Journal Comment

New Year Options

“There is a tide in the affairs of men
Which, taken at the flood, leads on to fortune;
Omitted, all the voyage of their life
Is bound in shallows and in miseries…….”
William Shakespeare (Julius Caesar)

There is once again a selection of papers for a variety of specialists. The two papers on statistics of sampling are far too erudite to allow comment from me. I mention them in deference to the many students and statisticians who enjoyed the pioneering work of the internationally honoured Danie Krige, a platinum medallist of the SAIMM.

The first, by F. Lombard et al., is on ‘Assessment of the precision and bias of an on-line gauge’.

The other paper on sampling, by Julián M. Ortiz et al., involves sampling from blastholes by reverse circulation drilling which seems to be common practice in Chile for open pit mining.

The work reported on production of activated carbon from coal, Q.P. Campbell et al., enticed my interest. Since the 1970s, many nanochemists have tried to match the imported activated carbon made from coconut shells. A wide range of materials, from peach pips to old motor car tyres, have been carbonized to find a better activated carbon. It was possible to match the capacity, but they all fell down in the comparison of abrasion resistance, where coconut shell derived carbon reigned supreme, presumably because of its fibrous origin. But the planned work must continue, particularly in the light of the latent novel concepts of carbon-in-pulp equipment, where abrasion is much reduced in comparison with conventional systems.

By far the most sensational paper in this issue is the paper on the Kell Hydrometallurgical Process for PGM and base metals recovery by Keith Liddell of Switzerland and Mike Adams of Australia.

The description, data and, calculations are most convincing. The claim that the process is a great step forward in costs, recoveries, versatility, and environmentally, in comparison to existing smelting operations, seems unquestionable. It is a landmark example of meticulous and creative thinking in putting together a flow sheet that many of us recognized as having promising potential for many decades.

The strategic significance of the planned pilot/demonstration plant is such that it suggests that this should be rated a national priority, if only by virtue of the indicated reduction in electrical power demand from Eskom. Of equal importance is the attraction to investors in the eastern rim of the Bushveld Complex, with obvious strategic opportunities for valuable interaction between researchers and industry. It is important to examine all the stages of mining, comminution, mineral dressing, and the possibility of a hydrometallurgical alternative to replace the roasting step.

Apart from the Kell Process, there are many other topics apparent in the papers published in recent months and years.

It is customary to use the January comment to look forward to future prospects for innovative R&D portfolios and interaction between universities and research institutions, industry, and the SAIMM professional body. I see an extremely full plate ahead, particularly as regards the all-important challenges of job creation.

The Kell Process option has brought a wealth of important opportunities for valuable interaction between researchers and industry. It is important to examine all the stages of mining, comminution, mineral dressing, and the possibility of a hydrometallurgical alternative to replace the roasting step.

The list is far from complete, not even on the mining and metallurgical topics. There has additionally been made reference to education topics and, for example, the spectacular recruitment of mining and metallurgical oriented engineers and scientists at South African universities is significant. There has been frequent reference to biofuels and alternative forms of energy, and these are topics in which mining and metallurgy have an immense interest and impact. There has also been reference to research planning and particularly to National portfolio strategies which are crying out for some detailed information, all of which point to a picture of a great potential in future years.
Mining cannot be viewed in isolation from the community in which it is performed. There are several levels of community. The broad South African mining industry takes place in the broad South African community. As such, it is a vital part of the broad South African economy which is in turn linked to the world. What happens in the world influences South Africa and in turn our mining industry.

When we start breaking this concept into smaller chunks, we find that our coal mining industry is part of the energy community, the platinum mining industry is part of the automotive and a few other communities, etc.

This comes all the way down to the individual mine. An individual gold mine is part of the broader mining community and also inherently part of the local geographical community. The concept of sustainability in mining is by now well established, and due account is (hopefully) taken of the requirements to sustain community viability once the mine has closed down.

As a side issue, in this regard it is high time that the local communities' responsibility in ensuring sustainability receives attention. Why must all the responsibility have to come down on the mine? When will communities learn to recognize and develop the opportunities afforded by mining in their regions by themselves?

In November of last year, the Hon. Trevor Manual released the NPC’s multi-faceted National Development Plan for South Africa. The document covers a wide spectrum of South African society, and the mining industry is not excluded from that. We are part of the society in which we operate.

The question is, how can we as a learned technical institute contribute to national development? Council will debate this issue in the near future and I am confident that there will be solid creative ideas coming out of the discussion. One of our long-time stalwart members, Robbie Robinson, initiated the discussion and has already made a contribution. There will be more, I am sure, once our more than 4 000 members apply their minds as well.

One of the first things that comes to mind is that we can continue to employ and even employ more people by doing and developing things to keep more mines open for longer, and improving resource utilization, mineral extraction efficiencies, etc. There will be more. It will require good solid research, and good communication to ensure implementation, but that will come because it has to. It must just come in time.

Beyond the collective effort, we should also remember that as individuals we are part of our communities. We are miners for certain hours of the day but citizens of our communities all the time. Acting responsibly to eradicate corruption and crime and improving things like road safety is part of our duty as citizens. For instance, if all 500 000 of us in the mining industry refuse to pay bribes and approach driving as carefully as we approach mining, we will already be making a contribution.

‘No man is an Island, entire of itself; every man is a piece of the Continent, a part of the main; if a clod be washed away by the sea, Europe is the less, as well as if a Promontory were, as well as if a Man of thy friend, or of thine own were, any man’s death diminishes me, because I am involved in Mankind; And therefore never send to know for whom the bell tolls; It tolls for thee.’ – John Donne.

J.N. van der Merwe
President, SAIMM