

THE VICTORIAN GEOLOGIST

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August 2015

THE GEOLOGICAL SOCIETY OF AUSTRALIA

Victoria Division

General Meeting

Thursday 27th August at 6:15 p.m.

Karst-like and Ruiniform features in Sandstones of Northern Australia

Ken Grimes

Editor of *Helictite*

**Honourary Staff, School of Ecology, Environment and Evolution,
La Trobe University**

Fritz Loewe Theatre, School of Earth Sciences, University of Melbourne

Talk will be preceded by drinks from 5:30 pm in the 4th floor tearoom, cost \$2.

Having graduated from The University of Queensland with a Bachelor of Science (Honours), Ken Grimes went on to work as a geologist and geomorphologist with the Regional Mapping section of the Geological Survey of Queensland between 1969 and 1990. From 1990 to 2014 he worked as a consultant geomorphologist, drawing upon the experience from many years involved in karst and pseudokarst research and mapping. Ken is a current editor of the speleology journal *Helictite*, is a Fellow of the Australasian Cave & Karst Management Association and has been acknowledged "for outstanding service to Australian Speleology over a long period of time" with the Edie Smith award from the Australian Speleological Federation.

SPEAKER ABSTRACT

The flat-lying sandstone areas of tropical north Australia have a range of interesting landforms that include caves, dolines (sinkholes), and other karst-like features, and also spectacular ruiniform terrains. They are developed on Proterozoic sandstones in the west and Mesozoic sandstones in the east. Tertiary laterites can also have karst-like features.

Karst-like features can be classed as silicate karst, parakarst and pseudokarst. They include caves that range from small rock shelters (which are mainly of interest for their aboriginal heritage) through small tunnels and large tubes, which may have dark zones, to larger stream caves (both active and abandoned) and some complex maze systems. Dolines are mainly collapse or subsidence features, and some may be due to subjacent karst effects. Blind valleys and stream sinks are associated with the stream caves. Small-scale features include solution pans and runnels, sculptured walls that resemble karren, and sandstone pillars within some caves or exposed in cliffs. The pillars appear to be a type of cementation by focussed vertical water flow.

Ruiniform features are giant grikefields, stone cities and stone forests which result from structurally controlled weathering and erosion. At the edge of a plateau developed on flat-lying sandstones one finds that erosion first attacks the joints, widening them to form grikes which grow larger and deeper to become giant grikefields. As the grikes enlarge further they widen at the expense of the higher areas between them to make stone cities and eventually the low ground dominates and we get a stone forest and eventually scattered pinnacles on a low-level pavement. Stone cities are referred to by the tourism industry as "lost cities". These features are analogous to karst grikes, pinnacles and towers, but solution is not the main process involved.

THE JULY MEETING

GSAV Student Night

The last meeting was the annual student night and about 20 members and visitors heard 3 interesting talks from Yu-Chen Ling (Biogeochemistry, The University of Melbourne), Hamed Aghaei (Petroleum geology, Monash University) and Vhairi Mackintosh (Thermochronology, The University of Melbourne). These students have been sponsored by the GSAV in the past year to attend conferences and are all PhD candidates or recent graduates.

The talks were very varied in their subject matter and geographical location of field work; Coastal acid sulfate soils and microbes near Cairns (Yu-Chen), the stratigraphy and the amount of erosion and present day thickness of the Strzelecki Group in west Gippsland between Inverloch and Sam Remo (Hamed) and a low-temperature thermochronology study of the Zimbabwe Craton (Vhairi). It is always interesting to experience the range of work that is being undertaken in Tertiary institutions.

The evening finished with discussions over pizzas upstairs in the Tea Room.

Susan White

AUSTRALIAN EARTH SCIENCES CONVENTION NEWS



Uncover Earth's Past to
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26 - 30 June 2016 – Adelaide Convention Centre

aesc2016.gsa.org.au

Call for AESC theme and session suggestions

An exciting series of themes, symposia, fieldtrips and workshops is being put together by the AESC 2016 Organising Committee.



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A preliminary taste of what is to come and who to contact if you want to make suggestions is outlined below.

- Earth's Environment** – Past to Present
- Tectonics of the Earth and Other Planets** – Craton and Continental Formation and Evolution, Ocean Plate Tectonics, Plate Margin and Plate Interior Tectonism
- Deep Earth Geodynamics** – Core, Asthenosphere and Lithosphere Dynamics, Coupling the Dynamic Deep Earth with Surface Tectonics
- Mineral Endowment** – Formation and Exploration of Mineral Deposits, their Tectonic and Geochemical Environment and Significance
- Geoscience for Society** – Geotourism, Education, Integration and Translation of Earth Sciences for Societal Benefit, Open the Gate, Geoscience and Community Engagement
- The Earth Science of Energy** – From Hydrocarbons to Hot Rocks

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PHOTO: Pleistocene sediments of the Hindmarsh Clay (red) and unconformably overlying Bridgewater Formation (white) in cliff exposures at Balgowan, Yorke Peninsula, South Australia. Photo courtesy of Caroline Forbes

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STUDENT FUNDING OPPORTUNITIES**Geological Society of Australia (Victoria Division) Student Research Scholarships**

The scholarship is valued at up to \$500 for travel within Australia and \$700 for travel outside of Australia. The number of and value of the scholarships awarded each year is made at the discretion of the GSA(Vic) committee.

Funding will not be granted retrospectively and applicants are asked to submit forms no later than 6 weeks prior to their trip to give the committee time to consider the application.

**Eligibility**

Applicants must be members of the GSA and enrolled in a full-time degree at a Victorian Tertiary institution and undertaking research in Geology. The scholarship will be awarded to assist with conference travel for honours and postgraduate students, who are presenting (either poster or talk) at the conference.

Honours and postgraduate students that receive this scholarship will be required to submit a report for publication in 'The Victorian Geologist' newsletter following to their trip. A presentation may also be requested by the committee, which will consist of a short 10-15 minute presentation prior to the monthly seminar.

Students who have previously received a GSAV research scholarship are not eligible. Scholarships and bursaries from other sources are acceptable.

Applications forms can be scanned and emailed to: secretary@vic.gsa.org.au

or mailed to:

Geology Research Scholarships Victoria
Geological Society of Australia (Victoria Division)
GPO Box 2355
Melbourne VIC 3001

More information can be found by contacting Barbara Wagstaff (wagstaff@unimelb.edu.au)

Something interesting to share? Want to see your name in print?

Don't be bashful, contribute to the GSA(V) monthly newsletter!

If there are any events, happenings, news, or views that would be of interest to the membership, please send your details and information to Kieran Iles at kiles@student.unimelb.edu.au

We'd be glad to hear from you

FORTHCOMING SEMINARS AND EVENTS

to be presented at
GSA (Victoria Division) meetings

Note: unless otherwise indicated, all 2015 talks will be held in the Fritz Loewe Theatre, Earth Sciences Building, University of Melbourne.

August 27th:

Monthly Meeting: Ken Grimes

Karst-like and ruiniform features in sandstones of northern Australia

September 24th:

Monthly Meeting: Robbie Rowe

Australia's exploration potential: Is there anything out there to discover?

October 29th:

Monthly Meeting:

November 26th:

Monthly Meeting: Helen Green

Dating Aboriginal Rock Art

Please welcome our newest members

James Glover



Visit the GSAV on www.gsavic.org or the GSA on www.gsa.org.au
• Renewing your GSA membership is easy - it can now be done online. •

CONSIDER CONTRIBUTING TO TAG!

It is member contributions which make TAG a member magazine – please keep the contributions coming and assist with informing all of the membership (not just your Division) about your activities.

Please send your news to: tag@gsa.org.au



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First Friday of the month except Dec & Jan
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