

are no indications of any mining activities in those areas. Copper and even gold workings, albeit on a small scale, have started up in modern times on the south-eastern boundary of Rooiberg, but, as far as we know, these have not yet been examined for signs of working by the ancients.

The ancient smelters found that, when one adds copper to an even softer metal (tin), one obtains an alloy (bronze) that is harder and more durable than either. This was a marvellous discovery for them. The working of bronze reached its finest expression in China, to which it had probably come from the Middle East, where bronze was discovered about 3800 B.C. The proportion of tin in bronze can vary between about 5 per cent and 20 per cent. The best Chinese bronzes have a tin content of 15 per cent, and at that proportion bronze is almost three times as hard as copper. Whether those ancient smelters of the Middle East had any connection with Rooiberg as a source of tin is a moot point.

Among the artefacts on display at the Symposium were a copper ingot (more than 98 per cent

copper) and a brass ingot found at Rooiberg. The source of this copper is not known; it may well have been Messina or Phalaborwa, both some 400 km distant.

That the ancients buried their dead in the Blaauwbank area near Rooiberg has been discovered only fairly recently. Indications of two large burial sites occur on the southern boundary of the farm Blaauwbank, and that this was a burial site became more evident after the unearthing of a Bantu skeleton buried in a customary position with its knees tucked below the chin. Rough dating estimates were given at approximately 500 to 900 years old. This ties in with the information given by Professor Revil Mason² that the carbon-dating of a piece of timber from old workings at Rooiberg suggests a date of A.D. 1450. A copper ingot assaying 95,4 per cent copper was found near these diggings on Blaauwbank.

However, dates seem to confuse speculation on the identity of these ancient miners and the period that they lived here. This seems even more so when one considers the discovery of an ancient slave chain in the hills on the southern boundary

of the farm Blaauwbank on the Rooiberg Mine property. This was said to have been used by Portuguese or Arabs some 200 to 300 years ago. However, a Professor Frobenius, who visited the mine in 1929, examined several of the ancient workings and considered them to be of pre-Phoenician age, possibly 5000 B.C. In view of the dating referred to above, this was clearly a guess at the antiquity of these workings. Discoveries in various other parts of the Transvaal have since proved that Bantu had indeed done a great deal of iron smelting in ancient times, but nothing older than about 1500 years has been found to date.

It must be said that a great deal of archaeological work is necessary in the Rooiberg area to solve the mystery of the ancient tin miners. This should be a fertile field for some keen archaeologist.

REFERENCES

1. BAUMAN, M. Ancient tin mines of the Transvaal. *J. Chem. Metall. Min. Soc. S. Afr.*, Feb. 1919.
2. MASON, R. Background to the Transvaal Iron Age—new discoveries at Olifantspoort and Broederstroom. *J. S. Afr. Inst. Min. Metall.*, vol. 74, no. 6. Jan. 1974 (this issue).

O.F.S. Branch, Welkom

Minutes of a Committee Meeting held in the V.I.P. Lounge of the Welkom Club on Tuesday, 26th June, 1973, at 5.00 p.m.

Present

Mr C. J. Isaac (in the Chair), Mr D. A. Smith, Mr G. Young, Mr E. T. Wilson.

Apology

Owing to transfers, Messrs J. M. Meyer, P. L. Nathan, D. Rankin, and R. Sutherland had previously resigned from the Committee.

Minutes of Previous Meeting

The minutes of the Committee Meeting held on 8th November, 1972, were taken as read, and their

adoption was proposed by Mr D. A. Smith and seconded by Mr G. Young.

Matters Arising

Final arrangements were made for the visits to surface installations at President Steyn No. 4 Shaft and the Task Force Training at Virginia.

Election of Chairman and Vice-Chairman

Chairman: Mr E. T. Wilson, proposed by Mr D. A. Smith and seconded by Mr G. Young.

Vice-Chairman: Mr D. A. Smith, proposed by Mr G. Young and seconded by Mr C. Isaac.

Members of the Committee Offering Themselves for Re-election

Messrs C. Mostert and G. Young offered themselves for re-election to the Committee for 1973/1974.

Date of the Annual General Meeting

The date of the Annual General Meeting was fixed for Tuesday, 11th September, 1973.

General

Mr Smith mentioned that the readability of the *Journal* was such that mining engineers could not understand it. He asked the Chairman to take this matter up with Council.

The Chairman declared the meeting closed at 5.30 p.m.