Queensland Astronomy Education Conference

Bringing Space into the Classroom

A History, by Tony Surma-Hawes

My interest in astronomy dates back to one of my earliest memories. While standing at the front gate I saw a golden plume in the late afternoon sky. I am a child of the Space Age, and so I thought I was witnessing a rocket exhaust, imagining one of the mighty Saturn Vs returning to Earth. As near as I can tell, this was some time in October 1965, and I was a 4-year-old boy dreaming of going to the Moon. I can't remember anyone correcting me, but as a 4-year-old, would I have taken any notice? Probably not, so it was something like ten years later that I came to realise that the apparition I witnessed was a comet and not a rocket – and another ten years to realise that the object was Comet Ikeya-Seki, one of the brightest comets of the last thousand years.

Comet Ikeya-Seki, 1965's 'golden plume' in the sky.

Although I had mistaken its origins, that golden plume has stayed with me all my life, engendering and spurring on my interest in space and all it contained. I read copiously, and gradually became aware that professionals in the education system didn't seem to know a great deal about what was 'out there'. In fact, I remember one year when the Astronomy component in Science was to learn the names of the planets, that the Sun was a star, and that there were other stars and 'stuff' beyond the Solar System. I was astounded that secondary school students would not already know this basic information, that they didn't seem to care, and that the teaching staff seemed to be in the same position.

Fast forward to 1993 and I had only just joined the Brisbane Astronomical Society (the previous year). Like many others I hesitated about joining and hung on to my application for some time before taking the plunge and attending my first meeting. I think I was worried that I would be too much of a newbie, but I found I was plunged into a world filled with people who shared my passion, and that it was also filled with diversity. I met people who imaged, observed, measured stars, hunted supernovae, built telescopes – and, above all, welcomed me. They welcomed me so much that I was elected as Secretary eight months later, and I learnt even more about astronomy in that role for the next two years.

My first Committee was a diverse group comprised of young and older members. At 19 years of age, Glenn Burgess was the youngest President in our history, while at the other end of the spectrum there was Ted Cumming*, who was one of the oldest in the club. Ted was the first face you saw when you went to a meeting, greeting everyone and, at the end of the meeting, reminding the Section Officers and contributors of the deadline for the newsletter. Glenn always said that Ted was the '. . . voice of sanity and stability' in our Committee: the one who made sure we didn't make stupid mistakes and fools of ourselves. There was myself, of course, and Brendan Downs and several others, all bringing their own skills and qualities to serve the membership.

Educating the educators

What has all this to do with the Queensland Astronomy Education Conference (QAEC), I hear you ask? It began with some correspondence from one Paul Floyd who, while conducting his mobile planetarium business, conceived an idea to assist educators to develop the skills and techniques to teach astronomy effectively in schools. In his conversations with teachers and principals, he had witnessed first hand how the education system was lacking

* I must confess that Tony's reference to Ted Cumming has made me feel more than a little ashamed. This BAS stalwart – without doubt the Society's most loyal, hard-working and best-loved member ever – died on Boxing Day 2003, and I should have included a tribute to him in this year's December or January newsletter to mark the 10th anniversary of his death. I'll do so in the next issue.—ED.

in resources and basic information for astronomy education. The principal at one school was totally unaware of how the phases of the Moon occurred, indicating that he believed that they were caused by the shadow of the Earth upon the lunar face.

It became obvious that educators were so busy with preparation and assessing that they were unable to research effectively or develop techniques for the subject, many believing it to be difficult and arcane. Not all teachers lacked the expertise, of course, but those who taught astronomy effectively were in isolated islands and unable to spread their techniques widely. Paul felt that the best way forward was to conduct workshops or seminars to bring in those who wished to learn how to teach astronomy, and allow those who developed programmes and resources to promote them widely. Paul also felt the ideal means to promote astronomy would be through an astronomical society, which would have the enthusiastic members and expertise.

One school principal believed that the phases of the Moon were caused by the shadow of the Earth upon the lunar face!

I think he was lucky to approach the Brisbane Astronomical Society at that particular time, as our Management Committee members had a broad range of experience – from a new club member such as me, young thinkers like Glenn, wise old heads such as Ted, and all the diversity in between. Paul's proposal, which he presented at the October 1993 Committee meeting, was that BAS hold a one-day conference for teachers and educators to provide techniques and resources to pass on to their colleagues and students. Many speakers would be able to come from the Society itself, while others would be teachers and educators sharing their experience and techniques.

I don't think anyone on that Committee failed to be struck by the fact that this proposal captured the very essence of the first objective of the Society, as described in our Constitution: 'To promote and foster the science of astronomy'. It certainly struck a chord with me, recalling my experiences with my peers and teachers during my own education.

1994: Exciting but scary . . .

The idea was exciting and scary at the same time. All of us were ordinary people without the experience to hold an event such as this (although Paul had studied event planning for his uni degree in South Australia), and yet it was so compelling. Here we had a chance to promote our hobby to an audience who would take it back to share with their peers and teach it to new generations. It was scary on two levels, the first being that this would be the first conference for educators dedicated to astronomy in Australia, and the second being that as a Committee we are charged with the duty of looking after our club and its members. We had concerns that this might be a risky venture, and at that time our finances were pretty precarious. If a significant portion of our bank balance were to be lost on this venture, we might have seen the failure of the Brisbane Astronomical Society.

BAS members Brendan Morley and Margherita D'Allesandro show the Sun to participants at the SSC '94. (The only years the weather was clear enough for an observing session were 1994 and 2004.)

After Paul left that meeting, the Committee discussed the pros and cons and decided to proceed with the conference, with the proviso that a budget was calculated and that we determined a break-even point and deadline. If we were not able to attract a minimum number of participants by a certain date, we would withdraw with minimal impact to the Society. As it turned out, we reached our quota within the timeframe we agreed to, and all of us developed and learnt new skills in holding events such as this.

It was still pretty scary right up to the morning of the event, which we called the Southern Star Conference (SSC) '94. I remember walking up to the venue at the University of Queensland with Ted saying to me, 'I hope we don't fall on our face with this,' something that was also going through my own mind!

. . . but a great success!

Keynote speaker at SSC '94, Dr Ian Ginns, demonstrates to participants an activity to construct an inclinometer to measure the elevation of stars.

Needless to say, the SSC '94 was a success and a wonderful start, not only because it went well, but because we were able to learn from the mistakes we made. The entire BAS Management Committee contributed to the organising and running of the conference, and it was a steep learning curve for all of us. We also made a surplus of approximately $1,000, which increased our bank balance by something like 50 per cent. In the autopsy we saw where many improvements could be made: catering, for one, which took us several years to nail.

BAS gained new members through holding that first conference, but none better than Nev Johnson, who was the groundsman at Corinda State School and a keen amateur. Although not a teacher, Nev constructed and worked with the children on many projects, accompanying them on school camps with the school's 8-inch Celestron. He was a wizard with that telescope, able to find objects in the daytime sky using the setting circles alone. He urged the science teacher at Corinda to attend SSC '94, and then joined BAS and eventually the organising committee for SSC '95.

1995: Grace Lutheran College

The 4.5-metre dome above the Grace Lutheran College physics lab. The dome houses a Celestron 14-inch Schmidt Cassegrain telescope.

Buoyed by our success, we decided to hold another conference the following year, again provided that we could attract the necessary participants to make it viable. An SSC organising committee was formed, and we were approached by Grace Lutheran College at Rothwell, who offered their school as the venue. Teachers from Grace had attended SSC '94, and they had a very active astronomy programme. They had an observatory on campus, as well as one at their Outdoor Education site at Googa near Blackbutt. Their programme was driven by their Computer Systems Administrator John Shobbrook, who we asked to be Keynote speaker for SSC '95.

As an aside, I must mention that John moved to New South Wales and lived virtually in the shadow of the Australian Astronomical Telescope (AAT). Unfortunately, his home was destroyed during the January fires this year, and I would like to take this opportunity to wish him and his family well.

Once again the conference achieved its goals, and the organising committee was able to rake over the results with the warm, satisfied feeling of a job well done. The Society was once again able to increase its bank balance with a surplus from our budget; improvements were discussed, and we began to look to the future. It was beginning to dawn on us that if the conference was to continue, it would need to become a bi-annual event, as that would allow for better preparation and a chance for the organising committee to recover before starting again. It was proposed to the Society that a teachers' conference be held again in 1997.

Co-convenor Paul Floyd explains techniques to teach the concept of seasons to participants at SSC '95.

1997: A change of name

We continued our association with Grace Lutheran College and changed the name of the event to the current 'Queensland Astronomy Education Conference (QAEC)' to reflect the fact that this was – and, I believe, still is – the only astronomy education conference in Queensland aimed at teachers. At every conference the participants received a kit with information, speakers' notes if provided, and a list of activities. We were able to gather a large amount of material for 1997, and presented the participants with a large folder containing the information. Once again the conference was successful, and planning began on holding QAEC 1999.

By now our team knew what needed to be done; we knew what would work, and it became easier. We were able to make improvements, the best of which was the introduction of a caterer. (At previous conferences we had toyed with several methods to feed our participants, none of which was entirely successful. The decider came when my wife Anne-Louise, who was at that time BAS Secretary, discovered that the Society was not covered by insurance to provide food, as that is not a primary activity of the club; if someone got sick, the organisers and the Management Committee would have been liable.)

It was also decided that the organising committee would apply to the Gaming Machine Community fund for a grant. The application succeeded, and we were able to produce a two-colour, A3 promotional poster and to print/photocopy a 300-page resource folder for the sixty-seven participants who attended.

1999: A fortuitous accident

The audience at the official welcome to QAEC 1999.

For me, QAEC 1999 was the best event we had run – and, I felt, the best organised, mostly due to the fact that I had injured my knee and had to spend two months off my feet (which gave me plenty of time at my desk!). This meant I was able to do organisational work almost full time in the lead-up to the conference.

In our promotion we offered the Resource Kit free to the first seventy participants. I remember talking to Susan Peaty from the Science Teachers Association of Queensland (STAQ) about this during lunch. She confided to me that she had laughed at our assumption that we would attract that many participants; however, her eyes were full of admiration as she looked around at her fellow participants.

The core of the team was Anne-Louise, Agatha Gambino, Nev Johnson, Brendan Downs, Paul and myself. We had every intention of doing it all again in 2001, but we were suffering from near-burnout and the momentum was lost, in

part because Paul had to leave for Canberra due to work commitments. For a while it seemed that we had held our last conference in 1999, but then Paul, who was visiting Queensland to conduct a workshop for the STAQ Science Conference in 2003, planted a seed in my head and we approached the Management Committee with a proposal to conduct a QAEC in 2004.

2004: The School of Mathematics and Physics

Paul worked on the programme and the speakers list from Canberra, while I worked with a number of BAS Committee members to organise it at this end. They say you never forget how to ride a bicycle, and so it is with conducting an event such as this. Paul and I fell naturally into the rhythm, sure in the experience we had gained from the previous four conferences.

The University of Queensland or, more correctly, the School of Mathematics and Physics, contacted us to offer lecture theatres in the Hawken Building for our venue, thus becoming a major sponsor. QAEC 2004 was unusual in that it didn't rain for a change, at least during the day, and we were able to offer some solar viewing to the participants. One of the planned activities had always been to conduct an observing session after the event, but unfortunately we had been almost invariably clouded out at best, or completely rained in.

2010: From a workshop to a QAEC

Then BAS President Peter Nink asks one of the participants at QAEC 2010 to draw the Door Prize during the closing session.

Again there was a long break between events, and then came 2009 and the Year of Astronomy, which marked the 400th anniversary of Galileo's observations with a telescope. Yet again I lay the blame at Paul's feet, because he suggested that 2010 might be a good year to hold a workshop as a lot of cool astronomical events were occurring.

It *started out* as a workshop to be held at my son's school at Watson Road, Acacia Ridge, but when Ron Gibson of Sirius Optics offered to sponsor it (Extravision later did the same), it became a full-blown QAEC. Due to the late start in promotion, we only attracted the minimum quota we had set ourselves; however, we still managed to gain a small surplus for the Society.

Peter Bateman from Burpengary State High School launches QAEC 2010 as Keynote speaker, with a practical demonstration on how to engage students in Space Exploration.

Organising committee member Brendan Downs takes a well-earned break!

2012: A year of opportunity

The year 2012 offered many opportunities for amateur astronomers and for the promotion of the science of astronomy, and it was an obvious choice for a conference. A transit of Venus would be visible from beginning to end over most of Australia, with eastern Australia in prime position during the entire school day. The other great phenomenon last year was the total solar eclipse across Far North Queensland, while within the Brisbane region 83 per cent of the Sun was covered. These presented great learning opportunities for educators. I have to take my hat off to Terry Cuttle and other members of the Astronomical Association of Queensland (AAQ), who worked for over eight years to prepare teaching material and to have eclipse glasses assessed and declared safe for the event.

Paul and I approached the BAS Management Committee in early 2011 to seek support to hold the QAEC 2012. We had fully intended that this would be the last one we would do, so we planned a lavish meal for lunch and, once again with the support of Sirius Optics and Extravision – joined by our own Astro Pete, who prepared and printed the resource CDs – we were able to deliver resources to educators, and also a surplus to the Society.

Terry Cuttle launched the 2012 QAEC in his own inimitable style and with his usual flare, sharing his passion and enthusiasm with the gathered participants.

Agatha Gambino demonstrates a meteor impact simulation to Susan Kennedy-Smith from Education Queensland, while Caroline Williams looks on.

As always, as we reached what I call the 'pointy end' of preparations and the QAEC opened, BAS members rallied forth with what I think was the same spirit that Ted Cumming had – to make sure we didn't 'fall on our faces!' In fact, the hallmark of all of these conferences was the way the members of BAS rallied and assisted as ushers, introduced speakers, ensured that the refreshments were stocked and, above all, assisted with the registration table. I want to thank every member who helped out at any of the conferences, the school nights, public field nights, and the Astrofest committees. You are part of what makes the Brisbane Astronomical Society great and respected in the eyes of the education community.

After the Keynote Address, participants inspected the door prizes and vendor displays, and finalised which sessions they would attend.

2015: The QAEC's 21st birthday!

This is where the story might have ended, but it just won't seem to die. A flame has been rekindled in our minds, where we see once again the Brisbane Astronomical Society paving the way to better educate our children and to promote astronomy. We have now formally asked the BAS Management Committee to once again support a QAEC in 2015. BAS has been doing this for almost twenty years now, and in 2015 the QAEC will be 21!

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I am writing this in the evening, but earlier today I was standing on the footpath – as I did so long ago – looking into the afternoon sky. The difference is that now I know what I'm looking at, and I want others to know what they're looking at too. I think we can all be proud of the fact that BAS and the Queensland Astronomy Education Conference have made a real difference to the way astronomy is taught in our schools. ■