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Introduction

This is the best of times; this is the worst of times. (Or, as Marge Murray says in Chapter 4, "This is a time of trouble, but also of opportunity"). If you are the reader we envision for this book, you have just passed through the most crucial stage of your career—writing and successfully defending your doctoral thesis in mathematics—only to discover that what lies ahead of you is, yet again, the most crucial stage of your career. It is the time when you make the choice about what job to take (or allow circumstances to make the choice for you); it is the time when you make the adjustment from studying in a research institution to earning your keep in industry or in an undergraduate college or in another research institution; it is the time when you will—or will not—publish your thesis, it is the time when you will decide to leave research behind you or to start new mathematics on your own, or when you will struggle to balance time for students and committees with time in the library.

This book was written largely by people like you. It began as a weekly e'mail newsletter called the Concerns of Young Mathematicians (CoYM), whose editors were themselves a small band of young mathematicians. (Here as elsewhere in this book "young" measures time since the doctorate rather than biological age). The questions that these editors and their writers addressed in the newsletters were ones that naturally concerned them and their readership (and will therefore, we hope, naturally concern you): How do I get good letters of recommendation? How do I apply for a grant? How do I do research in a small department that has no one in my field? How do I do *anything* meaningful if all I can get is a series of one-year jobs?

One question which the CoYM most frequently addressed—how to apply for jobs—plays a very small role in this book. There are two reasons for this, neither of which has to do with indifference for the plight of the unemployed or underemployed mathematicians.

The first reason is that the job market in mathematics has gotten so much attention during the last decade that good information is both plentiful and readily accessible—as you can see from our bibliography. The second reason is that professional development has gotten so little attention, despite its obvious importance to young mathematicians, that we decided to use this book to plug that gaping hole.

With this one caveat, however, the articles in this book paint a broad portrait of the professional development issues that most interested the Young Mathematician's Network. So you will see that there was considerable curiosity about making the transition from academia to industry—how to make contacts, how to prepare oneself with appropriate course work and extra curricular activities—but that very few people had questions about how to proceed once there. On the other hand, working in academia is fraught with questions about teaching, research, giving talks,

and so on. The fact that the chapter on tenure has only two articles is an artifact of the youth of CoYM: readers and writers of the newsletter were more interested in "how to get started on the road to success" than the eventual documentation of this success.

Above we wrote that "this book was written largely by people like you". You will see, however, that the editors of CoYM followed their own advice about seeking help from more senior (and luminary) mathematicians. Almost every section of this book contains voices of people who are struggling as you struggle now, together with articles by mathematicians with a more distant, but much broader, perspective. We (Curt and Annalisa) are deeply grateful to all of the authors, those young as well as those ... experienced, who contributed to the CoYM in its early years and who graciously allowed us to include their work in this volume.

A Brief History of the Young Mathematicians' Network

In 1993 five junior mathematicians, Edward Aboufadel, Kalin Godev, Mark Winstead, and Charles Yeomans, and Curtis Bennett, decided to start an electronic group called the Young Mathematicians Network (YMN), where young refers to the length of time since obtaining one's Ph.D. This group initially grew out of the Young Scientists Network (YSN), a group of young physicists and other scientists that had gathered to discredit "The Myth," the idea that jobs would soon be plentiful for math and science Ph.D.s. The five mathematicians felt there was a need for a group that specifically dealt with the problems junior mathematicians faced.

The main publication of this group, the *Concerns of Young Mathematicians* or CoYM, began in the summer of 1993 and is published weekly during the school year and biweekly during the summer. Within a few months of its start, the YMN began to thrive. Over time, many more mathematicians volunteered to join the original five editors on the editorial board, and currently, only one of the five original editors is still on the board. While an attempt at brevity prohibits mentioning all of the editors and major contributors, there are several without whom the YMN might never have gotten off the ground, and they and their contributions must be mentioned. Mark Winstead first presented the idea of a group for mathematicians, and without him, nothing ever would have happened. Charles Yeomans ran the mailing lists for the first several years, and his willingness to do the dirty work made it possible for the Concerns to reach as many people as it successfully has. Edward Aboufadel gave the group visibility as he had just completed his widely read "Job Search Diary" (which appeared in *FOCUS*) when the YMN started. Steven Kennedy joined the editorial board early on, and in addition to being a frequent contributor, he did a large amount of legwork in trying to get people to submit articles. Finally, Kevin Charlewood took over as managing editor when Curtis Bennett resigned from the board in 1995 and has helped keep the YMN a thriving group.

Originally, the YMN had five major goals:

1. to combat "The Myth,"
2. to provide information on the job market,
3. to provide a support group for junior mathematicians,
4. to keep the mathematical community informed about the concerns of junior mathematicians, and

5. to help junior mathematicians get information about professional development.

This book is an attempt to gather together the articles from the Concerns that best address professional development issues. The reader that is interested in reading old issues of the Concerns should visit the YMN archive at
`www.math.usouthal.edu/~brick/ymn/archive.html`
which as of this publication is maintained by Steve Brick. In closing, we wish to thank everyone who helped make the YMN possible by their contributions, their hard work, and their concern with the difficulties the most recent job market has created for junior mathematicians.

Acknowledgements

This book owes its very existence to John Ewing, who first suggested to us (and even urged on us) the project. It is entirely appropriate that this book advises us to get good ideas from mathematicians we admire.

The technical (and TEX-nichal) aspects of putting together a book boggled us. We owe a big round of applause to Chris Swisher for all the duct tape repairs to Annalisa's Mac, to Thomas Hern for providing helpful advice and for keeping Curt's computer up and running, and to the AMS technical support staff (especially Tom for the P/Γ help and to Barbara for the boxes). The next round of duct tape's on us, guys.

We would like to thank our departments at Bowling Green and Franklin & Marshall for their support, encouragement, honest criticism (!), coffee, avuncular advice, and collegiality during our own early careers. Big hugs are due Elizabeth Clayton-Bennett and Neil Gussman for their support during the completion of this project.

If we hadn't had so much help proofreading, we would have had to include our opthamologists in this list. Fortunately we were assisted by all of our authors (whose names are listed at the end of this book), by Michelle LeMasurier, and by our extremely patient meta-editor Ed Dunne.

But most of all, we take our hats off to all of the past, present, and future editors of the Young Mathematicians' Network, who continue to excel in an endeavor for which this book is a mere attempt.

Curtis D. Bennett
Annalisa Crannell