

## Commission B2 WG

## Preservation and Digitization of Photographic Plates (PDPP)

### Chair

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## TRIENNIAL REPORT 2018–2021

### 1. History and Mandate

The IAU WG for the *Preservation and Digitization of Photographic Plates* (WG PDPP) was created in 2000 as a direct result of a surge in interest in the future (or fate) of astronomys large but distributed archive of historical observations on glass plates; estimates of the number range from 5 million to 9 million. Many are direct images, always in demand as time-domain backups, while others also have an important re-use value for determining accurate orbits for NEOs, long-period comets, Kuiper Belt objects and the like. The rest are spectra, those of maximal importance being the products of powerful spectrographs, mostly but not exclusively associated with large telescopes.

The problems of keeping alive and functional the outputs from a now defunct technology are manifold, not least because plates can be bulky to store; they are fragile, prone to loss through flood, fire and tempest, and generally tend to show observations of inferior resolution compared to modern ones. Furthermore, the response of a photographic emulsion to light is notoriously non-linear, and specialized (but well-documented) treatment is needed to extract *correctly* photographic observations, particularly spectra. Nevertheless, those heritage data contain observations that can never be repeated – and indeed, which may never occur again, so in that respect they are sources of supreme importance to the science of astronomy. One of the most serious dangers that have to be faced is a steady attrition of researchers and technicians who still remember how to use and reduce photographic data, so a degree of urgency is also present here.

It falls to this WG

- (a) to raise awareness of the presence and the potential of our heritage data,
- (b) to instruct on all aspects of correct handling, *including direct intensity calibrations*,  
and
- (c) to help ensure a safe and sensible means of long-term storage.

### 2. Meetings

WG members were instrumental in creating IAU S339 (*Southern Horizons in Time-Domain Astronomy*, held in Cape Town in late 2017). One of the afternoon workshops at that meeting was devoted to a thorough discussion of the future (or fate) of our photographic heritage. Firm support for the WG was very evident, and many suggestions

were minuted as to ways to keep the WGs purpose well to the fore throughout world astronomy. In direct response to those views, we are currently reapplying to have this WG renewed, and for its status to change from Regular to Functional.

### 3. Recent Status

In the interests of comprehensive studies of our universe, the astronomical community needs ready access to its past data, and our WG seeks to create the right environment for that to happen. Since 2015 the membership has been revised, and now contains new members who are also participants of a recent initiative (the *Glass Plates Group*, GPG), formed largely among astronomical librarians and archivists wishing to understand the correct management and scientific potential of the numerous astronomical plate collections that have recently come under their care. The GPG holds monthly virtual meetings, which the WG is able to share, and by working steadily through the desiderata (history, preservation, handling, cleaning, documenting, storing and finally digitizing), the WG now sees a reliable way to establish a network of experts who can advise as appropriate, recognize the potential of each individual collection, and decide which of the desiderata to advise or pursue in a given case.

### 4. Future

**(a) Near Future.** The WG PDPP needs to elect a new leader, an OC, and a Web master who can coordinate developments through the WGs IAU Web page. Furthermore, the effort, time and resources required to follow through this programme fully will clearly take far more than the 3 years allocated to a regular WG, and we have therefore applied to become a Functional WG. If the application is approved, we will then announce a schedule of on-line meetings that will offer Q&A sessions with “consultants” on the different aspects of preservation and re-use mentioned above, and will maintain space on the website to list and explain details of what is needed in order to achieve uniformity of understanding and practice that should be in place as appropriately in all plate archives. In addition, listing relevant publications that have used heritage data, and also suggesting topics for research, should be included. One rather thorny topic is the question of the choice of scanner to use; this needs to be debated very carefully, as responses will be found to depend heavily on the quality and the scientific potential of the plates themselves, as well as on cost and on the available expertise for scanning such materials.

**(b) Longer-term Future.** The WG needs to enlist one or more members to represent every location where astronomical plates are being archived. As the WG establishes proven codes to be followed under each aspect of preservation and re-use, the WGs website will publish details of which data have been fully recovered and may be used by anyone for research. Fully searchable logs of observations, per observatory or telescope, will also become available.

R. Elizabeth Griffin  
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