



President: 2014–2015

125 Years? Only feels like 25!

Jim Porter

I was born 1 month and 1 day before Steve Jobs –
at least I beat him at something!

It has been a tough few years in mining, so my motivation for getting up in the morning has taken a bit of a hammering; but minds (and motivation) are wonderful things... and memories are so resilient and (luckily) quite selective. On first reading the letter from our Past President, inviting a contribution for this 125-year commemorative issue of the SAIMM Journal, I naturally consulted my memory. However, there was a quick and rude realisation that with age, retrieving memories was even harder than getting up in the morning. In addition, the introspection was potentially futile without a clear idea of a topic in terms of the invitation: It should be focused on my personal recollections of an industry over the last 25 years. I decided that only looking at my term as President was too narrow and my peers are much more able than I to recount more of the fundamental forces that have both driven and riven our industry over this period.

Selfishly, I am going to reflect on three experiences which are of interest to me (and from which I continue to learn) and I hope there is something in here of interest to the reader. But first a disclaimer: I am sure that like many others before me, one discovers that hindsight is a lens, which is, in fact, more like a kaleidoscope that both mixes and distorts personal perceptions of time, place, and the sequence of events. Those matters that I can recall about the industry are made, with humility, through this filter of 25 years.

Changing times

April 27th, 1994: You all know this date. I was the manager at what was then the East Mine of Western Deep Levels (now Tau Tona Mine). Election day was a great occasion and of global significance. I will never forget the atmosphere in the large, tented voting station that had been erected on the sports field of the hostel. The sense of occasion was palpable, a nervous tension. There were various visiting dignitaries, politicians, and executives – some of whom had worked at the mine in their youth. There was this unmistakable sense of expectation of what the future might hold – was this indeed the 'High Road'? (described by Clem Sunter,

Anglo-American Corporation, who was commissioned in the 1980's to prepare scenarios describing possible futures for the country.). Or, was this some other road to a very uncertain future?

Well, it was certainly not the future that had seemed likely during the vicious and violent days of unrest that prevailed on many mines for a while leading up to 1994. Instead, common sense had prevailed at a national and local level. I recall during this time and after the elections, that we were able to implement and achieve (amongst others) many small milestones of change.

- >> Adult Basic Education programmes
- >> AIDS awareness and community programs
- >> Removal of job reservation based on race
- >> Organisational and cultural change interventions
- >> Integration of mine sports and social programs
- >> Advancement of Black professionals in the technical disciplines

Looking back from today some seem almost naive in their simplicity, but at the time it was serious business. I for one felt good about being in an organization that was doing something to move forward on the 'High Road'. Where do we stand today 25 years on; is the job done? Clearly not. Our domestic mining industry has been a lightning rod for many historical ills, but the spotlight has moved on to new challenges. Not least of which is the contraction of our industry over the intervening years and the appalling toll that unemployment has taken on our youth and the foundation of civil society.

In 1994, my wife and I became South African citizens so that we could exercise our democratic rights in the country we had chosen to be the home for our growing family. We now observe with enormous pride how grandchildren from all sectors of our society interact at school, oblivious of what it was like 25 years go and naive of political machinations – for them, long may it be so. Now, 2019 presents another opportunity for voters to exercise their rights at the polling booth.

Miners can't type

May 6th, 1994: The Channel tunnel linking England and France officially opens. Fast forward 25 years and technology entrepreneur Elon Musk is challenging conventional norms with his Boring Company: Constructing tunnels with a finished cost of \$5000 per metre or less within their sights. Any shake-up to the mining 'norm' is welcomed because productivity in mechanized development has been on a slow disappointing decline globally over the past 25 years, despite huge advances in digital and material sciences.

To say that the technology change has been dramatic is an understatement.

Personal digital technology hardly existed 25 years ago — a niche, nerdy add-on to the lives of people and the operations of companies. Today, it stands at the core of many people's lives and most companies' businesses. Back then, you could still do OK without a computer. Today, you'd never think of being without a smartphone. And we're entering the era of even more ubiquitous computing with sensors on and in our homes and offices, machines, and bodies. I could not type 25 years ago!

The effects have been profound, both for good and bad. Nearly everyone you know, or need to know, is only a few clicks away. The world's news, information, and entertainment are at your disposal, interactive, on demand, in text, audio, and video. So much of what we know of the world, so much of what young people take for granted, didn't exist just 25 years ago. Moreover, literally billions of people who are alive today—45 per cent of the world's population, were not yet born 25 years ago.

The World Wide Web began to really take-off in 1994, with the release of the first successful mass-market browser (Netscape), but access is now almost considered a Universal Human Right. During this period, I invested my personal time in trying to understand how computers worked. I built my own, repaired other peoples' and learnt that DOS was not something you did at the miner's box. As a result of this new (non-mining) knowledge and in the latter part of the 1990s, I was fortunate enough to be offered the opportunity

to start a new company (GMSI – now MineRP) that played a significant role in the invention and implementation of digital technology in mining – this was before anyone had thought of 'Mining 4.0'.

As shown in Figure 1, by the late 1990s the gold industry was facing a crisis of a gold price in freefall. This created the pressure and motivation for many survival strategies. The broad re-structuring of the gold sector, layering of management overheads, massive cuts in discretionary spending are examples. To this day these changes have impacted the operations of the SAIMM as the same process has run through the platinum sector.

One specific area of rationalization was technical services (geology, survey, sampling, planning and reporting functions). Someone that happened to be working on these issues was our current SAIMM President, Alastair Macfarlane. He identified inefficient silos of work and that this should be streamlined through greater multi-tasking and by removing the silos. However, to do this in practice was not about changing what people did, it was fundamentally about changing how people thought about doing their work. Something subtle also happened as a result of these interventions. There was the realization that mining was not a series of discrete activities or events but was, in fact, a process that lent itself to process analysis, design, and performance improvement. Technical services were about managing data – so bring in the computers.

In truth, big number-crunching computers had been used in mining for some time already, certainly from the late 1970s in finance, payroll, management accounts, *etc.* and in early geostatistics and 3D mine design and scheduling.

Eventually, the concept of Mineral Resource Management became the way to manage and report a company's mineral assets. However, the drawback was that many mines' technical data was on paper (in South Africa that is), very little was digital. Before any computer system could really be used to facilitate a change in how people worked, the whole process of data collection, storage, and manipulation had to be automated (digitalized).

In the space of five years the bulk of South Africa's gold

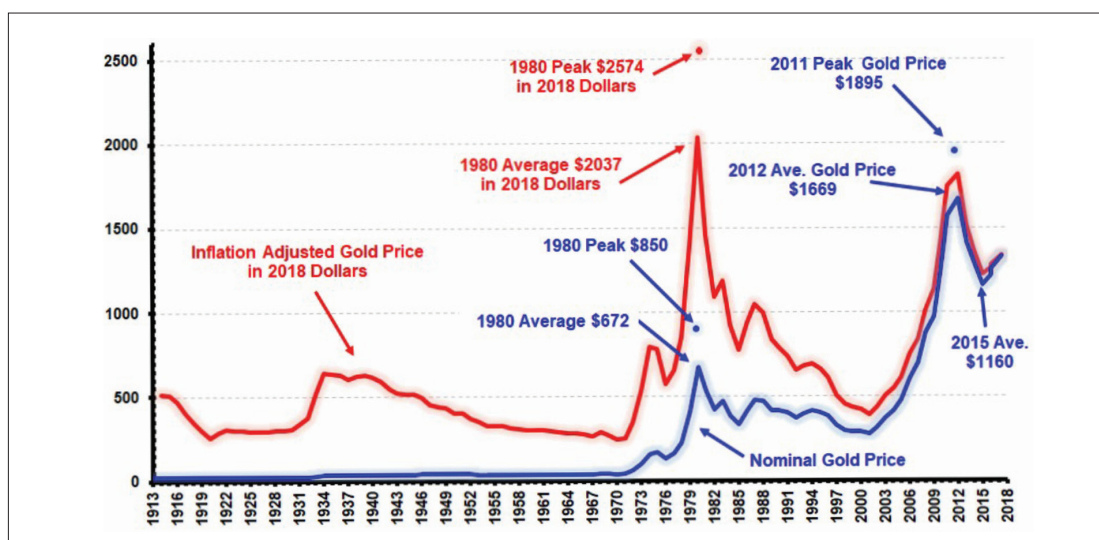


Figure 1—Gold Price

and platinum technical mining systems were digitalized and computerized. Multiple iterations of life of mine plans were now possible in weeks as opposed to one over the course of months. And I had learnt to type.

What is the stuff of the mining industry?

I am sure that other people contributing to this publication, like me, have lived through boom and bust cycles in the mining industry. They can be seen in the gold sector example of Figure 1, above.

For me, the resource industries (all 'stuff' comes from either the oceans, in the Earth or off the land) are only really driven by one thing. It is by far the most significant contributor over the past 25 years and certainly over my lifetime and career. It is population growth that drives many (if not all) of the factors that impact our daily lives. From overcrowding to climate change. Couple this with the cultural and social norm that creates the expectation that our children will always have more than the preceding generation. It is the definition of this 'have more' that, coupled with the population multiplier, drives consumption. Very often the mining industry must explain itself in terms of sustainability. I think this misses the point entirely. Somehow people must come to terms with the fact that to 'have more stuff' is ultimately not sustainable.

To fully grasp the impact, look no further than the following Figure 2, published by the United Nations. In merely one short lifetime (mine) the global population has surged from 2.77 billion (1955) to about 7.71 billion (2019), 2.8 times increase (178%) which is also set to grow a further 2.0 billion by 2050 – and that is the conservative estimate. In the past 25 years our South African population has ballooned by 16.9 million from 41.2 million in 1994.

So, the point I am trying make here is that over the last 25 years we see that:

- The growth of the world's population almost guarantees

that mining will continue to be a viable industry despite the changing legal, economic and social licenses to operate

- Sustained periods of economic stability since The Great Wars has created an expectation that more 'stuff' is available for successive generations
- Over the same period, there has been a significant number of people move out of poverty in to an economic space where they become consumers of 'stuff' (Ref: South Korea, Indonesia, Brazil, China, India)
- To date, the mining industry has always found ways to meet demand

In my mind there is a growing realization that the times must change, there is a need for a new type of miner and that the global population must accommodate new metrics and a new definition of 'enough stuff'.

In conclusion, I guess you are expecting me to declare myself a Malthusian? Not so. Little attention is paid to societal evolution and with it the maturity to handle the implications of a disconnected but networked society. Despite the current rise of nationalism and isolationist policies, I believe that the next 25 years of the SAIMM's long and distinguished existence will be marked not by how well the mining industry responds to yet more challenges, but how well we as people are able to respond to the growing realisation that health and happiness are not determined by how much 'stuff' we are able to consume. Social and individual happiness is NOT reflected in negative and destructive social media feeds nor by the rantings of political leaders with scant regards to the example they set for their electorate, but by how much 'stuff' we are able to save and re-use. A portion of what defines mental happiness, for me anyway, is knowing that what I do and what I can achieve – in whatever small way – does lead to the greater good. ✱

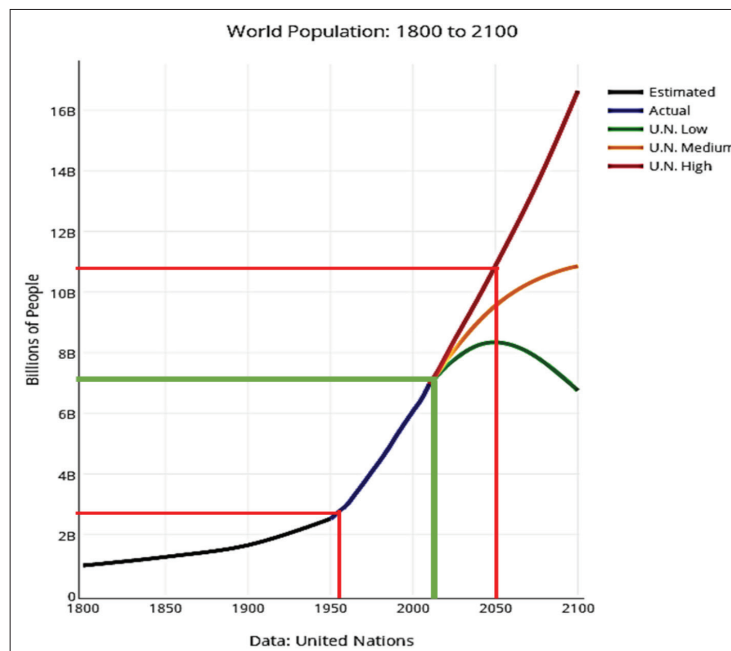


Figure 2—United Nation population projections