

## Hargraves goldfield

### Mineral Resources

"Hargraves, a once prosperous mining township, is situated on Louisa Creek, a tributary of Meroo Creek, and is distant 24km in a direct line south-west of Mudgee, but 38.4km by the coach road and about 206km (as the crow flies), north 35° west of Sydney."

In July 1851 an Aboriginal stockman in the employ of Dr Kerr found a large mass of gold and quartz, weighing about 136kg and containing a hundred weight of gold (50.8kg) on the western side of the village of Hargraves.

This began a 'rush' to the area and the subsequent discovery of many rich alluvial deposits along the creeks and gullies in the area, especially Meroo Creek, Louisa Creek, Long Creek, Dalys Creek, Clarkes Creek, Campbells Creek, and Oaky Creek.

In the early 1850s between 124kg and 156kg of gold are said to have been sent away from the field every fortnight under police escort.

Even after the greater portion of the easily won gold had been extracted and the bulk of the mining population had left the district, good yields were still obtained from this field. In 1858, seven years after its discovery, 1 265kg were produced, and from 1858 to 1874, 6 394kg were obtained – an average annual yield of 376kg.

The area was reworked extensively from 1929 to 1939. During this period 118kg were produced by many alluvial workers.

### General geology and structural setting

The Hargraves gold field is situated within an area of folded sedimentary rocks at an elevation of between 900m and 1 200m above sea level. This area has been heavily dissected by stream action and at some places the Meroo River is approximately 335m below the average plateau level.

Many of the creeks have deeply eroded gorges. The Hargraves gold field is the northern unit of the



*'The zealous family' – A family at work on the goldfields. Etching by Samuel T. Gill, c1850s*

famous Hill End-Hargraves Belt. The geology of the two areas is similar.

The gold bearing reefs occur in slates which are interspersed with beds of submarine volcanic tuff containing rounded pebbles and well-preserved fossil remains, such as crinoid stems.

On the eastern side of the field there is a large granitic dyke. Sills of granitic material have intruded the slate layers and the slate shows evidence of alteration near the contact with the igneous material.

The slates vary in colour, being bluish grey or bluish black where unweathered and occasionally greenish brown.

The whole series of rocks has been folded into a number of anticlines and synclines, the main axes of which have a general trend of 160°T.

### Gold occurrences

The gold mineralisation occurs within Late Silurian to early Middle Devonian rocks (sediments formed about 400 million years ago).

The gold-bearing reefs are within the Silurian Cookman Formation and the Devonian Crudine Group, Merrions Tuff and Cunningham Formation.



Slate is the predominant rock type, but sandstone, tuff, andesite and quartz-felspar porphyry have been recorded as host rocks for the gold.

Many of the gold deposits are not directly associated with igneous rocks. They tend to occur as gold-bearing quartz veins in slaty metasediments.

While gold occurs mostly in a free state in a quartz gangue, it also occurs with some sulphide mineralisation. Some of the reefs are rich in pyrite and/or arsenopyrite.

The grade of the ore is highly variable, ranging from 3 to 1 010 g/tonne; the grain size ranges from very fine to very coarse.

Two types of reef occur in the Hargraves-Windeyer area, namely saddle reefs which curve in the shape of an arch parallel to the bedding, and non-saddle reefs which are generally transgressive to the bedding. Much of the gold mined in the Hargraves area occurred in 'saddle reefs'.

These reefs have been described as saddle bodies of quartz filling the cavities in anticlines and synclines (especially the former) of folds, in which the reef material conforms to the strike and dip of the enclosing strata.

They occur in sharply folded sedimentary rocks, the constituent beds of which have opened out in the process of bending.

This separation often occurs along the junction of two kinds of rock (eg, slate and sandstone), thus producing cavities mostly in the upper beds near the centre of anticlines.

Such cavities are later filled with the quartz and gold mineralisation. Saddle reefs consist of three parts, known as the 'cap' and the two 'legs'.

The cap in true saddle reefs, occurs in anticlinal arches, being the upper flat-lying portions. The legs are the steeply dipping lateral extensions which gradually pinch out away from the cap.

In the Hargraves area, five reef-bearing anticlinal folds occur adjacent to one another within a distance of 200m.

Drilling in the Big Nugget mine, which is located in the centre country of an anticline, intersected thirteen saddle reefs in vertical succession.

### **Alluvial gold**

The majority of gold produced from the Hargraves area, especially during the early years, was found in rivers, streams, and gullies at relatively shallow depths.

This gold was originally located in the caps of saddle reefs, which were later eroded, leaving

much of the gold in the surrounding creeks and gullies.

Meroo Creek, which passes to the north of Hargraves and through Avisford, was extensively worked from 1850 to 1900 and was reworked in the 1930s with satisfactory results.

Gold has been found along most of its course and in some places there have been very rich finds.

At Richardsons Point, near Windeyer, 125-156g to the bucket have been obtained. Between 1929 and 1939, 5.6kg of gold were produced in this area.

It was along Meroo Creek that the famous 'Maitland Bar' gold nugget, weighing 10.8kg was found. The nugget, the largest of four found in the area, was purchased by the Department of Mines in 1887 and is now held by the Geological and Mining Museum in Sydney.

Dalys Creek, a tributary of Louisa Creek, rises in the range south of the town of Hargraves and is about 6km long. It was very rich when first prospected.

Gold was found in the flats near the creek as well as in the creek and to a depth of 4.6m.

Louisa Creek, a tributary of the Meroo, joins with Dalys Creek near the northwestern boundary of the town of Hargraves and is about 11km long.

Large quantities of gold have been found in its banks and along its course. The Main Axis reef is found between these two creeks.

Long Creek, another tributary of the Meroo, has yielded gold along the whole of its 16km length.

In the early days the ground was very rich containing 124g to the dish. The nuggets found weighed from 311g to 530g. Clarkes Creek rises in the Boiga Mountain Range and follows a northerly course to junction with Long Creek. The gold found in or near Clarkes Creek was very coarse and free from alloy. The nuggets found weighed from 31.1g to 1.2kg.

### **The mines**

Near the township of Hargraves, there is a belt of country at least 2.4km long and 0.4km wide which contain gold-bearing saddle reefs. The saddle reefs correspond with the anticlinal axial lines.

Five anticlinal arches or 'lines of reef' have been traced in the Hargraves area, running nearly parallel to one another and striking 160°T.

### **Hargraves group of mines**

The Big Nugget line of reef can be traced from Louisa Creek on the north across Big Nugget Hill to the Blackfellows reef on the south. The most

important mines occur on Big Nugget Hill, where several shafts have been sunk to depths of up to 52m.

The caps of two large saddle reefs come to the surface on top of the hill, but this gold-rich quartz has long since been removed and crushed.

The Great Nugget Vein Co. crushed thousands of tonnes of this rock in 1853, some of it being very rich and yielding 933g of gold.

The Faith Rewarded mine, Lizzie Watson workings, Spratt and Miltons mine, Warry and Stuarts lease, DR Streets mine, Alma mine and Blackfellows mine are all found along this line of reef.

'Kerr's Hundredweight Nugget' was found on Big Nugget Hill.

The Florence line of reef, another anticlinal arch, runs parallel to the Big Nugget line of reef and is 76m east of it.

The Florence mine was the most important along this line, although it was abandoned because of water in the mine.

There were many very rich alluvial workings along this reef.

The Frenchmans line of reef, about 30m east of the Florence line of reef, is on a third anticlinal arch containing caps of saddle reefs. The Frenchmans mine was the most important along this reef.

Happy Dicks line of reef runs parallel with the reefs mentioned above and passes through Happy Dicks Hill.

There are some reefs at Hargraves which are not saddle reefs. The most important of these is the Eureka which for its size has been the richest on the field.

The workings are situated about 550m northwest of Big Nugget Hill. The reef strikes 010° and dips at a low angle to the south cutting across bedding planes of the slates.

It contained a large quantity of gold and some very rich bunches of arsenopyrite.

The Scotch Hill reef, 366m west of the Big Nugget line of reef, has outcrops of quartz extending for more than 1.5km.

Very rich alluvial fields occur near Dalys Creek along this line of reef. Numerous nuggets ranging from 31.1g to 1.6kg were found in this area prior to 1875.

### **Tuckers Hill group of mines**

Tuckers Hill, a narrow steep-sided elongated ridge, is located 3 km northeast of the town of Hargraves. For a portion of its length the crown of the hill coincides with the cap of an anticlinal arch.

At the northern end of the hill the quartz cap of a saddle reef curves over the crown of the hill. Old Sawyers reef is just to the east of Tuckers Hill.

There were many mines and shafts in this area, including the Band of Hope, Foleys Tunnel, Lucks All mine, and Hogans Tunnel.

In 1875 the district Mining Registrar estimated that "over £40 000 had been spent at Tuckers Hill" on development and machinery.

Mr Tucker put in a 120m tunnel but found nothing payable. During 1872 the Band of Hope Co. put in another tunnel which was also unsuccessful.

This company constructed an engine and battery and a tramway which was 1.5km long, running from the engine to the mouth of the tunnel.

Discovery of valuable reefs at Tuckers Hill in 1888 caused considerable excitement in the area.

A number of leases were applied for and a company was formed to work the Lucks All lease.

In 1902 there was another revival of quartz mining in the Tuckers Hill area, with several new veins being discovered.

It was reported that Hogan and Ah Jack of Tuckers Hill crushed 67 tonnes of rock which yielded 7.2kg of gold.

The following year they obtained 9kg of gold from 120 tonnes of rock.

In 1902 the Mining Registrar reported that many leases were taken up in the area, not for honest work, but for speculation.

### **Windeyer area mines**

The Eaglehawk line of reef, near Clarkes Creek, has been traced for 3km north and south.

There are many mines and shafts along this reef, which is about 250mm wide and dips to the east.

The quartz in this area has yielded up to 93g/tonne. The earliest record of workings in the area are 1863.

It encompasses the Catherine mine, Eaglehawk Broken Hill mine, Gully claim, South Hill, Jubilee reef, Eaglehawk Gully, Henrietta claim, and Eaglehawk mine.

The Mining Registrar reported, "In 1880 some Victorian capitalists took up the Old Gully Claim and are preparing to erect machinery for draining the claim, crushing the stone and extracting the gold from the pyrites."

This claim showed good returns for many years; in 1907, 172 tonnes were crushed to yield 8.7kg, and in 1908, 284 tonnes yielded 8.6kg.

The Golden Lily, Golden Gate, and Coronation mines, which are located south of Windeyer along Long Gully and Clarkes Creek, were some of the richest and longest producing in the area.

All three mines are on a vein which varies in width from 15 to 68cm and strikes north-south.

### **Other mines**

The Blue Spec mine was discovered in 1905 along Oaky Creek.

In 1910 it was bought from Mr Pilly by the Mount Boppy Co., who extended the shafts and installed machinery such as a winding plant and battery.

In 1912 they treated 1 103 tonnes of stone and extracted 4.4kg of gold.

However, the grade of ore was considered to be too low to continue work and in 1913 the complete plant, consisting of boilers, engines, and 10 head stamp battery, was sold and installed near the shaft of the Main Big Nugget shaft in Hargraves.

The Homeward Bound line of reef is situated 3km northwest of the town of Hargraves, near the road to Maitland Bar.

Rich quartz was found near the surface and some mine shafts were put down to 27m. The Great Western Pioneer line of reef is near Maitland Bar and north of the Meroo River. The width of the vein averages 250mm.

Gold was found on the surface as well as in four shafts which were put down before 1875. Sailors Gully, the Queen of Sheba mine, and the Little Wonder mine are located along this line of reef.

In 1934, a 200mm wide vein was discovered in the Little Wonder mine which subsequently produced 1.1kg of gold from 36 tonnes of rock.

Some 18 tones of rock from Sailors Gully produced 225g of gold.

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