

TAURANGA ASTRONOMICAL SOCIETY NEWSLETTER

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In This Issue: ★ [August Meeting - Dr Grant Christie](#) ★ [Educational](#) ★ [When is a planet not a planet](#) ★ [Book Review - Bright Star: Beatrice Hill Tinsley](#) ★ [Further Society Information](#)

Exciting discoveries in outer space. August meeting - Dr Grant Christie



One of New Zealand's highly respected astronomers Dr. Grant Christie, was our speaker for the August meeting, with his talk "Quasars, exoplanets and comets : All in a night's work". He attracted a substantial crowd – standing room only – and was very well received. Dr Christie earned fame last year, (and was awarded the New Zealand Order of Merit) for his part in taking observations contributing to the discovery of an Earth sized planet beyond our solar system. He has been involved with the Auckland Astronomical Society since the 1960's when he joined as a school pupil and soon became an active "variable star" observer, using both his home made telescopes as well as the 500mm Zeiss telescope in the Auckland observatory. Dr Christie is currently responsible for research programmes carried out at the Auckland Stardome Observatory.

George Stewart, President of the Tauranga society says, "As an organisation which was formed barely 3 years ago, we are endeavouring to fulfil the Society's Aims and Objectives, which includes encouraging and fostering the education of children in the science, study and hobby side of astronomy, including arranging lectures and demonstrations for schools." He estimates that almost 600 Tauranga children and untold numbers of supportive parents have been given knowledge and pleasure from the powerpoint presentations, which are run by the Society's hard working and talented secretary, Jim Barrowclough. Mr Stewart says their future plans include a major membership drive, and to have their very own astronomical observatory in Fergusson Park, which will become part of an expanded and upgraded building that is owned by the Otumoetai Sport and Recreation Club .

Educational

Lew Smith, Janine Neustroski, and Ursula Macfarlane recently took part in several observing nights organised with Bethlehem College which took place within the College grounds. Two nights were set aside for Year 7 students, and another two for Year 9.

Sandra Gauld, a teacher at the College, did a fantastic job in organising these events. The turn-out was pretty good on the nights when the weather co-operated, and it was really great to find lots of parents taking part as well. Plenty of good questions were asked, and we were lucky enough to see Jupiter on more than one night.

The exciting part of spreading observing over several nights is that people can then see changes in the night sky, and this is obvious with the Galilean moons changing position over time. On one night we were only able to see 3 out of the 4 moons, the fourth one having disappeared behind the huge gas giant.

There will be another observing session set up during the summer months, when keen children will be able to view Orion – a very popular constellation !

Last month, there was also an observing night arranged with the Young Explorer's group. This is a privately run group for gifted children, and needless to say they were all absolutely fascinated. One very young child wanted to know about Jupiter and was asking about it's moon's as well as remarking on how far away it must be – a space/distance concept which is usually grasped later in middle childhood.

There was an excellent turn-out for this, and parents took an active part asking questions and talking it through with their children too. Some high cloud was quite persistent, but as the evening drew on, we were able to view some of the deep sky objects in Scorpius, and even got a glimpse of omega Centaurii.

There will also be another of these evenings arranged for the summer months.

If anyone is keen on coming along and helping on these evenings, please let the committee know.

When is a planet not a planet?

planet *plan'it,n.* a body (other than a comet or meteor) that revolves about the sun reflecting the sun's light and generating no heat or light of it's own Chambers Dictionary definition



NASA Hubble image

According to that definition, Pluto is a planet. But now it seems that because of the decision by the International Astronomical Union (IAU), the textbooks (and dictionaries) will have to be re-written. Why? Because Pluto, the ninth planet of the Solar system, has been demoted to the status of "dwarf planet."

Pluto was discovered by Clyde Tombaugh in 1930, following on from Percival Lowell's search for new planets. It wasn't until 1978 that a moon was discovered orbiting Pluto, and due to the two objects repeatedly eclipsing each other it was found that Pluto's diameter was only 2,300km.

Charon, meanwhile, is about half as big as this. Pluto does not have the mass to influence it's closer giants Neptune and Uranus, and at times changes places with Neptune on it's journey around the Sun.

Pluto is not an obvious target to observe; rigorous watching over several nights will show the amateur observer that there is movement against the background stars, and a telescope larger than an 8" would be best used.

Back to our definition... this has for some time been the subject of intense debate and despite the term having existed for thousands of years, no definition of "planet" by an official body of scientists existed before the early 21st century.

The issue came to a head in 2005 with the discovery of [Eris](#), a body larger than the smallest accepted planet, [Pluto](#). In response, the IAU formulated a definition (which may only apply to the Solar System), that;

- a. a planet is a body with a diameter *greater than 2000km* that orbits the [Sun](#)
- b. a planet is any object in orbit around the Sun whose shape is stable due to its own gravity
- c. A planet is any object in orbit around the Sun that is dominant in its immediate neighborhood

There is still some controversy surrounding this decision and some in the astronomical community have rejected it. The issue of what constitutes a planet will likely remain contentious at least until 2009, when the IAU holds its next Congress. So, what do *you* think?

We'll now have to get used to the idea that there are 8 planets, 1 dwarf planet, and do we still include Pluto "P" when reciting our mnemonics to remember the names in order?

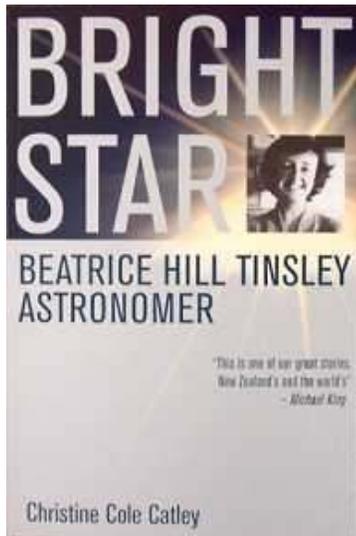
Book Review

Bright Star: Beatrice Hill Tinsley Astronomer

Christine Cole Catley, 2006, Cape Catley Limited.

Reviewer: Marilyn Head

In 1955, when the Big Bang was a revolutionary new theory, the space age yet to begin and the largest telescope in the world a mere 200 inches, a slender and vivacious girl answering to the name of 'Beetle' announced her determination to be an astrophysicist. It was an extraordinary decision for anyone to make in 1955, let alone a young girl of 14 in New Zealand, where science centred on agriculture rather than astronomy and "domestic science" was the only sort that girls were supposed to be interested in. But Beatrice Hill Tinsley was no ordinary girl, as Christine Cole Catley's excellent biography *Bright Star* reveals.



In her short but brilliant career, Beatrice battled sexual, social and academic chauvinism to become one of the world's leading cosmologists, a legendary feminist in a male-dominated profession and a revered and much loved professor at Yale University. Her private life was equally tumultuous. Forced, as she saw it, to choose between her marriage and her passion for science and astronomy, she opted for the latter, unwisely choosing to leave her much-loved adopted children. Two love affairs followed before she died from melanoma, just two months after her fortieth birthday.

Her story is, as the cover says, quoting Michael King, "One of our great stories, New Zealand's and the world's".

And Catley has told it beautifully.

Beatrice was a remarkable New Zealander whose intelligence "shone like a beacon", who was so full of ideas she could hardly speak fast enough to get them all out, who sucked up data "like a vast intellectual vacuum cleaner" and whose pioneering work on galactic and stellar evolution became a cornerstone of modern cosmology. How could

this charming, waif-like girl achieve such outstanding international success and recognition and yet be virtually unknown in her home country?

Apart from *My daughter Beatrice* - a slim volume of carefully selected letters from Beatrice to her family; a brief profile in Catley's *Springboard for Women*, a centennial history of New Plymouth Girls' High school which both she and Beatrice attended, and a few obituaries, information has been thin on the ground.

Stuart Hoare's play *Bright Star*, premiered at Circa Theatre last year but, in spite of some wonderful performances, it was disappointingly vague about what it was that Beatrice was actually famous for.

Perhaps more disquieting, is a tendency amongst some astronomers, who understand and have the highest regard for Beatrice's scientific achievements, to be callously dismissive of her as a person, not because of any personality defects, but simply because she did not conform to their notions of the standard role of wife and mother. "Brilliant astronomer, bad woman" is not an uncommon judgment.

The next time I hear it I'll be thrusting *Bright Star* into their hands because simply, elegantly and inexorably Catley reveals the truth: that Beatrice was a woman for whom goodness and duty were inextricably entwined and who truly and always tried to do the "right thing". Catley has drawn on hundreds of letters and interviews with family, friends and colleagues carried out over more than twenty years to present a moving and convincing portrait of this extraordinary woman and those who were important to her. And she doesn't shy away from the "messy" bits: abortion and open marriage and, in the background, Vietnam, Martin Luther King and Beatrice's dearly held "Zero Population Growth" are all reminders of the great changes wrought in the 60's and 70's. Inevitably those closest to Beatrice come under scrutiny too, and the precise and compassionate way their stories are told does justice not only to the facts, but also the meaning of Beatrice's life.

The facts are simple enough. The second of three gifted daughters, Beatrice was born in England in 1941 and moved to New Zealand with her family at the age of five. She was brought up in a prominent and highly respectable family in

New Plymouth, where her father, the Reverend Edward Hill, was an Anglican minister. A gifted violinist and linguist, Beatrice was an outstanding 'all rounder' academically, but there was no question that she would apply her formidable intellect to science. She chose to study physics at the University of Canterbury, where, at 20, she met and married another physicist, Brian Tinsley.

In 1963 the couple moved to Dallas, Texas. Beatrice set about completing a brilliant PhD thesis in record time, in spite of having to travel hundreds of miles each week to the University of Texas at Austin and on top of adopting their first child Alan. Their daughter Terry was adopted a few years later but it was a frustrating and unhappy period for Beatrice as her marriage faltered, and the chauvinistic employment policies of the University of Texas ensured she did not receive the professional recognition in Dallas that she was achieving elsewhere.

Her marriage over, she made the painful decision to leave the children with Brian rather than subject them to a court battle. Few people understood the selfless nature of that decision, but the skill with which Catley has drawn Beatrice's character is such that there is never any question that Beatrice would do anything other than put the wellbeing of her children first, even if it meant attracting, as it surely has, public opprobrium

Whilst the terrible struggle to balance family and work is one that most will empathise with, Beatrice's extraordinary intellect and passionate commitment to astrophysics is perhaps outside the common experience. Like all "bright stars", Beatrice died young, but enriched those around her.

Catley is neither a scientist nor an astronomer, but *Bright Star* does give the flavour and background to the exciting discoveries which were happening in the 60's and 70's – the "Golden Age of Astrophysics".

It is one thing to write a carefully researched historical account, another to put the achievements of an outstanding individual in the context of their work, and still another to make that person live. With *Bright Star* Catley achieves all three. This is a great and moving book about a significant New Zealander and a warm and fascinating woman. It deserves to be widely read.

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(Edited by U Macfarlane)

Further Society Information



We'd like to wish a speedy recovery to Jim Barrowclough, our hard-working Secretary, who underwent surgery recently. He seems to be champing at the bit to get back to work, which all sounds marvellous. Best wishes Jim – we'll be glad to see you back on board.

Also apologies for how late this newsletter is getting ...!!! If you went to the last meeting you'll know that the editor was up to her ears in preparing for an exhibition and travelling to & from Wellington.

The opening was very successful and the exhibition continues until Labour weekend.

TROG.....Tauranga Roaming Observers Group

This is a phone/email list which you can put your name down for if you are interested in 'spur of the moment' observing. This has normally been down at Fergusson Park in Matua, Tauranga, but other sites are being checked out constantly. Contact Andrew or Jim if you are interested in joining the observing group. Andrew Walker has agreed to help man this list too, so you could co-ordinate a time/place with him if you are keen to go out. Andrew's phone number is 573 8550.

NOTE: Public Meeting Visitors;

Casual visitors to public meeting nights will be able to come along free of charge for two public meetings or viewing nights, thereafter a charge of \$5 per meeting or viewing night if the person does not pay the annual subscription.

Websites; Transit of Mercury information – November 9th

Mercury transits the sun on November 9. The entire five-hour event is visible from New Zealand. Information about the transit is on the RASNZ's website <http://www.rasnz.org.nz/>

A factsheet is also available from the Astronomical Society of Australia's website at

<http://www.astronomy.org.au/ngn/engine.php?SID=1000011&AID=100283>

-- from a note circulated by John O'Byrne of the A.S.A.

Ursula Macfarlane

Newsletter editor