Obituary

Thomas Roland Cave III (1923–2003)

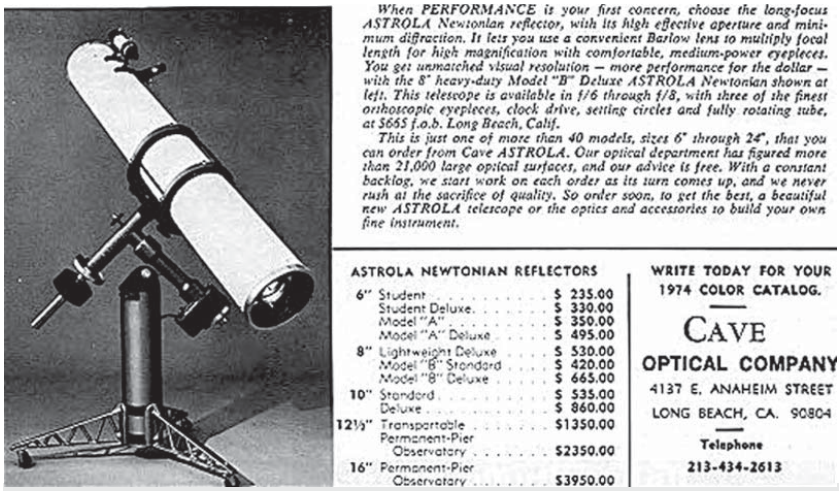
Tom Cave of Long Beach, California, will best be remembered as a telescope-maker. For three decades Tom's firm, the Cave Optical Company, turned out tens of thousands of mirrors for both the amateur and professional markets. However, Tom was also a keen planetary observer. RJM first met him at a BAA meeting at Savile Row, London in 1986 when he turned up seemingly out of the blue with a bunch of Mars drawings in his pocket.

Tom was born in Kansas City, Missouri, on 1923 February 3. His parents were Thomas Roland Cave II and Edna Catherine Wyrick Cave. He spent the first six years of his life in Pittsburgh, Kansas. In 1931, the family moved to Hollywood, California. His father had taken him to the Adler Planetarium in Chicago when he was seven years old, and thus began his lifelong love affair with astronomy. A further move, this time to Long Beach, came in 1934, and it was there that he became involved with the Excelsior Telescope Club. In those days, southern California was the centre for amateur telescope making in the USA, so the family's move there was a very fortunate one in that respect.

At the age of eleven Tom ground and polished a 6-inch (15cm) plate glass telescope mirror. Together with Ramsden eyepieces by John Mellish, this became his first Newtonian telescope. Davina Cave, one of his daughters, writes: 'During his junior year of high school at Long Beach Poly, his family moved to the house here at 265 Roswell Avenue. Dad was on the football team at Poly, so he remained there, even though Wilson (the big rival school) was less than a mile from his home, and graduated in 1941 (a semester early, I might add).'

A very young Tom Cave pictured with his first Newtonian reflector (15cm) in 1937.

Following graduation, Tom went to work for Jimmy Herron at the Herron Optical Company in Los Angeles. Tom was also observing with larger and larger instruments, and in 1940 built an observatory at home. He began to correspond with other American amateurs, such as Ed Martz, Walter H. Haas, Hugh M. Johnson and Frank M. Vaughn. They pooled their planetary observational work, and Haas wrote it up in *Popular Astronomy* (USA; now defunct) and the *Journal* of the Royal Astronomical Society of Canada. After the war this group would act as a nucleus for the fledgling Association of Lunar and Planetary Observers, and its members would write for its journal, *Strolling Astronomer*.



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Cave Astrola Newtonians. A Cave Optical magazine advertisement of the 1970s.

Proposed by Johnson, Tom joined the BAA on 1942 March 30, and contributed drawings of the perihelic opposition of Mars in 1941, some of which eventually appeared in print in the Section *Memoir*. Mars was already his favourite celestial object. It was just as well that he specialised in planetary work, for in later years only the brightest stars could be seen from his garden due to severe light pollution. Tom also assembled an impressive planetary astronomy library at his home. This began as a teenager when he purchased (for $2) Lowell's first Mars book, published in 1895.

Following the entry of the USA into World War II, Tom joined the US Army. (He recalled going into the army with Robert Mitchum, who would later achieve fame in Hollywood.) While stationed in England awaiting D-Day, he was sometimes able to attend BAA meetings at Burlington House. He served in the 4th US Infantry Division as a combat medic, going over with the Normandy landings. He saw harrowing action in the Battle of the Bulge, where he acquired his lifelong habit of smoking cigarettes. Tom earned two Purple Hearts, the first for shrapnel wounds received during an artillery barrage near Metz, and the second for injuries suffered to his right foot when a half-track ran over it during the fording of the Rhine in 1945. The latter incident occurred under shellfire on the famous Ludendorff Bridge at Remagen, and the injury would limit the amount of walking Tom could do comfortably in his later years. Optical work was not entirely forgotten during the war: he once made eyeglasses for General Omar Bradley!

On 1944 August 25, under Bradley's orders, General Leclerc's 2nd French Armoured Division entered Paris from the west at dawn, and the 4th US Infantry Division attacked from the south. By 8.30 am the Americans stood in front of Notre Dame. After the liberation of the city Tom lost no time in obtaining a day pass to visit the nearby Meudon Observatory. Speaking no French he nevertheless managed to gain entrance to see the 'Grande Lunette' – the 83cm refractor – and to meet veteran astronomer F. Baldet. He had hoped to meet Baldet's colleague, the great E. M. Antoniadi, but it transpired that Antoniadi had died earlier in the year.

When Tom returned home, he went back to Herron Optical and attended classes in optical engineering at the University of Southern California, stopping just six units short of his degree to open his own business (at his father's suggestion). Thus the Cave Optical Company was born in 1950 December. Not long afterwards, Tom met Sylvia Millicent Clanton at a church singles gathering, and they married on 1953 June 27. They would have two daughters. Tom was also

heavily involved with the early ALPO, which was founded by Walter Haas in 1947. Haas writes: 'Tom was the first Venus Recorder of the ALPO and later served for a time as Assistant Mars Recorder. It was inevitable that he should provide, at a special price, the optics for my 12.5-inch (32cm) Newtonian, my principal telescope since 1954.'

Cave Optical may have had a modest beginning in a converted garage, but it grew rapidly, benefiting from a quickly acquired high reputation and (at that time) a lack of competition. One of the many opticians recruited to grind and polish mirrors was the renowned lunar observer Alika Herring. Another employee, Dick Norton, has written the early history of the company in *Sky & Telescope* for 1994 August. The company's main business was to make long-focus 'Astrola' Newtonians, but it also turned out Cassegrains, primary mirrors for Questars and optics for the US military. Norton writes that over the lifespan of the business, 'Cave and his workers had produced more than 53,000 telescope mirrors and 15,000 complete telescopes.' Indeed, Cave had pioneered the mass-production of telescopes. And with a shop in Long Beach it was inevitable that there should be some famous walk-in customers: actors John Wayne and Richard Widmark were just two of a long list. Unfortunately, in early 1979 Tom became seriously ill with kidney disease, and his absence from the workshop and a sequence of other events led to the demise of the company. Recovering later, Tom accepted an offer from Hughes Aircraft to head their optical department; later still he worked for Perkin–Elmer for a time. Tom retired from business in 1988, and was then able to devote much time to observation.

It would be an understatement to say that Tom was a great story teller: he had a seemingly inexhaustible supply of anecdotes about astronomers and – above all – other opticians. He would reminiscence about the Normandy campaign, the work of telescope-maker John Mellish, observing Mars at Lowell Observatory with E .C. Slipher (on several occasions from 1948 onwards), nights at the coudé focus of the Mount Wilson 100-inch in 1956 with R. S. Richardson on a night of super-seeing, nights at Table Mountain Observatory viewing Mars with Chick Capen, and many other tales. He told RJM that one of his most satisfying optical projects was the 18-inch (45cm) mirror made for the Ford Observatory, near Table Mountain, California. Certainly it gave excellent images of the impact scars on Jupiter when we used it together in 1994 following the 'great comet crash'. The tale of Tom's visit to Lowell Observatory in 1994 with RJM formed the subject of the latter's BAA Presidential Address for that year, though it is not mentioned there how we ran out of petrol in the middle of the Mohave desert!

Tom's own telescope used for much of his career was an f/6 32.5cm (12.8-inch) Newtonian, shown in the photograph here. (Oddly, it was not carried by one of his own company's mountings, but by a Cooke equatorial, purchased secondhand in England in 1944. Tom shipped it to the States at the end of the war 'when I knew I'd be around to use it.') Throughout the 1990s and during 2001 Tom continued to observe Mars regularly, and occasionally the other planets, with this instrument. To the last, he remained very much a visual observer. We recall his total lack of interest in CCD cameras. 'They take all the fun out it', he always said.

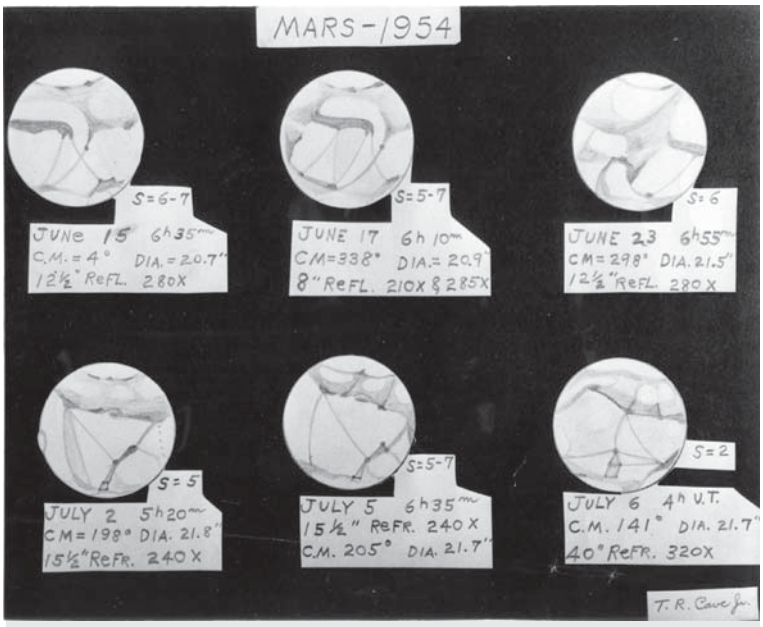
Tom Cave in his home observatory in Long Beach, CA, with his 32cm (12.5-inch) Newtonian, 1994. *Photograph by Richard McKim.*

In his last few years, Tom wrote some optical notes which it is hoped will appear in book form after editing by TD. He had also hoped to write a book about Mars, but the project was never realised. During an observational career spanning more than six decades, Tom Cave was honoured with many awards, including the Bruce Blair medal of the Western Amateur Astronomers, and the Walter Haas Award of the ALPO.

By late 2002 Tom's health was failing, and following a bout of pneumonia and complications from diabetes he passed away on 2003 June 4. Sylvia Cave had died in 1990. He is survived by his two daughters, Davina and Vanessa, and two grandsons. At Tom's memorial service in Long Beach TD was able to present an appreciation of Tom's contributions to astronomy. Many of Tom's friends from high school, the Los Angeles Astronomical Society, the Excelsior Telescope Club, the ALPO and other organisations were present. We will let Walter Haas have the last word: 'Those of us who knew him personally will remember him more as a delightful and informative friend and companion. Indeed, if you phoned Tom to discuss an astronomy problem, you were likely to receive more information about astronomy and astronomers of his acquaintance in the next 30 minutes than you could absorb.'

Family details were helpfully provided by Davina Cave, and were essential in the writing of this appreciation.

Richard McKim & Tom Dobbins



Mars in 1954. A set of previously unpublished drawings by Tom Cave of Mars at its close opposition in 1954. The 15.5-inch (39cm) OG is the Clark refractor of Washburn Observatory, and the 40-inch (102cm) OG is that at Yerkes Observatory. *(BAA Mars Section archives; one of three sheets contributed by Cave.)*

The 37th BAA Winchester weekend and second Observers' Workshop

held at King Alfred College, Winchester, 2003 April 25–27

Friday started fairly dry but soon turned to rain as people arrived and wanted to unload. There were many trade, local society and Section stands in evidence over the weekend, to be viewed by 111 residents and about 70 day visitors, quite a few of whom had not been to Winchester before. The job of opening the proceedings after dinner fell to Derek Hatch who hastened to correct the title of his talk ('Digital SLRs – an alternative to CCD cameras') as, of course, a digital SLR is a CCD camera. Derek started with the specifications of the cameras available (currently with very large but decreasing price tags) then showed images taken with different cameras for comparison. One of the big advantages of the digital camera is that shorter exposure times can be used so tracking problems are less noticeable. His talk reached a definite end (as those that were there will no doubt remember!) with time for questions before the option of a trip to the bar.

As a new experiment this year, Saturday was devoted to the second BAA Observers' Workshop, organised by Nick Hewitt. This consisted of seven lectures of 45 minutes, with breaks for informal discussion between, aimed at encouraging people to become active and useful observers. Neil Bone had the challenge of the first slot. His main point is that many people watch meteors anyway and, with very little extra work, could convert their private experiences into data of scientific value. He was the first to mention the theme that recurred throughout the day of taking useful notes at the time or very soon after, then writing them up and sending them to the appropriate BAA Section.

After Neil, whose subject of meteors can often be blocked by artificial or moon light as well as clouds, came Lee Macdonald, whose subject, the Sun, is never affected by light pollution (although it can be blocked by the Moon!) Lee emphasised that small telescopes are perfectly adequate for solar observing as long as appropriate care is taken with safety. Preferably projection should be used, if not then appropriate front-end filters that are checked for damage before each use. Most work is still done at visual wavelengths although many amateurs now have access to hydrogen alpha filters. Lee added the warning that if designed for photography, not all are safe for direct viewing as some let through additional wavelengths.

After a break the workshop continued with Jeremy Cook who is a lunar observer. Jeremy started with a diagram of the current knowledge of the Moon's internal composition, then showed charts indicating the areas visible from the Earth in different years due to libration, which are not the same from year to year. The last part of his morning talk was a review of the various Moon maps that are, or have been, available for the amateur. After the main talks of the day there was some time available to show a video compilation of effects recorded 'on' the Moon, such as passing birds and planes, including one that may have been something on the Moon's surface.

After Jeremy came Maurice Gavin and 'Starting out in Spectroscopy'. This covered a lot in a very short time. One of his early points was that the spectroscopes usually used by professionals are too sensitive to be of any use for brighter events so there is a place for the amateur who is more likely to be able to see these. Spare tennis rackets

Notice

BAA Awards and Medals for 2004

Early in the new year Council will consider nominations for the Association's Medals and Awards for 2004. If any members wish to nominate a fellow member for some notable contribution, please send a suitably worded citation to the Business Secretary no later than 2004 January 9. All nominations must be in writing and signed by two sponsors. Please try to confine citations to one side of an A4 sheet of paper. Thank you.

Conditions relating to each award are given below. Members are requested to read the conditions carefully and to ensure that citations comply with the conditions for the relative award. A list of previous recipients of the awards may be obtained from the Business Secretary.

The Walter Goodacre Medal and Gift

'This award ... is the senior award made by the Association. ...Normally awarded at intervals of not less than two years and not more than four years since the last award.

'The award shall be given in recognition of the recipient's contribution to the progress of astronomy over many years, special regard being had to his or her work communicated to the Association, this work being communicated in any form, and not necessarily in writing, provided that the recipient is a member of at least five years standing in the Association at the date of the Annual General Meeting in the year of the award.'

Merlin Medal and Gift

'This award shall ordinarily be made not more than once in any year and not less often than once every five years... It shall be made in recognition of a notable contribution to the advancement of astronomy. If two or more persons have been jointly concerned in any particular work, a joint award may be made, in which case each recipient shall receive a medal and gift.'

Lydia Brown Medal and Gift

'This award shall be made at the discretion of the Council. [It] shall be in recognition of meritorious service to the Association in an honorary capacity over many years on grounds which would not qualify a nominee for either the Walter Goodacre or Merlin Awards. If two or more persons have been jointly concerned in any particular work, a joint award may be made, in which case each recipient shall receive a medal and gift.'

Steavenson Award

'This award shall be made at the discretion of the Council. This shall be awarded to a member who has made an outstanding contribution to observational astronomy.'

Horace Dall Medal and Gift

'The award shall be made at the discretion of the Council but not more than once in any calendar year. It shall be made to a person, whether or not a member of the Association, who has shown marked ability in the making of Astronomical Instruments. If two or more people have been jointly concerned in a particular work then each person may receive a medal and gift.'

Ron Johnson, *Business Secretary*

Speakers at the 2003 Winchester weekend. From left to right: Tony Markham, Maurice Gavin, Lee Macdonald, Robin Gorman, Mike Frost, Stewart Moore, Bob Mizon, Neil Bone, Jeremy Cook. *Photos by Hazel McGee.*

or sieves are of use and prisms can be used directly with a camera without a telescope if wanted. Maurice managed to finish in time to allow the infamous 'Winchester Group Photograph' to be taken, from a slightly different location this year.

Tony Markham had the first slot after lunch to discuss 'Eclipsing binaries – a beginner's guide'. Most astronomers are familiar with Algol and probably tend to assume that all eclipsing binaries are similar. Tony reviewed other types and reminded the audience that some of these may change so can still be worth watching even though many assume the periods are known.

Following Tony, Robin Gorman gave a brief guide to the transit of Mercury on 2003 May 07 and the transit of Venus on 2004 June 08, both theoretically visible from the UK, weather permitting. Historic events were reviewed and details of the current events given. The atmosphere of Venus may make timing difficult. Those wishing to view were also reminded that the apparent location of the north pole of the Sun would vary as the Sun is seen to move across the sky.

After a quick break Stewart Moore completed the workshop with 'Drawing the deep sky', trying to emphasise that there is a difference between taking a quick look at an object and actually 'observing' it. If a drawing is made the mind must actively consider the object for some time and hence become much more familiar with it. Stewart discussed the methods he uses and gave checklists of points to consider for various types of deep sky object.

After the Moon video mentioned earlier and a brief review of the day the workshop closed, but the weekend carried on after dinner with an unprogrammed event: Martin Mobberley's 'Sky Notes'. Nobody who has attended one of these will ever forget it and this was well up to his usual standard. The laughs came thick and fast, the only problem was that it was easy to miss one joke whilst laughing at the previous one.

The main event of Winchester has, for many years, been the 'Alfred Curtis Memorial Lecture' on Saturday night, commemorating the founder of the Winchester Weekend. This year's lecturer was Dr Katherine Gunn, from Southampton University, talking about 'Galaxies, clusters and superclusters'. Katherine had no difficulty in following Martin's excellent performance, managing to field questions easily and keep most of the audience awake, always increasingly difficult as time progresses at Winchester. She covered a great deal of information about the universe: structure on different scales; measurement of distance; mapping with current observations and technology; numerical computer simulations; combining theory with observations and a review of the latest results. With a range from Henrietta Leavett in 1912 (spectral classification) to the latest estimates for the age and fate of the universe there was a lot to think about in an hour. Some very good computer simulations helped and she was aided by her assistant 'Super Space Slug' in places. There was also an obviously heartfelt warning that, if you ever find yourself in the focus cage of the Anglo Australian Telescope, do remember that, for safety reasons, the link to the control room always stays open... think of this before you test just how well the acoustics compare with your bathroom! As usual the passage of time brought an end too soon to the public questions but vigorous discussions continued in the bar.

For the first lecture on Sunday Richard had chosen a slightly easier subject, 'Atmospheric phenomena', presented by Mike Frost. The content was things most people have probably seen but not necessarily thought about. Nearly all are familiar with rainbows, many will have seen the second order rainbow, but how many have noticed the dark band between the two, or know where to look for the third order rainbow, or thought about an infrared rainbow? Details were given of the conditions needed to create some of these phenomena, such as ice crystal structures in the atmosphere. The ease with which it is possible to be 'blind to things that you don't expect to see' was shown by the photograph of the green flash between the two 'horns' of the setting eclipsed sun taken by Nigel Evans at Woomera after last year's total eclipse. Many people have seen this picture but it was a physicist rather than an astronomer who noticed that there is a line of light below the green flash where the geometry implies there should be darkness, presumably due to refraction.

'Galaxies, clusters & superclusters': Dr Katherine Gunn

The last 'programmed' lecture was a joint presentation by Bob Mizon and Paul Marchant, a 'Light pollution update'. Bob introduced the subject, firstly with the good news that a picture 'In Your Dreams', displayed beside him, had been donated to the cause by Christine Wakelin and would be loaned out to generate income for the campaign; contact Bob for details. The main part of the lecture concerned the bad news, a recent paper with official backing that appears to show increased street lighting is 'statistically significant' in reducing crime. Dr Paul Marchant, of Leeds Astronomical Society, is well versed in the use and misuse of statistics. He went through the faults in the statistics used to reach the conclusion, views which he was trying to present to the appropriate authorities to oppose the paper. Bob concluded with some more good news, that he would be attending a meeting at the National Maritime Museum which would consider further ways to combat light pollution. This would be attended by the CPRE (now the Campaign to Protect Rural England) and Bob asked everyone to write individually to their local representative and express their views, or even offer to help.

After lunch came an opportunity for any who had something they wanted to say or display. First was Alan Sidi with an edited video from the 2002 eclipse in Africa, including the effects of the lighting just before totality as well as the Sun (and Moon) during totality. A good selection of animals was included, which he admitted to having added afterwards from another trip, as nothing had appeared this time. Next came Peter Wise accompanied by a telescope he had built himself to his own optical design using a spherical primary, a negative doublet, a flat and a positive doublet to obtain a diffraction limited flat field.

Derek Hatch and Mike Foulkes were next in line, starting with a recent rainbow then going on to show eclipse pictures from the 2002 December 04 eclipse which they viewed near Lyndhurst in Australia. Bob Mizon followed with a list of MPs for people to write to about the current Government inquiry considering light pollution, then continued with a selection of photographs ranging from the aurora through an unusual view of France taken from Dorset to a picture of Comet Hale–Bopp beside a church (that was not floodlit). Nick Atkinson from Bournemouth suggested people could consider developing their own pictures, not that difficult, particularly with black and white film. Sidney Clump followed with further details of his attempts to analyse the occurrence of earthquakes. He was trying to see patterns in plots of over 6000 earthquakes and believes he may have seen evidence of a pulse in the Earth not associated with the Moon, but more work will be required.

The last speaker, as is almost traditional now, was John Wall. John started with a black and white picture of the first telescope he made in 1953, a 6-inch (152mm) Newtonian reflector, then went on to slightly bigger things, his 30-inch (76cm) refractor which is now installed at its new site in Hanwell. This alt-az telescope has a driving mechanism to allow it to track easily when pointing south to achieve its main aim of use with the Moon. John ended with his latest construction, a 6-inch Dall–Kirkham reflector intended for the transits.

Richard Flux, weekend organiser, then took the stage with an unusual twist on the normal request for the return of keys – this time they had acquired a key that did not belong to the college – and many rounds of applause to thank all the people involved in the event. The very last voice was that of Bob Marriott pointing out that Richard had omitted himself from the list of workers! After resounding applause for Richard's hard work it was tea, cakes and home for us and on with next year's planning for Richard.

Rita Whiting

The Third International Dark-Sky Symposium, Stuttgart, 2003

On 12–13 September, academics, astronomers, environmentalists, and representatives of local government and the lighting industry from nine European countries and the USA, attended the Third International Dark-Sky Symposium. The event was held in the Carl Zeiss Planetarium, Stuttgart, Germany.

The British delegates included Dr Chris Baddiley and Bob Mizon (committee members of the BAA Campaign for Dark Skies) and statistician Dr Paul Marchant of Leeds Metropolitan University.

Bob gave a review of the latest developments in the dark-skies debate in the UK, notably the CPRE's 'Night Blight' campaign (closely supported by CfDS), and the proceedings of the Parliamentary Select Committee on light pollution. Dr Baddiley discussed rural light waste, as shown by satellite maps for 1993 and 2000, and Dr Marchant spoke on the relationship between lighting and crime.

Other presentations at the symposium covered efficiency in lighting design, adverse effects of poor lighting on wildlife, the ageing eye, and the activities of various campaign groups. A most entertaining talk, demonstrating the lengths to which some dark-sky activists will go, was given by the Belgian contingent: in a garage, they designed and manufactured 'sky-friendly' baffles for street lamps, and persuaded a major lighting company to incorporate them into their products.

Delegates were treated to a planetarium show, and a trip to the Welzheim Public Observatory, forty kilometres east of Stuttgart at a dark-sky site. They had views of the Moon and many deep-sky wonders through a ten-inch refractor.

The meeting ended with drawing up the Declaration of Stuttgart (below), which will be transmitted to governments at all levels throughout Europe.

Bob Mizon (CfDS)

Czech astronomer Jenik Hollan (left) receives the International Dark-Sky Association's Achievement Award from IDA's Bob Gent at the Stuttgart Symposium. Mr Hollan, of the Nicolas Copernicus Observatory & Planetarium, Brno, was instrumental in persuading the parliament of the Czech Republic to include the night sky in its Protection of the Atmosphere Act in February 2002. *(Photo: CfDS)*

Bob Mizon addresses the symposium. *(Photo: Chris Baddiley)*

3rd European Symposium for Protection of the Night Sky

Stuttgart, Germany, 12–13 September 2003

The Declaration of Stuttgart on protecting the night environment for present and coming generations.

We, the participants at the 3rd European Symposium for Protection of the Night Sky:

– are unanimously concerned about the vanishing night skies and the rapid growth of light pollution in Europe and the world. This light pollution is characterized by increasing glare, energy waste, sky glow, and harm to the night-time environment.
– note that some European countries have taken action to control light pollution as evidenced by new national and regional laws, zoning restrictions, educational campaigns, and research.
– commend the regional parliament of Lombardy, Italy, the national parliament of the Czech Republic, the Catalonia Region of Spain, and others for their new legislation to protect the quality of the night-time environment for their citizens.

These actions are important steps forward, but more actions are required in these and many other countries to reverse the adverse impacts of light pollution.

Therefore, we unanimously request that ▸

▸all European governments and the European Union take immediate action to control light pollution. These actions should include educational campaigns, new legislation, and support of research.

We further declare that the solutions which promote quality night-time lighting are attainable now and that everyone benefits from these actions. Everyone should use the correct amount of light and only when and where it's needed.

People would then see better, save energy and protect the night-time environment.

Signed by all attendees on 13 September 2003:

International Dark-Sky Association (IDA has members in 75 countries)
IDA Austria
IDA Czech Republic
IDA Switzerland
Executive Committee of IDA Europe
The Campaign for Dark Skies of the British Astronomical Association
Astronomical League (international association with 20,000 members)
Fachgruppe Dark Sky der Vereinigung der Sternfreunde of Germany
Verein Kuffner-Sternwarte of Austria
Platform Lichthinder of the Netherlands
Werkgroep Lichthinder of VVS in Belgium
Bond Beter Leefmilieu in Belgium
Carl-Zeiss-Planetarium Stuttgart
Schwäbische Sternwarte e.V.
Österreichische Gesellschaft für Astronomie und Astrophysik
Sternfreunde Durmersheim und Umgebung e.V.
Association Nationale pour la Protection du Ciel Nocturne (France)