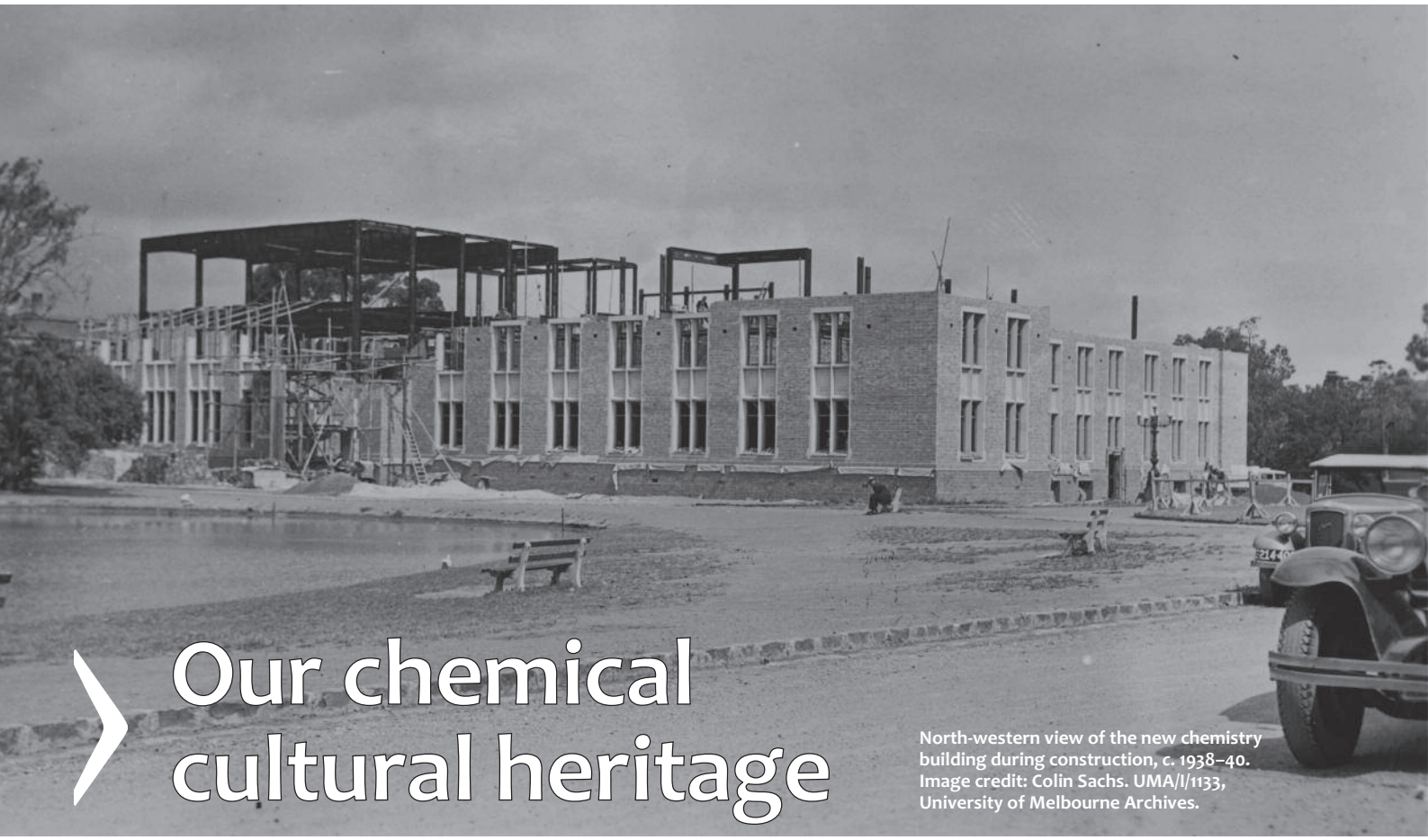

Our chemical cultural heritage

North-western view of the new chemistry building during construction, c. 1938–40. Image credit: Colin Sachs. UMA/I/1133, University of Melbourne Archives.

Hartung (1893–1979)

PETRONELLA NEL

During the time of Ernst Johannes Hartung, the dream of a new purpose-built building for chemistry at the University of Melbourne was realised.

Ernst Johannes Hartung was a chemist and astronomer. Educated at the University of Melbourne (BSc 1913, DSc 1919), he became lecturer in 1919, associate professor in 1924, and succeeded Rivett as chair of chemistry in 1928, remaining in this position until 1953. Hartung was noted for his enthusiastic lecturing style. He employed the use of screen projections to demonstrate chemical phenomena to large undergraduate classes. In 1935, he recorded Brownian movement in colloidal solutions on 35 mm cinefilm, which was later copied onto 16 mm film for the Eastman Kodak Co. World Science Library. The recent digitisation of this cinematic film was discussed previously (November 2009 issue, pages 20–23). He undertook research on the photodecomposition of silver halides, and was awarded the David Syme Prize in 1926.

Hartung successfully petitioned the university for a new building (more details below) and became heavily involved with wartime research to produce optical-grade glass (see also below). Hartung served three terms as general President of the (Royal) Australian Chemical Institute, and was an ex-officio councillor of the Council for Scientific and Industrial Research and a Trustee of the Museum of Applied Science (now part of Museum Victoria) (Radford 1978, Weickhardt 1996).

A new building

When the chemistry teaching laboratories were filled to capacity in 1935, Hartung urgently petitioned the University Council for a new building, but little progress was made until the appointment of Raymond Priestley as salaried Vice-Chancellor.

Shocked by the state of the laboratories, Priestley commenced an immediate campaign, employing various means including Hartung's skill as a public lecturer to attract community support. The new School of Chemistry building commenced in 1938 and was completed in 1939, the year that World War II started.

Wartime research

During World War II, Hartung was approached by Professor Thomas Laby (chairman of the Optical Munitions Panel) to chair the advisory committee on optical materials, to produce high-quality optical glass in Australia. As a result, from 1940 the University of Melbourne became heavily involved in wartime research and specifically with the production of optical glass (for use in gun-sights, telescopes, binoculars and the like). Under wartime conditions, these could not be obtained from the traditional overseas suppliers. Manufacturing details were not available to Australian industry because European producers guarded their secrets closely, during peace time, for commercial reasons. Professor Thomas Laby of the School of Physics led the project. Hartung's team, which included Gustav Ampt (Fig. 1), found that early attempts undertaken in Sydney were inadequate due to impurities in the silica sands of the melts and the clay of the firing pots. Hartung and Ampt's chemical analysis and refinement of the raw materials overcame these problems. Numerous experimental batches were produced in the process of perfecting the glass. The collection includes four glass samples, three have irregular shapes that are roughly fist size and one sample is box shaped where layers of glass have been placed on top of each other (Fig. 2). These complement glass samples and instruments used in this project that are now part of the collection of the School of Physics Museum.

The analytical balance

The Sartorius balance (Fig. 3) belonged to Gustav Ampt (1886–1953), considered one of Australia's ablest analysts in his day. Ampt was a demonstrator, lecturer and senior lecturer in the Department of Chemistry from 1919 to 1951. He purchased the balance for £10 with funds that he won in one of his final awards. The balance has been an essential part of the chemist's equipment since the early 19th century, enabling the mass of a sample to be measured by comparison with standard masses. While many balances came equipped with standard masses, a good chemist would have his own calibrated set of analytical masses. Such sets were in use until about 1960, when the Melbourne department switched over to modern balances with in-built standard masses against which the unknown could be compared. A set of analytical masses in the collection, used by E.J. Hartung, ranges from 0.0 to 50 g. Hartung made corrections for each mass and scratched his initials on the lid of the wood box. Hartung stated that '... the balance is the most important instrument of the

Figure 1. Professor Hartung and Gustav Ampt examining one of the melts of glass in their work on optical glass during World War II. Reg. No. 158, School of Physics Museum, University of Melbourne.

Hartung stated that '... the balance is the most important instrument of the chemist and the basis of all quantitative chemical work ...'

Figure 2. Experimental samples from the development of optical glass, 1942. Cat. no. 11, School of Chemistry Collection, University of Melbourne. Image credit: Petronella Nel.

Figure 3. Balance made by F. Sartorius company, Gottingen, Germany (~1908). Catalogue no. 7, School of Chemistry Collection, University of Melbourne. Image credit: Petronella Nel.

chemist and the basis of all quantitative chemical work ...'

In conclusion

This is the final in a series of focus articles on key people associated with the Chemistry Collection at the University of Melbourne. It is hoped that this has provided readers with a brief glimpse into the early history of the School of Chemistry and its influence on Australian and international science. Surely it is interesting to observe how the past professors faced the same challenges with funding, buildings and equipment that we face today. With the current building renovations at Melbourne now well underway, it is suggested that it may be worthwhile to take a moment to stand in the Masson Theatre or to view the current exhibit of historical items and listen to echoes from the past.

Acknowledgments

The author gratefully acknowledges the assistance of Professor Ken Ghiggino (Chemistry), Associate Professor Michelle Gee (Chemistry), Michael Moylan (Chemistry), Richard Mathys (Chemistry), Belinda Nemec (Cultural Collections), Denise Driver (Archives), Nick Nicola (Physics), Professor Ian Rae (RACI), Ruth Leveson (Museum Victoria) and Kate Stanway (Centre for Cultural Materials Conservation).

This is a condensed version of an article first published in *University of Melbourne Collections* (Nel 2009).

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