

## "Dumbing Down - The ruination of Amateur Astronomy"

In the 1960's a social scientist speculated that technology's exponential growth would create problems at a similar exponential rate whilst solving problems at an arithmetic rate. It was an extrapolation of the Malthusian prediction of the consequence of unchecked population growth supported by finite resources. Eventually Western Civilisation would be overwhelmed by the very technology that spawned it during the Industrial Revolution.

In the current issue (Aug. 2010) of 'Discover' magazine there is an article, "Is Evolution Dumbing Us Down?" In combining the concepts of technology overload, universal welfare & politically correct educational uniformitarianism <<http://en.wikipedia.org/wiki/Uniformitarianism>>, a variation on the Darwinian theory of the survival of the most suited to the environment, can be seen to have been circumvented.

Nowhere is this more true today than amateur astronomy, where the base knowledge and technical know how, needed to make any sort of meaningful contribution, has been deliberately eroded over the past 40 years.

Amateur astronomy is now reduced to a hobby of observing for observing's sake - stamp collecting. The Astronomical League operates like the Scouts and Guides, offering awards & badges for everything from a Messier marathon to Sunspot counts. If you observe it they have a badge for it.

Astrophotography is seen by many as the ultimate goal; who can take the most spectacular photograph of a deep sky object, or whatever, and maybe get it onto APOD. The purpose of taking the picture is to best the rest.

Our lamentable state educational system (& I refer to both sides of the pond on this) churns out educated idiots. Paper qualifications that don't mean a jot. Mathematics and Physics and the applied sciences such as Chemistry, and Mechanical and Electrical Engineering science, are being taught at a progressively dumbed down level to a dwindling number of students. Modularised GCSE & As/A level examination papers, moderated course work (thankfully now removed from England's GCSE mathematics curriculum), and the rise of red-brick universities, once eminent Engineering Technical College's & Polytechnics, has given rise to fewer and fewer able to understand higher mathematics.

My college mathematics lecturer had an apt saying, "*If you don't know it in numbers you don't know it at all.*" What he meant by this pithy aphorism is that *if* the only description you have for any phenomenon is verbal, it is mere philosophising. You can pull yourself up in a bucket using deductive reasoning. You may frame a conjecture verbally. Only the rigour of mathematical enquiry and analysis is able to prove or disprove that conjecture.

This sadly nowadays is something completely alien to the mindset of the average amateur astronomer. What I and many others of my generation are able to appreciate is simply beyond the ken of most amateur astronomers under the age of 40. I was educated by an elite through the pages of Ingall's ATM series, the Gleanings section of Sky & Telescope, (when it was a subscription only magazine because its contents were simply too impenetrable for Joe public), and various other astronomical & technical journals.

Those ignorant of history are condemned to relive it. The internet has spawned an exponential growth in instant communication since the world wide web came to the fore in the mid 1990's. We are entertained and encouraged to air our "*knowledge*" and question authority in innumerable Yahoo use groups, and astro-chat rooms. What I read, when I am obliged to take a look for myself, are the vacuous blatherings of astro-idiots.

The basic tool of any amateur astronomer is the telescope. Telescopes are in abundance, at a price to suit all pockets, yet how few amateur astronomers have the slightest notion as to how their telescope works? When I was a boy, if you bought a telescope off a reputable firm such as Charles Frank, you also received the Ingalls 'ATM' series Vols. I; II & III, 'Frank's Book of the Telescope', Sam Brown's, 'All About Telescopes' and several books published by Amphoto, 'Telescopes for Skygazing' & 'Outer Space Photography for the Amateur' both written by the illustrious Henry E. Paul <Sky and Telescope, volume 53, page 177.>, and last but by no means least, 'Norton's Star Atlas and Astronomical Handbook' (sadly even Norton's was been dumbed down in 2000).

No sooner had I joined Salford Astronomical Society in the early 70's, than I was entreated to obtain and thoroughly read and comprehend, 'Astronomy' Vols I & II by Russell, Dugan & Stewart, a revision of Young's 'Manual of Astronomy'. Also, 'Amateur Astronomer's Handbook' and 'Observational Astronomy for Amateurs', both by J. B. Sidgwick, and Günther D. Roth's 'Compendium of Astronomy', subsequently published by Springer in 3 vols. and still in print.

Current reading for any amateur astronomer who has a desire to understand optics and how the telescope functions ought to be, 'Reflecting Telescope Optics' Vols I & II, edited by R.N. Wilson, and 'The Design & Construction of Large Optical Telescopes', edited by Bely - both published by Springer-Verlag.

Then there were the ATM books such as 'Handbook for Telescope Making' by N.E. Howard, 'How to Make a Telescope' by Jean Texereau, and the 'ATM Journal'. Only if you've actually made your own reflecting telescope, can you have any real insight into the fundamentals of telescopic optics.

The trouble nowadays is telescopes can be had so cheaply that few bother to make their own. Instead of receiving worthy books with their purchase, all they can hope for is a Meade catalogue. Meagre indeed is the understanding to be gleaned from today's crop of astronomy magazines. All is dumbed down to make the hobby accessible to the enumerate.

The consequence of educational dumbing down is a profound ignorance about telescopes. Cloudy Nights is filled with examples of ludicrous debates on matters that have been settled generations ago. They simply reveal an unwillingness to read handbooks written by authoritative authors, and an inability or reluctance to learn mathematics to the required level (BSc or BA degree level at the very least), or acquire a working knowledge of applied mechanical engineering and electrical engineering science, and applied optics.

There is a woeful lack of understanding of spherical astronomy. When in my late teens one of the books I was told to go away and read and work through was, 'Spherical Astronomy' by W.M. Smart. Unless you teach yourself Euclidean geometry, plane trigonometry, and spherical trigonometry, you can have no understanding of celestial mechanics. I never cease to be amazed by amateur astronomers who buy an equatorial mount without the slightest idea of how it works. GoTo mounts are a great convenience, but if you have to rely on one to find objects, then you are a clueless astro-idiot. If you do not know how the equatorial co-ordinate system originated, and how to solve spherical astronomy problems using its arcane rules; if Right Ascension, Declination, Hour Angle & Sidereal Time, are all meaningless concepts to you, then you are an astro-idiot, and you need to read up and educate yourself. You need to become an *autodidact*, because the current education system sure isn't going to be able to help you, and neither are any of the popular works penned by the so-called astro-guru's who have risen up like the black tide from the primal lagoon.

Along with the rise and rise of the astro-idiot, comes the self styled astro-guru. Its a case of the blind leading the blind. On my homepage <<http://www.brayebrookobservatory.org/BrayObsWebSite/HOMEPAGE/homepage.html>> there is a latin motto, "beati monoculi in regione caecorum" which means, "In the Kingdom of the Blind the One-Eyed are Kings." When you're an astro-idiot you quickly start worshipping the "One-Eyed", or in most instances, the downright "Cock-Eyed".

I blame popularisation. Amateur astronomy never used to be a "*popular*" hobby. The man on the Clapham Omnibus regarded amateur astronomers as eccentrics, old men with walking sticks & white beards, gazing through a telescope for some unfathomable purpose. Amateur astronomy was not even a hobby as such, it was an "*avocation*", a science to be pursued by an educated elite, those who had the requisite knowledge, obtained either at the seat of a rigorous educational establishment, or self taught. In order to utter anything deemed praiseworthy in the eye's of your peers, you needed to learn your subject beforehand. Better to sit in silence and look a fool, than open your mouth and remove all doubt.

My generation who were enrolled into an elitist avocation worthy of the numerate and scientific mind, are now dismissed as "Old School". I am appalled by how few amateur astronomers born after the late 60's, early 70's, have the slightest knowledge of the history of the astronomy. They know little or nothing about bygone astronomers or the history of the science or the history of the telescope. All they appear to be interested in is joining the "kit acquisition race" in order to show it and themselves off at star parties. There they can be heard, GoTo motors whirring ineffectually, looking at one deep sky object after another, barely allowing themselves or the chip shop queue behind them, time to take it all in. As I said earlier, stamp collecting; "Oh yes, I've seen NGC1234, its a barred spiral in Eridanus, saw it when I went to the Algarve." What they probably have no interest in, is who discovered it, or when (it was Francis Preserved Leavenworth in 1886 - and if you knew anything about his life and times before reading this rant, consider yourself one of the educated elite, and not an astro-idiot).

One of the indisputable privileges of being "Old School" is that you possess a compendious knowledge of the science, its history, of optics and the telescope, of algebra, geometry, trigonometry and differential and integral calculus, and various observational disciplines, plus an ability to frame a hypothesis and set up an observational experiment to see if it can be disproved.

If all you do with your telescope is point it at deep sky objects in order to take a pretty picture, or trot it out at star parties to impress the rest of club members; if you cannot find anything in the sky without the aid of a GoTo system; if a Planisphere is a mysterious device; if you don't know how an eyepiece works, and which type is better suited to which class of object; if you cannot follow the simple ray tracing procedures described in Sam Brown's All About Telescopes, then you are "New School" and a dumbed down astro-idiot. To whom I say, either get out of the hobby altogether, or get some much needed learning and become "Old School" because only "Old School" amateur astronomers know what they're doing and what they are talking about.

