

Are Historical Observations “Ancient” or “Modern”?

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Extended Abstract. The demarcation between “old”, “historic” and “heritage” is fuzzy. To a large degree it depends upon purpose and usefulness, and it will always be subjective. At what point does the intrinsic value of an historic item outpace the mystique associated just with its age? When, for instance, does an “old” car become a “vintage” car? When do archived astronomical records contribute something of quantitative value to science? When can they be extricated from the realms of the museum and placed in the context of modern research?

Celestial objects vary. Some do so explosively, often irreversibly; many vary periodically over time-scales from a hour or less to a century or more. Furthermore, all celestial objects change as they evolve, mostly so slowly as to be practically imperceptible, but while the general time-scale of that evolution is millions of years there are a few stages (such as the collapse from AGB towards planetary nebula and white dwarf) which happen rather suddenly, and invaluable examples of “before–after” can be found in some plate stores. Astrophysics has a comprehensive need to investigate the nature and time-scales of all types of change, especially ones which *only* access to its “heritage” data can describe. Surely in this day and age we have enough tools, capacity and technologies to fulfil such a basic requirement?

The frustrating answer is that we do have some of the necessary tools, and most of the technologies, but as a community we lack “capacity” if that means manpower and funds. The problem is a technical one of accessing the older data in useable formats; it was generated by the universal change in detector technology from photography to electronic device, an exciting development in efficiency and scope that heralded a new era of research capability and data management, archiving and sharing, but it left pre-digital photographic data right out of the picture. Developments of that nature should have made research *more* inclusive, instead of the seriously exclusive picture that is currently seen. The longer the situation prevails, the greater the inertia and scepticism to be overcome.

Fortunately, some of the challenges *are* being tackled successfully, the most productive to date being the DASCH project (dasch.rc.fas.harvard.edu) at Harvard College Observatory to digitize and share all the images and objective-prism spectra from its collection (the world’s biggest) of over 0.5M large plates. The DAO has commenced a programme to digitize its collection of > 16,000 high-dispersion spectra (~70% are good enough to scan and convert), and to scan plates from its larger but older Cassegrain collection of > 90,000 spectra upon request. The instrument for this Herculean task is its own PDS, now suitably upgraded to meet the demands of speed and accuracy; the DAO has also acquired and upgraded a second PDS, with which it plans to share the load. Some smaller observatories in Europe are trying with less sophisticated equipment, but the rest have not the resources to give such data transformation any priority. Despite the unquestionable advantages, it is still necessary to convince colleagues that the medium is not the message, and that the scientific need comes before technological expedience.