

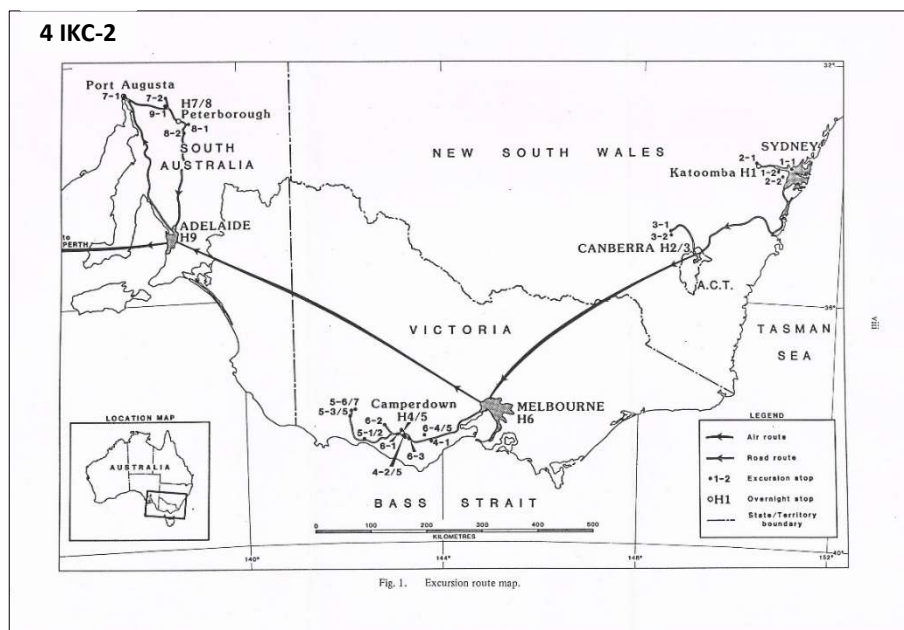
4th INTERNATIONAL KIMBERLITE CONFERENCE
PERTH, AUSTRALIA
1986



The 4th IKC was held in Perth, Australia (**Figure 4 IKC-1**), between 11th and 15th of August 1986. The Pre-Conference fieldtrip went to SE Australia from 1st to 10th August, the Post-Conference fieldtrip then visited the lamproites of the Kimberley region, Western Australia from 17th to 23rd August. The Author went on both field trips.



The first three days of the Pre-Conference fieldtrip examined the Sydney Basin diatremes which took us by road to Canberra, see the map in **Figure 4 IKC-2**. After the third day, however, the DeBeers delegation with the Author included, left the excursion to visit Airlie Mountain, re-joining the fieldtrip for the Adelaide part.



A principal Sydney diatreme was that at Hornsby, **Figure 4 IKC-3**. The diatreme consists of basalt and tuff, (the so-called sandy breccia), both steepening near the edge of the diatreme. Lithospheric nodules of spinel lherzolite were the main objective, but coal nodules with a veneer of calcite were also found.



Figure 4 IKC-4 is of the delegates at the Mount Wilson Prospect teschenite locality, in the Blue Mountains. From left to right we have Hu Siyi (blue hat), Sue O'Reilly, Wolfie Berg, Craig Smith (with cigarette), Howard Coopersmith (heavy beard), Tony Erlank (head bowed), Tony Carrington (grey peaked cap) and Dan Schulze (heavy beard).



Figure 4 IKC-5 shows the northern part of the teschenite diatreme, with the party at a specific locality in the pit. The layering is the result of teschenite consisting of light coloured olivine poor layers and darker olivine rich layers.



Figure 4 IKC-6 shows Joe Joyce, Margie and Barry Hawthorne and Owen Garvie at a Canberra viewing point on a cold early morning excursion.



The third day we examined olivine nephelinites at Jugiong. The party about to go to work on the outcrop is shown in **Figure 4 IKC-7**. Delegates identified from left to right are Tony Carrington (folded arms), Hennie van der Westhuizen (white hat), Howard Coopersmith (facing), Derek Robinson with Dick Rickard behind, Bai Qin in blue jeans with John

Bristow with open field guide, Lui Jongcun and Zhang Peiyuan (Chinese delegates), with Simon Shee beyond, Rory Moore (red tee shirt) and Hu Siyi (blue hat). Far right we have Bobby Danchin (hands in pockets) with Lyton Jacques and Tom McCandless. Below him is Mike Skinner and Jock Roby. In the foreground we have Roger Clement (blue stripes), Barry Hawthorne using a hand lens, Dan Schulze Madame Zhang Andi (red jacket) and Joe Brummer (also a red jacket).



The DeBeers delegate, **Figure 4 IKC-8**, at the Gobarralong exposure prior to the visit to Airly's Mountain. From left to right we have: Lello de Gasparis (geophysicist) Tony Carrington, Mike Skinner, Simon Shee, Owen Garvie, Dave Upter, Hennie van der Westhuizen, Bruce Wyatt, Jock Robey, Joe Joyce, Roger Clement, John Bristow and Alex van Zyl. Missing from the 'complete set' is Wolf Skublak, but see Airly's Mountain Figure 4 IKC-10.

Figure 4 IKC-9 is of Airly's Mountain, an inverted topography with flat lying basalts in former river beds in sandstones. Diamonds are occasional found in the river bed gravels directly below the basalt, accessed by adits.



Figure 4 IKC-10 shows an adit with basalt above and the type of pebble bed which may be diamondiferous. The third picture is of the DeBeers geologists, Mike Skinner, Tony Carrington, Wolf Skublak, with half pictures of Roger Clement (blue strip), Hennie van der Westhuizen, plus the very eccentric owner of the property, all examining the characteristics of the pebbles from the river bed.



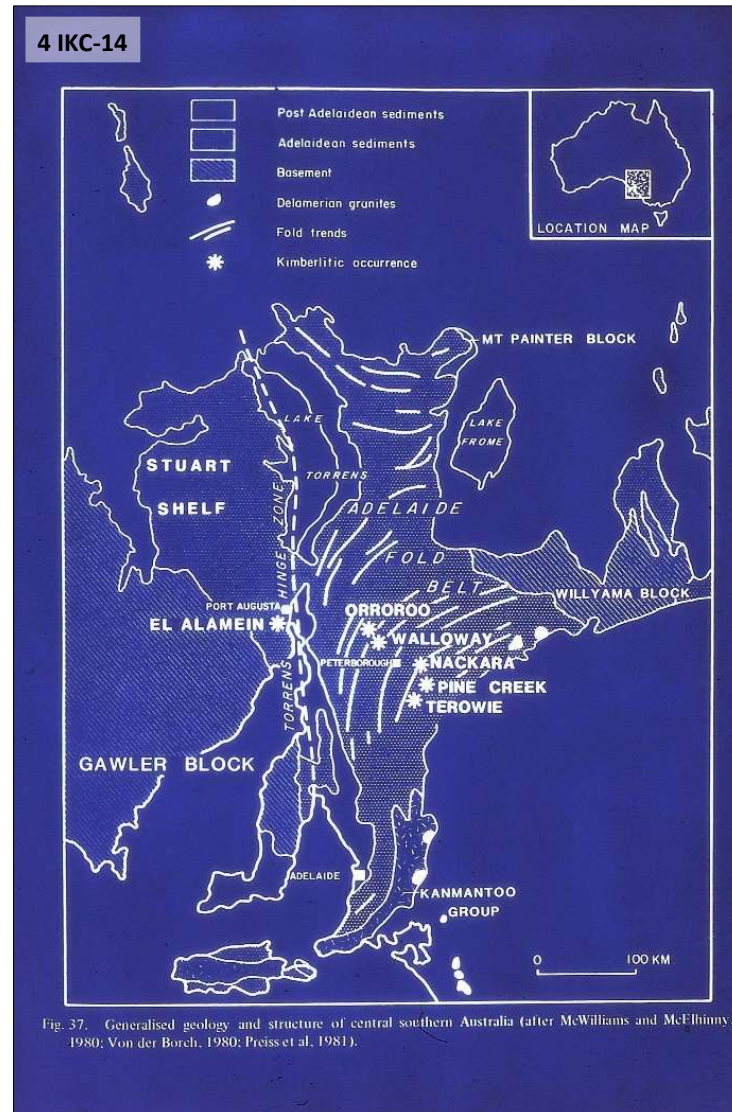
Figure 4 IKC-11, is why the owner is eccentric – he has a Second World War tank on his property.



Our next destination was Mount Leura to examine regional scoria cones and maars for nodules. **Figure 4 IKC-12** shows a base surge deposit, some collected chrome diopside-bearing lherzolite nodules, volcanic bombs in scoria with Joe Joyce for scale and Mike Skinner and Joe Joyce doing some sieving with Simon Shee, Dave Apter, Jock Robey, and Barry Hawthorne (white hat) all looking on.



Finally we examined layered pyroclastics in a quarry on the rim of the Purrumbete maar. **Figure 4 IKC-13** shows the DeBeers delegates approaching a base surge deposit and a close up showing 'climbing dune structures'.



For the visit to the South Australian kimberlites the DeBeers geologists re-joined the pre-conference fieldtrip in Adelaide. The places to be visited are shown in **Figure 4 IKC-14**. The kimberlites of this region are mostly fairly thin dykes and sills with the occasional pipe, which have been exposed by trenching.

The kimberlites of this region are mostly fairly thin dykes and sills with the occasional pipe, which have been exposed by trenching. At the El Alamein kimberlite, **Figure 4 IKC-15**, we have Mike Skinner showing due reverence to the outcrop, with the main party showing less respect. Identification of delegates here is impossible as they are really concentrating on examining the rocks. A close up of the kimberlite intruding the local shale is shown as well as a possible occurrence of carbonate blebs at the top of a larger kimberlite sill (cf. Benfontein, Kimberley, South Africa). The area is called El Alamein because it is where people can hire armoured vehicles and play war games.



After such effort a 'brew' was necessary. **Figure 4 IKC-16** shows Alex van Zyl (white hat) with Joe Brummer sitting, then Dick Rickard and Steve Haggerty are prominent. We then have an unknown before Dan Schutze and Howard Coopersmith and Dave Apter in the right foreground with a smiling Madame Zhang Andi. The second picture shows



Derek Robinson in a blue pullover, Madame Zhang Andi, Owen Garvie, Barry Hawthorne and Zhang Peiyuan with a cup of tea.

Next stop were the kimberlites at Calcutteroo which were also trenched, but first some lunch, **Figure 4 IKC-17**. From left to right we have Tony Erlank and Steve Haggerty. By the tree are Jock Robey, Hennie Westhuizen and Margie Hawthorne, then Bruce Wyatt and Owen Garvie. In the white hat is Dick Rickard with Barbara Scott-Smith and Derek Robinson. Behind Derek is Jenny Hops, CooperSmith and Rory Moore. In the jacket is Hu Siyi. The two trenches are of Calcutteroo No.2, trench 1 (top right) and trench 2 (bottom left). The nodule is from trench 1.



The Pine Creek kimberlite is a pipe (650 x 150m) associated with three kimberlite dykes. Again it was trenched. **Figure 4 IKC-18** shows a major trench cut into the pipe with Barbara Scott-Smith, Jenny Hops and Rory Moore on the left side. The pipe also had some large mica crystals as well as pieces of laminated silt and sandstone.

From Pine Creek we travelled to Terowie to the Imperial Hotel for dinner and a party. **Figure 4 IKC-19** shows the delegates preparing for the dinner. We have Gayle Danchin and Tony Erlank, then the hotel owner chatting to Madame Zhang Andi and Steve Haggerty and Roger Clement on the far right. The illustrious Tony Carrington was amazed that a bottle of HP sauce (the HP standing for Houses of Parliament) could be found in deepest Australia, with Owen Garvie and Roger Clement looking on. As the party developed Tony Erlank broke into song with Margie Hawthorne just behind, then Melissa Kirkley before Rory Moore, then Steve Haggerty (also about to perform) and Gayle Danchin and Roger Clement looking on. What Owen Garvie is showing Melissa Kirkley and Marshal Otter is now lost to history. Derek Robinson is in the background.



The following day we went to the Orroroo kimberlites.

Figure 4 IKC-20 shows the main trench at the K2 dyke at Orroroo, the K7 dyke contact and a close-up of that contact with the overburden.



Figure 4 IKC-21 shows Hennie Westhuisen, John Bristow and Alex van Zyl, seriously sampling the Orroroo kimberlite.

After the Conference in Perth, we had a day off before the Post-Conference fieldtrip to the Kimberley's and some of us went to the zoo in Perth. Did you know that some kangaroos live in trees, **Figure 4 IKC-22**? My companions for the day were Margie Hawthorne and Herb Helmstaedt.



4 IKC-23

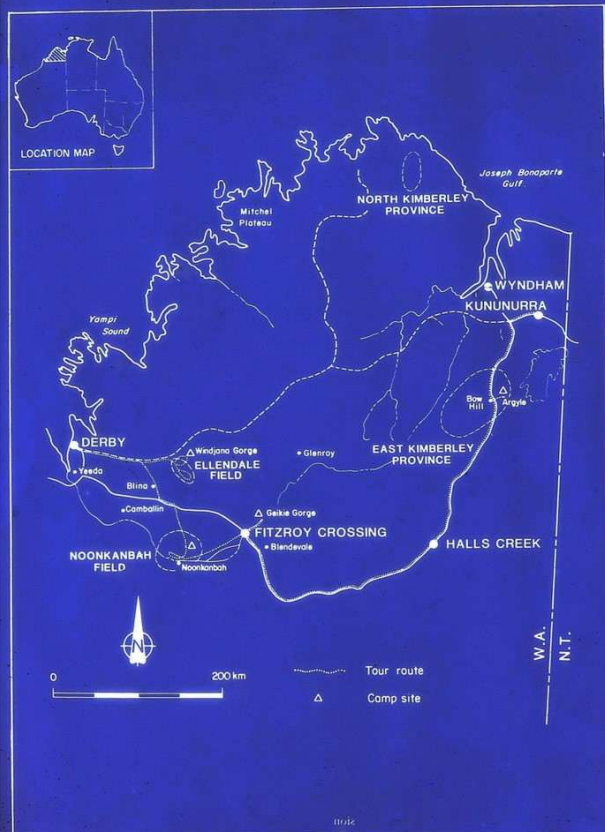


Fig. 1. Map of Kimberley Region showing excursion route

From Perth we flew to Derby and transport was three buses. Apart from accommodation at Argyle, camping was the order of the day. **Figure 4 IKC-23** is the excursion route.

Figure 4 IKC-24 shows the buses at Derby with Volker Lorenz in front, Bobby Danchin and Barry Hawthorne having time for a chat, the dynamic duo of Tony Erlank and Steve Haggerty helping with the luggage and a picture of the author with a baobab tree in the background.



The first part of the trip was to the Ellendale lamproite field (see Figure 4 IKC-23). We camped for two nights at the Windjana Gorge, part of a Devonian reef deposit. **Figure 4 IKC-25** shows the camp being setup with Steve Richardson (left), Barry Hawthorne (centre) and Mike de Wit (right). A second picture shows the camp with respect to the gorge, a third is of Oded Navon in one of the many hollows of the gorge wall and some of the party having a swim with the occasional friendly crocodile looking on – that is NOT a joke.



Breakfast at Windjana Gorge, **Figure 4 IKC-26**, with Barbara Scott-Smith and Joe Boyd. Oded Navon is toasting bread over the fire. The delegates were then divided between the three buses.

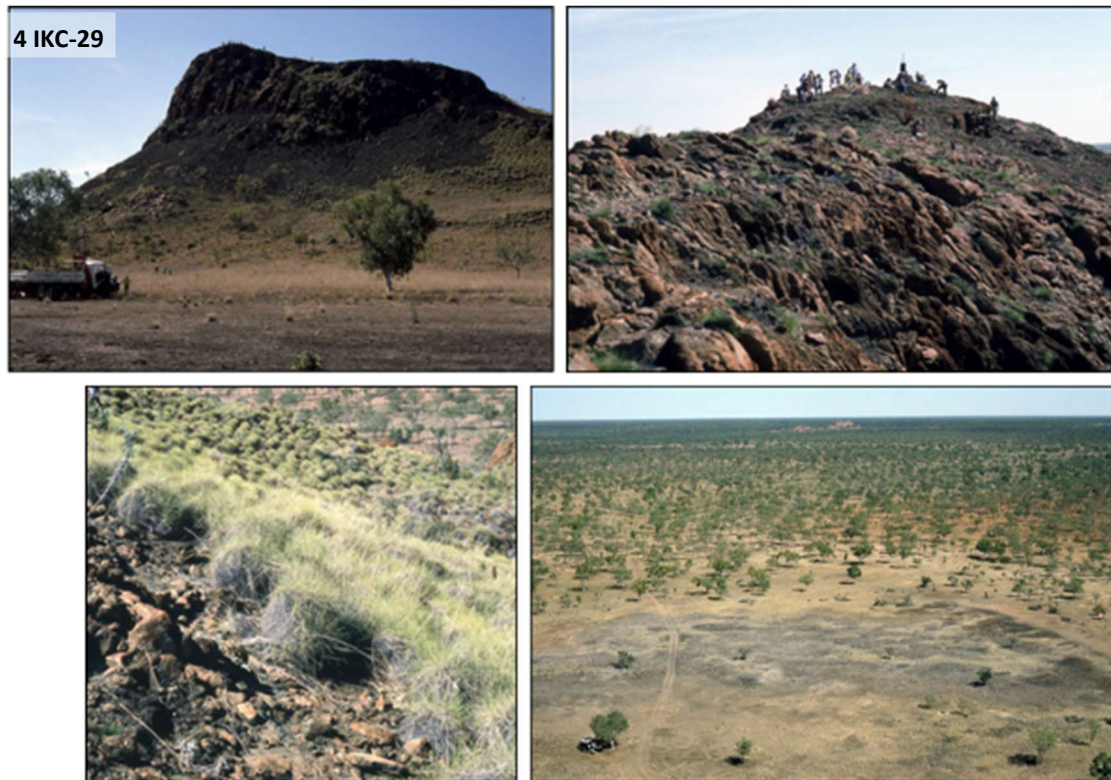
The first Ellendale lamproite visited, **Figure 4 IKC-27**, was 81-vent with Mount Percy beyond, and delegates about to examine the tuff screen. The rock specimen is of a cpx-bearing lamproite from 81 vent and the view is looking south towards Ellendale 6 from 81-vent.



Figure 4 IKC-28 is about Ellendale 4. The baked sandstone margin, the sediments being examined at the pipe margin SW of the main lobe, typical magmatic phlogophite – olivine lamproite and seeking shade after the visit. Mount North was the next exposure examined.



Figure 4 IKC-29 shows the outcrop with a sandstone base some tuff then a sill with a lava lake at the top. The party on the top of Mount North. In getting there you try and avoid the silica tipped spinifex grass.



The views are spectacular. Gayle Danchin, Margie Hawthorne and Helen Meyer returning from Mount North, **Figure 4 IKC-30**.



From the Ellendale lamproite field we went to the Noonkanbah lamproites, in particular the Walgidee and Hills cone deposits. **Figure 4 IKC-31** is of Steve Richardson and Ben Harte at Walgidee, with the Tom McCandless, Margie and Barry Hawthorne with Steve Richardson, and Marshall Otter, Rory Moore and Jenny Hops examining the Hills cone outcrop.



For one night we camped at Mayborough Bore, **Figure 4 IKC-32** showing the camp at breakfast. Barry Hawthorne and Leon Daniels clearly visible with Madame Zhang Andi and Warren Atkinson, right centre. The DeBeers contingent are to the right of the white bus.



In the Noonkanbah lamproites we visited Machell's Pyramid, Mount Gytha, Mount Cedric and 'P' Hill, all shown from left to right in **Figure 4 IKC-33**.



The first two images of **Figure 4 IKC-34** shows the similarity of the pyroclastic breccia from Machell's Pyramid and that from Mount Cedric, with the party on the diopside leucite lamproite of 'P' Hill and the Author and Len Krol on the columnar jointing on the side of 'P' Hill.





Our next campsite was at Geikie Gorge **Figure 4 IKC-35** showing the preparations for dinner. On the left is Peter Deines with Henry Meyer directly behind the central pole.

The following morning we went for a boat trip up the Lennard river to the gorge. From L to R we have Leon Daniels, Wolf Skublak, Henry

and Helen Meyer. Eddie Köstlin (with the sun glasses behind Henry) and Herb Helmstaedt standing. The backdrop of the last picture shows the marginal beds of the reef with Leon, Wolf, and Henry. Tony Carrington is behind Wolf, then left to Howard Coopersmith then Sue O'Reilly and on the right Bruce Wyatt with Oded Navon to his right. Then Len Kroll with white hat and Herb Helmstaedt with a green one. Joe Brummer is standing at the back. Note also the flood level, up to where the gorge side darkens.



The Argyle mine, **Figure 4 IKC-36**, from the highest bench, looking at the southern part of the mine with the right side bound by the Gap Fault. The foreground is ready for blasting. Smokey Creek in the far ground. The second picture is looking east towards the plant from the southern lobe.





Figure 4 IKC-37 is of the whole party on the highest bench. Why does someone always have to live dangerously?

Figure 4 IKC-38, an accretionary lapilli sample at the north end of the pipe, with a rock sample showing slumping in lamproitic tuff. The dark layer is ash. The third image is of washed diamonds from the plant. No scale as photography is behind a security screen, but must be perhaps 50,000 to 100,000 cts.

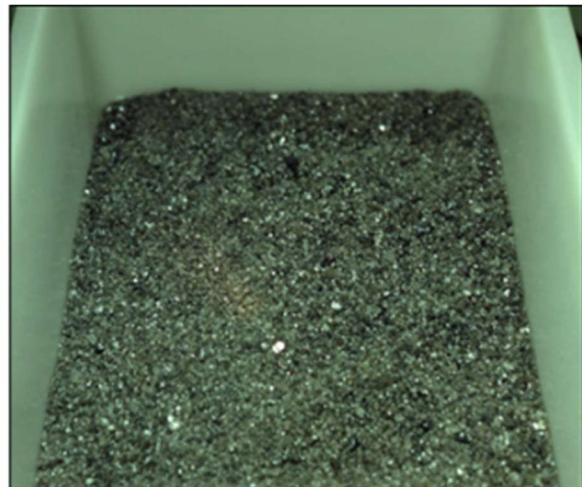


Figure 4 IKC-39 is of Barry Hawthorne threatening to shut the mine down.



The recreational facilities at Argyle were very impressive, **Figure 4 IKC-40** showing the swimming pool complex and Warren Atkinson and Bill Gunn with Eddie Kostlin behind.

Finally the party went on a river trip down the Ord, **Figure 4 IKC-41**. Melissa Kirkley on the railings, Nick Sobolev facing with Nick Pokhilenko, Ben Harte chatting to Violène Sautter and the overflow channel of the Argyle dam.

