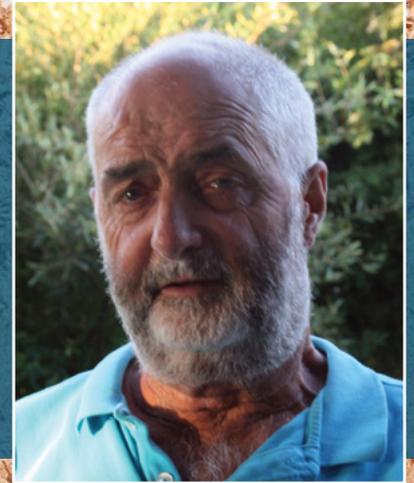


# It gets in your blood

An interview with former TAPPSA chairman, Chris Macdonald



In late 1973, industry stalwart Chris Macdonald turned down a job with a platinum producer because of his susceptibility to platinosis. Upon hearing that a paper manufacturer down the road was looking for engineers, Chris visited the mill armed with his bachelor's degree in chemical engineering from the University of Cape Town. He was interviewed late that same afternoon by then general manager Mr Griffiths, pulp manager Mr Skimmel Wiese and personnel manager Mr Stan Hurley. The next morning, Chris was offered a job at Sappi's Enstra mill for the princely sum of R400 a month and replied with his acceptance almost immediately – all this by telegram at the post office!

He started in January 1974. Forty-four years later, Chris looks back on his fortuitous entry into an industry that gets into your blood.

Reflecting on the earlier years of his career, Chris recalls that training of graduate engineers was begun by doing lab tests for the various operating units in the pulp mill and paper mill. Together with two other graduates from Potchefstroom University, Chris carried out the standard daily tests and helped with plant-specific trials working with then-chief chemist Jan Cillie, father of JP Cillie who currently works for Tugela Mill as Paper Mill Process Engineer.

## PROFESSIONALLY SPEAKING

### What drew you to this area?

I entered the paper industry more by accident than by design. In chemical engineering, making paper wasn't raised as a process industry of note. However, I soon found that the pulp production side included a great deal of unit operations described in the degree, and felt quite at home – even without distillation processes.

My first allocation was to Enstra's chemical plant which produced chlorine, caustic soda, chlorine dioxide (ClO<sub>2</sub>), hydrochloric acid and calcium hypochlorite for the mill, with excess for sale. I started out working shifts during

the height of apartheid's job reservation era and was trained to operate all the plants, learning from operators who were largely technically illiterate. Incidentally, the labour turnover among this group of employees was an incredible 200% a year. A year later, I became the plant superintendent.

In the late 1970s, Enstra's pulp mill upgrade included an additional softwood bleach line, a new ClO<sub>2</sub> plant and the replacement of Kraft recovery with soda-based Copeland. The project was largely environmentally-driven as running an out-of-date Kraft mill in a built up area caused a lot of problems, including effluent into the Blesbokspruit which had to be cleaned up.

Manie van Niekerk was the pulp production manager and Andre Vlok, the mill manager. When Manie moved to Tugela, he was replaced by Leon Smith, which is when my learning curve took a major turn.

Leon was the most knowledgeable technical person at Sappi at the time and taught me all the science behind bleaching and pulping and their important variables. Although the development of oxygen bleaching was attributed to a team of Sappi employees, the development of the process and the basic research was carried out by him.

### What makes you tick? And what drives you mad?

What makes me tick? Science – and the engineering solutions that develop from it.

Scientific training is about working with facts and events that occur for a reason. Various factors drive these events and make it more difficult for them to occur. Like pumping fluids, for instance. Higher differential pressure means higher flow, whereas higher friction loss results in lower flow. Almost all scientific equations represent some form of this fact. And it applies to other areas of life, especially management and the management of people.

Having grown up on a farm where economic success is fluid, frugality is also part of my makeup.

What makes me mad? People who make hypotheses without scientific backing or thought; especially when these hypotheses graduate into facts without proof. For me, hybridising a process plant without proper engineering processes is a big no-no!

### What stands out as your most significant professional accomplishments?

A highlight of my career was the final success of the Enstra pulp upgrade in the 1970s, including a  $\text{ClO}_2$  plant we rebuilt in 21 days after a devastating explosion.

At Technikon Natal (now Durban University of Technology), where I was seconded as head of the Department for Pulp and Paper Technology, we recognised that the original plan for the diploma programme just wasn't working and converted it to the BTech Pulp and Paper, a post-graduate programme for engineers entering the industry as a distance learning option. We had it up and running six months from inception and most of the academic material was written in-house. This was a massive achievement! Students from both these programmes have risen to be leaders in the industry.

At Sappi Stanger, I was involved in two upgrades – the paper machine in 2000 and the pulp mill in 2005, after the discovery of dioxin in fish in the river below the mill. Together with Phillip Viljoen, my favourite engineer, and many others, we shut down the chlorine bleaching plant, ran a semi-bleached product and, with the Sappi Tech Centre, designed a new bleaching plant in nine months using  $\text{ClO}_2$  as the primary bleaching agent. You learn a lot about people during these events.

While marching through the two upgrades, I registered for a Masters degree in Chemical Engineering, largely prompted by my school headmaster informing my mother that I had a Masters degree brain – whatever that meant. I was proud to graduate *cum laude* in 2006 with a thesis based on water usage in the paper industry. In order to achieve this, I researched and wrote up between 4 am and 6 am.

I received a number of Sappi Innovation Awards over the years, but the most important involved a solution for cracking at the fold – a problem that caused havoc for the mill. A lot of the credit goes to Brian Quicke, who created an association with the pulp properties. By changing the digester's operating pressure, the problem disappeared – well, it was a bit more than that, but that is what it boiled down to.



**TOP:** Chris pauses on the golf course at the 2005 TAPPSA Berg Conference. **BOTTOM:** Chris congratulates a young Tevin Sukhdeo, daughter of Beverley (Sappi's Tugela mill general manager) at the same event. Tevin is now 23.

### Rewind to the earlier years of your career – what would you never have anticipated in the pulp and paper industry, both during your career and retirement?

Paper-making in the 1970s was less scientifically-based at the operational level. The paper maker – a kind of god of the operating floor – increased or decreased refining based on chewing samples straight off the winder. The forming wires were made of bronze and lasted only one week. If that didn't work, just blame the pulp mill – a habit which still holds today!

Modern pulp and paper-making is hugely technically advanced. The basic equipment is much the same, but control systems and electronic information are huge and give a much greater view of what is happening. Refiners are much more sophisticated, pulp cleaners and screens are significantly more scientifically designed, possibly due to improved materials, and machine drives are mind-bogglingly sophisticated.

In the 1970s, Sappi was very much a part of Union Corporation. The mill was run in the same way as the mines. The general manager was the boss! Had a mansion over the vlei from the mill in Rowhill (Skultbuld) and at the bottom of the garden was a bench with a sign reading 'Best view of Sappi from here'.

### What have you been up to since you retired? (Does one ever retire from the industry?)

The paper industry gets into your blood. I have been involved in small interventions at Sappi Stanger and spent nine months at the Tugela mill for its NSSC (neutral sulphite semi-chemical) upgrade. I really enjoyed returning to the challenges of day-to-day operations. Mostly, I have been pursuing my hobby – birding. I am a birder, not a twitcher. I love looking into the science of birds and working out how they exist.

### What is your advice to young industry professionals?

Young scientists and engineers need to plot their career paths early on. During the engineer- or technician-in-training stages, start thinking about where you want to end up. However the choices are tough and influenced by all sorts of things, particularly remuneration. You want to race up the ladder – that’s where the bucks are. But make sure you know enough about all facets of the business before you get there.

## LIGHTER SIDE

### What’s the best advice you ever received?

It comes from a book by Leo Buscaglia: ‘Only you can make the difference’. In other words, if you don’t like something, do something about it; if you can’t, try to minimise its impact on you.

### Tablet or paper book? And why?

Book, because I am an old fart! Seriously, I like to be able to go back to parts to check things. I have a photographic memory, so they’re easier to find in a book.

### Last book you read?

Deception Point by Dan Brown. Before that it was FW Fitzsimons’ The ‘Natural History of South Africa: Birds’ published in 1923 and Lynda la Planta’s ‘Good Friday’.

### What is one piece of technology you can’t live without?

My mobile. Developments since the early 1990s have been mind-boggling. The ‘bricks’ were great, but now you no longer need to go into the bank! You can record bird sightings directly onto your phone, transmit them to the University of Cape Town and, in just a few minutes, get a response on whether the bird is a rarity or ‘out of range’ [not commonly seen in the area, region or nationally] for whatever reason.

### If we were to ask to a group of people who know you well to describe you in three phrases or words, what would they say?

Technically competent, intolerant of incompetence, knows birds. ■



## Andritz Delkor hosts Service Technology Seminar

In November last year, Andritz Delkor hosted a one-day service seminar in Durban covering various aspects relating to the maintenance, servicing and operations of low consistency (LC) refiners.

Particular focus was given to double disc refiner maintenance, LC refiner optimisation as well as new technology, innovations and all things relating to pulp screening.

Presented by Andritz’s global experts in their respective fields, the presentations were a good mix of both process and maintenance topics and ensured good interaction between the participants and presenters.

“We were also updated on the latest developments in the world of screening by our colleagues from Regensburg,” says Graham Ahrens, client services manager for pulp and paper at Andritz Delkor.

Ahrens thanks attendees on behalf of Andritz Delkor for sharing their time with the team. ■