



Freedom and recognition for women through societies

Edith Saunders was a leading member of several societies. In the late C19 and early C20, the activities of middle class women were severely restricted to what was deemed appropriate. Many of the major scientific societies strongly resisted including women. The Royal Society, for example, did not admit women Fellows until 1945. Occasionally a woman was lucky enough to have a paper presented – by a male member. Initially William Bateson reported Edith Saunders' findings at meetings, although she eventually presented her own research. In her obituary of Marion Greenwood, Edith Saunders uses italics to stress the significance of Greenwood presenting her own paper to the Royal Society in 1895..

However, where they were able to become members of scientific societies and attend meetings, women could enjoy an almost incredible degree of social and even academic freedom, make contacts in their field, and even gain due recognition as scientists. Women might give talks themselves, or at least listen to vital scientific debate as it happened, and not merely read what was reported circumspectly in journals. Some organisations provided small though crucial amounts of funding for research, and a means of publication where the non-aligned scientific press was unreceptive. Edith Saunders was sufficiently respected to be elected as a rare female member of major organising committees.

The Marshall Ward Society, 1908-1915

Although only a small Cambridge society, with a maximum of 12 members at any time, this is one of the most interesting of all the societies of which Edith Saunders was a member. It was founded by a very small group of people - 7 male Undergrads in the Botany Department, and 3 women also studying Botany - 'to promote interest in all departments of botany and by free discussion to stimulate original research'. Women gave talks from the beginning. This was not a case of women being 'allowed to join' but an **exceptional early instance of women being involved in the foundation of a genuinely gender-unimportant society based entirely on common interests**. At a time when women must sit separately from men in lectures, and members of the women's colleges faced expulsion if seen with a man in public, or for visiting a male student's room, it is remarkable that the founder members were even able to discuss forming a mixed-sex group of 'under MA' status. For this to have happened, the Botany Department must have upheld the society's intent and recognised its value. Edith Saunders' support was critical to the foundation of the Marshall Ward Society, recognised by her nomination as one of five Honorary Members.

The Society stopped meeting in 1915, as much demoralised as it was depleted by the Great War. By that time, 25% of the members had been female, and there had been more female presidents than male. The 'fixture cards' show that many meetings were held in male members' College rooms. It has to be emphasised how ground-breaking this was. Undoubtedly Edith Saunders, as a College staff member, was required to attend as a necessary chaperone, and so her presence is carefully minuted. The late start time of 8.15 pm for meetings could also prove problematic. M R Michell/Levyns [in *Newnham Anthology*] relates how the debate often got heated and meetings finished late [details unfortunately not conveyed in the Minutes]. Edith Saunders used her key to a Newnham gate to smuggle Michell and other Newnham members back in past curfew. [As a postgraduate from a South African university, Michell records how surprised she was at the level of sex segregation at Cambridge]. Meetings were also held at Newnham College, though always in public spaces.

Marshall Ward Society members in front of the Botany Dept, 1909, including Honorary Members F F Blackman and Edith Saunders seated on the left; A C Seward and A G Tansley on the right [Francis Darwin missing] Seated centre is the President, David Thoday, father of John Thoday, Balfour Professor of Genetics 1959-83. Standing between him and Saunders is his future wife Mary G Sykes. Seated on the ground is Nora Darwin, granddaughter of Charles Darwin. The other women are Edith Stephens, holding the Minute book, and A A Irving. All are Newnham women except Nora Darwin



Royal Society, 1660-

Edith Saunders died before women were admitted as Fellows, but through Bateson she derived considerable benefit from the RS through funding, and a means of publication. Bateson became a Fellow in 1894, signifying that he was accepted outside Cambridge if not within, and he was able to secure small research grants for his 'group' from 1897 onwards. Edith Saunders was often expressly included in his bids for funds, for example his application of Nov 1897, in which he stated he had taken an allotment in the Botanic Garden. 'The experiments will be carried out partly by myself and partly by Miss Saunders, whose paper on *Biscutella* was lately published in Procs Royal Soc. If any grant is made to me it is understood that it will be applied to the maintenance of our experiments jointly'. He agreed to join the Evolution Committee in 1900, after some of his 'enemies' had resigned, and he turned the necessity to report on his funded research into an opportunity to spread his message far more widely. Bateson and Saunders' lengthy and detailed 'Reports to the Evolution Committee: Experimental Studies in the Physiology of Heredity', became the most well-known vehicle for their early genetics research. In the first report [1902] authored by Bateson and Saunders, the details of her plant crosses are presented first and are afforded 65 pages, far more than for his chickens [and far more than any journal would have allowed] with many tables included. She felt able to conclude, 'The phenomena in *Lychnis*, *Atropa*, and *Datura* follow Mendel's law with considerable accuracy, and no exceptions that do not appear to be merely fortuitous were discovered'. Punnett was listed as co-author with Bateson and Saunders for the 2nd [1904] 3rd [1906] and 4th [1908] reports. They were not authors of the 5th report [1909] but their input is acknowledged. By the third report Saunders was reporting [in 'Stocks'] that 'facts have been rapidly accumulating, and we now have a large body of evidence drawn from experiments on animals as well as plants, on which to support and extend the new theory'.

Despite never being a member of the Royal Society, it was useful to Edith Saunders to have her work published in its Proceedings - including her 'breakthrough' paper 'On a Discontinuous Variation Occurring in *Biscutella laevigata*' in 1897 – and even present her own work at meetings, because of her connection to Bateson.



It is 1930, and Edith Saunders is the only woman on the Exec Committee of the Fifth International Botanical Congress. Whilst signifying her importance, this does raise questions about women's lack of recognition at Cambridge at this relatively late date

The Genetical Society, June 1919 -

Nature [103:432] credits Edith Saunders, who often proposed greater collaboration between scientists, breeders, and industry, with the initiative behind the founding of the Genetical Society, though Bateson called the first meeting. Members could be engaged in teaching or research in genetics, or in plant or animal breeding, and 16 of the original 87 were women. The three or so meetings per year incorporated visits to agricultural experimental stations, university departments and museums with dinners. In July 1935, Edith Saunders was a visitor to the current Department of Genetics building, then the School of Agriculture, giving a demonstration of her *Nolana* hybrids. Few papers were published because of the Society's informal nature. Saunders had also proposed a vehicle for publication but Bateson declared this unnecessary – unsurprising given he and Punnett had established the *Journal of Genetics* in 1910.

Saunders was a Vice President with Bateson from the Society's inception, and its [4th] President from 1936-38. She was its long-term Treasurer, apparently up to her death. Perhaps because of her own background, she was conscious of the funding difficulties scientists faced. During the 1930s, she called for donations for displaced workers to continue working in *Nature*, and arranged for the Foreign Geneticists Appeal Fund to be set up '...to take measures on behalf of the Society to assist genetical workers who may be suffering from political or racial discrimination.'

The Royal Horticultural Society, 1804-

The RHS was as prestigious as the Royal Society in the late C19 and early C20. Bateson aligned himself with the RHS in 1897 with the intention of tapping plant breeding expertise for his experiments. The RHS in turn was ready to support his [pre-genetics] research because of the financial rewards consequent on specially-bred plants, and their need in turn for the expertise of plant physiologists.

The earliest genetics conferences were in fact RHS Conferences on Hybridisation. The first was held in London in July 1899, and the list of invited 'well-known hybridists and botanists' includes Saunders. It was in his speech 'Hybridization and cross-breeding as a method of scientific investigation', that Bateson introduced his concept of discontinuous variation, and he concluded by inviting plant breeders to join his investigations. Edith Saunders did not give a paper, but Bateson reviewed her research and drew attention to her plants on exhibit. It was whilst he was on the train to London to deliver a speech to the RHS on 'Problems of heredity as a subject of horticultural investigation' in May 1900, that Bateson rediscovered Mendel's theories, which were discussed in a recently-published paper by Hugo de Vries, lent to him by horticulturalist Charles C Hurst.

Bateson was President of the 'Third International Conference 1906 on Genetics' It was in his Inaugural address 'The progress of genetical research' that he publicly gave Genetics its name, and thereafter 'rebranded' the conference:

'..the science itself is still nameless, and can only describe our pursuit by cumbersome and often-misleading periphrasis. To meet this difficulty I suggest for the consideration of this Congress the term *Genetics*, which sufficiently indicates that our labours are devoted to the elucidation of the phenomena of heredity and variation.'

Edith Saunders this time gave a paper 'Certain complications arising in the cross-breeding of stocks' and the discussion afterwards indicated the great interest aroused. Presenting a medal to Saunders, RHS President Sir Trevor Lawrence said:

'Miss Saunders has conducted the most intricate and difficult researches on the basis of Mendel's Laws – researches demanding the utmost exercise of patience, coupled with the keenest observation. A silver-gilt 'Banksian' Medal is awarded to her for the value and extent of her researches in the physiology of inheritance in plants'

Yet despite her recognition as a plant breeder, Edith Saunders did not become a Fellow until 1925, and even then her papers were being communicated to the Society by men.