

Under One Sky: the IAU and Women in Astronomy

Elizabeth Griffin

Herzberg Astronomy & Astrophysics Research Centre, NRC, Victoria, BC, Canada
email: Elizabeth.Griffin@nrc-cnrc.gc.ca

Abstract. Of all the sciences, astronomy is by far the most border-less in its activities, and the most advanced in its concepts of collaborating across borders. In their dealings and in their needs, today's teams are mature enough to ignore gender differences and ethnic differences, and across the past 50+ years of IAU membership which I personally can chalk up, the IAU personnel, Commissions, and other bodies have come to reflect more nearly the same – albeit small – gender ratios as found in its member institutions. In the IAU there has always been space for the individual, and if one recalls the early contributions to the IAU by major players like Edith Müller, Giusa Cayrel, Anne Underhill and Charlotte Moore, I think it can be said that astronomy was, and knew it was, better off by giving such people the latitude that they deserved as scientists, rather than because they were women. When a meeting in Baltimore in 1992 was called to discuss “Women in Astronomy”, the pressure came from the younger generations, who feared that the low percentages of tenured women in astronomy would be allowed to continue unnoticed, so they created the *Baltimore Charter* to draw attention to what certainly appeared to some as discrimination. Even though there could be no quick fixes to the situation, and the winds of change have been more like zephyrs than the cleansing gales that some hoped for, the percentage of women now rising through the ranks is definitely on the increase, and is witnessing growing ethnic diversity. Those are a matter of pride for the IAU, and must be highlighted in this its Centenary Year.

Keywords. Sociology of astronomy, women in astronomy, the *Baltimore Charter*

1. “*Women Hold Up Half the Sky*”

Much has been written, and probably much more is yet to come, on the fascinating topic of women in astronomy[†]. It is particularly fascinating to us, beyond doubt, because – as the Chinese proverb has it – *women hold up half the sky*, potentially able to increase Astronomy's rather small work-force as well as adding the essential benefits of *diversity*. I am therefore leaving it to those many other authors to recount or repeat the stories of women's slow but steady accession to positions of leadership, status and recognition, and just sketch here some personal glimpses of ‘great’ women astronomers whom I have met and who are no longer alive (their names are in **bold type**). Even my small and somewhat one-sided selection comprises a noteworthy reason for celebration during the IAU's Centenary Year.

[†] Although many historians cite the Danish astronomer Tycho Brahe, the precursor to Kepler and Newton and the great icon of accurate observations, as a founder figure in modern astronomy, few recall – or even know – that his younger sister Sophie, who had exceptional knowledge in mathematics and astronomy, was also passionate about observing, and assisted her famous older brother. Some Danes refer to the pair as their “binary star”.

2. A Personal Selection

I grew up through the turbulence of change, starting in the era when schools expected girls to become teachers, nurses or secretaries (that is, before stopping to raise children) and gave scant attention to the odd ones who hoped to pursue science, even tossing out discouraging remarks and prejudiced judgements. I graduated into UK and pan-European movements for Women in Science, dragging out the statistics and waiving the facts in front of those who might have the decency to listen. One valuable lesson that I learned fairly early on was that *I was not alone*; rather than internalizing the rejections and denials that seemed to roll my way with calculated repetition, I discovered that most other women shared very similar experiences. But as always, the glass is either half empty or half full, depending on one's attitude, and astronomy showed that some women could indeed "make it", despite the experiences of the majority of the rest of us, and it was through the IAU that they seemed to flourish.

3. Figureheads

One of the truly foundational astronomers was surely **Charlotte Moore Sitterly**, whose *Multiplet Tables of Astrophysical Interest* (1948) were the *sine qua non* of stellar abundance researches of most of the western world right up to the digital era. I recall seeing her at the IAU General Assembly in Brighton (UK, 1970), striding determinedly to a meeting of Commission 14 (*Atomic and Molecular Spectra*) while her other half trailed a considerable distance behind. Other women came into view in the IAU in that decade: the unforgettable **Giusa Cayrel**, gifted with magnificent enthusiasm, and (at the Grenoble GA, 1979) so deep in a passionate argument over the calibration of stellar spectra in a meeting of Commission 29 (*Stellar Spectra*) that with a wild Italian gesture she knocked for six the glass of water on the speaker's podium. Another rising star within that Commission was **Marianne Bretz** (Marseille), but who died tragically young. It was said (by the French) that "*Dr A. specializes in this, and Dr B. specializes in that, but Mlle Bretz – elle fait tout (she does everything)!*"

Edith Müller made history by becoming the IAU's first female General Secretary in 1976, a person whom I remember as especially supportive of young astronomers. No IAU meeting was the same without Canada's **Anne Underhill**, who relished verbal battles with the heavyweights of radiative transfer at meetings of Commission 36 (*Stellar Atmospheres*), of which she was President from 1967–70. From Italy came **Margherita Hack**, a dominant and outspoken woman in things both scientific and civilian (she was a frequent TV personality), and who was quick to seize the opportunities of UV observing from space; her Directorship of Trieste Observatory helped to place that Department at the forefront of Italy's stellar research. Another Italian, advocate of standard stars and generous with her time as secretary of Newsletters and Working Groups, was the more gentle **Laura Pasinetti** from Milan. Of course, the field was not even, and some other places did seem less anxious to advance. I remember **Vera Rubin**, on a regular visit to the Institute of Astronomy in Cambridge (UK), saying, "*Ugh! This place makes me shiver! Where are all the women?*"

4. Winds of Change

By the 1980s, possibly as a result of 'women into science' movements across the world, female students and graduates of astronomy were gradually becoming more numerous. Even the furniture at active observatories was being redesigned to match the new demands: never again would women astronomers be denied access to observing at the telescope for want of (as expressed delicately in colloquial Californian dialect) *a two-hole john*. Role models, too, were becoming slightly more abundant as the cohort of young

graduates moved into the post-doc years. And yet the statistics were still gloomy, and when the critical mass of young N. American women hoping for careers in astronomy exceeded safety levels, something had to give – which it did, in the extraordinarily productive two-day Baltimore Workshop in 1992. Of the 200 present, only about 25 were men (mostly the fathers of daughters). For the first day we shared stories and slung mud – it was cathartic, necessary and vital in order to get down to work seriously, for on the following day we produced the *Baltimore Charter*[†], a fine document that states the rights of women to be recognized as scientists, and the concomitant benefits of empowering them to be full-faculty researchers in astronomy. The timing was very propitious, since the IAU General Secretary was then Jacqueline Bergeron, and through her direction the *Charter* was circulated to every astronomical observatory worthy of the name. In addition, she commenced the practice of issuing gender-disaggregated statistics in the half-yearly *IAU Bulletin*, showing the totals and the gender ratios of IAU members in every country that adhered to the IAU.

5. A Gentle Revolution

Those statistics circulated by the IAU were eye-opening; even the most stubborn had to admit that astronomy had inherited a common Problem. Between them, the two circulations – the *Charter* and the statistics – encouraged astronomy departments to observe a respect for gender in the hiring of new staff, and also in nudging qualified women to apply for posts rather than continue their traditional tendency to hold back. Things moved forward in 2003 (Sydney GA) with the establishment of an Executive Committee Working Group for Women in Astronomy, with a mandate to collect information, propose measures, and initiate actions in support of equality of opportunity for achievement between women and men in astronomy, in the IAU and in the world at large; it acts as a federation of national Women in Astronomy organisations, creating links and facilitating information exchanges worldwide. Then IAU Resolution B4 (passed at the Rio de Janeiro GA in 2009) “*On Supporting Women in Astronomy*” at all levels of the career ladder injected an additional code of practice. And although the *rate* of increase in the gender ratios of more senior staff is only being affected rather slowly as cohorts progress steadily through the system, the IAU deserves considerable kudos, both for its patience in the past and for its vision in the present. Problems still remain, but no community of skilled humans is perfect.

In discussions about handling data in science in general, it is frequently said by other scientific domains that “*Astronomy has been there and done that*” (in the best sense). We can say much the same about equalizing the rights of the sexes too, and we can hope that both our management of data and our progress in the promotion of women within astronomical research will stand scrutiny as role models for the other sciences that may still be struggling in those respects. We offer this thought as a tribute to the IAU during its Centenary Year.

† <http://www.stsci.edu/stsci/meetings/WiA/BaltoCharter.html>