

In this connection, a comparison can be drawn between the conditions obtaining in the melting of steel scrap in an electric furnace and those obtaining in a ferro-alloy furnace and a furnace used for melting copper-nickel matte, where the slag resistances are of the order of 1 to 2 Ω/cm and 4 Ω/cm respectively. In the case of steel melting and refining, the charge has a very low resistance and heating is predominantly by arcing. At the Quebec Iron and Titanium Corporation, the smelting of titaniferous iron ore is done in open-arc conditions necessitated by the very low resistivity (about 0,01 Ω/cm) of the high-titania slag produced.

We readily admit that the curve predicted by the theoretical equation is not in exact agreement with the

experimental results, but this is possibly due to changes in the electrical parameters arising from experimental factors over which we had no control. For this reason, the curve was drawn as a broken line and, like the trace measured during the experiments, is not meant to be continuous.

However, we feel that the theoretical equation does give a reasonable prediction of the circuit current in view of the fact that such parameters as the gap between the electrode and the slag, together with the atmosphere prevailing in this gap, have a profound effect on the arc and these parameters are by no means constant. We accept Mr Meintjes' suggestion that the arc in the circuit behaves as a capacitor

in that it appears to cause the current to lead the voltage.

We had assumed that, under any given conditions of burden, a correctly designed furnace should be operated at its maximum voltage for maximum power utilization. Under these conditions, any increase in resistance must decrease the power dissipated. Mr Meintjes postulates that the increased resistance arising when the arc is struck may be counteracted by raising the voltage, so maintaining the current constant and thereby increasing the power dissipated. In addition, an ancillary benefit, as indicated by Mr Meintjes, is that the power factor is increased. Obviously this must be a question of the overall economics of the process.

Termination of membership

In accordance with By-Law 7.6.1. of the Constitution of the Institute, the names of the undermentioned members have been removed from the membership register.

Fellows

A. G. Raper, W. H. Wise.

Members

D. de W. Marais, C. R. S. Needes,

P. K. Pech, K. A. Ullerstam.

Associates

J. de F. Agrella.

Graduates

P. J. Delaney, J. K. MacLean, J. Marais, D. A. Nolte, E. Pothas, D. J. Theron.

Students

G. K. H. Anderson, J. H. Ashton, H. J. Engelbrecht, J. W. Jordaan, W. K. Lawson, K. L. McDonald, K. J. Merz, C. Mills, M. A. Pascall, J. L. Pretorius, J. C. Roegiers, T. Schmoll, L. A. J. Skinner, C. M. Wintersteen.

Colloquium and General Meeting

A General Meeting and Colloquium on 'Heavy-medium separation and ore sorting' was held on 18th September, 1974, at 09h15, in Kelvin House, Johannesburg.

Dr R. E. Robinson (Vice President) was in the Chair.

The colloquium was attended by 200 delegates and was opened by the Vice President at 09h20.

Minutes

The minutes of the Special General Meeting and General Meeting held on 22nd May, 1974, as published in the August issue of the *Journal* were confirmed.

Obituaries

Mr K. Richardson, Fellow.

In memory of the deceased and in sympathy with the bereaved, the delegates rose and observed a few moments' silence.

Membership

The Vice President: I have much pleasure in announcing that the undermentioned candidates, whose names have been published in accordance with By-Law 5.2.2. have been elected to membership of the Institute in the following grades:

Members

H. H. Gielen, J. R. F. Leszczynski, G. J. Rees.

Associate Members

E. F. Dennis, D. G. Nicholson, J. H. Proctor.

Graduates

R. le Marchant, N. J. Pursell.

Associates

N. Mauer, J. A. McLernan, D. H. Stevenson, L. G. Ulyett.

Students

D. W. Butcher, K. Dewar, G. J. Dyason, N. F. Philpott, C. E. van

der Bergh.

Transfers

To Member

A. J. Michau, J. C. van Rooyen.

To Graduate

M. E. Dingle.

I welcome the newly elected members to the Institute, and congratulate those who have been transferred to a higher grade.

General

The Vice President extended the gratitude of the Institute to Mr B. S. Dykhouse and to S.A. Cyanamid Ltd for their generosity in offering to sponsor the lunchtime refreshments, and to Hoechst (S.A.) Ltd for sponsoring a cocktail party for the delegates at the conclusion of the colloquium.

The meeting ended at 09h30.