

Ancient Mining

The following three contributions were received for publication in addition to the preceding papers.

1. Ancient gold-mining sites in the Transvaal

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Pre-European gold mining and working in South Africa is a tantalizing field for conjecture. Well over a thousand sites have been identified in Rhodesia, but here we have had to reach double figures, judging by published accounts. Geologically, the Transvaal is less amenable to primitive exploitation, but it is difficult to reject the idea that the knowledge gained to the north did not have its influence south of the Limpopo.

Alluvial operations are virtually impossible to identify except from secondary evidence—an example of which I shall refer to later. In respect of actual mining, there are only six sites marked by P. A. Wagner in his 1929 map of ancient mining sites, which appears in *Mpangubwe* by Leo Fouche (1937). These relate to the Barberton, Pilgrims Rest, Magaliesberg, north of Pretoria, Middelburg, and Roos Senekal areas, but from my reading I have not found any detailed reports on these.

However, there are a number of references to gold having been recovered by Bantu-speaking people in the eastern and northern Transvaal, and of African women wearing gold ornaments. Examples of these occur in such works as A. P. Cartwright's *Valley of Gold* and Eric Rosenthal's *Shovel and Sieve*, but these accounts are second-hand in that they have been passed down by tradition and their origins are not known.

Rosenthal makes reference to the reported existence of gold in natural basins of rocks towards Lydenburg, supposed to have been used by the ancients as ore dumps. They were familiar, he says, to certain pioneers over half a century ago, but nobody today can find them.

He also records that, in 1885, the

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Mining Commissioner for Barberton, while waiting to escort President Kruger, was approached by an aged African. He said that he wished to see the President to impart to him the secret of a cave from which gold was extracted for the Great Chief and taken to Delagoa Bay and exchanged for what the Royal Kraal needed. The President was not interested, and the secret died with the African. It could possibly, using one's imagination, have been one of the rich gold pockets in the Barberton district.

The most detailed account of ancient workings in that area is that of P. A. Ogilvie in an appendix to Theodore Reunert's *Diamonds and Gold in South Africa*, published in 1893:

Here and there were traces of an ancient race, with far greater engineering skill than the Kaffirs, and civilised enough as capable of sustained and organised labour. Such relics as the diggers noticed and preserved were lost in their unsettled life but it is likely that they were of the same character as those which have been examined by Mr Theodore Brent in Mashonaland and seem to indicate an Arabic civilisation of pre-Mahomedan date.

The first noticeable sign was the remains among the mountains of properly graded roads, which were usually put down as game tracks or elephant trails, but are undoubtedly the work of human hands. Recently I noticed similar traces amongst the Lydenburg, Haenertsberg and Zoutpansberg mountains (occupied by Basutos and Shebaas). The further north the more plentiful are these traces which in fact may be of use in fixing the north as the centre of these operations. [Incidentally, such roads have been reported from the Thabazimbi and Rooiberg areas.]

Then again old mining works (shafts and drives) were occasionally met with and in two instances old smelting pits were found with clay blast pipes in sites containing small quantities of smelted gold, all with vegetation of such an age to preclude any possibility of a Portuguese origin.

One of the most convincing proofs however was the presence in the creeks on bedrock [is Ogilvie referring to those in the Barberton area?] of charcoal, potsherds and parts of brass or

copper ornaments in compacted wash under boulders of many tons in weight.

Nothing will convince me that most of the creeks had not been systematically worked—paddock by paddock—many hundreds of years ago and that the very rich patches of alluvial gold which were found in the most fortuitous way were not spare ground between old paddocks that had been so buried under tailings as not to be worthwhile stripping.

The rains on the mountain top, where most of the alluvial is found, are so incredibly violent that two generations would not have passed before all visible signs of work would have been washed away. [This is rather in conflict with Ogilvie's pre-Mahomedan dating.]

In *The Golden Republic*, T. V. Bulpin states, unfortunately not giving sources:

when the De Kaap rush took place there were obvious signs of ancient African mining activity. On the summit of the mountain known as Klipstafel there was a mysterious stone mound, while nearby lay a three-mile long valley studded with so many heaps of stones that the place resembled a gigantic overgrown cemetery. [This could possibly be the remains of an Iron Age settlement.]

. . . precisely who had been responsible for all this activity was unknown.

Legend had it that in the past a Karanga tribe had mined alluvial gold in the area, while some of their fellows worked iron not far away at Malelane. The activity had been smothered, firstly, by the arrival of a Sotho clan and then by the Swazis, who came over the mountains one day and wiped out the entire original population.

The prospectus of one of the more notorious company flotations of the Barberton boom sported a picture of an ancient working. This, however, could well have been sucker bait rather than a reality. I have not been able to find a copy of this.

Coming much nearer home, ancient workings in the Witwatersberg, the range of hills to the south of the Magaliesberg, were discussed in *The Star* on November 15th, 1893, by Edward Jones, who played a part in the opening up of the Deep Levels of the Reef. He had great hopes of this area becoming a second

Witwatersrand but these were never fulfilled.

Describing them, he referred to a by-road to Rustenburg passing down the Witwatersberg valley:

As the traveller goes westwards by this way he cannot fail to notice the numerous isolated patches of dense bush scattered over the many bluffs of the hills on his right hand.

These indicate the position of old workings which are now almost impenetrable; but they give evidence

that long years ago the metalliferous wealth of this region had attracted the attention of races who have vanished without leaving track or trace behind. [The work being done under Revil Mason and by others in the district is now giving most interesting information about the pre-Mosilikatse communities living there.]

These holes have not been lately explored, but there is little doubt that the 'old men' were in search for gold, for the strata are interlaminated in many places with auriferous from the decomposed outcrops of which gold

may be easily obtained, may be by rough crushing and panning.

One cannot but feel that a comprehensive and detailed study of the area could be most rewarding. This is the type of project in which members of the Institute of Mining and Metallurgy and of associated learned bodies could well become involved with those of the Archaeological Society.

2. Iron Age copper mine 47/73

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A trench (47/73), 150 m long and 10 m wide, on the south slopes of a ridge parallel to the main crest of the Magaliesberg on the farm Olifantspoort (Plate I) was identified as an Iron Age copper mine on the basis of artefacts I excavated in the waste heaps adjacent to the trench in May-August 1973. Iron Age sites, such as 20/71, excavated a few kilometres south of 47/73, which may be contemporary with the mine, are described by Mason¹.

I commenced the investigation of 47/73 by removing grass cover from the area disturbed by the

trench. Quantities of plain potsherds, upper grindstones, stone hammers, crushing stones, and fragments of copper ore were seen exposed on the surface beneath the grass. Then I excavated seven trenches in the waste rubble removed by the prehistoric miners. Stone hammers, charcoal, ash, and slag appeared at various depths in the excavation trenches. Trench D on the upslope end of 47/73 exposed the source of the copper ore in a quartz reef adjacent to the 1905 test pit.

Prehistoric retaining walls were exposed on the inner south slope of 47/73, between Trenches B and D. These had been built to prevent rubble falling inwards onto the

miners at work in the main trench. Between Trenches C and D, I found sorting and crushing tables built from boulders of quartz and dolerite approximately 30 cm in diameter.

Near Trenches C and G are the remains of stone walls that may post-date the mine trench. Later Iron Age cattle herders could have converted the 47/73 trench into a cattle kraal after the miners had left it.

Charcoal from the trenches has been submitted for carbon-14 dating. It is thought that Karl Mauch may have visited 47/73 in 1866².

The late Mr A. Retief informed me that, in 1905, a prospector sank a

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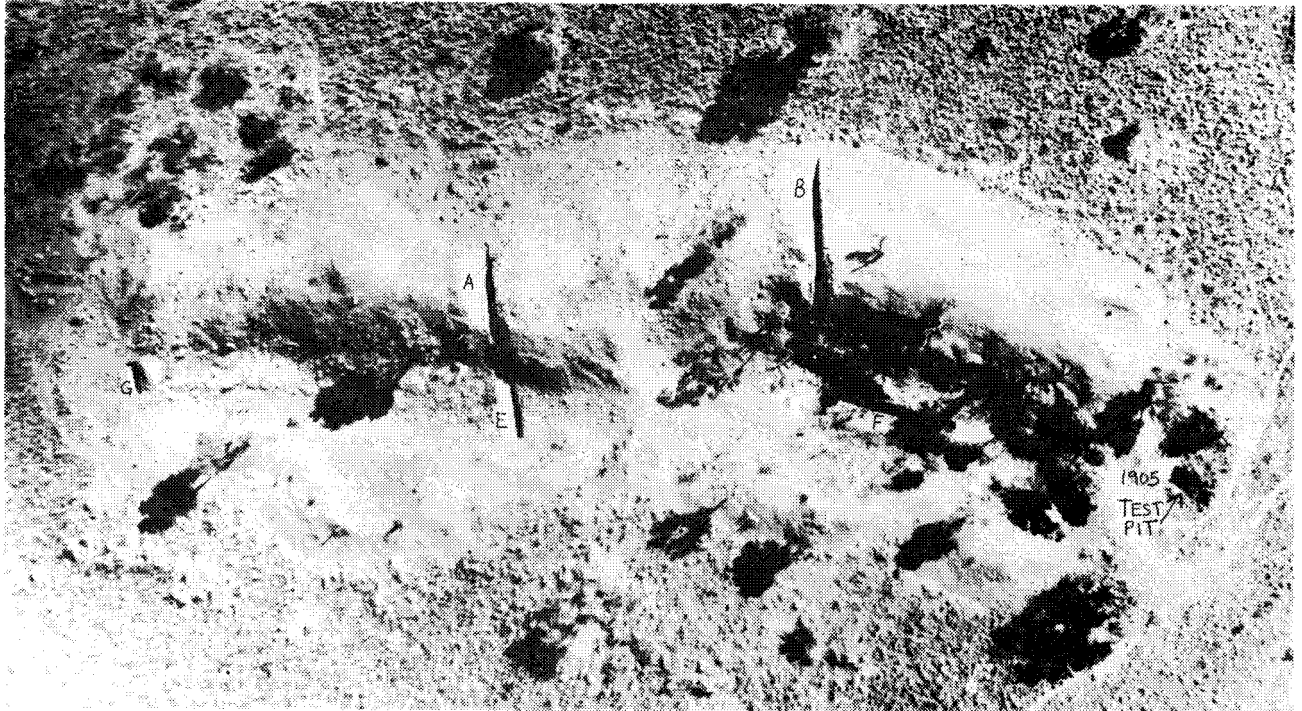


Plate I—Iron Age copper mine 47/73, Olifantspoort, Rustenburg.

test pit near the upslope end of 47/73, hoping to locate payable gold, but without success.

Acknowledgements

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References

1. MASON, R. J. Background to the Transvaal Iron Age—new discoveries at Broederstroom and Olifantspoort. *J. S. Afr. Inst. Min. Metall.*, vol. 74, no. 6 (this issue).
2. BERNHARD, F. O. *Karl Mauch, African explorer*. Cape Town, Struik, 1971.

3. Ancient mining practices in the Rooiberg area

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Present-day mining of tin in the Rooiberg area dates from the year 1908, when the Rooiberg Minerals Development Company was formed to mine the tin deposits of the Bushveld Igneous Complex, after some three years of examining ancient workings of the area. We have a plan of ancient workings prepared in 1909 by the Chief Geologist of the Rooiberg Company, and these are all close to areas worked in recent times.

The deposits at present worked by the Rooiberg company are extensions in depth of these ancient workings, which were really fairly extensive at surface. There is evidence that a method of prospecting was carried out on a large scale, which in turn led to underground work following small fissures.

The ancients opened up their mines by sinking small shafts in tin-bearing quartzites, breaking their ore with metal gads and stone hammers. The hammers were rounded fragments of hard felsite or dolerite, 76 to 127 mm in diameter, held directly in the hand without a handle. The gads were of steel, roughly rectangular in section, made in one continuous taper from the head to a fine point, about 300 to 450 mm in length.

It has been estimated that about 18 000 tons of ore were mined by the ancients at Rooiberg, and probably about 2000 tons of metallic tin were recovered. (There is no indication so far of the time scale of this work.) For the most part, high-grade ore, possibly running up to 25 per cent tin, was mined in many areas that were accessible to the ancients. Recent work in the same general vicinity has produced ore with grades of more than 7 per cent tin.

Although most of the ancient

mines have been damaged by mining in recent times, a fair number of old workings are still to be found. These are to be seen in the present A1 and A3 sections and in the H. Lode section of the Rooiberg Mine. A good description of workings on the H. Lode was given by Max Bauman¹ in 1919.

The workings described consist of a stope on the H. Lode and two pipes in the footwall of the lode. The two pipes are elliptical in shape and run almost horizontally. These workings were encountered in a drive in recent times but were entered by the ancients from a narrow pipe off the lode. The lode is lenticular in section and was stoped out to a maximum width of approximately 2 m. The south branch pipe is very low, and the walls have a corrugated appearance, representing a perfect example of chipping with a gad and hammer. The pocket was so low and narrow that the ancient miners had evidently to lie prone with back and sides touching the walls. At three roof pockets in this pipe, the miner could not get his head and shoulders into the hole, the biggest of which is approximately 600 mm high. He had therefore to stand in a crouching position and chip with arms at full stretch above his head. Clearly, this form of mining was not very comfortable. However, the ancients were very efficient and mined very cleanly with negligible overbreak. In fact, our modern miners could learn something from these people about keeping waste rock out of the ore. A total of 120 stone hammers was found in this old stope.

Where the ground was too hard to break with gad and hammer, a method of fire-setting was used. On the H. Lode, a pile of wood ready for fire-setting was found in an old working. The pieces were

approximately 1.2 m long and 15 mm in diameter, and were stacked in a conical pile near the face. The wood had been preserved over a long period in the air-tight covered-over workings but, when touched, crumpled into impalpable powder.

Stone hammers, as described above, and upper and lower grindstones for the crushing of ore can still be found in these areas. A recent find in the Smelterskop Area, the site of the 'metallurgical works' of the Rooiberg ancients, is a lower grindstone with several grooves approximately 150 mm long and 10 mm deep running across the full face of the stone on both sides. This had apparently been used for the sharpening of implements. However, there are very few remnants of artefacts of any real value or, at least, very few have been found to date. As in so many ancient-mining areas, most of the workings were covered over, and there has been speculation about whether this was to hide them from enemies or perhaps had some religious connotation.

The ancient workings found to date have seldom extended more than 20 m below surface, and this was no doubt the limit of their 'hoisting system', which consisted of transportation of the broken ore in earthenware pots and baskets—in itself, a sound reason for clean mining.

As mentioned above, modern mining operations have destroyed a large amount of the evidence of ancient mining in the area, but there is still considerable scope for archaeological investigation for anyone who has the time and the inclination to delve into these prehistoric sites.

Reference

1. BAUMAN, M. Ancient tin mines of the Transvaal. *J. Chem. Metall. Min. Soc. S. Afr.*, Feb. 1919.

*Rooiberg Tin Mine.