional. As an editor, I have never publicly acknowledged a soul. It is time to change that.

In preparation for writing this editorial, I've been reading acknowledgments and comments about acknowledgments on the web. Like everything else, acknowledgments require a logical structure. Some are alphabetical according to person or role; others create categories – such as department, place and profession – and hierarchies. Some are straightforward and descriptive; others seem written in code. And, by the way, according to what I've been reading, the longer ones almost always contain buried within them the name of the author's therapist. Readers find them at once riveting and boring, stingy and excessive, a place to brag or to drop names strategically. Listed or not, almost everyone who knows the author or who has contributed to the project feels somehow judged. The only comments I read in which recipients of an acknowledgment seemed pleased was when they had completely forgotten about their involvement with the project. It almost seems better not to begin.

Scientific acknowledgments seem safe because they are so clearly constrained by standard practice. Perhaps the easiest way forward is to relax those constraints just a little in order to include non-standard, but substantial, contributions to the work. Rather than create a dissertation-style acknowledgment that thanks everyone from your first-grade science teacher to the local barista, I suggest just a few additions: the person who helped you think of a new approach when your project was hitting a dead end; the one who pushed you to perform the one additional experiment that allowed you to define the underlying mechanism; the one whose sheer enthusiasm for science helped make all the work seem worthwhile, a joy. Start with a long list, as acknowledging those who have contributed is as much for the writers as for the readers, an act to remember the value of work and ideas, of collaboration and goodwill. Then, choose the contributions that stand out from the rest: the ones that, in other circumstances, might have led to authorship; the ones that made your authorship possible.

If your list is too long, a journal editor might ask you to shorten it, citing constraints of space. But in this case, since *I* am the editor, there is no one to constrain my first chance to acknowledge the many substantial contributions to *DMM*. Equipped with my new knowledge of acknowledgments, I know these will seem both petty and excessive, many will fall short, and there will be those whom I have forgotten and those I choose to thank privately.

### Acknowledgements

With this issue, *DMM* completes its first volume. Reaching this milestone required an enormous collaborative effort. As in research, contributions have ranged from ideas to funding, from leadership to execution. Contributors have included directors, staff, editors, consultants, freelancers, family and friends.

The conception of *DMM* can be credited to Daniel St Johnston and Matthew Freeman, who began discussing the project in 2005. They were supported by expert advice from Mary Waltham and feedback from the Directors at The Company of Biologists (CoB). The Board of Directors, chaired by Sir John Gurdon, agreed to support the project, recognizing it as a long-term investment that would benefit the disease research community.

David Zeserson, my husband, chose Nashville as the best destination for our family, and Eric Neilson, my chairman, made it possible for me to bring *DMM* to Vanderbilt. Andy Cossins, chairman of the first *DMM* advisory committee, together with Matthew and Daniel, guided many of the early steps, and individual directors such as Martin Raff provided input that led to features such as the Clinical Puzzle and the Translational

Impact box. Thanks also to the Editors-in-Chief of the other CoB journals – Hans Hoppeler (*Journal of Experimental Biology*), Jim Smith (*Development*) and Fiona Watt (*Journal of Cell Science*) – founts each of energy, inspiration and advice.

Although her name already graces the masthead and many of the bylines in each issue, Kristy Kain deserves special recognition. ‘Fresh’ out of her postdoc, Kristy joined me at Vanderbilt when *DMM* was still very much in its conception and design phase. She is responsible for much of the look, feel and content of the journal. Her first challenge was to define the types of articles we would publish in the front of the journal. With a vision for enabling collaboration between basic researchers and clinicians, she scoured numerous journals and came to me with a list of possible article types, which we then amended. With Jane Walker, she developed and refined the design for the journal. She insisted that we have a presence on the web, and has been almost single-handedly producing our podcasts. She has tackled every new challenge with energy, creativity, organization and determination. In so many ways, this journal is hers.

Claire Moulton joined CoB as Publisher in May 2007, and she has been invaluable at many levels. Claire oversees just about everything to do with *DMM*, including the journal staff in the UK, web hosting, indexing, subscriptions, marketing, reporting to the Board and the Executive Group, and so much more. The in-house editorial and marketing teams deserve special mention for their dedication and continued enthusiasm during the special challenges associated with a journal launch: Nick Birch, Ed Birkhead, Ben Clarke, Kirsty McCormack and Donna Perry. Other staff, with and without journal affiliation, and both at The Company of Biologists and at Vanderbilt, have provided immeasurable support and innumerable contributions; listed alphabetically, they include: Sharon Ahmad, Alan Alderson, Jane Alfred, Chereta Brigman, Tom Galliers, Nicole Garbarini, Miriam Ganczakowski, Michaela Handel, Kim Korwek, Chris Love, Jennifer Lutgens, Jay Morris, Kay Richmond, Richard Sever, Gregg Tarquinio and Marilyn Whiting. We have also benefited from the expert advice of publishing consultant Morna Conway.

The Founding Editors – Gerard Evan, Mark Fishman, Susan Lindquist, Stephen O’Rahilly, Nadia Rosenthal, Janet Rossant, Allan Spradling, Tian Xu, Sir Magdi Yacoub and Huda Zoghbi – and the Editorial Board – Guy Caldwell, Connie Cepko, Hans Clevers, Bob Coffey, Chris Contag, Elaine Dzierzak, Lizzy Fisher, Simon Foote, David Gutmann, David Hackam, Hiroshi Hamada, Nick Hastie, Antonis Hatzopoulos, Ulrike Heberlein, Brigid Hogan, Phil Ingham, Monica Justice, Raghu Kalluri, Harley Kornblum, Birgit Lane, Irene Leigh, Nicholas Lemoine, Pat Levitt, Jeanne Magram, Eric Nestler, Sue Quaggin, Hee-Sup Shin, David Vaux, Tom Vogt, and Rui-ping Xiao – have shared our excitement about the journal; have contributed ideas, papers, interviews, advice and art; and have spread enthusiasm for, information about, and many copies of *DMM* around the globe.

Journals are empty shells without the contributions of authors. For this reason, I especially thank the authors of the first issues of *DMM* who contributed their articles before seeing a single issue, before our appearance in PubMed and indexing in Medline, and long before our impact factor is determined.

Collaborative projects often provide excuses for good friends to work together. It has been a special pleasure to work with Daniel and Matthew, whom I’ve known since we were all postdocs working with fruit flies, and with our consulting editor Kathy Weston, whom I’ve known since I was in graduate school.

Two very special people have helped me with my editorials – Mark Schoenfield and Jim Smith. Mark is an English professor at Vanderbilt, a friend since the 70s, and the only person I dare show early drafts of my work. He has the amazing ability to deftly

carve away the unnecessary bits and to provide the phrase or thought that I'd been reaching for that ties it all together, both with kind encouragement. Jim is a nephrologist and clinical pharmacology fellow at Vanderbilt, and a much more recent friend. Jim's special skill is to smooth and polish; his attention is to the detail. To him I send my later drafts, and I find almost all of his suggestions useful ones that improve my prose. Other valued readers of my drafts have included Nicole Garbarini, Kristy Kain, Peter Walter, Kathy Weston and David Zeserson.

And, long overdue: thank you, Mark Poritz, for that great idea so many years ago.

*Deposited in PMC for immediate release.*