

Geological Origins, Birth, Life and Revival of the Central Rand Goldfield

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The discovery and mining of the auriferous pebble layers of the Central Rand led to the founding of the city of Johannesburg and the greater Egoli region, arguably the most important financial hub of the African Continent. The almost 2km high plateau of the Egoli region represents one of the few areas of exposure of the northern sector of the ancient (\pm 290 million year old) Witwatersrand sedimentary basin. The lower sedimentary succession comprises shallow and deeper water, quartzites and shales deposited in shallow and deeper water conditions respectively, while the upper succession, which includes the important gold-bearing conglomerate layers was deposited under shallow water, fluvial to deltaic conditions.

Five major reef horizons were mined of which the most important were the Main Reef Leader and south Reef. The former, although only averaging about 50cm in thickness at over 2 ounces of gold in many areas. The history of mining in the great mines of the Central Rand- Consolidated Main Reef Crown Mines, Robison Deep, Village Main, City Deep and Simmer and Jack is a compelling one. It includes the story of the Randlords, the entrepreneurs who financed the mines, the huge number of mine workers from all over southern Africa who laboured under the toughest of conditions, and the technologies developed to mine the narrow reefs at great depths and recover gold from the pyritic conglomerates.

Having produced nearly 300 million ounces of gold, all the mines of Central Rand had closed down by the end of the nineteen seventies. This corresponded, in the late seventies, to the commencement of the recovery of gold (together initially with uranium and pyrite) from large number of tailings dumps that by now were a feature of the Witwatersrand landscape. This process which is changing the character of Johannesburg is ongoing with the recovery of gold from slime and sand dumps, with grades as low as 0.3g/t gold.

Sedimentological modelling of the gold reefs, based on old mine plans, showed the presence of well defined depositional channels and associated ore shoots. Many sectors of these shoots on the generally lower grade Main Reef, Bird Reef and Kimberly Reef run at between 3-6g/t and remain unmined. They form the focus particularly in the near surface areas of a major new mining venture (Central Rand Gold) which also heralds the rebirth, 124 years after its discovery, of the remarkable Central Rand Goldfield.