Book Review – Bright Star: Beatrice Hill Tinsley, Astronomer

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Bright Star: Beatrice Hill Tinsley, Astronomer
by Christine Cole Catley

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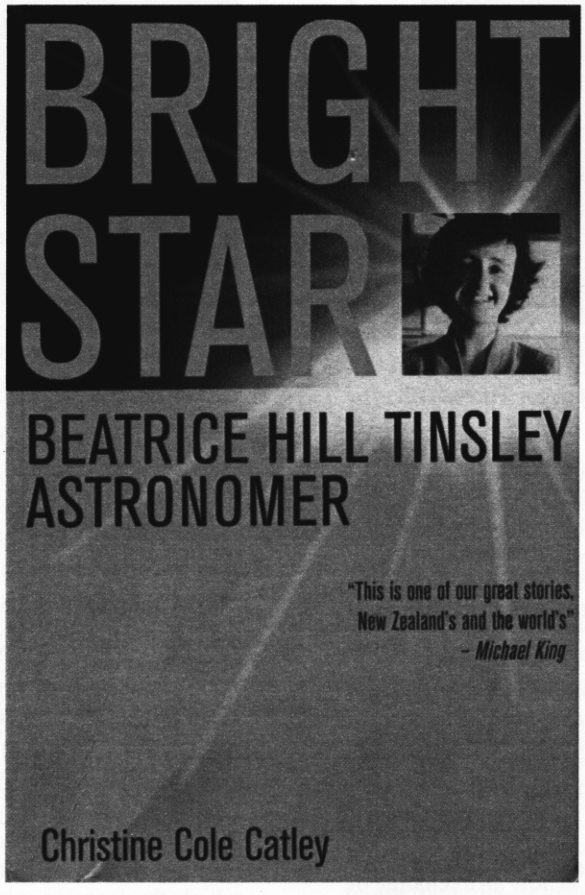

Beatrice Tinsley's is a name that has been hovering at the edge of the radar screen for some while now. Readers of *Southern Stars* will know from Marilyn Head's short article a year ago that she was a local girl who made good as an astrophysicist in the United States but whose life was cut short by cancer. At about the same time, some will have seen Stuart Hoar's part-fictional play inspired by Tinsley at Wellington's Circa Theatre.

She is honoured by a minor planet and a street in Auckland. But most New Zealanders know little of our countrywoman, which is perhaps why her name was chosen by few of the 91,000 voters in an election to select famous kiwis for a set of stamps in 1995.

Thanks to Christine Cole Catley, we can now learn much more about Tinsley, née Hill. She died in 1981 at the age of forty, and Catley has had unparalleled access to family papers and to many people who knew and loved her. But such access can be a two-edged sword, and Catley reports that when Tinsley's father suggested that she should write about her, his expectation was that the resulting biography could be nothing other than "more testimonies to his daughter's brilliance". The truth proved much more complicated, and Catley frankly admits that it was only when the benevolent but un-worldly Mr Hill died in 2001 that she felt able to report freely what she had discovered about his vivacious and enthusiastic but troubled child.

To pare Beatrice Muriel Hill's life to its briefest: she was born in war-time England to impoverished upper-crust parents. At age 5 she emigrated to New Zealand with her family, who ultimately settled in New Plymouth. She obtained B.Sc. and M.Sc. degrees in physics from the University of Canterbury, where she married Brian Tinsley, a doctoral student in atmospheric physics. In 1963 the couple moved to Dallas, where Brian had been offered an academic post. But while Brian became more and more entrenched and entranced in his job and institute, Dallas offered little for Beatrice. (Her sister Theodora Lee-Smith has corrected an error in Catley's book: it was the Southwest Center for Advanced Studies---now the University of Texas at Dallas---that caused great bitterness by refusing to hire Beatrice because her husband was already in their employ, not the University of Canterbury. See also Simon, Clark & Tifft, 1966, for the ill-effects of American anti-nepotism rules.) After some months Beatrice enrolled for a doctorate---and a weekly commute---in the fledgling Astronomy Department in Austin, 300 km away. She completed her thesis, a pioneering theoretical study of galaxy evolution, with awe-inspiring speed. Adoption of two babies caused her career to pause briefly, followed by increasing frustration at not being able to find satisfactory employment in Dallas, though she obtained numerous short-term or visiting appointments at several prestigious institutions such as CalTech and the Lick Observatory. In 1974 the contradictions of her existence came to a head and Beatrice filed for divorce. Freed, she obtained an Associate Professorship at Yale. The focus of her research continued to be the evolution of stellar populations and galaxies. Yale promoted her Full Professor in 1978, ironically at the same time that she learned that she had melanoma, from which she died three years later.

"'Chick lit?" asked my cousin as she leafed through *Bright Star*. "No", I would respond. It is certainly true that the author tells a very psychological tale, but feelings, emotions, and intimacies such as lovers and abortions are a central part of any person. If biographies of scientists often omit these factors, one reason is surely because evidence is usually absent, and reputable biographers feel an obligation to stay within the bounds of what is demonstrable. It is also true that *Bright Star* dwells on the considerable difficulties that Tinsley encountered, both at home and at work, as a married woman ("*the great cloud which came over me after I married*"). Also revealed is the tension Tinsley felt between wanting to do the 'right thing' and not cause hurt to others and her very-different desires concerning how she actually wanted to live her life. As such, the book makes depressing though gripping reading, and the tragedy of Tinsley's existence is that once she *was* in a position to live as she wanted, melanoma killed her. Will *Bright Star* encourage or dissuade young persons contemplating a career in astronomy? I do not know, but it certainly exposes some of the difficulties.

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Catley makes brave attempts to outline Beatrice's work as an astrophysicist, enlisting the aid of locals such as Richard Easther, Marilyn Head and Warrick Kissling. I feel, unfortunately, that the individual details do not gel into a clear picture of the overall importance of Tinsley's work. But we must not let the best be the enemy of the good. If Christine Catley had not written about Tinsley, no one else would have. We must appreciate what Catley *has* done---to write a sensitive, well-structured and readable account of (primarily) Tinsley's personal life, enriched by copious quotations and personal recollections from original sources. It is an invaluable record of the vicissitudes of being a woman scientist in the 1960s and 70s. As an attempt to provide some of the complement that would lead to an assessment of Tinsley's professional legacy, Catley prints a publication list.

The interested reader can also consult Richard Dodd's 'Appreciation' in this journal and Sandy Faber's obituary in *Physics Today*. However, Marilyn Head has pointed out what is by far the best review, which is Robert Kennicutt's *Tribute* presented at a recent conference dedicated to Tinsley and reprinted in the newsletter of the American Astronomical Society's Committee on the Status of Women. To summarize briefly: Tinsley realised that because stars evolve, galaxies must too. In a grand work of synthesis spanning many sub-disciplines, she built computer models that described the interplay between star formation, stellar evolution, chemical enrichment and the recycling of the interstellar gas. She found that changes in galactic appearance were big and observable even in nearby objects. Galaxies were dethroned from being immutable cosmological standard candles useful for probing the warp of space and became changing objects ripe for study in their own right. The evolution of stellar populations and galaxies has become one of the largest subfields in extragalactic astrophysics. Despite originating this paradigm change, Tinsley lacked all pretence and invariably supported and encouraged young scientists, which are among the reasons why she is remembered so fondly.

Bright Star is detailed---perhaps too long and detailed for an international readership, with too many names and minor incidents. But for those who know New Zealand, or the world of professional astronomy, it is an evocative page turner.

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6 rue Saint Louis
56000 VANNES
France

william.tobin@wandoo.fr