

## DUTROW JOINS GIA BOARD; HAWTHORNE AWARDED BY ORDER OF CANADA

high-pressure  $ZrSiO_4$  polymorph stable at 30 GPa, has been discovered in granular-textured zircon (FIGS. 2C, 2D) in MN-type tektites from Thailand, again supporting a crater location in Southeast Asia (Cavosie et al. 2018).

Solving the mystery of where Australasian tektites originated is of broad interest, far beyond the interest of those only concerned with glass and shocked minerals. The event that created the Australasian tektites is the only potential environmentally catastrophic extra-terrestrial impact event possibly witnessed by anyone on the specifically human ancestral tree. While the northern latitudes were experiencing glacial conditions, many details of human evolution during the mid-Pleistocene are still debated. It is tantalizing to think that members of the *Homo erectus* lineage living in Asia, best known from the discovery of the Peking Man skull (FIG. 3), could have witnessed the Australasian impact.



**FIGURE 3** Image of the Peking Man skull, being representative of *Homo erectus*, some of whom might have witnessed the Pleistocene fireball that initiated the Australasian tektites. PHOTO BY KEVIN WALSH LICENSED UNDER CC-BY 2.0.

The burial age of the sedimentary layer that Peking Man came to rest in (i.e.  $770,000 \pm 80,000$  years old) (Shen et al. 2009), fully overlaps with the age of Australasian tektite formation at  $785,000 \pm 7,000$  years (Schwarz et al. 2016). Did our distant ancestors see this event, perhaps as a second sunrise, or a flash in the night sky? Or did they wake up to find bits of shiny black glass scattered about, objects that weren't there the day before? While unknowable, it is interesting to consider the idea that *Homo erectus* may well have been the first of us to see such a huge fireball, and then to have puzzled over the enigmatic shiny glass that fell from the sky afterward.

### ACKNOWLEDGMENTS

Support was provided by the NASA Astrobiology program (NNA13AA94A), the Australian Research Council, and the John de Laeter Centre, the Space Science and Technology Centre, and The Institute for Geoscience Research at Curtin University.

### REFERENCES

- Cavosie AJ, Timms NE, Erickson TM, Koeberl C (2018) New clues from Earth's most elusive impact crater: evidence of reidite in Australasian tektites from Thailand. *Geology* 46: 203-206
- Folco L and 5 coauthors (2010) Shocked quartz and other mineral inclusions in Australasian microtektites. *Geology* 38: 211-214
- Glass BP, Simonson BM (2013) Distal Impact Ejecta Layers: A Record of Large Impacts in Sedimentary Deposits. Springer-Verlag, Berlin Heidelberg, 716 pp
- Koeberl C (1990) The geochemistry of tektites: an overview. *Tectonophysics* 171: 405-422
- Koeberl C (1994) Tektite origin by hypervelocity asteroidal or cometary impact: target rocks, source craters, and mechanisms. In: Dressler BO, Grieve RAF, Sharpton VL (eds) Large Meteorite Impacts and Planetary Evolution. Geological Society of America Special Paper 293, pp 133-152
- Ma P and 11 coauthors (2004) Beryllium-10 in Australasian tektites: constraints on the location of the source crater. *Geochimica et Cosmochimica Acta* 68: 3883-3896
- Schwarz WH and 9 coauthors (2016) Coeval ages of Australasian, Central American and Western Canadian tektites reveal multiple impacts 790 ka ago. *Geochimica et Cosmochimica Acta* 178: 307-319
- Shen G, Gao X, Gao B, Granger DE (2009) Age of Zhoukoudian *Homo erectus* determined with  $^{26}Al/^{10}Be$  burial dating. *Nature* 458: 198-200

### DUTROW ELECTED TO GIA'S BOARD OF GOVERNORS



**Barbara L. Dutrow**, Adolphe G. Gueymard Professor of Geology at the Louisiana State University (USA), was elected to the Board of Governors of the Gemological Institute of America (GIA). Prof. Dutrow is one of two research scientists on the GIA's board of 17 (joining Prof. John Valley). She was selected for her expertise in mineralogy, her experience in field work and analytical instrumentation, and her work with professional societies. The

GIA is the international leader in providing education, laboratory services, and state-of-the-art research to the gem and jewelry industry with a mission to ensure the public's trust in gems and jewelry. The GIA has 13 laboratories and schools in the USA, Europe, Asia, and Africa and are the developers of the famous "four Cs" (carat weight, cut, color, clarity) for diamond grading.

### HAWTHORNE APPOINTED COMPANION OF ORDER OF CANADA



**Frank C. Hawthorne**, Distinguished Professor at the University of Manitoba (Canada) was appointed a Companion of the Order of Canada on 29 December 2017. Companions of the Order of Canada, the highest level of the Order of Canada, have demonstrated the highest degree of merit to Canada and humanity, on the national or international scene. He was appointed for "his groundbreaking contributions to

geology as an internationally renowned authority on mineralogy and crystallography." Hawthorne is the author of over 700 reviewed journal articles on the atomic arrangements of atoms in solids. He is a Life Fellow of the Royal Society of Canada, a Foreign Member of the Russian Academy of Sciences, and an Honorary Fellow of both the Società Italiana di Mineralogia e Petrologia and the Russian Mineralogical Society. Dr. Hawthorne has also received numerous awards, including the Willet G. Miller Medal of the Royal Society of Canada, the 1995 Schlumberger Medal of the Mineralogical Society of Great Britain and Ireland, the 2008 Killam Prize in Natural Sciences from the Canada Council, the 2010 IMA Medal of the International Mineralogical Association, and the 2013 Roebling Medal of the Mineralogical Society of America.

