

New craton on the block (part two)

In our Botswana Country Focus in our Nov/Dec issue last year, we published a report entitled “New Craton on the Block” describing the activities of three diamond exploration companies busy with programmes on the southern margin of the Angola/Congo craton in Namibia and Botswana. Cape Town-based consulting geologist, Peter Walker, reports here on the latest findings of two of these explorers, Mount Burgess Mining and Tsodilo Resources, who are both reporting some highly encouraging results.

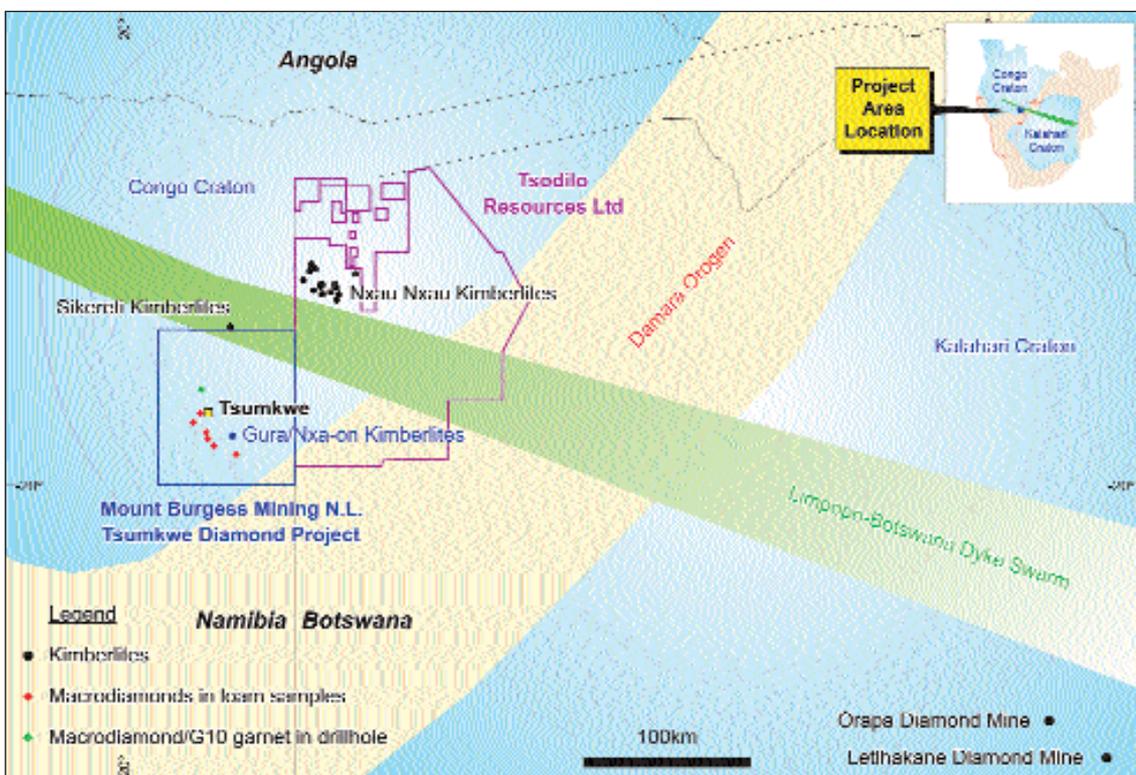
It's hot and humid in late September in the northern Kalahari bushveld, with occasional thunderheads building up in the north over Angola, the odd flash of lightning over the horizon at night, but no rainfall to relieve the sullen atmosphere. “Suicide month” it's generally known as, but the exploration teams drilling here are elated and can't wait to see the drill chips from the next hole – the fever of discovery certainly nullifies any vague feelings of personal discomfort.

Australian junior Mount Burgess Mining has been patiently following the diamond trail left at the interface of the basement and the overlying Kalahari sediment cover over the past three years. Its exploration methodology is based on a geomorphological model of the basement terrain during deposition of the Kalahari sediments in the Tertiary. In essence, kimberlite indicator minerals will be found in the early Kalahari paleo-drainages and, if followed back up-slope, these will lead the explorer to define the primary source area. The difficult part is that the paleo-drainages are 10 m to 70 m below the blanket of Kalahari sediment and continual refinement of the model is necessary to avoid wasted drilling. Detailed airborne magnetic and ground magnetic and gravity surveys together with traditional soil sampling for indicator minerals supplement the drilling data.



Comments Jeffrey Moore, Mount Burgess' executive director of exploration: “In the late 1970s De Beers found several macro-diamonds and a swathe of kimberlitic garnets, including G10 garnets, over a 40 km by 15 km area near the village of Tsumkwe.

First hole hits kimberlite: pictured from left are Dr Andy Moore (Tsodilo's Executive Director Exploration), Stephen Woodhead (Tsodilo's CFO), Rupert McCammon (a Gaborone stockbroker) and James Bruchs (CEO of Tsodilo).





Field jigging to obtain heavy minerals at the Tsumkwe project in Namibia.

When we began our exploration campaign here in 1999, we soon realized that this indicator anomaly was a secondary anomaly – the diamonds and indicator minerals were eroding out of paleo-drainage sediments at the base of the Kalahari package. Once we had demonstrated this, we began the reconstruction of the basement topography and have been patiently following this model ever since, with several technical successes – during late 2001 and early 2002, we discovered three kimberlites in the

Gura district although unfortunately all three were barren of diamonds. Since making the Gura discoveries, however, ongoing drill campaigns have outlined several other discrete sub-surface kimberlitic garnet clusters unrelated to the Gura garnet population. These clusters lie in provenance areas located to the north and south of the Gura kimberlites and exploration work continues to track kimberlitic garnets on the Kalahari/basement interface. Many of these garnets are much less-travelled than the Tsumkwe surface garnets so we are moving in the right direction.”

More recently, on the 1 October, Mount Burgess announced the discovery of a fresh G10 garnet and a small macro-diamond from 28 m – 30 m depth in a percussion drill hole some 30 km north-west of Gura. The chances of recovering a diamond from a 6,5 inch diameter drill hole are extremely low, so this result is viewed as not only very significant in defining a primary source area close by, but also suggests the possibility of developing an economic alluvial diamond resource. Enough to make any explorationist drill-crazy!

Over the border and some 100 km northeast of Mount Burgess’ latest drill hole, Tsodilo Resources, listed on the Toronto Venture Exchange, has spent the past year in exploring its Ngami project area, with particular emphasis being placed on gathering data close to the 19 small kimberlites discovered by the Reunion/Ashton joint venture in 1999 near the village of Nxau-Nxau; of the 19 kimberlites, four had low micro-diamond counts and all were in the crater facies which indicates only minor erosion of

the upper parts of the kimberlite.

Tsodilo's Exploration Director, Dr Andy Moore, describes the objective of the field programme this year as obtaining hard factual evidence to ground-truth the theoretical model. "We have concentrated most of our efforts in and around the Nxau-Nxau kimberlite cluster because it's so much easier to work from the known outwards; besides which, there were a number of untested airborne magnetic targets in the immediate vicinity of the cluster. Detailed magnetic, gravity and indicator mineral sampling grids were laid out and the results confirmed and refined our first interpretations of the airborne magnetic targets – there could be at least three large-diameter pipes greater than 10 hectares in area. Now, as a rule of thumb, the larger pipes in a cluster have the highest grades, so we planned on drilling these three at the earliest opportunity."

That opportunity came in the middle of September, when at the invitation of Dr Moore, I visited the Tsodilo drill camp near Nxau-Nxau village in time to see the start of the first hole into Anomaly A12. After casing off and using foam to stabilise the upper sandy Kalahari sections of the hole, the drill penetrated highly weathered yellow clays and finally after some 70 m intersected fine grained mudstones interspersed with kimberlitic tuffs and breccias, typical kimberlite crater facies rocks.

James Bruchs, CEO of Tsodilo, was on hand to comment: "This is a landmark moment in Tsodilo's history and confirms that the faith we put in Andy's models and interpretations was not misplaced – our investors will be delighted. Now we need to drill-



prove the other anomalies and get positive results from the micro-diamond analyses – then we can really accelerate the programme."

After completion of a second drill hole into the A12 kimberlite, 100 m south of the first hole, the drill rig has moved to the large A37 and A38 anomalies and initial results from this drilling should be known by the time this article appears in print.

Photos by Peter Walker and Mount Burgess Mining

James Bruchs (left), CEO of Tsodilo, congratulates Dr Andy Moore after the first kimberlite drill chips were positively identified.