Dark skies action


Light pollution is one of those things that we know when we see it, even if we find it difficult to describe precisely. Most of us have experienced it in one way or another, either a neighbour’s intrusive security light, glare from a car park, or perhaps that wonderful surprise of looking up at the night sky from a remote beach or hillside on holiday and seeing the Milky Way for the first time in years. Many scientists were drawn to their careers by the excitement of observing the night sky, either the wonder of the thousands of faint stars in the Milky Way or phenomena such as comets, meteors, planets and aurorae; these are now lost to the young due to light pollution.

What is light pollution?

There are several aspects to light pollution:

- Light trespass: light that shines from one property into another where it is not wanted.
- Glare: light that prevents a person from seeing the illuminated scene properly.
- Confusion: too many bright lights (also flashing lights) competing for attention.
- Light waste: lights left on (all night), too bright a light for the task in hand.
- Sky glow: the bright sky over towns and cities, caused by light shining up and not down.

The Science and Technology Inquiry

After extensive lobbying by the British Astronomical Association-inspired Campaign for Dark Skies, the House of Commons Science and Technology Committee announced an inquiry into light pollution and UK astronomy in February 2003. Over the summer the RAS responded with written evidence and two representatives (Paul Murdin and Helen Walker) appeared before the Committee. There were two sessions for the Committee to ask questions: the RAS appeared with Guy Hurst from the BAA and with Bob Mizon and Chris Baddiley from the Campaign for Dark Skies in the first, followed by the Astronomer Royal and the Astronomer Royal for Scotland; Ian Halliday for PPARC appeared in the second session with representatives from the Institution of Lighting Engineers, the Highways Agency, the Campaign to Protect Rural England, and government departments (DfES, DEFRA, Housing and Planning). The report has now been published (HC-747, www.publications.parliament .uk/pa/cm200203/cmeselect/cmsctech/747/74702 .htm), and the information supplied by the RAS features prominently in the report.

The Committee identified five key questions:

- What has been the impact of light pollution on UK astronomy?
- Are current planning guidelines strong enough to protect against light pollution?
- Are planning guidelines being applied and enforced effectively?
- Is light measurable in such a way as to make legally-enforceable regulatory controls feasible?
- Do we need more controls on lighting design?

Response from the RAS

The RAS had most to say about the first question. For many years astronomers have been concerned about the impact of increasing light pollution on the study of astronomy, the observation of astronomical phenomena by professional scientists and amateurs, and the loss of the night sky as a trigger for scientific interest among young people. The International Astronomical Union has passed resolutions at eight general assemblies on this and related matters. In 1999 the IAU and the United Nations Special Environment Symposium “Preserving the Astronomical Sky” made several recommendations to Member States. The RAS formally protested to the Director General Space Regatta Consortium about the Znanya-2.5 space mirror experiment in 1998. In addition to the responses to the five questions posed by the Committee, the RAS also raised the issues of (i) the UK role in the international control of light pollution (to protect UK-funded facilities abroad), (ii) the adverse impact of other pollution, in particular radio interference, on UK facilities, and (iii) space-based light pollution and space art.

The RAS expressed concern about the situation for UK observatories, at UK universities and elsewhere. Around 50 universities in the UK offer significant modules in astronomy at undergraduate level. Around 25 of them carry out significant astronomical research (i.e. have grants from PPARC). The Society surveyed its own points of contact and found that there are around 33 observatories attached to universities, from small roof-top telescopes to the 1 m size used for research. The compromising of these facilities in the UK means that students find it hard to get appropriate training in the observational techniques of astronomy, and instruments have to be taken abroad for testing (which is expensive). It is not possible to take students to Hawaii to teach them how to use a telescope. The RAS described a scheme (proposed by Paul Murdin in Observatory 117 34) to classify sites where astronomical observing takes place (ALCORS), so that local authorities would be aware of them and their significance.

Amateur astronomers wrote to the Committee with comprehensive evidence of the loss of visibility of the night sky over the years, and the Campaign for Dark Skies had gathered many examples of poor lighting practice.

The result

The Committee accepted the RAS’s evidence on the significance of astronomy in the UK, both as first-rate international research and as an inspiring cultural/educational activity. It suggested that PPARC should take a more active interest in light pollution issues than it has hitherto and recommended that “the Government should create a new Planning Policy Guidance on light pollution as soon as possible and ensure that all local authorities are made aware of their obligation to include lighting in their local development plans”. It proposed that light could be made a “statutory nuisance”, like noise, fumes, smell, animals; Environmental Health Officers could then exercise the same powers of judgement that they already use for smells. The Committee recognised radio spectrum pollution as a matter of interest, although outside the scope of the present inquiry.

The report concluded: “The astronomical community in this country is a particularly strong one and it should be encouraged by the Government. Amateur astronomers not only support major professional projects through day-to-day observations, but also donate much of their time to introducing the general public and young people to the night sky, astronomy and, through that initial interest, very often into a physics career.” It quoted the analogy provided by Prof. Sir Martin Rees: “We may not all be ornithologists, but we would miss the song birds in our gardens.”

Helen Walker and Paul Murdin, RAS.