but that the handling of men and material could be a predominant factor in certain cases, and would certainly be of more importance in the future. He stressed that each particular case had to be considered on its merits and that shaft sinking could not be standardised. Shaft sinking contractors were ideally suited to sinking shafts in new areas, and some of the disputes were possibly due to the contractors encroaching on the mining companies environment. Finally he agreed that the concept of raise boring would play a significant role in future shaft sinking.

Visit to the Modderfontein factory of A. E. & C. I. Ltd

23rd November, 1972

A full programme was arranged to suit both the mining and metallurgical sections of the Institute. After refreshments were taken and visitors welcomed by the factory management we were split into two groups, viz metallurgical and mining.

The metallurgical group first visited the ammonia and nitirc acid plants which feature prominently in the making of ammonium nitrate for explosives manufacture.

They were then taken to the metallurgy section of the engineering department and shown how the quality of new materials of construction is tested. On the preventive maintenance side, non destructive testing methods as applied to existing plant were also demonstrated.

The mining group was shown safety fuse and ignitercord manufacture where 1 000 000 metres of fuse and 600 000 metres of ignitercord of all types are manufactured daily. They were then taken to the engineering research department where machines for automating electric detonator and capped fuse manufacture were demonstrated.

Trucks for the on site mixing at large quarry sites of ammonium nitrate/fuel oil explosive on the one hand and slurry explosive on the other were available for our inspection.

Cartridged slurry explosive for use in small diameter holes was demonstrated; this explosive, like Anfex is relatively insensitive to impact and friction but differs in having a dense pliable composition of high bulk strength that is resistant to water.

As a means of demonstrating the practical significance of the impact insensitive explosives presently being researched by A.E. & C.I., a demonstration was witnessed in which a rock drill was used to drill into such an explosive, without initiating the 150 g charge.

A buffet lunch amidst the pleasant surroundings of the Modderfontein golf club was enjoyed by all present and after a busy morning, members were afforded the opportunity of spending the afternoon relaxing at golf, tennis and bowls.

The day's proceedings were concluded with a sun-downer party at which the opportunity was provided to discuss the many and varied activities carried out by our hosts.

Book review

Stress-relief Heat Treatment of Vanadium Steels by Dr G. D. Joy and Dr A. M. Sage (21 pp, 77 references).

This booklet reviews most of the recently published literature on the subject of stress-relief cracking and embrittlement of steels (mainly the Cr-Mo, Cr-Mo-V and Ni-Cr-Mo-V types) that are used for pressure vessels and other structures called upon to withstand high working temperatures/pressures.

It is shown that, although the literature does not provide a complete explanation of these two phenomena, they can be avoided in many cases by proper attention to process parameters such as: structural design, number of welding runs, and preheat and stress-relief heat-treatment conditions. In other cases, the answers to the problem are not to be found in published work, and therefore the review indicates topics on which further investigation is required.

Copies are available free on application to: C. Vaughan, Publications Manager, Highveld Steel & Vanadium Corporation Limited, 7 Rolls Buildings, Fetter Lane, London, EC4A 1HX.