Podcast: The dark connection between cancer research and the eugenics movement

Geneticist Dr. Kat Arney explores the stories of two women – one a scientist fascinated by dancing mice, the other a seamstress with a deadly family legacy – who made significant contributions to our understanding of cancer as a disease driven by genetic changes. Yet while their work paved the way for lifesaving screening programs for families, it was used by some as justification for eugenics – the idea of removing "genetic defectives" from the population.

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Maud Slye

Maud Slye. Photo by Helen Balfour Morrison, Library of Congress – Public Domain

Born in Minnesota in 1879, Maud Slye was a cancer pathologist who dedicated her career to studying patterns of cancer inheritance in more than 150,000 mice. But as well as being a dedicated scientist (as well as a part-time poet), she was also wedded to eugenic ideas, suggesting that "*If we had records for human beings comparable to those for mice, we could stamp out cancer in a generation. At present, we take no account at all of the laws of heredity in the making of human young. Do not worry about romance. Romance will take care of itself. But knowledge can be applied even to romance.*"

While her ideas were controversial, Slye's work earned her a gold medal from the American Medical Society in 1914 and from the American Radiological Association in 1922. She was also awarded the Ricketts Prize from the University of Chicago in 1915 and an honorary doctorate from Brown University in 1937. She was even nominated for a Nobel prize in 1923.

Over the decades since Slye's death in 1954, we've come to understand that the hereditary aspects of cancer susceptibility are much more complicated than she originally suggested, although her work was vital in establishing inherited gene variations as an essential thread of cancer research.

Running parallel to Slye's work in mice was the research carried out by Aldred Warthin, a doctor working at the University of Michigan in Ann Arbor. One day in 1895, a chance meeting between Warthin and a local seamstress, Pauline Gross, set the two of them off on a 25-year-long quest to understand why so many members of Pauline's family had died from cancer at a young age.

Pauline spent years compiling detailed family histories, enabling Warthin to trace the pattern of inheritance through Family G, as it became known. Like Slye, Warthin was a fan of eugenic ideas, describing Pauline's family as an example of *"progressive degenerative inheritance – the running-out of a family line through the gradual development of an inferior stock."*

He was also quoted as saying in a 1922 lecture: *“Today it is recognized that all men are not born equal. We are not equal so far as the value of our bodily cells is concerned.”*

Perhaps as a direct result of growing public concern about eugenics, Warthin’s work fell out of favor. Pauline’s detailed genealogy lay undisturbed in a closet in the university until the 1960s, when American doctor Henry Lynch and social worker Anne Krush rediscovered her work and continued extending and investigating Family G.

Nearly a decade on from that first meeting between Pauline and Warthin, researchers finally pinned down the underlying genetic cause of this deadly legacy: an inherited variant of the MSH2 gene, which normally repairs mismatched DNA strands. Today, members of Family G – and others around the world carrying dangerous variants in mismatch repair genes – can undergo genetic testing, with a range of preventative and screening options available.

The story of Pauline and Family G, and the impact that their genetic legacy has had on the family down the generations, is beautifully told in the book Daughter of Family G, a memoir by Ami McKay.

Full transcript, links and references available online at GeneticsUnzipped.com