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## 2001

### Brigid Hogan

Brigid Hogan, like many other children growing up in post-World War II Britain, learned to find happiness in spite of hard-ship. Her parents were both artists: her mother taught dress design, illustrated books, and did wood engraving, and her father had begun a career in stage design. Unfortunately, life did not treat Hogan's parents kindly. During the war their home in London was completely destroyed by a bomb, and her father died shortly after returning from the front lines in 1945. So, her mother was left to bring up two children alone, in a rented house in a small village about 50 miles outside London. She worked as a dressmaker and struggled for many years with depression and poor health. Although her mother knew nothing about science or biology, she supported Brigid's interests and dreams unquestioningly, and her tenacity, courage, and hard work were powerful lessons for her children.

The loss of her home and husband were terrible blows to her mother, but for Hogan, it meant growing up in a lovely village surrounded by farmland and woods, in a small community where it was safe for her and her brother to go out alone where they would often play outside until dark. Of course, life was not easy for anyone in post-War Britain. There was the rationing of foods—a single banana was a real treat—and the house was always bitterly cold in the winter. Nevertheless, Hogan has very happy memories of playing in the woods and fields and working in the garden with her grandmother. She distinctly recalls her intense delight in such things as catching small fish from under the stones in the local river, watching birds nesting in the hedgerows, and listening to the screech owls at night. Without doubt, this was the time when Hogan fell deeply and irreversibly in love with natural history and biology.

But her passion for biology as a science also derived in part from her need as a child to impose some sense of order and reliability on what she realized as an adult was a rather insecure and unpredictable home life. Scientists sort out a problem step by step in a rational way and, therefore, gain a sense of control over something that appears initially to be far too complex to understand: Hogan learned how to cope with the uncertainties that her mother sometimes found overwhelming by learning to play with ideas in a scientific way.

Hogan feels very lucky to have gone to an excellent all-girls' high school, where a young teacher fresh out of college was appointed to teach biology. That he was the first male teacher in the history of the school naturally aroused intense interest, but, most important, he knew all about the most recent research into DNA and genetics. He swept aside the old textbooks and had the class making preparations of chromosomes from dog testes and *Tradescantia* and designing their own experiments. Because of him, she claims, Hogan was able to study on her own for the entrance exams for Cambridge University, which usually required an extra year's work. She desperately wanted to go to Cambridge because of its reputation in science, and gained admission to Newnham College, an all-women's college of Cambridge. She reflects on her experience there as invaluable, and she has retained a strong loyalty to the faculty and students to this day, though, ironically, she was not particularly happy at the time. Her unhappiness resulted in part from naivete about relationships but also from the behavior of some of the male faculty toward women, behavior that "would not be tolerated for a moment" today, she reflects. Hogan remembers one occasion when she was made to feel particularly stupid for being confused about skull bones. Much later, it was a source of great personal satisfaction to her that her lab identified some of the first mammalian homeobox genes.

Even more gratifying, her student, Peter Holland, became a leader in the evolution of the vertebrate head. Because of the mixed memories, Hogan feels that one of her major achievements at Cambridge was to come away still in love with biology.

Ever since high school, Hogan had been interested in how embryos develop and how complex structures are generated from simple primordia. However, at Cambridge there were no courses yet in cell or developmental biology, so for her postdoc, Hogan crossed the Atlantic and studied sea urchin development with Paul Gross at MIT, where the energy level, enthusiasm, blatant competitiveness and optimism of the scientists were all revelations to her.

It was not until around 1974, after moving back to Britain to the Mill Hill Labs of the Imperial Cancer Research Fund in London, that Hogan finally found in mouse teratocarcinoma cells an experimental system that really inspired her. During this time she was supported by John Cairns, the director of the Mill Hill Labs, and enjoyed the luxury of not having to write NIH grant applications on topics she knew nothing about. Hogan's studies on how to direct the differentiation of teratocarcinoma cells led her to start thinking about the development of normal mouse embryos. There was a long and distinguished history of research into mouse developmental genetics in the UK, and Anne McLaren in London was particularly supportive of Hogan. So Hogan came to focus on mouse development fairly late in her career, after working on several other problems that did not really capture her heart in the same way but provided very useful experience.

Now at Vanderbilt University, there are still parts of Hogan's life in the UK that she misses. Issues that are deeply controversial in the United States, such as abolishing the death penalty, imposing strict gun control, and a woman's right to choose to have a child, are taken for granted in Britain. Also, as someone who has been an unwavering atheist since girlhood, Hogan is still often surprised by the strong influence of religion on American society. However, on balance, Hogan feels that the United States is undoubtedly the best place in the world to be a female scientist, and she loves the wide-open spaces and the sense of energy and optimism in scientific life. She makes it clear to Americans who ask that she does not miss the British Royal Family—in general, Hogan is disappointed by their “remarkably shallow” interest in education, science or technology, considering how important these activities are for generating the riches they enjoy. By contrast, she is very impressed by the willingness of wealthy, self-made Americans to support basic research and promote technological innovation.