SMEDG Life Membership Medal Acceptance.

Thank you to the SMEDG 'elders' Steve Collins, Ken Maiden and Garry Lowder for my nomination; I am very pleased and honoured to accept the award of a SMEDG Life Membership Medal. I have always admired your contributions to the mineral exploration and mining industry. Recently I enjoyed Steve's passionate SMEDG presentation, and wish their team success in the next clever experiment! 'Heterodynes' are now in my vocabulary!

Through SMEDG it has been great to meet 'hands on' geos with adventurous stories, and different approaches to exploration. As a consulting petrologist I actually only met some clients face to face through SMEDG meetings and events.

In terms of my career, back in in 1979 Garry surprised me by an invitation to help provide consulting petrology to his clients – I was on maternity leave as a petrologist in the Geol Survey, and took along my third baby in a basket! I didn't know then that Garry as a mentor would introduce me to the exploration sector, and a future consulting career. At that time he was preparing his own awesome career path.

Being a female geologist wasn't always easy. In the 1960s at Broken Hill when mine tours for women were taboo and unlucky, we had to dress up in boiler suits, and hide in amongst male friends just to go down one of the mines. The sparkling galena ore was spectacular and definitely worth it!

I will now touch on some memorable trips and projects involving University and Survey colleagues, who are now friends and fellow SMEDG members.

As an Honours project I mapped part of the Bathurst granite contact aureole, and Yetholme molybdenite mine near an old house full of drill core, and rats. Peter Goldner was mapping the adjacent area, and we stayed on a nearby property in an abandoned old stone house; no rats!

While a petrologist at the Survey, a two week 'Crooks Tour' of NSW geology was organised with ANU. It involved me and about 12 male geologists. The weather was floods and mud, and at my Sofala PhD area, I managed to bog our 10 ton truck. This trip also included river swims, fence climbs, rock collecting and skating; and I met Larry my future husband!!!

Another interesting field trip while at the NSW Geol Survey was to Port Macquarie with the awesome pair of Erwin Scheibner and Ervin Slansky. The only way to map the coastline for about 10 km was to use a camera in a small runabout boat; it was a day to remember as the sea was not too calm and we were all queasy, but we still got our photo mosaic. Later we discovered blocks of eclogite in blueschist on Rocky Beach that define the Port Macquarie UHP rocks marking part of an exhumed subduction zone.

Later field trips involved petrological consulting. At the **Mineral Hill Mine** with Gus Collins I was surprised to see hand marking of visible gold ore in the mine face; a careful relic of the past compared with bulk gold mining today.

A trip to **Browns Creek Gold Mine**, with fellow petrologist Terry Leach from NZ (1999) was just before the river cave system catastrophically burst, and the mine filled with water. Staff were having morning tea above when they felt the rumble and shake, and realised they had lost equipment underground - but not their lives! We were lucky. (The SMEDG Terry Leach Symposium 2008 honoured the memory of Terry).

Recently with Russell Fountain, we defined an Igneous-related Gold System (IRGS) at **Jindabyne** with spectacular quartz-veins and fractionated intrusions (SMEDG Mines and Wines, 2016). We also secured two DMR drilling grants for Alt Resources, but unfortunately the drilling showed unfinished business there!

Interesting research projects included one with Ray Binns (Edgeworth David Symposium 1995) on fractionated ultramafic intrusions near Broken Hill; now known to host Cu, Ni and PGE. Another resolved

part of the NSW subduction-diamond story (2001 SMEDG talk), and formation of Copeton diamonds (2004 SMEDG talk with Larry). A third study recognised metasomatic skarns, gold and polymetallic mineralisation in the **Hera** drill core (now a mine near Nymagee).

Now I am passionate about a project defining rare placer PGM from **Ecuador**. Exciting results revealed by inclusions in Pt-nuggets confirm an Alaskan-complex source; a fractionated comagmatic silicate glass series related to the ore system; and a deep-seated, island rear-arc setting (paper under review, Canada). We compare our results with nugget inclusions from Fifield, NSW. Trace element patterns of silicate inclusions match their accreted Cretaceous arc terrane - a topic belonging to the SMEDG Conference today!

Also in two Pt nuggets are abundant crystal inclusions of PGE arsenides exsolved from a primitive PGE-sulphide melt, all hosted by silicate melt. They define two separate fractionation series (Ir-enriched and Pt-enriched). Arsenic-rich systems, such as Tooloom near Tenterfield I examined with Garry Lowder and Russell Meares, similarly may be related to arsenide melt exsolved from primitive sulphide melt, all hosted by deep fractionating silicate melt!

Now I look back over 40 years of consulting and research, mainly working with challenging altered rocks, veins and ore minerals; but it has been rewarding to reveal and share their petrological secrets.

I look forward to future SMEDG events and discussions, and thank you again for the award that represents a welcome acknowledgement from the exploration and mining community.

Dr B. Jane Barron

Visiting Fellow UNSW
Consulting Petrologist
7 Fairview Ave
St Ives NSW 2075

Ph: (02) 94495839
Mob: 0415 188 395