

## Part-time Working Mothers - No Longer the Underground of Science M. A. Toscano, PhD

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Back in March, former AAAS Science and Engineering Fellow Emily Monossan read an article in the New York Times on women and work. The article, entitled "Stretched to Limit, Women Stall March to Work" by Eduardo Porter, featured a quote that summed up the problem for Emily:

*"Most of us thought we would work and have kids, at least that was what we were brought up thinking we would do - no problem. But really we were kind of duped. None of us realized how hard it is."*

-CATHIE WATSON-SHORT, 37, on women in the work force.

Like so very many of us, Emily is now a part-time scientist and full-time mother, and like many in science, she struggles with combining work and family. Unfortunately, work-life issues (not to mention a wider breadth of possible career paths) are not discussed that often in the sciences. Women in graduate school may have few women mentors to begin with, much less women mentors successfully juggling the demands of career, tenure, personal life, and children. The whole problem is exacerbated by the very narrow definition of "success" into which we have all been indoctrinated. The phrase "get a job" in grad school always refers to a tenure track faculty position. Anything else is viewed as failure or at best second-rate, with the pity and stigma that goes along with it. "Alternative" work is not seen as a conscious choice, just what you were left with when all the good jobs were taken.

Scientific societies, funding agencies, educational institutions, etc. are working on how to attract girls to science and how to keep them there, focusing their efforts on increasing the number of women in academia as professors and researchers. Other studies seek to determine where the "leaks in the pipeline" occur (with the "pipeline" starting as well as ending in academia). Of the many factors contributing to leaks along the way, the extreme expectations of the tenure process and the concurrent ticking of women's biological clocks creates a serious conflict which would exist even if the other factors had been favorable up to that point. The studies dealing with pipeline and tenure issues are too numerous to quote.

Meanwhile, the "leaks" are all the rest of us who were "lost" to academia along the way, whether by choice or not. Not a very flattering analogy, particularly if you made it through advanced degrees and are working hard somewhere in the wider worlds of science. More salt in our wounds is the idea, being advanced by many, that there are not enough scientists, that America will not be competitive in the world unless we churn out more. At the same time, there are many more than a few highly-trained women out there right now who maintain their knowledge and interest in science and their desire to do research (and other things) if the hours could be workable (*Here we are, how do we get your attention?*). Virtually half of the talent in America (largely the female half) is underutilized, whether due to discrimination (women don't get those jobs) or ridiculous expectations (women don't want those jobs). Even if you have a job in science, there is the additional problem of promotions and other opportunities being awarded only to those who stay at work well beyond the school hours of 8:30 am - 3 pm and appear to dedicate themselves completely to their jobs. So-called "Mommy hours" (a.k.a. flexibility) are career killers. "Normal" hours are life- and family-unfriendly. How are real people balancing their intellectual need to work and contribute with nurturing or just maintaining their personal lives?

Emily posted the issue to the AAAS Fellows' listserv, bravely broaching the sensitive subject of balancing career and family, and asking how others manage:

*Ever since having kids, determined to work only school hours, I've struggled with keeping a "part-time" career in science going. In my case, patching together consulting, soft money and teaching. It's been interesting and fulfilling, and when it's going well I feel fortunate to be able to do this--that I can keep on in science. I'm fairly certain, however, that this is not the career path that would be considered successful by the major scientific organizations in this country (like AAAS and NSF), but rather a step down. When these groups do refer to "alternative" careers for those (men and women) wishing to care for family and do science, they often refer to positions outside of academia such as industry, and often discuss/interview only those with full time positions. I'd like to think that a scientist who has gone through the rigors of training, research and publishing and logged some years in the profession has something*

*to offer their particular field, even if they cut back on the hours they can work to care for family.*

*I am curious about the experiences of those on this list who have split work and family -- what kinds of positions they've held, how they feel about their experiences, what kind of advice would they give to young scientists (particularly women) about their options, and finally what kinds of changes they'd like to see (if any) in academia, government, NGOs or industry?*

The responses reveal the existence of a community of highly educated women who are part-timing, freelancing, and creating a scientific career on their own terms, so that they can deal effectively with their personal lives and raise their children. Women in these circumstances prefer to speak anonymously, and we suspect that many did not even respond because they consider themselves "unsuccessful" (being outside of academia) and feel that they should be "in hiding" to conceal their situations. One woman summarized the overall perception problem:

*"As a woman physicist, married to another (academic) physicist, who raised two children (now successful adults), I can testify that part-time work is NOT an option for two reasons:*

*1) Women scientists who work part time are not taken seriously by their professional colleagues;*

*2) It is difficult to keep up with rapidly evolving R&D in a field when one is working part time (even so, nights and weekends have to be used to stay on top of one's field)."*

Such a rigid culture is what part-timers are hiding from, and succinctly represents the indoctrination we all received in grad school and in professional settings. Because this set of standards is a given in science, another woman responded:

*"I think you are correct that what you have done is perceived as a step down. This stems from there being too many qualified people for too few interesting jobs, and too little money in science to support those who are qualified. Unless there is actual public pro-family policy on this as in France, I think there is little hope of it becoming better for any scientist male or female who wants time off for family."*

Several others added:

*"I discovered I'd been 'duped' soon after I began my post doc. Currently I am a part-time scientist but, as you said, it is viewed as a step down, even though my full-time colleagues and former co-workers are too polite to say it out loud."*

*"Many of us feel we are in a real either or situation: we either have to continue struggling with our working mom issues, or quit (at some level) and go against all that women's studies has fought for."*

*"Another issue that I've heard about is a general backlash from the women's movement. Young women see how their mothers are constantly stressed out yet under-appreciated, under-paid, un-fulfilled, etc, etc., and they don't have any interest in following THAT role model. Our generation of women is, of course, trying to follow the role models of both our mothers and our fathers, which, of course, is a game rarely works like we hope."*

*"Some weeks ago, some of us talked about how we were all brainwashed into 'publish or perish and must have grants in highly competitive settings' as the only way to succeed in science careers--and now ... many others have found very productive and contributing careers doing other than that dictum."*

*"I am an engineer - also working mommy hours ..... I have worked for State government, big corps, little businesses, and on my own in various locations, situations, and capacities. It's been a long series of struggles and juggles. I totally agree that the push to get more women in science and engineering has ignored the elephant in the room - motherhood."*

This could remain a problem into the foreseeable future, if we do succeed in attracting young women into science. They may not be thinking that far ahead in their lives, or taking presumed feminist gains for

granted. Going into science as things now stand might be an uninformed decision, which they may back away from later:

*"I just watched a video called the Gender Chip. It follows a group of college kids (women) in engineering at OSU from their first year through their fourth year. I was at the showing designed for middle and high school kids, and it was followed by a panel discussion with the women featured in the video..... Anyway, I noticed the complete lack of questions from the teenage girls about "having it all", at least in terms of having a family and a traditional career. They were concerned, however, about whether it was possible to study engineering and have a social life in college. The young women panelists had not yet gotten to the stage in their lives when they were dealing with raising children, and it did not appear to be something that was on their minds. I was really curious as to whether this would be part of the discussion when the "grown-ups" saw the film in the evening. It was certainly on my mind as I watched it."*

**The Dilemma** - Graduate School prepares us for Academia, which is generally the only observable career while we are there. It does not prepare us for many realities, especially for success in our personal lives. Personal life and academic or other full time jobs almost seem mutually exclusive, with a few exceptions. Much of this will sound familiar:

*"The issues discussed in your initial email and the responses get to the very crux of why I am not a tenure-track professor. In grad school, I looked around at all of my professors (mostly male, but one female) and couldn't see anyone whose life I envied. They were all frazzled and cranky with too little time to spend with their spouses and children. What kind of life is that? What would be the point of having a family? I don't know. (And even in the decade since I finished grad school, although the Department has hired several new faculty, none of them has been female. The one woman in the Department shares a position with her husband. She falls under the category of frazzled and "stop your whining".)"*

*"It's not just science. I have seen at least 6 very talented, brilliant female PhDs bale out of academia because they couldn't simultaneously raise a family and pursue tenure. I have also watched many women in the private sector and government get passed over for advancement, because they put time into parenting. What worries me most is that if women (mothers) are not able to stay the course and work their way into management and high level positions, then the norms will never change."*

*"I've always been too afraid of suffering the consequences of "whining" to speak up. It's not just the sounding like whining, but it's how men (and successful women) will perceive it. Sour grapes? Those who have made it always want to believe they got there on their own merit and effort, not through some advantages, or the disadvantages of others. But, if these issues are not made a part of the public debate, things will never change."*

*"I started (but did not finish) a PhD program in engineering. While there, I was the grad student rep for the Women in Science and Engineering group. Having two children at the time I was acutely aware of the motherhood issues. But when I brought them up to the group (mostly women over 50) they actually got angry and totally dismissed me! So this issue hits tender cords among women that have to be addressed too."*

*"I finally gave up on science after trying for ten years (while having young children) to keep employed full time with benefits and to keep grant funding. It was exhausting and not rewarding. It became harder and harder. Finally, after enough grants turned down and no tenure track offers, I moved to healthcare. It has also been very hard. I have worked my whole career 50- 60 hour weeks and then come home to my second job. Basically, there is no time off for oneself while raising children. ... We did it on our own, with only that childcare we could purchase with limited academic incomes."*

*"I work part-time (60%) as an environmental scientist at a federal laboratory. For the past 2 yrs, I have enjoyed having such a flexible position and being able to spend more time with my son. I have also managed to write enough papers that colleagues are surprised to hear that I am part-time, partly because I am a good and efficient writer and also because I collaborate with productive people. However... A science advisory board (SAB) ... turned down a proposal of mine (which was supposed to cover a substantial part of my salary)..... On this*

occasion, I had to bring my feverish son and my parents ..., and with no sleep the night before, this was the first time that my split life might have really impacted my work and the viability of my job (though other factors contributed to this project loss). Also, this loss had financial impact to me because of the cost of plane and train tickets for everybody. I am not sure how often women scientists who have young children travel with them, but I am sure that those who do are always doing cost-benefit analyses. When my son was 9 months old, I once hired an unknown babysitting company to watch my son at a hotel while I gave a talk. That did not go well."

"My environmental sciences division is suffering under the priorities of the current administration (that as you know don't include environmental science), and I find myself working full-time hours with no salary to write very uncertain proposals. It is unsustainable, and it affects my mood as a mom."

"Imagine my shock when I realized I was working myself to the bone while paying perfect strangers to raise my children! And why? So that I could see the kids at dinner and on weekends?"

"I had not commented on this but in government sector I have seen this not as a "female versus male" issue but as a "parenting focused versus non-parenting focused" people issue. I have seen a couple of cases at least where men have left jobs in frustration over stalled promotion tracks when it was clear to everyone else around them that their prioritizing family above work did not help their cases for promotion. E.g. if you leave promptly at 3:45 to pick up your kids no matter what ..., it is unlikely that you will be tops in line for promotion over the men and women who stay until 10 PM to get the job done. Making this a women's only issue clouds the real issues of the ability of men or women to prioritize family in an increasingly competitive work environment. If ability to get promoted depends on your ability to put in higher numbers of unpaid overtime hours, then those who do not have this personal luxury are increasingly shut out of promotions, etc. I am one of those who is single, no kids and no plans or desires to have them but who finds the equal frustration of having little time for a personal life since those who have kids are given de facto priority for prime vacation time, for early departure, etc. Just something to consider."

"I have so many thoughts on this topic that I can hardly even begin. ... I am so completely embarrassed and downright afraid to admit to how difficult my life is, and how torn I feel. I was 12 years old when Ms. Magazine came to be, and my philosophy is heavily influenced by the women's movement; some might view me as a rabid feminist. I am a staunch supporter of equal rights. I have 2 children....and I have always worked "full time." I enjoy working, and I have always defended my right to work (despite co-workers who thought I shouldn't because I have children) and make a contribution. I feel women have just as much to offer as men; in fact many women are a lot better than men at multi-tasking and project management (what do we do at home!?). There is no excuse for excluding women from the task force or demeaning their positions. I always thought I could do it all, career and family, and although I "do it," I find that I feel desperate all the time. I am embarrassed and afraid to discuss this topic because it seems like as soon as a working mother admits to how difficult her life is, millions of articles come out with headlines/ themes like: "see, we told you so," or "children of working moms are defective in this way" or "colleges reassess whether its worth educating women," or "women choose to opt out," etc., etc. More fuel for the anti-equality fire. I love my kids, but I like to work, not because I'm greedy, but because it is good for me, it is good for my children, it is good for society, and it is only fair that I get to contribute. But society is so unsupportive - I keep hearing the grinding, judgmental voices out there constantly hammering at the working moms. There are all the abovementioned headlines and articles and "surveys" and I get questions from non-working moms like, "how can you take care of your children?" There is no compassion, no emotional support. The "system" doesn't want to change; the implications are that everything is "either/or" - you are serious about your career/job or you're not; you're "really" a mother or you're not. . . Personally, I feel that I am under a microscope and if I admit to exhaustion or how challenging this is, that is only more "evidence" for the detractors to pound their arguments further - their arguments that "women cannot do this," that women should not be promoted, etc. Again, none of my/our honesty breeds any compassion or more support, emotional or institutional or societal.

*Betty Friedan... called the plight of the highly educated, but unappreciated and bored and house-bound '50's housewife 'the problem that has no name.' Indeed, there is a new 'problem that has no name.'"*

*"I have at least a dozen professional women friends and acquaintances who have had to (or wanted to) downsize their careers and their personal goals for the sake of a sane family life, yet it does affect their psyches profoundly. They (and I) have cyclical ups and downs where we sometimes despair of ever resurrecting our careers, and times when it is a relief not to have that pressure. The cycles never seem to average to an acceptable level where we can be satisfied. A wonderful, thoughtful colleague of mine recently listened to me worry about my difficulties reconciling my need to raise my child and be involved in her life (among other things) with keeping up what is left of my career. She immediately, without hesitation, said, "I don't call that being a failure, I call that being sensible!" "*

**How Others Coped** – Sensibility, no matter how emotionally difficult, is apparently a popular choice. Many responders have taken this path, although no one solution can work for everyone. In fact, no one had it particularly easy even in the best of circumstances....

***Continued in the July-August Issue.***

**Editor's Note** - If you are a part-timer, freelancer, or have had to opt out of the standard career path for scientists, we would like to hear from you. Please send your stories, ideas and perspectives to [Editor@awg.org](mailto:Editor@awg.org). All respondents will maintain their anonymity. Future aspects of his topic will appear in **Gaea** and hopefully create impetus for a larger study of the phenomenon.

## Part-Time Working Mothers - No Longer the Underground of Science - Part 2

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In the last issue (May-June 2006), Part 1 of this article presented the comments of women scientists coping with combining a “life” (including children, family, home, and personal interests) and a scientific career, particularly the difficulty in sustaining a *part-time* career. The quotes were given in answer to a query to the AAAS Fellows listserv posted by Emily Monossan (former AAAS Science Fellow, mother and scientist) in which she “outed” herself as a part-time scientist and full-time mother. Emily’s frank and honest statement concerning her struggles to maintain a part-time career and her interest in other’s stories opened a Pandora’s Box of issues related to the difficulty of having “success” as strictly defined in science while also raising a family or otherwise having a full and well-rounded life.

In Part 1, we learned that part-time work is not even on the radar-screen in terms of being considered a real career choice in science, at least not one in which anyone will take you seriously, man or woman. Indeed, more than one woman was quoted as saying that part-timing is considered a step down, while others point out that being a full-time career scientist is “unsustainable” when combined with family issues. Even if you work full time, you run the great risk of being marginalized if you are not readily available for regular overtime/weekends/travel etc. One woman recognized the crux of the problem - **Science is all or nothing**. If you are not on a full-time, 24/7, “dedicated” career path, you are not considered a true scientist. Betty Friedan’s statement that the plight of the highly-educated 50’s housewife was “the problem that has no name” is logically translated to the plight of women mothers/scientists as “the new problem that has no name.”

Part 1 ended with a quote from a sympathetic colleague who recognized that downsizing one’s career in order to have a sane family life does not mean that one is a failure. It means that one is sensible. Here is the continuation, starting with:

**How Others Coped** – Being sensible, no matter how difficult it is to let go of your career, is apparently a popular choice. Not that this is the easy way out, even in the best of circumstances:

*“I fell into an idiosyncratic solution when I became a stepmother of three 11 years ago. I switched from being an assistant professor heading a laboratory (a 7-day-a-week job) to a work-from-home science policy job for CDC. I spent one year in between as an AAAS Diplomacy fellow at the State Department. At the end of the fellowship year, CDC offered me a job that I turned down because I couldn’t relocate to Atlanta, since my new family was in NYC. My prospective boss at CDC suggested that I work from home. To my surprise, it worked out well.*

*There have been some drawbacks. I have not moved up the ladder at CDC, since I have essentially held the same job all of these years. And I have not been very visible. Nevertheless, I have had interesting work and my salary has increased in a satisfactory way. One of the reasons I didn’t stay at NYU was that I felt I was a terrible role model for women students, some of whom asked me about combining work and family. If I hadn’t taken the AAAS, I suppose I would have tried to combine being a professor and a step-mom. I think it would have been very difficult, and (though I felt bereft and empty-headed when I left the lab, without my experiments to think about night and day) I have to admit that I was often harried and unhappy as an assistant professor even as a single woman.”*

*“A generation ago (“kids” are now in their 30s), we raised two children and had two academic jobs. The time flexibility that academia provided seems much more suited to family than rigid hours. We had a wonderful “nana” when the kids were very little, and by virtue of both of us pitching in, and being very efficient at school, it all worked out. Luckily our kids were very healthy and we didn’t have to deal much with kids sick at home and all that stuff. Not to say it was a piece of cake, but we did it, with two faculty positions and two great kids, who enjoyed going out in the field with us collecting fish and crabs on a number of occasions, and came into school with one of us on a number of occasions when their school was off.”*

*"I don't think anything has changed much over the years. Some women pull it off (Millie Dresselhaus is my classic example, with her many children while a prof in engineering at MIT), others don't. I had a home based business so I had flexibility. We used full time institutional daycare until my daughter was in elementary school – then I started working part time so she would have a parent available for schlepping, school activities etc. It worked for us."*

*"It was interesting to me to read that [name withheld] felt that university positions worked out for her family. I have interviewed for a few assistant professorships in the past 10 years and never got a warm fuzzy feeling about having children during the race to get tenure. (My graduate advisor always told me to tell interviewers what they wanted to hear, but I am not good at that.) I know couples at universities within the same department who have the advantage of being able to take over classes, etc for the other if illnesses/emergencies come up with the children."*

*"In retrospect, I do not view that fact that we had full time childcare as having our children raised by strangers. You can select educated caretakers and pay them adequately, and befriend them as we did. Our children had two families instead of one...Even so, there were many concessions made so that we can be both full-fledged professionals and parents. One of the reasons I chose to work for a federal R&D center is the flexitime, and a predictable work schedule NTE 8hrs per day. Mixing career and family was and remains a matter of personal choice and preference."*

## **General Concerns and Advice**

Choosing an alternative path (e.g. part-time or standard working hours) reveals the dismissive attitude in science - you have to be 100% dedicated to your career, or you will never really have one. Part-timers have the qualifications, technical means and initiative to accomplish much in the sciences, and are willing, able and available to do so. Yet there remain a variety of obstacles to part-time work:

*"... I would like a life with a few part-time sources of income in different areas. I would enjoy teaching a bit, researching a bit, and writing a bit. But there are many institutional barriers to this. My own institution's attorneys have been slow to approve me getting paid (using my own computer and home) to write articles for a toxicology trade newsletter, for example."*

*In the past I have always told younger female scientists that part-time, flexible research appointments are ideal for women with families. But now when I look at many of the part-time or freelance slots available, it seems to take a great deal of marketing time to get funds to do those jobs. I am still trying to figure it all out."*

*"I have found that my "network" of women freelancers is not very helpful in getting jobs. While they might mention possible jobs and even circulate my name and credentials, these seldom seem to pan out. In reality I am in competition with my friends who are also trying to make a living and a name for themselves. You almost have to hoard your connections to be assured of getting the jobs."*

*"I was told by a governmental entity to incorporate myself in order to be able to be paid to do research, write reports and get other contractual work. Their idea was to be able to allocate \$\$ to my company for a specific project as soon as they became available. I went through the trouble of incorporating, after which I was told that there was no work, and that homeland security concerns were siphoning off all discretionary monies before they could be assigned to anything else. I kept the corporate entity for two years, paid exorbitant fees to keep it on the state's list of companies in good standing, and never made a dime."*

*I have now just registered as a government contractor to work on a specific project, after waiting 4 months to be hired. The pay is fairly low and the workload and timing will be stressful. It is not that easy to find or get these jobs, and it takes a very long time to get set up in this business."*

*"I stopped having "tenure track tunnel vision" in my 3rd year of grad school when I realized that I had high ambitions for my career and that level of achievement is nearly impossible to reach if you want to have kids. In the consulting world, kids are barely a blip in the career path"*

*My advice to young women who want laboratory careers in academia or industry would be to think carefully as grad students about practical questions I was too foolish or unworldly to consider:*

- 1) *What fields are likely to remain well-funded?*
- 2) *What kind of working conditions would make them happy (whether or not they want to be mothers?)*
- 3) *How to carve out a happy niche in a work culture that may be poorly suited to those stimulated by imagination rather than by competition"*

## Try Consulting

Based on the following quote, the consulting industry, which is based on a business model which is apparently fundamentally different from that of Academia, might be more family-friendly. After all, these companies are in the business of solving problems and maintaining their good name and marketability. To do that, they require the best people:

*"From what I have read, temporarily leaving the workforce is "off-ramping" and coming back is "on-ramping." See [http://www.alumni.hbs.edu/bulletin/2006/march/network\\_career.html](http://www.alumni.hbs.edu/bulletin/2006/march/network_career.html) and <http://www.manilatimes.net/national/2005/apr/26/yehey/business/20050426bus9.html>*

*Just last month, in a Consulting magazine, I read about how consulting companies see women who are looking for attractive on-ramps as a highly desirable employee pool. They realize mothers can multitask and will eventually want back into their careers fulltime. They see these moms as highly qualified individuals that they can "steal" from their less savvy competitors.*

*I know the company that I work for has several employment options that are very attractive to moms.*

*I have hopes that this trend of designing "on-ramping" programs to woo talented people (men and women) back into the workforce becomes established. The nature of research science makes it a little more difficult to emulate the business model, but maybe a generation from now there will be a big enough cultural shift that it will be more possible."*

## What Can Academic Institutions Offer?

A number of institutions have official tenure clock polices, and Stanford University recently implemented a childbirth policy for graduate students (**Stanford**, March/April 2006 issue, published by the Stanford Alumni Association) wherein an accommodation period of two academic quarters will be provided in order to postpone coursework, exams and milestones, with pay and benefits for TAs and RAs. The article mentions that only MIT (among major Universities) has a similar policy.

Harvard just launched family leave policies, coincident with the departure of Larry Summers and largely implemented in response to the backlash following his infamous comments. Another article in **Inside Higher Ed** (<http://insidehighered.com/news/2005/08/16/clock>) states that "*Princeton University ...is now giving all new parents an extra year before tenure review — automatically. Many colleges promise to award the year to anyone eligible who asks. But at Princeton, you don't ask — it now just happens. And it can happen multiple times for people who have more than one child (and those who have twins can get two extra years at that time).*

*... the policy, which was approved by the faculty, was developed following a survey on the old policy, which like those of many colleges offered the year if people asked for it. The survey found that only a small minority of professors took advantage of the extra year, even though many said that they wanted to. "Most of the comments we received said things like 'we didn't know how we would be viewed' or 'we thought it might be viewed as a sign of weakness,'"*...

The November-December 2004 online version of **Academe** (<http://www.aaup.org/publications/Academe/2004/04nd/04ndtoc.htm>), published by the American Association of University Professors (AAUP), is dedicated to the range of topics having to do with the academic culture and how it affects tenure and careers of young faculty. Topics include: Hitting the Maternal Wall, Balancing Work and Family for Faculty: Why It's Important, and Fear Factor: How Safe Is It to Make Time for Family?

Outright part-timing in academia is more unusual.



*“OSU actually formally made a statement last year about diversifying the types of positions it offers to new faculty, specifically to include part time options. Though open to negotiation with any job candidate, it was specifically created to attract women faculty with children. I thought this was really a step in the right direction, though it remains to be seen if these women will be seen as “real” faculty and whether anyone will ever get tenure this way. But it’s a start.*

*The graduate students in our department frequently complain about not being educated about career options outside of traditional academic careers. As graduate studies chair, I often talked one-on-one with female students trying to figure out how to make life work. I always gave examples of women who have found very different ways, including part-time [in order] to have successful lives when children arrive after PhDs.”*

## What Next?

The next questions almost ask themselves.

- How widespread is the part-time scenario?
- How difficult is it to achieve and maintain?
- How large a portion of the scientific community does it represent?
- Does the likely prevalence of this paradigm (compared to the low percentages of women in mainstream science jobs) have implications for the future of scientific careers and particularly for attracting women to science and keeping them there?
- Should this reality be studied and quantified?
- Should it be acknowledged and validated?
- Should the accomplishments of part-timers and freelancers on behalf of the various fields of science also be quantified to assess the true extent of their contributions?
- Are there an awful lot of scientific and related tasks that would not get done without this vast, unsung workforce?

The answer to each of the above questions is a very loud YES. It’s time for some truths about scientific careers to be openly discussed and acknowledged by everyone in the field. But the final question is, do the scientific societies and academic institutions have the inclination to acknowledge and study this? Are they willing to work with and utilize the vast talent pool of educated part timers, and in doing so, change the culture of “publish or perish = success”?

The underground nature of the part-time paradigm is well-established:

*“I really appreciate your raising this issue, despite everyone’s reluctance to discuss it openly. I am on a number of scientist listservs (including one specifically for women earth scientists) and no one will ever bring this up. I had also seen the NYT article and been curious how other people felt about it.*

*The AAAS Fellows group is full of educated women who want to and have a right to have a career, as well as a family. Maybe AAAS should step up and have a session on this topic at a AAAS meeting. Do they dare touch it?”*

Ditto for GSA, AGU, AGI, and AWG.

One reader stated,

*“I would be interested to hear whether others who answer your query have ideas about going beyond “carving out a niche” to **institutionalizing better working options.**”*

And:

*“This is the crux of the matter – those of us dealing with these overlapping personal demands and career desires need to come out of hiding to demonstrate the true societal extent of the problem. The fact is, it’s not limited to just a few less driven women here and there, but affects just about everyone (men included) in early-mid career stages, or until the children go off to college.”*

*"I can only hope that by continuing to have the discussion, that ultimately policies and society will change to become more egalitarian and family-friendly. Although the responses you forwarded didn't provide names, I get the impression that none of them were from men. I am a little disappointed, though not surprised, that in this fairly progressive, well-educated group of people, that the men haven't stepped into the discussion."*

*"My dream solution to this very compelling dilemma (see below) is to have a major social change whereby parents can opt for a work day that is as long as the school day. Let's face it, many professional couples are pulling in decent incomes, perhaps many of them could manage financially if they both worked 6 hours a day (3/4 time) instead of a theoretical 8 (or longer).*

*This would mean lower costs finding before and after school care, less hassle finding sitters or carpools for kiddie sports and clubs, fewer worries about the 'danger time' of 3-6 pm when most adolescents get into trouble, and so on. If both parents work 6 hour days there might be less professional resentment between couples where one works a full 8 hour 'real' (sic) job and the other works 4 hours or less as a 'part-timer' to manage family and home. A truly equal partnership--imagine!*

*Of course work benefits and pay would similarly be reduced to 3/4 time, but I think that would be a wonderful trade off considering the STRESS we have had trying to handle school days that ran 9am to 3pm, whereas workdays ran 8 to 5.*

*What is more, non-parents could also opt for 6 hour days--spend some extra time getting to the gym or volunteering in the community. Our generation tends to ignore their health and their level of fitness, and we drop hobbies and activities---we just work too much and are too tired in the evenings. Then we spend our weekends catching up on housework. People opting for 6 hour days may also depressurize commuting times by staggering commuter traffic at rush hours.*

*From the employer's point of view, if the workforce is in better physical shape, less tired, and less stressed, I have little doubt that a 6 hour work day would be just as productive as an 8 hour workday under the old system, possibly with fewer sick days, too. That's worth 25% of MY paycheck."*

Sounds great – but would any business or institution have the courage and the vision to implement it, in this competitive world?

Here is a concluding statement from a woman who has some enlightening and liberating perspectives for all of us:

*"As a women biologist, married to another academic biologist who are together currently doing our best to raise two children who will hopefully become successful adults - I can testify that part-time work was an option in the years when I wanted family responsibilities to take precedence over scientific ones.*

*We are so fortunate to live in a society where we can plan the arrival of our children and usually hope for/count on our own longevity and good health. It is my experience and belief that while we may not be able to have it all at the same time - we can certainly have what is important to us in succession. Since each of us is different we will excel at and want to be deeply involved in different parts of parenthood (expand to any non-work aspect of life) and in different career capacities. What we all need - parents and non-parents of both sexes - are work places and a scientific community that will accept our bouncing back and forth from periods of work intensity to periods of part time work. Yes - we as a scientific community will have to be accepting of people needing time to get back up to speed after periods of lesser or different activity but in return we will get mature, balanced people with a wisdom and knowledge of life that would very likely otherwise be missing. We also might be and have colleagues who are less stressed and frustrated and far more pleasant to be around.*

*My own experience includes times of intense professional activity and involvement -for example in graduate school, during my AAAS Fellowship, and demanding positions at NIH and the American Museum of Natural History - followed by 6 years of part-time work and even a full year of no paid work before arriving where I am now. In the intense periods I was either single or just married with babies and young children who I was quite happy to hand off to someone far more patient and calm than I could have been (well paid, highly qualified women who are still close to me and my family). But then my babies became little boys who I wanted to spend more time with, impart my values to, and be able to do significant volunteer work to improve their schools... I was lucky enough to be able to find and create part-time*

teaching, writing, and programmatic work at Columbia and Bard. When it became necessary to leave NY and move to Washington, I wanted to make sure everyone was able to transition smoothly. I needed to find and renovate a house, do all that domestic stuff and again be deeply involved in a new community and school system so I stopped working for money for a year. I feel very lucky to have been able to bounce back into the workforce at a level - if not at a salary - roughly equivalent to my peers who never left. I feel very fortunate to work someplace where they understand I have a full life. It is ok for me to work late one night a week - because once you miss bedtime you've missed bedtime - but also leave early one day a week to take my boys to trumpet and trombone lessons.

Honestly - I don't spend much time worrying about whether my colleagues take me seriously or not - what has been and continues to be of utmost importance is how seriously I take myself and how I feel about my accomplishments and family. (Admittedly I am usually my own worst critic.) What we are all trying to do is hard - really hard - and we will forget things - sometimes even some important things and we will feel torn between two worlds and tired - sometimes really tired. But we will also feel happy - sometimes really really happy and all -in all I wouldn't have it any other way except maybe with just a little bit more money."

And one last thing:

*"Get used to the fact that everything we were ever told about career and real life is garbage. Just make your own way and don't be apologetic about it. Keep reframing your experiences in positive career-oriented terms."*

And good luck to all of the dedicated part-timers out there.

## **Gaea Readers Respond to Part 1:**

*Dear Editor,*

*I am a consulting geologist with my first child due in late December. I must say that the May-June issue of Gaea has me somewhat scared. Perhaps I was being naïve...or perhaps I've never desired or sought an academic career. Either way I do hope that there is a way of balancing motherhood and family with my career as a consulting scientist. I am forever the optimist and I do believe that anything is possible and, as illustrated in many of the letters, sometimes we have to get creative. Ultimately we also have to confront our unreasonable expectations....does success really equal academic career?*

*For my mother, a non-academic mathematician who traveled much of my teenage life, success meant raising two well balanced kids to be responsible adults who would find respectful and loving life partners. Now that my brother has finally announced his engagement, she counts herself as successful. Given her salary and title one could also argue she continues to enjoy a successful career as well.*

*Clearly we need a cultural shift. It must come from within our own minds and it must be supported by our government. I recommend reading The Motherhood Manifesto and visiting [www.momsrising.org](http://www.momsrising.org) to learn about a movement of mothers, of all careers, looking for solutions to this very important issue. If our mission is to peak the interest of women and girls in the geosciences then perhaps it is important to reframe the discussion. Anything is possible and each of us can have it all. The issue is really defining that which makes each individual happy rather than the projection of some outside view of "success".*

Another woman wrote:

*Dear Editor,*

*Any "successful" career I might ever have had was stalled long before [the baby]. From that standpoint, I sympathized with the person w/o kids who simply wanted to have a personal life! I took a break after my MS because I thought I needed both some experience in the "working world" to gain a better perspective on academia and to think about how I truly wanted to focus any further academic studies following some frustrations in grad school (including some gender issues....) That break allowed me to discover the joys of personal pursuits and hobbies. I had taken the GREs for the 3rd time (they kept expiring!) around the time I met [my husband], and he truly was a pied piper in terms of how I placed the day job lower on my priority list. Hence I stayed at [my job] way too long to even achieve any*

*“success” (recognition, \$, etc) as even a non-academic. But it was worth it because I was having so much fun after work gardening, bicycling, training/competing in triathlons, bike races, etc. Then came [my daughter]! I wasn’t totally sure how I was going to handle motherhood and the balance of mothering versus work. It was like walking into a fog bank and I was feeling my way. However, our mother-baby bond eventually made it clear that I wanted her raised by me and other family members as much as possible. My ho-hum job (and a daycare situation that was turning sour) made the choice to be with her easier on me, but I was still terrified that I’d never do anything worthwhile professionally again. That’s about the time that a contractual award gave me the courage to jump off the steady employment train, which gave me the confidence to quit the day job and lead to my current situation as a contractual worker for [my former place of employment]. I’m really happy with this situation and it keeps getting better as I learn the ropes. I get to do something I had fun doing while at [work] (to their advantage) and I have lots of time with [my daughter]. I still struggle with sleep deprivation for weeks before deadlines, but even that is getting better all the time. Yikes, look at the rambling personal reflection your article brought upon me!! Now I’d really better get to work.*

Clearly it is time to refresh the definition of success in the sciences. As my reader stated, we do need a cultural shift, and we need to utilize all available talent, part-timers included. At a time when the US is asking for many more Visas to import scientific talent, we need to make working mothers and other part-timers known and valued as a resource to the fields in need of expertise.

After years of education and experience, it seems ridiculous for so many worthwhile people to still be looking for their place in the sciences. It is equally ridiculous that the tremendous amount of work and research that needs to be done isn’t more readily available to part timers. Science, which by definition requires open mindedness, flexibility in thought process and willingness to consider new ideas and paradigms, should be the bellwether for all other fields of endeavor in promoting diversity, inclusiveness, and broad use of talent. The fact that the talent needs to have family time does not diminish its quality or the dedication behind it.

Please consider working with Emily Monossan on her proposed book by thoughtfully and honestly relating your own experiences. See the box above, which describes the project and consider responding to her request for essays. By documenting our own experiences, we may help to expand our opportunities and our participation in the field we love best.