

## ONE WOMAN SCIENTIST'S PERSPECTIVE ON 50 YEARS SINCE THE UN INTERNATIONAL YEAR OF WOMEN



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(Photo by Milos Tosic)

I started my PhD in 1975, the UN International Year of Women. The slogan “Why Not?” was my standard reply to those who questioned my unusual career path.

As a scientist, wife, mother and grandmother, I’d like to share some observations about women’s equity over the past 50 years, a time bracketed by “Why Not?” at the start (Fig. 1), and “#MeToo” towards the end.

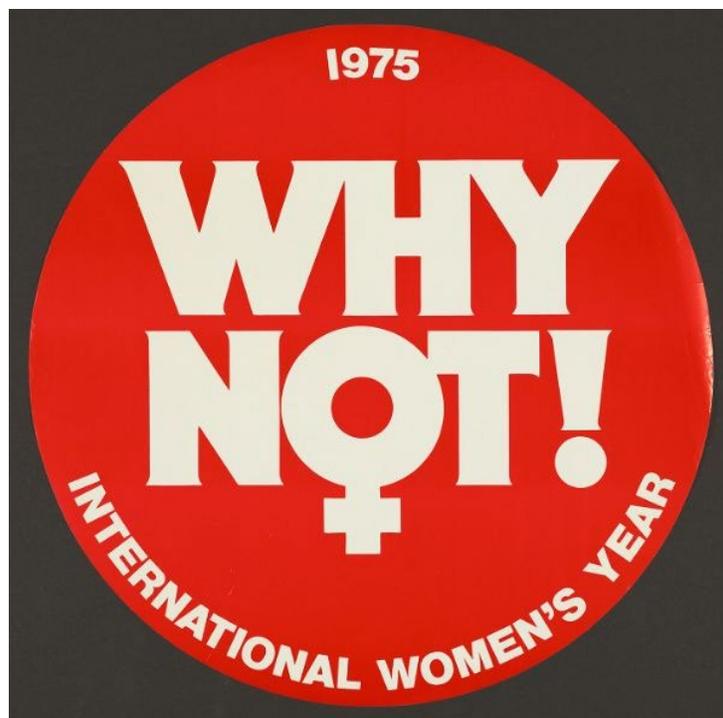


Figure 1. Mary Anne White’s career was bracketed by the UN International Year in 1975, depicted by this button with the slogan ‘Why Not?’, and #MeToo towards the end.

First to the fundamentals: washrooms. Early on, there were too few women for lineups. About 25 years ago, at a gender-balanced international scientific advisory board meeting, I had to queue to use the women's washroom for the first time. What a companionable turning point.

At Dalhousie University, where I am now Professor *Emerita*, I was the first woman appointed as a professor in Chemistry and, by cross-appointment, the first in Physics. Now seven of the twenty professors in Chemistry are women, and three of eighteen in Physics.

I admit I have not done as much as I could have to encourage women scientists. Early on, I gave an invited talk about women in science at which strident feminists accused me of 'male logic'. I decided that being a successful woman scientist was the most important thing I could do to help advance other women in science.

Although I try not to dwell on anti-female headwinds, one situation stands out. In a class late in the fall term in 1989 I spoke of the achievements of Katherine Blodgett, first woman Physics PhD from Cambridge [1], researcher at General Electric and inventor of anti-reflective coatings. I commented that she was overshadowed by her more-famous male colleague, Irving Langmuir. A young man shouted that was the way it should be. I said nothing in reply. The next day fourteen women were massacred at École Polytechnique.

The 1975 International Year of Women promoted equality between men and women, to ensure the full integration of women in society and to strengthen world peace. Let's consider the evolution of two main aspects of equity, namely women's work and women's quality of life.

Workplace equity starts with fair hiring. When I was young, "Help Wanted" ads were separated by gender. The Chair who hired me in 1983 had once vowed to never hire a woman professor; I believe he was enlightened by his daughters. In 1990 Canada eliminated workplace discrimination based on sex and marital status. Bias in hiring women, proven by gender-neutral résumé studies, is now actively considered by hiring committees, which (probably) rely less on the old boys' club. I initially published with just first initials to conceal my gender, until a colleague told me he preferentially read women's works. But when I see Dr. Lastname, my default assumption is that it's a man: internalized misogyny prevails [2]. Just ask someone who has lost a public-facing job because she decided to let her hair go grey. We have a step-function increase in awareness with each public situation.

Pay is another factor in career equity. Mid-career I received a 10% salary boost based on gender parity within my university, righting an inequity from the time of my hiring. It is well documented that women's voices are not 'heard' as well as men's, and not just in times of wage negotiation. Women's wages in Canada still average 20% less than men's for equal work.

In a more nuanced look beyond direct job comparisons, women still occupy most jobs with the contradictory factors of low pay and high responsibility, including day care work, teaching, nursing and personal care. Remedying their wages requires great public will.

For a scientist, career development, and grants and awards all march in parallel. CAP prize notifications in the past decade show only 17% of awards to women, five years with no awards to women. On award selection committees I have lamented the absence of nominations of women and people from

other under-represented groups. One proven way to approach equity for awards is to allow self-nominations, side-stepping 'connections'. The CAP instituted self-nominations in 2024, and already the success rate for women has improved to 29%.

Another part of equality is improvements to women's quality of life. In Canada we now have better parental leave than the three months of maternity leave when I had my children. NSERC has clear and generous extensions of grants and student support during parental leave, unheard of in the 1980s. Reduced day care costs in many parts of Canada are another huge boost for families. We paid a lifetime total for two children of about \$20,000 in day care/lunch and after-school care, starting at a time when my gross annual salary was under \$30,000. Engagement of today's parents in the workplace would be enhanced if before- and after-school childcare were more affordable.

Especially when children are involved, having a true partner can level the load. My husband and I were both PhD students when we married, and household chores have been equitable since the start. We need to raise sons and daughters to be equal partners in household relationships.

While some jurisdictions in Canada now provide free menstrual products and birth control, and menstruation and menopause are openly discussed, many clinical drug trials optimize dosages for male bodies. (Apparently this approach goes back to Aristotle characterizing females as 'mutilated males' [3].) As a result, women can be over-medicated and experience harmful outcomes, from missed cardiovascular disease to sub-optimal lung cancer treatment. This is just bad science! The CIHR Women's Health Research Initiative was recently set up to address under-researched and high-priority areas of women's health. It's about time.

One of my greatest privileges is to be invited to preside at Canadian citizenship ceremonies. Presiders are asked to highlight the Charter of Rights and Freedoms, ensuring every citizen has the same respect, dignity and consideration, regardless of gender expression or identity, race, religion and culture. Full implementation is still a work in progress.

Globally, there has been some improvement in women's equity. In 1975, only four countries had ever had a woman leader; today, more than sixty have [4]. When I was young, domestic violence was prevalent but unspoken. Now about 90% of people live in countries that criminalize domestic violence and sexual harassment in the workplace, up from 50% in 1975 [4]. Non-disclosure agreements are under scrutiny never seen before. But laws alone don't change attitudes and behaviour. And from many locations in Canada you can see a country where the right to reproductive freedom is under attack.

Global conflicts disproportionately hurt girls and women. The UN predicts it will take 137 years to end extreme poverty among women and girls [5]. More than 100 million girls around the world are denied the human right to education [6]. More women in politics can make a difference in these matters, but first we need to respect the women we elect.

I thought that by the time I was retired there would be no more 'first women' anything, but not so. Recently we have seen installations of the first woman President of the Métis National Council, the first

female Chief of the Defence Staff, and the first woman umpire in Major League Baseball. And there are many more 'firsts' yet to be achieved.

Inclusive language can promote equity. Now gender-inclusive terms such as 'firefighter' or 'actor' are common. I now rarely hear "best man for the job" or "manpower" or "girl" (describing a woman). The two-word change in O Canada from "in all our sons command" to "in all of us command" finally makes me feel included.

While I have focused on women, the rights and freedoms of many people are under attack across the globe. Social media, which held such promise for free flow of information, has opened new channels for hateful words to spurt out. As a society we are far from equality when it comes to respect.

AI is part of the problem, perpetuating gender bias as it is trained on data which itself has gender bias, by AI developers who are mostly male, leaving open the possibility of potentially lethal AI health advice for women.

However, over the past five decades the social situation for women in science has improved considerably: more community, more acceptance, better childcare, more equitable hiring and pay. Misogyny that was prevalent is no longer tolerated [7]. Although there is still room for improvement, such as increased numbers of women in AI to encourage equity as a platform, I have found being a scientist to be an exceptionally rewarding career. It is logical and self-correcting, and challenging and engaging in ways not matched by other professions. Science can accommodate a wide range of personalities, from reclusive to gregarious. Scientists can work anywhere in the world and the barrier to collaboration is low. And we can make a difference in society.

We need everyone's perspectives and thoughts to move us to a more humane way of living, one that is sustainable for generations to come. Research has shown that diversity enhances problem solving, as I have witnessed first-hand in my lab. True equity can play a major role in this process.

After all: Why not?

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