

PILGRIM'S PROGRESS

A WOMAN SCIENTIST LOOKS BACK
OVER FIVE DECADES

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In our present era, at the start of the twenty-first century when so many women are entering professions in the scientific field, it is hard to believe that it was only during the last decades of the twentieth century that this became commonplace. When I entered the University of Cape Town as a B.Sc candidate in 1955, I was very conscious of being part of a minority group. In those days girls were not usually encouraged to undertake careers in science, except perhaps as teachers; most of the young women who entered universities then studied in the Faculty of Arts or possibly Social Science with a view to careers in teaching, librarianship or social work. In the Faculty of Science it was the biological sciences that attracted the highest number of women. In disciplines like Physics and Chemistry there were very few. The proportion of female students in the first-year classes in these departments was of the order of 25%, dropping to around 16% at second- and third-year levels. I chose Chemistry as my major subject and in my final undergraduate year I was one of only ten women students in a class of about 60. That seems a small number by today's standards, but in the 1950s UCT was very much smaller than it is today.

Most of that third-year Chemistry class left the Faculty of Science after graduation, to become teachers or take up positions in industrial laboratories. However, seven of us, including three women, decided to pursue our studies further and were accepted as members of the BSc. (Honours) course in Chemistry for the year 1958. Our Honours class departed from what had until then been the norm for two reasons. Firstly it was the largest group to have undertaken the course; previously there had been only two or three students, but there were nine of us, as two candidates joined the class

after graduating at other South African universities. The second, and even more startling, difference was that women were in the majority in this class; the two coming from other universities were both women, which meant that the female to male ratio was 5:4. This caused quite a stir in academe, and was regarded by the older generation of Chemistry lecturers as "an interesting experiment". Sadly, because of a lack of uniformity in the chemistry curricula at different universities at that time the two who were new to UCT encountered insuperable difficulties and did not stay the course. However all three of the female UCT graduates were successful, two being awarded first-class Honours degrees.

Now we progressed to the level of postgraduate research students. Of the three young women, one went overseas to pursue a research career in Biochemistry (a field that was not well developed in South Africa at that time) but two of us chose to remain at UCT for our doctoral research. We also joined the academic staff as Junior Lecturers. Once again we found ourselves constituting a minority group, as the other female members of the Chemistry staff were either secretaries or research assistants to the professors; the appointment of women to academic posts in the Chemistry Department was virtually without precedent then. My colleague, Ingeborg Harding-Barlow, and I achieved our doctorates in three years, in each case at 23 years of age. It was now time for postdoctoral work overseas and we both had reason to be grateful for the initiative taken by IFUW in promoting the interests of women research workers by means of the International Fellowship Programme, in an era when international fellowships and research bursaries were mainly reserved for men. In September 1961 Ingeborg went to the United States of America to pursue her research in spectroscopic analysis as the holder of a Fellowship awarded by AAUW. In March 1962 I was awarded the Ohio State Fellowship by IFUW and a few months later I commenced my year as a postdoctoral Research Fellow at the Imperial College of Science and Technology in London.

In the research group where I worked at this world-famous institution I was the only woman scientist. However a possible reason for this was that, as our particular

field of research was of crucial interest in addressing the problem of processing radioactive wastes, the laboratories were located in the Royal School of Mines where the majority of the staff were engineers or mineral technologists; these were not careers chosen by women at that time. There were some female research workers in the pure science departments at Imperial College, especially in the biological sciences and the rapidly burgeoning fields of biochemistry and microbiology. The proportion, though, was as low as it had been in my senior undergraduate years at UCT and one can say that women scientists were still considered a rare species, even in London, during the early 1960s. This even affected the Imperial College choir which experienced great difficulty in achieving the correct balance of male and female voices. I was warmly welcomed into the choir as a genuine alto, which relieved some hapless male tenor from attempting this part. Thus, my time at Imperial College was filled with interest, not only scientific but also in the musical sphere!

After my Fellowship year I returned to Cape Town and in January 1964 I rejoined the Chemistry Department at UCT, as the holder of a research bursary awarded by the Council for Scientific and Industrial Research (CSIR). For the next four years I continued the research I had begun at Imperial College, which resulted in several publications. I also found myself in charge of a group of postgraduate students who were working in a field similar to that of my Ph.D research. The Senior Lecturer who had supervised my doctoral research had emigrated to Australia and, as no other member of the academic staff was familiar with the field, the department took the unprecedented step of appointing a woman as supervisor of a research group, all male and most older than I. Fortunately no problems arose and by 1968 I had successfully steered them all to their Master's degree or doctorate. I held a temporary Lecturership on two occasions when a member of the permanent staff was overseas on sabbatical leave but no permanent post on the academic staff was available. During the 1960s it was still considered unusual for a woman to lecture in the Chemistry Department even though the proportion of female research students was gradually increasing and succeeding

Honours classes produced more leading women graduates.

In 1968 I finally managed to achieve a post with some degree of permanence, though not on the academic staff. The CSIR had begun supporting full-scale research units within university departments which were regarded as centres of excellence in particular fields. Professor Alistair Stephen, Head of Organic Chemistry at UCT, was granted such a unit for research on the structural chemistry of complex carbohydrates, a field in which he was an internationally acknowledged expert. The new unit was staffed mainly by postgraduate students who were working for their doctorates but a post of Senior Research Associate was created and I was invited by Professor Stephen to fill this post. This was somewhat unexpected, as at the time I had no experience of research in organic chemistry as such, but it soon became evident that techniques based on chromatographic methods, part of the broad area of my previous research, were indispensable in the isolation and analysis of complex carbohydrates and therefore I decided to accept the offer. It was then that I found my true niche in chemistry. Chromatographic analysis was an area of rapid growth as the rich potential of such techniques gradually emerged and I suddenly found myself at the cutting edge in finding valuable applications of these methods in carbohydrate research. As my publications on this work increased, I started receiving invitations to contribute chapters to books that were published internationally, and during the 1970s I attended my first international conferences. I found many women presenting papers at these conferences, in contrast to the situation in South Africa. Another decade was to elapse before the presence of women delegates at chemistry conferences would become commonplace in this country.

During my 21 years in the Carbohydrate Chemistry Research Unit at UCT, I was Deputy Director of the unit and on three occasions I acted as Director when Professor Stephen was overseas on sabbatical leave. I supervised many postgraduate students in their doctoral research. During the 1980s an increasing proportion of these students were women, a trend seen in all branches of chemistry. There were still no women on the

permanent academic staff but that changed in the 1990s when a set of criteria for appointment to the academic staff and for subsequent promotion was introduced by the university; these criteria applied to all, irrespective of gender, and this change finally removed the last traces of gender discrimination in previously male-dominated departments.

At present the proportion of women on the lecturing staff of the Chemistry Department at UCT is about 40%, with two at Senior Lecturer level. As they are both under 50 years of age they can probably expect further promotion to the rank of Associate Professor during their careers. Among the research students the male:female ratio is about 50:50 and the same applies among the undergraduate chemistry students, even those registered for degrees in Chemical Engineering, a field being chosen quite frequently by young women today.

Thus, women have come a long way in the scientific world since those tentative few who studied in this field during the 1950s. I have retired from the laboratory now, but still devote much time to writing in the carbohydrate field as well as helping the new generation of aspiring scientists with various writing assignments. It is a joy to look back on my own research career and to watch the development of emerging, highly promising chemists – especially as so many of these scientists of the twenty-first century are women.