

5 1967-1973 OXYGEN BLEACH

BY THE BEGINNING of 1967 South African Pulp and Paper Industries, Limited, had been in business for 30 years and employed nearly 10 000 people. A small proportion worked at Sappi's head office in Johannesburg or the sales offices in Durban, Port Elizabeth and Cape Town. There were large contingents at Enstra and Tugela, and smaller numbers at Ngodwana and Adamas in Port Elizabeth. More than 3 000 were involved in Sappi's forestry operations, whether in the nursery at Ngodwana or working in the new plantations, or harvesting pulpwood in Zululand, the Natal Midlands or the Eastern Transvaal.

Of the mills, Enstra now had the capacity to produce 110 000 tons per year of 'printings and writings,' boards and newsprint. Tugela could make 240 000 tons per year of kraft packaging papers and newsprint. Adamas produced 15 000 tons per year of wrapping and other papers and also suitcase and industrial boards. In October 1966 Sappi had made its two millionth ton of paper, only four years after making the one millionth which had come twenty-four years after the start of production at Enstra. Ngodwana made no paper but was gradually approaching its target of producing 250 tons of unbleached pulp per day — roughly 85 000 tons per year.

Apart from its own mills, Sappi also had an interest in Kimberly-Clark of South Africa and its mill at Enstra, where a building had been added to house the new 140-inch (3,62m) crepe wadding machine being supplied by two Italian companies, Pinerola and a subsidiary of Beloit International. Even though the machine had been introduced as rapidly as possible, KCSA was losing a lot of ground to Crown Carlton, which was making the most of its new mill at Wadeville. Adding insult to injury, the rival company had poached half of KCSA's papermaking staff by offering expenses-paid trips to

the United States. In little more than a year, KCSA had lost 60 per cent of its market.

The Enstra mill gave KCSA the means to fight back. The Mayfair operation closed in February 1967 and most of its staff was transferred to Enstra, and the Kimberly-Clark No 1 wadding machine was commissioned during the next month. An official opening was laid on with H R P A Kotzenberg, the government's secretary for commerce and industries, as guest of honour. In his address Kotzenberg noted that South Africa's consumption of paper and board had now reached 660 000 tons per year of which 550 000 tons were made locally — roughly 80 per cent of the total. Counting KCSA's output, Sappi's contribution approached 400 000 tons.

Like Union Corrugated Cases before, Kimberly-Clark's operations were closely tied to Sappi's in that the fine papers mill provided power, steam and water (and also pulp), while the tissue mill shared Enstra's canteen, stores and workshops. KCSA's wadding machine had been bought through Sappi's technical department, and Sappi engineers had erected it. In return, the tissue company had much to teach Sappi, especially about marketing. For several years Bob Garden of Moore O'Hara's staff had fought a lone battle to convince Sappi that marketing was essential, but his calls had fallen on deaf ears. Then in 1966 he was appointed commercial manager in place of Moore O'Hara, and that gave him much more clout.

Garden's first initiative in his new job was to assemble a marketing team, with Lou le Roux as marketing manager, Chris Myburgh's brother Phil as publicity manager and Piet Fourie as service manager, responsible for dealing with customers' difficulties. John Harrison was sales manager and Andre Vlok, who like Le Roux had joined Sappi from the South African Bureau of Standards, was in charge of quality control. One of the marketing department's first tasks was to help supply houses, printers and converters to switch to standard sizes of stationery, a move recommended by the Bureau of Standards to bring South Africa into line with other parts of the world. The country had been using 80 sizes of paper and 40 of envelopes, but the new AO system reduced the numbers to about ten of each.

A few members of the marketing team were based at Enstra but most were at head office, and the team's existence symbolised a distinct change in the balance of power. For years, the strongest influence in Sappi affairs had been the technical department headed by Leonard Job. The technical men were naturally more interested in how things were made than in how they were used once they left the mills, and this had sometimes led to friction. To bring Sappi's technical and commercial wings closer together, John Henderson had asked Leonard Job and Moore O'Hara to become assistant managing directors. Job had joined the rest of the management team at head office

while Chris Myburgh took over day-to-day running of the technical department at Enstra.

Among the technical team's projects was a plan to erect a bleaching plant at Tugela, urgently needed to produce semi-bleached pulp for newsprint. The most obvious course would have been to build a plant like Enstra's, based on chlorine; but there was concern that it would create an effluent problem, so the technical men had been looking for an alternative. Whitmore Richards had drawn their attention to a French magazine article on bleaching cellulose with oxygen, an idea explored in Russia in 1912. Only recently the idea had been revived by the French company l'Air Liquide of Paris, which was primarily an oxygen producer and was looking for new markets.

The Russian pioneers had abandoned their idea on finding that although oxygen reduced the lignin contained in pulp, at the same time it attacked and degraded the cellulose. The French had tried adding a magnesium catalyst that lessened the degradation by protecting the fibre, at least in sulphite pulp. It was not so effective with sulphate pulping, the kraft process, as the pulp came out much

Marketing men and executives: (from left) John Harrison, Lou le Roux, Bob Garden, Barry Wilson, Ronny Bell, Ron Watson, John Henderson, Andre Vlok, Moore O'Hara, Pietro Savini, Piet Fourie, Stan Rees and Phil Mijburgh.





Enstra's sorting department, with cut paper readied for despatch to customers.

weaker than was acceptable, and paper made from it was prone to burst or tear. The Enstra chemists had experimented, and they had reached the same conclusions as the French, even though they tried out a variety of pulps extracted from different types of wood. Then one day a member of the team, Daan Pauw, tried bleaching pulp from a bale produced at the Usutu mill in Swaziland and the results were far more encouraging. Not only was the bleached pulp stronger, but it was also brighter.

Usutu pulp was made from wood much like what Sappi obtained from the Eastern Transvaal, so Pauw and the other researchers wondered what had made the difference and analysed each stage of Usutu's pulping programme. In most respects the cycle was like Sappi's, but with one extra phase. After leaving the digester, the Usutu pulp was washed in water containing sulphur dioxide to improve its repulping qualities. Leon Smith of Enstra ran experiments and deduced that during pulping, cellulose fibres picked up microscopic traces of heavy metals like iron, nickel and cobalt. If oxygen was introduced these heavy metals acted as a catalyst, causing the oxygen to attack the fibres.

Smith was able to demonstrate that Usutu's washing process eliminated the heavy metals, which explained why its pulp fared so much better when bleached. He tried substituting sulphuric acid for sulphur dioxide, and the result was just as good. The discovery was a second breakthrough, a realisation that acid pre-treatment was the key to successful oxygen bleaching. After exhaustive testing, in May 1968 Sappi decided to patent the preliminary process in all pulp-producing countries. Attorneys drawing up the patent applications needed the signatures of the inventors so had to visit Leon Smith in hospital, where he was recovering from an operation, and found Daan Pauw at Ngodwana.

Sappi also contacted l'Air Liquide and the two companies agreed to file joint patents covering the process as a whole, and to try and develop it commercially. The process was to be registered as Sapoxal, an abbreviation of 'Sappi-oxygen-l'Air Liquide.' A third partner, Kamy AB of Sweden, was brought in to help build a bleaching reactor designed by Apie Verreyne, the construction engineer in Enstra's engineering department. From the outside the reactor looked like a continuous digester, but inside it was divided into a series of compartments, one on top of another. Pre-treated pulp was fed in from the top and slowly filtered from compartment to compartment by way of slits in revolving plates. Oxygen was piped in and lignin was removed in solution.

Verreyne's design was patented, Kamy built a pilot reactor by adapting a small digester, and the three partners announced that trials were to be conducted at a small kraft mill near Jössefors in the north of Sweden. The Jössefors mill was in the process of closing and was an ideal venue, even though the Scandinavian winter was coming on. In October 1968 four Enstra men flew to Sweden to take part in the trials — Chris Myburgh and Lon Wayburne as engineers, and Henry Myburgh and Leon Smith on the chemical side. Tests were carried out over a period of two months, and often the men worked for 16 hours a day, seven days a week. Different speeds and settings were tried out until results were better than those obtained at Enstra.

The Sapoxal success was some consolation for a Sappi initiative that was turning a little sour. For years, Sappi's management had hoped that the company could one day produce high quality coated printing papers, the grades preferred for illustrated books, magazines and advertising promotion materials. Local demand for such grades was rising, but all had to be imported. When visiting Britain early in 1967 John Henderson heard that the Bowater paper company was closing its mill at Sittingbourne in Kent and wanted to sell a paper

*Enstra in 1969, photographed by Gordon Douglas
for a Sappi calendar (overleaf).*



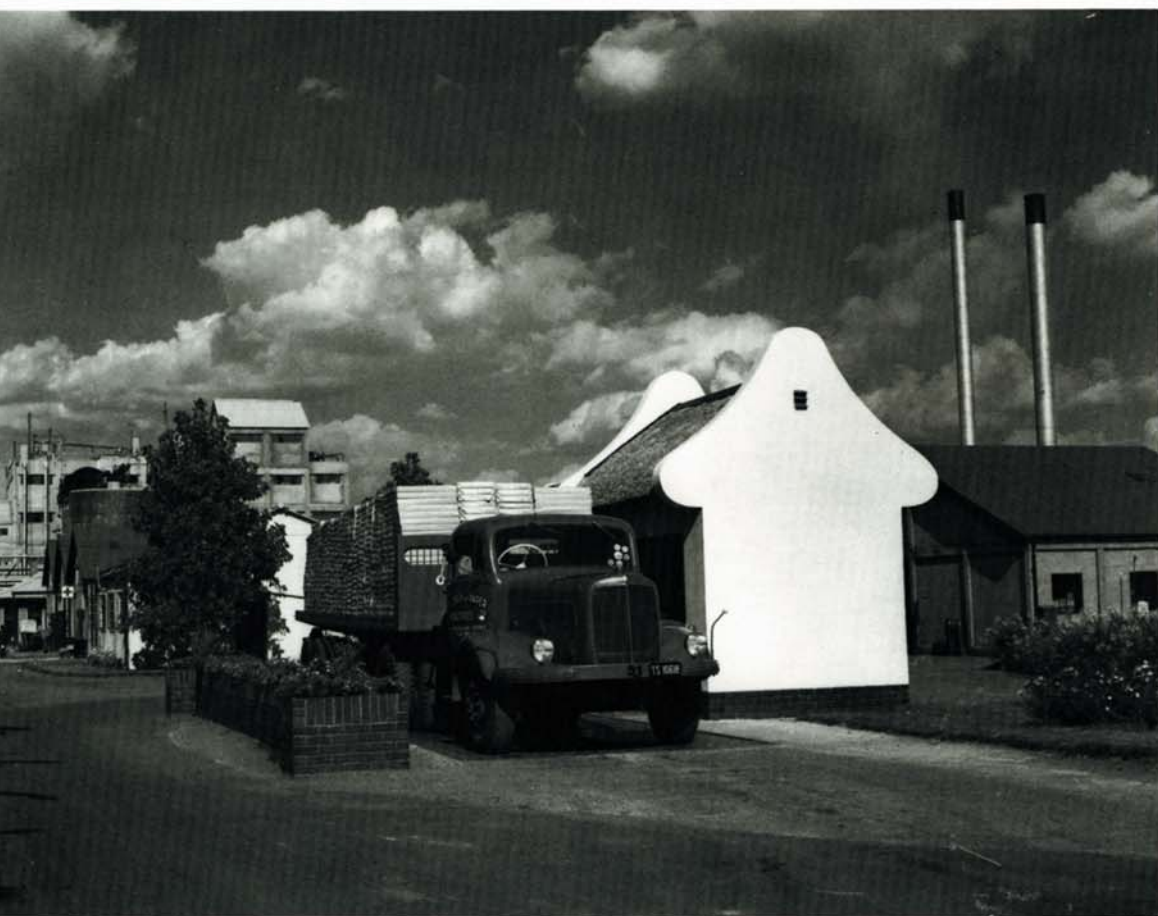


machine used to produce coated paper for magazines. The price was low, and Henderson asked Bowaters to give Sappi a month's option.

On returning to South Africa, Henderson arranged for Leonard Job, Lou le Roux and Lon Wayburne to go to Britain without delay to make a detailed inspection. The men decided that the machine had possibilities, providing that certain sections were replaced. Sappi took up the option and the machine was dismantled, packed in crates and shipped to Port Elizabeth. Not only was it a good way to encourage Adamas, but certain coating additives had to be imported, so it was better to have the machine at the coast.

Union Corporation's engineers drew up plans for the rebuild and new equipment was ordered from Er-We-Pa in West Germany. Mike Sharky of Tugela was appointed project manager and set off for Europe and North America to study coating technology. At Adamas, mill engineers unpacked the crates containing the machine and began

Weighing a load of fine papers prior to despatch from Enstra.



fitting them together. Like Enstra's No 4, the Sittingbourne machine was a hybrid, with a dryer section dating from 1902, the calender stack and other units from 1919, and the Fourdrinier from 1938. The machine had to be fitted into the mill with a shoehorn, and the coating 'shop' — a stack of rollers which coated paper top and bottom — was installed in a basement-style pit between two dryer sections.

The machine made paper before the year's end, and by February 1969 the operating team was ready to try out the coating unit. Results were disappointing. Elsewhere in the world, paper companies tended to specialise, and wherever possible a machine was assigned to make a single grade of paper and was never taken off it. At Adamas, the Sittingbourne machine was expected to make all the fine papers that coastal customers ordered, whether coated or uncoated and of every weight and quality. Still worse, the coating unit was outdated, so it was impossible to match overseas standards unless costly additives were included, and that made the paper too expensive.

In the end the coating unit was removed from the machine and sold to a local scrapyards. The Adamas No 4 instead concentrated on making uncoated papers and paradoxically began to earn its keep, producing 15 000 tons per year. Leonard Job still hoped to salvage the coating project so looked for a small, off-machine unit and found one in storage in the United States. He bought the unit and had it shipped to Port Elizabeth to make clay-coated and chemical-coated papers for carbonless business forms. Unfortunately the second unit was not much better than the first and was eventually sold to a company in West Germany.

Sappi Families

DURING 1967 Sappi had begun making fine papers at Tugela using spare capacity on the newsprint machine. Bleached pulp was railed from Enstra. In the same year the company had built an administration block at the mill, part of it reserved for a branch of Barclays Bank previously housed in a rondavel. Before long the branch moved to a shopping centre between the mill and the village, constructed by the Old Mutual insurance organisation in 1968. The administration block also included a medical wing with a dispensary, first aid station, doctor's consulting rooms and a small operating theatre—a great improvement on the cramped surgery which had been used before.

The company doctor, Allan Curson, was a jogging enthusiast and for several years had bullied colleagues into joining him in early-morning runs. At the recreation club one evening Mandini runners had discussed taking part in the coming Comrades' Marathon, the gruelling road race between Durban and Pietermaritzburg (or vice



versa, every second year) that had become the most notable event on the marathon calendar. As a result several of Mandini's young men began training in earnest, running 32 kilometres every day — though they later discovered that other runners ran twice or three times as far. To enter the Comrades they had to belong to a recognised association, so they founded the Southern Zululand Athletic Club.

The Mandini men duly completed the Comrades and enjoyed it so much that they organised a road race of their own between Stanger and Mandini, a distance of 33 kilometres which had to be completed within four hours. The race took place in March 1968 and a number of separate teams competed for a Rose Bowl presented by John Henderson. One was from Mandini, kitted out in the Zululand colours of crimson and black. Scores of Mandini residents turned out to help, among them members of the racing pigeon club whose birds carried news of runners' progress. The finish was at Mandini recreation club with its swimming pool and bar, and the mill management laid on soup and cool drinks.

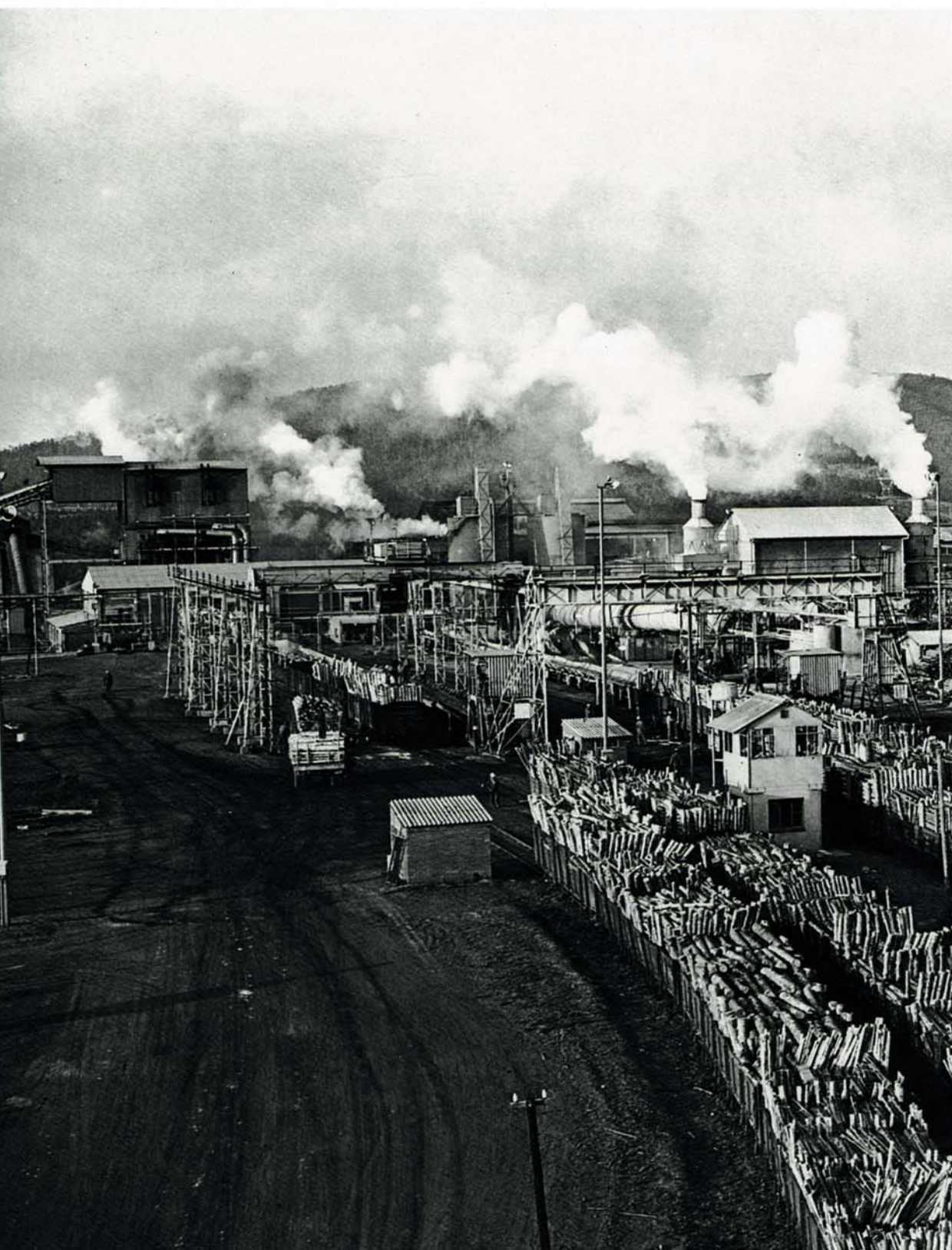
The Mandini runners decided to make the race an annual event and named it Ubejani, Zulu for 'rhino.' Within a few years it was regarded as one of the leading road races in Natal. Another Mandini inspiration attracted still more attention, this one an annual raft race down the Tugela River from Mandini to Oliver's Rocks near the mouth, a distance of 18 kilometres. In August 1967 six Mandini men had made an informal raft voyage to the mouth. Two months later they repeated the exercise with a second raft in attendance, and in February 1968 they organised a race and attracted 15 entries. At the finish, five rafts broke loose from their moorings, drifted out to sea and were eventually washed up on beaches to the north, sparking rumours that there had been a shipwreck.¹

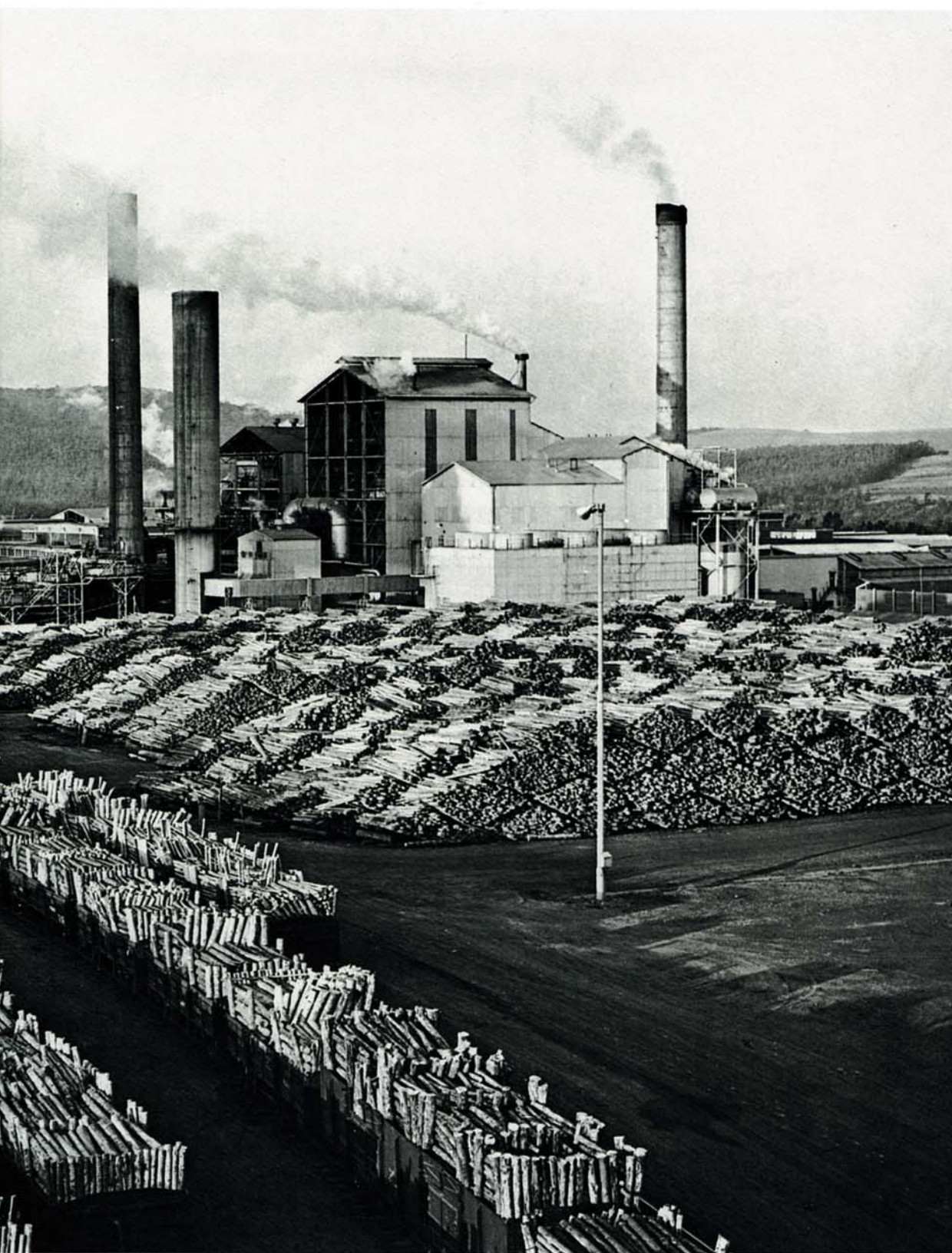
Racing rules were drawn up, and those taking part were asked to pay modest entry fees with the proceeds going to charity. The organiser was Bill Hemmings, a Tugela engineer who was well-known as the community's leading practical joker. Some of Hemmings's jokes were straightforward — a matter of presenting birthday cakes which turned out to consist of filtered pulp, or rigging up hoses in wash-rooms to spray those occupying the cubicles. Others were elaborate, as when Hemmings arranged bogus correspondence which appeared

Tugela in 1970: all through the year, a succession of trains keeps the mill supplied with logs (overleaf).

At the start: runners line up for the 33-km road race from Stanger to Mandini.

Men overboard during an early Mandini raft race.





so realistic that even when the victim was told he had been hoaxed, he refused to believe it.

One of the most ambitious practical jokes was played on a mill electrician who had an old broken-down car standing in the wood-yard under a railways tarpaulin. The railways were pressuring the mill to return surplus tarpaulins, so Hemmings obtained blank railways letterheads from the Mandini station master and wrote to Sappi complaining that the tarpaulin covering the car — he quoted the number — was long overdue, and demanding a total of R685 in back rental. Hemmings took his letter to the mill secretary and persuaded him to attach a hand-written note referring the matter to the chief engineer.

Next he went to the chief engineer, who wrote a second bogus letter asking where the tarpaulin was; then added a third letter from himself as section engineer, explaining about the car; then obtained a further letter from the chief engineer, addressed to the electrician and asking him to pay what was owing. Finally Hemmings presented the whole sheaf of letters to the electrician, who was devastated. He could never afford to pay so much money, he said, and would have to resign his job. Yet when Hemmings crumpled up the letters and threw them into a wastepaper basket and told him he could forget all about them, the man became still more upset.

Stories like these were told and retold in the bar at the recreation club, the favourite rendezvous for men coming off duty, and so were other tales that the mill community had generated. For instance, the parliamentary messenger who in 1965 had stabbed Hendrik Verwoerd to death on the floor of the House of Assembly in Cape Town had earlier worked at Mandini as a security guard and had been involved in a knife fight at the single quarters. Another story concerned a canoeist, Angus Pint, who had bumped into a crocodile in the Tugela River. Pint reported that he had never paddled so fast in his life.

Another topic of conservation was the 'North Coast Smell,' a distinctive odour noticed in the northern suburbs of Durban. There had been long-running correspondence about the smell in Durban newspapers, and many writers pointed fingers at Tugela, even though it was 100 kilometres to the north. That seemed unfair, as even Mandini residents hardly noticed the mill's odour. Sappi had reacted to the complaints by calling in the CSIR, the Council for Scientific and Industrial Research, and had acquired a gas chromatograph to study odour levels in the mill's gases. After studying the results, Sappi's management ordered a number of changes to lift gases higher in the atmosphere and improve combustion in the mill furnaces.

Even after the changes, Durban people continued to complain, so Sappi called in researchers from the University of Natal. In addition,



Papermakers and friends attached to Tugela's No 4 machine on receipt of a safety award: group includes Harry Gill (front row, left), Jerry Farrell (second from left), Johnny van Niekerk (fourth from left) and (back row, from right) Jack Mostert, Lynn Baker, Janet Roux, Alan Povall, Bill Hemmings, Bob Jones and Bill Bailey.

Ngodwana mill, the most important industrial site in the Transvaal Lowveld (overleaf).

the management asked the CSIR to carry out tests and find out whether the 'North Coast Smell' came from Tugela. The CSIR chartered aircraft and brought in a more sensitive chromatograph, able to identify particular smells which to the human nose seemed all the same. It was found that the odour came from at least seven separate sources and was caused by such activities as sewage disposal, sugar processing, oil refining and cutting up whales on Durban Bluff. Tugela was not blameless, but it was not the chief cause of the problem.

Word of the 'North Coast Smell' had reached the Eastern Transvaal at the time when Sappi was building Ngodwana, and to make sure it was not duplicated the company had built a 100-metre-tall smokestack which was the highest structure in the Lowveld. The stack was designed to channel the mill's gases into the upper atmos-





phere, avoiding the effects of an inversion layer which formed at certain times of the year and would have prevented the gases from dispersing. Solids in the effluent were recovered before they went up the stack, but the gases retained a slight smell of sulphur which sometimes wafted down the valley and brought sharp protests from as far away as Nelspruit.

Within Ngodwana village, the only time the smell was noticed was just before rain or when the west wind was blowing. That happened only rarely, and in any case residents soon became used to it. Already the Ngodwana community was developing a character of its own, with everyone knowing everyone, and the 120 families working hard to beautify their environment. Dances were held at the recreation club every second month, when bands were brought in from outside, and local farmers and their wives were welcome guests. The club was also used for farewell parties when men were transferred to other mills, and it became a tradition to snip off the ends of departing men's ties.

Beginning in 1968 the Transvaal provincial administration had

*Ngodwana's Old Man River, the 1890s locomotive
refurbished in honour of Waterval Boven's anniversary.*



begun tarring the road between Ngodwana and Nelspruit, and shopping trips were less of an adventure. Subsequently the road to Waterval Boven was tarred as well and trips to Johannesburg could be made much more quickly. Before, many people had made a wide detour by way of Schoemanskloof and Montrose Falls. Most Ngodwana children attended a nearby primary school attached to Elandshoek sawmill, several kilometres to the east, and were taken to and fro by bus. The nearest hospital was in Nelspruit but the mill had its own clinic, visited weekly by doctors from Waterval Boven.

During 1970 Waterval Boven — the community on top of the Escarpment, as opposed to Waterval Onder at the bottom — celebrated its 75th anniversary, and attention was focussed on the rail line between Johannesburg and the Mozambican coast which had been the reason for the town's foundation. By happy coincidence, Ngodwana possessed a steam locomotive named Old Man River, originally operated in the Eastern Transvaal in the 1890s and later sold to Geduld mine until acquired by Sappi in 1967. To honour the neighbouring community, Ngodwana engineers overhauled the locomotive and repainted it in its original livery, and it was used to haul a three-coach passenger train.

Geduld mine had closed down many years earlier, and in 1969 it had been announced that East Geduld was closing too. That posed problems for Sappi, as some 800 of Enstra's black workers were housed at an East Geduld hostel and in addition a number of Sappi apprentices were enrolled at the mine's training school. Sappi's management decided it was time the company had its own school, so established one at Enstra. Work was in progress in May 1969 when for the first time the annual general meeting was held at the mill. The meeting took place in a marquee, and subsequently the directors, mill management and about 100 shareholders lunched in a second marquee and toured the plant.

One of the highlights of the tour was an explanation of Sapoxal bleaching. The Swedish trials had been concluded only a few months earlier, yet already Kamy AB was building a commercial reactor for Enstra, the first of its kind in the world. The reactor reached Enstra later in 1969 and trial runs began in May 1970. The men in charge were Henry Myburgh and Ben Coetzee, who had joined Sappi as a very young man in 1938. There was disappointment when the first pulp came out pale yellow; but Myburgh and Coetzee took turns to work 12-hour shifts until they found the right parameters.

The reactor entered commercial production, and it was decided to reserve the system for softwood pulp, while hardwoods were bleached by the standard method. Within a short time, Enstra's effluent was reduced by 70 per cent and bleaching costs by ten per cent. That was impressive, but for many Sappi employees it could not

match an achievement celebrated nearly a year before. In June 1969 Sappi had produced its three millionth ton of paper. It was calculated that to have made so much, the company had pulped the equivalent of 15 430 000 trees.

Competition

TOMMY STRATTEN remained Sappi's chairman but in 1969 Whitmore Richards had retired as deputy chairman and had been replaced by John Henderson, who at the same time took on responsibility for all of Union Corporation's industrial activities. Moore O'Hara became managing director. Then at the end of 1970 Henderson was appointed chairman when Stratten stepped down so that he could devote more time to Union Corporation.² At this point Leonard Job let it be known that for the rest of his career — he was due to retire in 1972 — he wanted to concentrate on modernisation and development and wished to be known as technical director, as in earlier years.

Stratten, Richards, Henderson, O'Hara and Job all remained on Sappi's board and the directors' executive committee, but several non-executive directors had gone. Major Colin Frye had died in 1968; Dr H J van Eck of the Industrial Development Corporation had died in 1969; and hardly had Van Eck's successor, Dr G S J Kuschke, been appointed to the board in his place than he died too. Fritz Fuerst and P R Rörich of the Eastern Transvaal forest products companies had resigned; and among directors appointed to fill the gaps were two Sappi executives: Ron Day, a Cambridge graduate who had worked closely with Moore O'Hara for ten years and was tipped as his successor, and Bob Garden the commercial manager.

The company's results for 1970 had been disappointing and the board had reduced the dividend paid to shareholders from 12 cents per share to 11 cents. The international pulp and paper industry had entered one of its periodic slumps and producers in other countries were exporting surplus production at rock-bottom prices. In normal circumstances the South African government might have acted to protect the local paper industry from competition, but there was a severe inflation problem, and to avoid worsening it the government did nothing. The South African supply houses and packaging converters took advantage by importing a large proportion of their requirements at low prices.

Trusting that the position would soon improve, the board paid the normal interim dividend for 1971, even though revenue was static and production costs were rising. Making matters worse, there were awkward technical problems at Enstra and Tugela. Wherever possible the management trimmed overheads and expenses, but even so



Leonard Job (left) and Whitmore Richards.

results were disastrous. The profits for 1971 were only R676 000 compared with R3 876 000 in 1970 — a drop of 86,6 per cent, and not enough to cover the interim dividend. The final dividend was passed, leaving shareholders with a year's total of four cents per share compared with 11 cents the year before.

In the circumstances, the debut of a competitor might have been seen as the last straw. In the past Sappi's management had headed off potential rivals before they could gain a foothold. This time the rival was backed by the largest of the mining houses, the Anglo American Corporation of South Africa, in partnership with Bowaters of Britain. For years Anglo American had been thinking of becoming involved in the paper industry and at one point had come close to investing in the Tugela project. Then in 1966 the mining house unveiled plans to build a pulp mill in the Mondi valley near Creighton in the Natal Midlands, and with it a paper mill at Merebank on the Umlazi River, close to Durban's Louis Botha Airport.

A new company, Mondi Paper, was registered; but the government had objected to the Creighton pulp project on the grounds that it threatened the catchment areas of important water schemes. Anglo American fought the ruling but lost, so decided to proceed with the paper mill alone, intending to import bleached pulp for fine papers production and to make groundwood pulp on the spot for the production of newsprint. It was known that Sappi's newsprint capacity was already at full stretch and that the company was importing newsprint from Scandinavia to fulfil its obligations to the Newspaper Press Union.

Initially Sappi had made a small profit from the imports but then exchange rates had altered and the company was now losing. One



solution was to install extra newsprint capacity, but Union Corporation was not enthusiastic. At this point Mondi approached Sappi's management and offered to take over part of the burden. The offer was accepted, and Mondi was to serve as Sappi's subcontractor. When Tommy Stratten heard about the arrangement he was upset, pointing out that once Anglo American had a foot in the door Sappi could never sleep easy again; but by that time the arrangement was a *fait accompli*.

As a result of the deal with Mondi, Sappi's output of newsprint was reduced from 105 000 tons per year to 95 000 tons, while imports dropped away altogether. To utilise surplus capacity on the Tugela No 4 machine the company added a Clupak unit to produce more extensible sack kraft. On the face of it, Sappi had benefited from its association with Anglo American; but as if to confirm Tommy Stratten's warning, word reached Union Corporation that the rival mining house wanted to take over the Kalmansons' Crown Carlton tissue company, which competed with Kimberly-Clark of South Africa.

The Kalmansons wanted to dispose of their company because to keep pace with the expanding tissue market they needed to bring in a second tissue machine, and they were not sure it was worthwhile. John Henderson had a long-standing agreement with Geoffrey Kalmanson that if ever he and his father wanted to sell, they should give the Union Corporation camp first option. Kalmanson and Henderson worked on a deal until late in the night and it was agreed that Kimberly-Clark of South Africa and Carlton should be combined as a single operation trading as the Carlton Paper Corporation. The arrangement became effective in November 1972, and Sappi's interest amounted to 23,5 per cent of the equity capital.

The Carlton success was a gratifying windfall, but Sappi's executives could not forget the *débat* over 1971 dividends, the more so as to cover them they had been forced to dip into borrowings. Wendell C Walker, an American consultancy, was invited to investigate the company and suggest improvements. The consultants pointed out that Sappi still tended to 'sell what it could make' rather than the other way around, so recommended a sweeping reorganisation into three line divisions — marketing, production and timber, and three staff divisions — administrative services (including planning, personnel and accounting), manufacturing services (essentially the engineering side of the old technical department) and research and product assurance (the chemists).

John Henderson (left) and Tommy Stratten in Enstra's finishing house.

Sappi fine papers awaiting despatch.

The reorganisation took effect early in 1972 and gave Sappi's head office much tighter control over the rest of the company. The power of the technical department fell away, and Sappi was no longer a 'three-kaiser empire' ruled by John Henderson, Moore O'Hara and Leonard Job. In any case, Job was retiring, and his place as technical director was taken by Lon Wayburne. Moore O'Hara wanted to step down as well but agreed to stay on for another year, provided he was allowed to live in Natal where his wife was staying for health reasons. He planned to commute to Johannesburg for a few days each week. Already many of O'Hara's responsibilities had evolved on Ron Day, who was appointed assistant managing director.

Between 1969 and 1972 Sappi's board had been enlarged from 11 to 14 members, and of those five were Union Corporation nominees. The latest was Ted Pavitt, a mining engineer who had joined the corporation in 1946 and had just been appointed managing director. As the major shareholder, the mining house had been hard hit by the dividend problem of 1971, so Pavitt and the other Union Corporation men were happy to hear that Sappi's first-half profits for 1972 were 228 per cent up on the previous year's. The company was charging higher prices on its products and at the same time was containing its costs, and shareholders could look forward to a much brighter future.

In the Woods

STARTING IN 1959 Sappi had produced a series of calendars depicting wild flowers. Then in the mid-1960s the company had commissioned the artist Ernst de Jong to prepare a series of graphics depicting the history of paper, and the three calendars in which they were reproduced became collectors' items. As a tailpiece Sappi's management commissioned extra paintings from a second artist, A H Barrett. Then in 1968 Gordon Douglas was asked to take photographs. For the 1969 calendar Douglas concentrated on timber operations in the Eastern Transvaal and Natal Midlands.

The growth of Sappi's forest operations had been spectacular. Only 20 years had passed since the company began its first plantation, yet now it had 50 000 hectares under trees and new areas were planted every year. The trees' rapid growth meant that several plantations were ready for harvesting, and 20 per cent of the wood pulped at Sappi's mills came from within the company. At Ngodwana, the trees on Grootgeluk and Elandshoogte were growing well and wildlife was moving in. To discourage poaching Sappi's plantations were declared a nature conservation area.

The Sappi reorganisation of 1972 made little impact on the timber division as its infrastructure was already in place, with regional offices



Former sheep country being prepared for a new plantation.

in Sabie (for the Eastern Transvaal) and Pietermaritzburg (for the Natal Midlands and Zululand) and a head office in Benoni (having moved from Enstra in 1971). Its general manager was Tommy Stratzen's son Peter, who had first studied forestry at Oxford and had then worked in Rhodesia before joining Sappi in 1963. Peter Stratzen believed that it was no longer enough for Sappi's foresters merely to grow trees. Wood had to command the best possible price, so it made sense to reserve the best logs for outside sawmills or mining timber companies.

Roughly 3 500 men were employed by the timber division, most of them involved in harvesting or planting but a substantial number concerned with protecting the plantations against fire. Around the clock, lookouts manned a network of watch towers each 27 metres high and positioned at the best vantage points. The lookouts were in radio contact with one another and gave the alarm at the first sign of trouble. Firefighting crews and six four-wheel-drive fire engines could be called out at short notice. In addition, the division had 180 other vehicles, 60 of them fitted with radio, and many of them trucks used to transport the 750 000 tons of wood that the division harvested each year.

Sappi's plantations were transforming the landscape and were changing the company's image at the same time. Wood was a renewable resource, and Sappi crews were replanting areas in which trees had been harvested. Both at Tugela and at Ngodwana, liquid effluent was being used to irrigate kikuyu grass which in turn supported cattle, and from 1972 Enstra used both 'white' and 'black' effluent to irrigate lucerne. At Tugela, black liquor was providing extra revenue



in that a new plant converted 'soap skimmings' contained in the liquor into crude 'tall oil,' despatched to a Durban company for processing into additives for paint, adhesives, polishes and other products, including paper sizing which was sold back to Sappi.

The tall oil plant had been commissioned in 1971 and was the first in the country and the second in the southern hemisphere, preceded by a similar plant in New Zealand. Tugela's versatility was extended still further when Sappi's management decided to erect a new pulping plant, this time an NSSC (for neutral sulphite semi-chemical) technology based on an Australian patent and centred on a Kamyr continuous digester able to produce 270 tons of pulp per day — not unlike the one at Ngodwana. The point of semi-chemical as opposed to chemical pulping was that it dissolved less lignin and the resulting pulp retained more of the volume of the original wood chips so offered a higher yield.

The NSSC system had already been studied by Lon Wayburne, Manie van Niekerk, Tom Craig and others with the encouragement of APM of Australia, which was combining semi-chemical and chemical pulp to make fluting and other packaging papers. The Australians believed that NSSC pulping worked best with hardwoods and the South Africans decided to follow suit, leaving Tugela's existing kraft pulping system to concentrate on softwoods. The extra capacity would make Tugela independent of Ngodwana, meaning that the whole of Ngodwana's output could be channelled to Enstra.

As part of the NSSC project Lon Wayburne went to the United States to look at chemical recovery processes and came across a new idea, the Copeland fluid bed reactor invented by George Copeland of New York, who had set up a consultancy to market his idea. The Copeland reactor could have been said to work like a coffee percolator in reverse, in that it converted spent cooking liquor into dry pellets of sodium sulphate. Sappi invested in a standard Copeland reactor which was delivered to Tugela and assembled beside other elements of the system. The NSSC digester was commissioned in November 1972 and the complete circuit was in operation by February 1973.

Only two months after the NSSC start-up there was a crisis at Tugela when the entire black workforce went on strike for more pay. The strike lasted four days and whites and Indians did their best to keep the mill running, working long shifts and turning their hands to

Forest workers' accommodation in the Natal Midlands (overleaf).

Feeding time for mules used to haul logs to access roads.

Cross-cutting eucalyptus logs in the Eastern Transvaal.





whatever needed doing. In the village essential services were undertaken by women. At first the mill management resisted the strikers' demands, but following representations from the government of KwaZulu, as the Zulu homeland had been renamed, the company raised the level of minimum wages and the men returned to work.

As a result of the strike Tugela's management took steps to form a liaison committee on which blacks elected from all sections of the mill regularly met management to discuss problems and grievances. Similar committees were introduced at Adamas and Ngodwana. At Enstra, however, black workers preferred to set up a works committee on which management was not represented, so two-way communication was more difficult. White workers at the various mills were represented by trade unions which agreed that it should be a priority to train blacks and advance them to higher levels of skill and responsibility. Already a number of blacks were being trained as artisan aides.

The Tugela strike had been the first challenge facing a new managing director, Ron Day, who had succeeded Moore O'Hara in March 1973. The appointment was hailed as the start of a new era for Sappi, as of the 'old brigade' only John Henderson was left, and even he was no longer part of the management team. To mark the new start the directors decided on a change of name. Ever since its foundation the company had been registered as South African Pulp and Paper Industries, Limited, but in April 1973 it was officially transformed into 'Sappi Limited,' which had a much brighter ring.

The annual report issued in April 1973 showed that the company was profiting from a worldwide shortage of commodities caused by rapid rises in the price of oil and spiralling inflation that accompanied them. Sappi was well placed to take advantage, though Mandini residents at least were soon treated to a cautionary tale. In September 1973 demolition experts arrived to blow up the old Tugela railway bridge following the erection of a new one. A large crowd gathered on the riverbank and on the 'deck' of the pump station, but the bridge refused to die. The explosion merely raised the spans a little and most fell back to their original positions. In the end the steelwork had to be cut and removed by hand.

Ron Day (centre) chairs a company-wide liaison committee drawn from Enstra, Tugela, Ngodwana and Adamas.

The Tugela railway bridge in the course of demolition.



